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

San Juan Unified School District

Technology Review

October 12, 2016

Joel D. Montero
Chief Executive Officer

October 12, 2016

Kent Kern, Superintendent
San Juan Unified School District
3738 Walnut Avenue
Carmichael, CA 95608

Dear Superintendent Kern,

In October 2015, the San Juan Unified School District and the Fiscal Crisis and Management Assistance Team (FCMAT) entered into an agreement for a review of the district's technology services. Specifically, the agreement stated that FCMAT would perform the following:

1. Conduct a comprehensive analysis of the district's technology. Interview principals, department directors and classified staff to gather data on the software and hardware used. Review and analyze the district's technology master plan with an emphasis on integration with the Local Control Accountability Plan (LCAP).

2. Analyze the status of the following:

   a. Project management

   b. Infrastructure planning, deployment, and maintenance

   c. Network administration

   d. User account and password management

   e. Help desk system and ticketing process

   f. Website development and support, with an emphasis on content management and board policies, including social media policies

   g. Hardware installation and setup

   h. Software applications used at the district and school sites

   i. Technology in the classrooms

3. Review the job descriptions, skill level, and staffing of the technology department, including school site support.
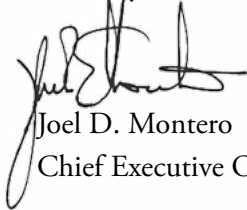
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4. Review the management of devices over their lifespan, including acquisition, disposal and inventory management.

5. Make staffing recommendations based on the support needed to meet the district's technology requirements.

6. Review the network design for safeguards against a catastrophic event or security breach of systems and data.

7. Perform a high-level review of network topology with emphasis on current and planned bandwidth and core networking equipment.

8. Review the processes or planning used to ensure that hardware and software are up to date.

This final report contains the study team's findings and recommendations. FCMAT appreciates the opportunity to serve the San Juan Unified School District, and extends thanks to all the staff for their assistance during fieldwork.

Sincerely,

Joel D. Montero
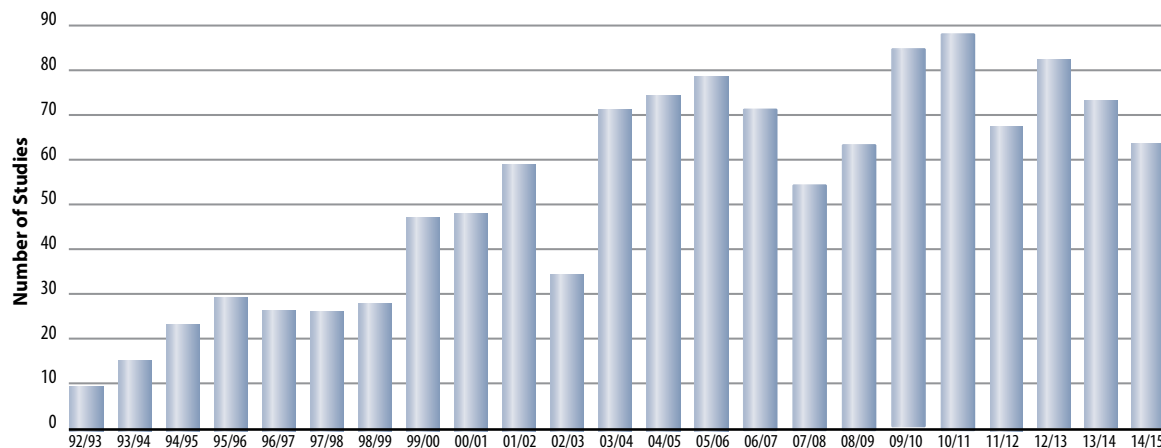Chief Executive Officer

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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, human resources 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, support the training and development of chief business officials and help to create efficient organizational operations. FCMAT's data management services are used to help local educational agencies (LEAs) meet state reporting responsibilities, improve data quality, and inform instructional program decisions.

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 LEA 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.

FCMAT has continued to make adjustments in the types of support provided based on the changing dynamics of K-14 LEAs and the implementation of major educational reforms.

Studies by Fiscal Year

FCMAT also develops and provides numerous publications, software tools, workshops and professional development opportunities to help LEAs operate more effectively and fulfill their fiscal oversight and data management responsibilities. The California School Information Services (CSIS) division 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 (AB) 1200 in 1992 to assist LEAs to meet and sustain their financial obligations. AB 107 in 1997 charged FCMAT with responsibility for CSIS and its statewide data management work. AB 1115 in 1999 codified CSIS' mission.

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

In January 2006, Senate Bill 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 more than 1,000 reviews for LEAs, including school districts, county offices of education, charter schools and community colleges. The Kern County Superintendent of Schools is the administrative agent for FCMAT. The team is led by Joel D. Montero, Chief Executive Officer, with funding derived through appropriations in the state budget and a modest fee schedule for charges to requesting agencies.

Introduction

Background

The San Juan Unified School District is located in Sacramento County and serves the communities of Citrus Heights, Carmichael, Orangevale, Fair Oaks, Arden-Arcade and parts of Rancho Cordova and Sacramento. The district has a growing and ethnically diverse student population of more than 39,000 at more than 70 sites including one alternative school, one continuation school, 41 elementary schools, nine high schools, and eight middle schools. In addition, the district oversees the operation of 10 charter schools.

Study Team

The study team was composed of the following members:

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Bakersfield, CA

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*As members of this study team, these consultants were not representing their respective employers but were working solely as independent contractors for FCMAT. Each team member reviewed the draft report to confirm its accuracy and to achieve consensus on the final recommendations.

Study and Report Guidelines

In October 2015 the San Juan Unified School District requested that FCMAT review its technology support services. FCMAT visited the district on December 8-11, 2015 to conduct interviews, collect data and review documents. This report is the result of those activities and is divided into the following sections:

- Executive Summary

- Technology Staffing Overview

- Technology Planning, Leadership and Vision

- Technology in the Classroom
- Professional Development
- Services
- Network Infrastructure and Data Center
- Disaster Recovery
- Security
- Technology Support Staffing and Organization
- Appendices

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

Executive Summary

K-12 education continues to change rapidly, including more integration of technology with the curriculum and learning. Districts are spending large amounts of human and financial resources to help improve student learning using technology. Technology use needs to be guided carefully using best practices and researched-based methods. In addition to a carefully developed technology plan, efforts to use technology effectively in the classroom must be led by a qualified certificated employee, often referred to as a director of educational technology.

Working with an astute technology professional such as a chief technology officer (CTO), a district can create plans to select products, train staff, implement software and hardware, and review effectiveness. The CTO can ensure that the technical resources are in place to support technologies and training plans through careful use of financial and human resources.

The state recently approved major changes to the K-12 curriculum with the addition of the Common Core State Standards (CCSS) and online Smarter Balanced Assessments, both of which will require considerable integration of technology into the curricula and classrooms.

Technology Support Staffing Overview

The district's technology support is provided by 57.4 full-time equivalent (FTE) positions in the Technology Services Department. All positions are full time except the intermediate clerk typist, which is 0.4 FTE. Nine positions were vacant at the time of FCMAT's fieldwork. The department is led by the senior director of technology services, who reports to the superintendent. The program manager application support and systems integration, the program manager student information systems, and a program manager network/telecom also provide leadership for the department.

Technology Planning, Leadership and Vision

The district's technology plan expired on June 30, 2015. The technology plan should act as a road map for implementing technology and should link technology efforts with the strategies outlined by the district in its strategic plan. The technology plan should have both short-term and long-term goals, and the whole plan should be evaluated continually to determine the status of each goal.

The technology department is lacking in leadership of technology initiatives and in clear project management techniques. The lack of these critical skills have led to poor communications, delays in implementing projects, and undefined scopes for projects.

Technology in the Classroom

The district recently ordered and distributed approximately 13,000 Chromebooks. However, a majority of teachers interviewed said that there was no training or clear vision for how they were to use the devices other than for required testing. User training is of the utmost importance when implementing new technology. Adding more computers to the classroom is unlikely to ensure success without professional development that focuses on integrating digital media and content into the curriculum. Apart from the district's purchase of Chromebooks, principals are responsible for overseeing their respective schools' student technology resources, yet the district lacks a districtwide plan or commitment to a standard of core classroom technologies.

To address this lack of standardization, coordinated planning, and delivery of educational technology services, the district should create a new position of director of educational technology, or equivalent position.

Services

The Technology Services Department has become fragmented in its organization because of a reorganization approximately seven years ago and a lack of ongoing and corrective measures. Multiple groups within the department provide services such as computer configuration and installation preparation rather than a single unified group doing so.

The district does not regularly perform a comprehensive inventory of its technology assets as required by Education Code 35168, and it has not yet adopted any policy regarding the use of social media, though both the district and several schools now have Twitter and Facebook accounts.

Network Infrastructure and Data Center

The district has no logical network diagrams of its technology infrastructure; this deficiency can lead to confusion when staff or vendors are troubleshooting or configuring components. There is widespread use of uninterruptable power supplies (UPS) to protect valuable equipment; however, the UPS devices are not monitored for problems or failures, and they are maintained by the Maintenance and Operations Department instead of the Technology Services Department. In addition, the backup generators the district depends on to provide power in an emergency are not correctly monitored or tested.

Disaster Recovery

The district uses a number of different backup solutions to back up data and critical server operating systems; this has hampered planning and carrying out a clear data recovery process to restore systems quickly.

The district lacks a comprehensive disaster recovery plan to protect all data and critical systems, and it does not perform manual data recovery and restoration tests to ensure critical systems and data can be retrieved quickly to protect operational continuity.

Security

There is no central group in the Technology Services Department to provide security oversight; instead, these responsibilities are scattered throughout the department. The district uses a Cisco 5580 adaptive security appliance (ASA) as a firewall; however, the manufacturer's end of sale date for this equipment was July 31, 2012, and support will end in 2017. In addition, this type of older firewall cannot provide the protection needed against many of the sophisticated cyber-attacks that are prevalent today.

Technology Support Staffing and Organization

To correct the Technology Services Department's fragmented and disorganized structure, a significant reorganization of the department is needed. Major components of the reorganization should include the following:

- Replacing the senior director of technology position with a chief technology officer position, or equivalent, that includes the skills needed to better lead the organization.

- Adding a director of educational technology, or equivalent, to provide dedicated support focused on training for and proper use of technology in the classroom.

- To improve communication and services, consolidate the three major groups in the department (applications support and systems integrations, student information systems, and network/telecommunications) into two restructured groups: application support and technical services.

- Reclassifying many positions so that they better match the duties and responsibilities being performed.

- Adding many positions to directly support technology use in the classrooms.

Findings and Recommendations

Technology Staffing Overview

Technology support is provided by 57.4 full-time equivalent (FTE) positions in the Technology Services Department. All positions are full time except the intermediate clerk typist, which is a 0.4 FTE. Nine positions were vacant at the time of FCMAT's fieldwork.

Leaders in the department are the senior director of technology services, the program manager application support and systems integration, the program manager student information systems, and the program manager network/telecom.

The senior director of technology services is the head of the department and reports to the superintendent. Staffing is discussed throughout this report and in detail in the Technology Support Staffing and Organization section.

Technology Planning, Leadership and Vision

Technology Plan

The district's technology plan expired on June 30, 2015. The original technology plan had several state-required benchmarks to qualify for E-Rate funding. The director of professional learning and curriculum innovation had no knowledge regarding evaluations to determine whether the benchmarks were met. The senior director of technology services also explained that the new focus was the strategic plan. However, the district's strategic plan contains no mention of technology.

A technology plan should act as a road map for successfully implementing technology and should link technology services and the strategies outlined in the district's strategic plan. It should include both short- and long-term goals, and the entire plan should be evaluated continually to determine the status of each goal. The district is missing an opportunity to evaluate the past five years of goal setting, which would help it make data-driven decisions about future technology and professional growth.

The principals FCMAT interviewed gave a range of responses when asked about their interaction with the Technology Services Department. Some stated that they only used it for help tickets, while others said that they used the teachers on special assignment (TOSAs) for professional development. To unify the district and its vision for educational technology, the senior director of technology services needs to meet with each principal at least once a year to discuss their school's current technology inventory, hardware replacement timeline, and professional development. Although the technology plan mentions monitoring and evaluating benchmarks with surveys, administrators said that they did not know of any districtwide survey. The department needs to create a districtwide survey or use a third-party survey service to do so, and administer the survey annually. The data from this type of survey can help the department identify products and services to meet teachers' professional development needs. The information from the surveys can also be evaluated in meetings of the senior director of technology services and each principal, and used to make technology purchasing decisions.

Because the technology plan was created more than five years ago, the Technology Services Department needs to begin creating a new plan by revisiting the essential elements of a plan, starting with the stakeholders. The technology plan refers to the district's strategic plan and identifies a wide variety of stakeholders - such as parents, students, classified and certificated staff, and leaders - as major contributors to the plan. These stakeholders contributed to the district's strategic plan; however, the technology plan was created with contributors only from the Technology Services Department, Assessment, Evaluation, and Planning (AEP) Department, and Adult Education Department.

The International Society of Technology in Education (ISTE) has identified 14 critical elements needed for technology planning (http://www.iste.org/standards/essential-conditions). The district would benefit from using these as a guide for developing its technology vision and creating a new technology plan. The ISTE also has a Lead & Transform diagnostic tool (http://www.iste.org/lead/lead-transform/diagnostic-tool) that will generate a report that can help guide technology planning.

Recommendations

The district should:

1. Update or replace the outdated technology plan with a new three-year vision and plan that expresses the district's commitment to using technology in the classroom to improve learning, and that includes a process for continually updating goals and strategies. Use tools such as the ISTE's Lead & Transform diagnostic tool to generate a report that will help guide technology planning.

2. Communicate with principals at least annually to discuss their technology replacement plans and professional goals for the year.

3. Create and administer a districtwide technology survey annually, or use a third-party service to do so. Ensure that the survey includes students, teachers and parents, and that the data is used to determine progress toward benchmarks in the technology plan as well as future professional development and training for teachers.

Leadership and Project Management

Throughout FCMAT's interviews, employees consistently cited a lack of vision, support, trust and communication, as well as an abandonment of past technology, when describing management practices in the Technology Services Department. Although some of these comments can be attributed to frustration with technology support taking months to resolve issues, others are justified.

Decision-making in the Technology Services Department has been fragmented or in some cases nonexistent. Decisions that should have been made at the executive level are being made at a team leader level or by midlevel technicians. Other decisions were made at the top with little input from department managers or technical specialists and thus with little consideration of the technical and support issues they would face. This lack of communication and project management has led to many frustrations within and outside of the department.

Some technology-related projects are carried out using good project management techniques while others have little or no project management. Almost any technology project undertaken

in a district of this size will need project management because of the amount of resources used and the number of sites involved. Simply allowing a project to evolve as things progress without active management is not a viable option.

Districts with successful technology projects use a formal project management platform or template so both large and small technology projects can be monitored to ensure success. For mid- to large-scale projects, a proof of concept step is included to help ensure that no technical issues will impede the project's success. This allows technical problems to be identified in advance of the project being fully implemented. When software or hardware is to be implemented across the entire district, an oversight committee is formed to vet the project's viability and its benefit to the district.

The district's Schoology learning management system is an example of a poorly implemented project: after almost two years of implementation and training, the best estimate from those involved in the project is that less than 20% of the teaching staff are using Schoology for its intended purpose. Few districts can afford such a low adoption rate for large districtwide projects such as this. When it invests significant human and financial resources in such a widescale implementation, a district should be prepared to explain fully the benefits of such a systems and that staff should use the resources provided to them.

The district also lacks a process for managing changes after a project has begun. Scope creep is a common problem in technology projects and can lead to cost overruns and missed deadlines. It is important that projects be completed in stages, with one stage being completed before another stage is added. Those involved need to sign off on completed stages and know the cost of future stages.

Recommendations

The district should:

1. Develop a formal project management template to be used for all technology-related projects.

2. Review the decision-making process in the Technology Services Department and change it as needed to ensure that critical decisions are made at the appropriate level.

3. Create a software oversight committee to vet districtwide technology before it is purchased and implemented.

Technology in the Classroom

During the 2014-15 school year there was a collaborative effort between the Technology Services and the Assessment, Evaluation, and Planning (AEP) departments to help ensure that enough devices were available for the Smarter Balanced Assessment Consortium (SBAC) testing and district assessments. This resulted in the governing board approving the purchase of Chromebook carts. Each school received 35 to 70 devices, depending on the school's size and its students' grade levels. An additional goal was to encourage teachers to use the technology not just for testing but also for instruction and to develop digital literacy to meet the Common Core State Standards (CCSS).

A total of approximately 13,000 Chromebooks were distributed and installed in 2014-15, with a goal of using the devices for digital literacy skills. However, all of the teachers FCMAT interviewed said that there was no training or clear vision for how they were to use the devices other than for Smarter Balanced testing. In situations like this, professional development for all involved is of the utmost importance. Adding more computers to classrooms is unlikely to ensure success without professional development that focuses on integrating digital media and content into the curriculum.

With the exception of the district's purchase of Chromebooks, principals are responsible for overseeing their respective schools' instructional technology resources, yet here is no districtwide commitment to a standard of core classroom technologies. Principals interviewed gave a variety of different responses when asked about the quantity and types of technology being used at their schools.

The wide variety of devices in use has disrupted services and teaching. Although some teachers still use aging electronic whiteboards (Promethean Board), others are using current Apple TVs, flat screen televisions, and iPads. One principal reported that the district was not supporting Apple TVs, but another indicated that it was. One teacher stated that she was the last teacher at her school using the Promethean boards because they weren't supported, but a technology services technician indicated that they can support them.

These discrepancies create disparities in access to a resource that the district's only existing technology plan states is integral to the curriculum. A lack of districtwide standards has resulted in a high number of different devices. This hampers support functions because only some of the technicians feel comfortable troubleshooting specific hardware. If left uncorrected, this type of reliance on a single technician for a specific type of device, combined with the lack of hardware standards, will continue to hinder and delay the support desk's ability to resolve hardware and software problems. The district's continuing investment in educational technology requires empirical, research-based evidence that these investments are improving students' education and transforming the classroom for the teacher. An understanding of how and why schools are using technology can be achieved using a research-based standardized survey that examines multiple facets of teachers' and students' technology use. It is a best practice to conduct such a survey annually to obtain statistical data for analysis. This type of specific, reliable data, can help the district make sound decisions regarding professional development and technology infrastructure, as well as gauge students' and teachers' attitudes about technology use in the classroom. The insights gained can be used to improve strategies annually. A third party that specializes in this type of research, such as BrightBytes or other similar services, can be used to help conduct the survey and analyze the data.

Recommendations

The district should:

1. Develop a plan that provides all students with equitable access to technology to meet the CCSS that explicitly require the use of technology and digital resources.

2. Collaboratively develop a vision and a detailed plan for how students will use technology and digital resources. Ensure that the detailed plan includes professional development for teachers, infrastructure requirements, professional development for technology staff, ongoing support, and a way to measure the plan's goals using a survey.

3. Standardize devices and a replacement plan for those devices.

Professional Development

Many teachers do not clearly understand how to use the Chromebooks effectively other than for SBAC testing. Although some are aware of Google Apps for Education, many have only learned about it from their peers or students; they have not been taught how to effectively use Google Apps with the Common Core State Standards (CCSS). The district-operated Digital Edge Learning Center has an out-of-date online training catalog that lists some technology classes scheduled between December 2012 and February 2013; the dates and times for remainder of the classes in the catalog are listed as "to be determined." Teachers were aware of technology trainings on the district's Schoology online learning management software and explained that the trainings focused on how to use the product but not how to incorporate it into teaching. In 2014-15, 90% of the trainings provided by the district's two teachers on special assignment (TOSAs) were on how to use Schoology.

Access to a given technology will not of itself help teachers establish desired learning outcomes or use the technology optimally to help improve teaching and learning. Teachers need to learn how to integrate technology with teaching. Understanding models such as Dr. Ruben Puentedura's Substitution Augmentation Modification Redefinition (SAMR) model or the Technological Pedagogical Content Knowledge (TPACK) framework can help teachers learn this.

Two TOSAs are not sufficient to meet the needs of the entire district for technology-related professional development: it is nearly impossible for two TOSAs to train staff at all 70 sites in one year. The district currently has no program to ensure educational technology representation at each school. One way many large districts ensure this type of representation at each school is by providing a stipend or adjunct duty hours to one teacher at each site and giving them the responsibilities specified in the International Society for Technology in Education's (ISTE's) coaching model for technology-related professional development. These teachers become educational technology liaisons, acting as the contact for instructional technology issues and participating in planning and facilitating professional development and effective use of technology at their respective schools. They have the advantage of being close by and readily available to any teachers who may be struggling with technology and can meet with them after school or during their preparation period to work on lessons. These teachers also act as a technology liaison and are a voice for their school when they engage with the Technology Services Department and report on their school's current technology. The impact of this additional role can improve communication and awareness between the Technology Services Department and the schools by focusing on teaching as much as technology.

In addition, support could be multiplied by doubling the size of the TOSA team to four. The two additional team members would include one individual with expertise in elementary schools and one with expertise in secondary schools. This follows the TPACK model of having a content expert training teachers in both technology and pedagogy. The elementary school TOSA could be consulted on and assigned to all trainings for elementary school staff; the secondary school TOSA could help with training for teachers of grades 7-12.

The lack of a unified districtwide vision for instructional technologies creates an environment in which only some students have access to digital learning resources. Teachers who are given the training to use these resources and apply them to the CCSS are either taught by one of the two TOSAs, or are learning on their own through websites or conferences. Although there are notable successes in this area, they are limited to a few teachers and school sites; there remains no districtwide goal or direction. The lack of a districtwide technology plan that provides clear,

realistic goals and comprehensive strategies for educational technology has left teachers feeling isolated and unsure of how to implement technology in their lessons.

If the district chooses to increase the number of TOSAs as suggested to train teachers, a best practice would be to place them in a new educational technology group within the Technology Services Department. In addition to this, the district would benefit from having a credentialed administrative position that can focus on instructional technology training and professional development for teachers. This person could report to the chief technology officer position proposed later in this report but should attend meetings of the educational services director and coordinators at which decisions are made about how teachers are implementing CCSS. The Technology Services Department would benefit from this position because it would serve as a liaison that links the department with, and gives it a voice in, the district's vision and processes for curriculum and instruction.

Recommendations

The district should:

1. Create the role of educational technology liaison at each school to link the school with the Technology Services Department. This role should help teachers fully integrate the use of technology devices into the curriculum, and should meet monthly with the proposed educational technology group to ensure that the district's vision is being implemented.

2. Create two additional TOSA positions to help provide training and professional development in educational technology: one for elementary school teachers and the other for secondary school teachers.

3. As recommended in the Technology Support Staffing and Organization section of this report, create a director of educational technology position, or equivalent, that reports to the chief technology officer. The primary purpose of this position should be to ensure that professional development is provided for teachers in the area of educational technology. This position should also work closely with the district's Division of Teaching and Learning to uphold the district's curricular vision whenever instructional technology is implemented and used.

Services

Computing Devices and Peripherals

The district has three main categories of computers: administrative, student, and teacher. Its approved standard devices include Windows PCs, Apple devices, and Chromebooks. Computer purchasing is limited to a set of standard devices in the 'Supported Technology Hardware' document on the district's intranet. If a nonstandard device is ordered, the requester is informed prior to purchase that it will not be supported.

The number of computers and number of computers per student and per teacher vary from school to school, but a majority of classrooms use Apple systems and a majority of administrators use Windows PCs. Each school received one or two carts of Chromebook computers in 2014-15, with approximately 35 devices per cart, for SBAC testing; Apple iPads were introduced approximately five years ago. The Chromebooks and iPads have become the main student computing devices: the district now has approximately 12,667 Chromebooks and approximately 6,500 iPads.

New teachers receive a new laptop when they are hired, and it stays with them if they are transferred within the district. The district supports a computer replacement plan that promises a new computer to every teacher every five years. The initial intent of the plan was to allow students to use teachers' old computers when they were replaced, but this practice is not consistently followed. All other classroom technology equipment, such as document cameras, iPads, printers, Apple TVs and projectors or large monitors, are funded by the school sites.

Computer Replacement Program

Most new computers are purchased under the computer replacement program, which is run mainly by two microcomputer specialist II staff members in the network/telecom group. These two employees are responsible for ordering and scheduling installation of the new equipment for teachers and staff and have significant experience in running the program.

Approximately one year ago, at the direction of the senior director of technology services, a new form and procedures were added to the computer replacement program. All teachers were required to fill out a form and have their principal sign it before any equipment would be ordered. This new form and procedure came about because of one miscommunication between a teacher and the computer replacement program staff out of hundreds of orders a year. The requirement for this new form, and an accompanying prohibition against ordering equipment as soon as a need is known, have contributed to a significant slowdown in obtaining equipment for teachers and staff. In addition, replacement program staff have been prohibited from emailing or contacting teachers and staff directly regarding what type of equipment they need; this has hindered the overall process.

Recommendation

The district should:

1. Allow the replacement program to function as it was before the new form and protocols were put in place. Allow advance ordering of equipment and verbal communication between staff and replacement program personnel.

Hardware Installation and Setup

The installation and setup of new and existing hardware is split among several groups in the Technology Services Department. The network/telecom group orders and installs new hardware for the computer replacement program. The configuration of computer system images, which is crucial to new installations, is split between two other groups in the department.

In interviews with staff outside the Technology Services Department, FCMAT heard repeatedly about the long time it took for equipment to be installed. Many of the devices ordered for the new teachers who started in the district at the beginning of the 2015-16 school year were just beginning to be installed as of December 2015.

During a school site visit FCMAT noticed a principal's Apple desktop that had a label with "Crashed" written on it. When FCMAT asked how long the desktop had been down, the reply was over a month. In another interview FCMAT was told of more than 200 iPads that had been in the warehouse since October 2015 and had yet to be deployed. The reason technology staff gave for this was a mobile device management problem. Many times FCMAT was told of month- or months-long delays in getting equipment installed.

Mobile Device Management

The district is using two mobile device management tools to manage the Apple devices: Casper Suite from JAMF, and AirWatch from VMware. The decision was made approximately two years ago to begin dropping support and use of the JAMF product and instead move to using AirWatch. The reason given for the move was that the district was trying to obtain a small support feature for some teachers; however, ultimately this feature did not work. Little consideration was given as to the technical difficulties that would be encountered when trying to remove Apple devices from the JAMF product and enroll them in AirWatch.

One example given in an interview was that it took 15 hours to move 20 iPads on one cart from JAMF to AirWatch. The fact that there are more than 9,000 devices to be moved and little to no functional advantage to doing so indicates that the mobile device management project was not vetted from a technical perspective to ensure a timely completion and success.

Test Accounts

Technology staff members do not have a test account to test desktop software installations such as QSS. This prevents these staff from testing the installation and users' access to the system, resulting in potential delays or repeated visits to the user's location to resolve the initial problem. Many districts provide their technicians with these accounts, which typically have extremely limited read-only access to data in the application.

Network Drives

Few teachers are aware of or know how to access their network drive for storage or backup of their files. This can cause a significant lack of access to files when a computer is down or is being replaced, and it leaves the technology liaison or microcomputer specialist with the responsibility of determining which files are needed and attempting to back them up.

System Imaging

The application support and systems integration group produces Windows computer images, and the network/telecom group produces Apple computer images. Using two different groups to create computer images reduces efficiencies and delays delivery of new systems. It would be more

efficient to ensure that all staff involved in creating images work closely with the staff responsible for computer installations. This is a key component of installation and configuration that can halt work if it suffers delays or inefficiencies.

The district manages Windows operating system imaging using Microsoft's System Center Configuration Manager (SCCM); however, technology staff reported that the imaging process cannot traverse subnets of the local area network, so staff must either bring the device to the shop or bring a flash drive to the site to load the software onto the system. The district has licenses for Microsoft's Windows Deployment Service for Windows imaging through its membership in the California Educational Technology Professionals Association (CETPA) and California Microsoft Strategic Alliance (CAMSA) agreement but is not currently using this service. Apple imaging is accomplished using DeployStudio and seems to be working well.

System imaging is vital to standardizing systems and maintenance procedures. Computers need to be imaged at time of purchase and again periodically to incorporate system updates or to resolve critical system failures. An organization of the district's size must be able to remotely image computers and maintain a set of images to meet administrative, teaching and student needs.

Recommendations

The district should:

1. Reevaluate the use of either AirWatch or JAMF mobile device management software for Apple devices. Select a single system based on overall cost and performance.

2. Set up a limited-access read-only test account in QSS and other key software products that are frequently installed so that technology staff can test installations.

3. Provide training for teachers on how to access and use network drives to store and back up files.

4. Create a single imaging/setup group within the network/telecom group to perform all computer imaging.

5. Compare and evaluate the use of Microsoft's SCCM and Microsoft's Windows Deployment Service for Windows imaging. Determine which system would be of greatest benefit to the district given cost and performance factors.

Help Desks

Support

The Technology Services Department's helpdesk/support desk system is composed of three separate helpdesks. One is located in the application support and systems integration group and is called the support desk; this helpdesk has the traditional call-in or walk-in helpdesk staff to help with a variety of problems, except those related to the student information system (SIS) or QSS. It is staffed with a microcomputer specialist I and four technology liaison II positions, two of which have been vacant for more than a year. This support desk is open from 7 a. m. to 5 p.m.

Another helpdesk is the SIS helpdesk. This helpdesk has six technology liaison II staff and does much more than the traditional helpdesk support. These SIS positions answer calls about the SIS, work on California Longitudinal Pupil Achievement Data System (CALPADS) anomalies, resolve grade book issues, load student photos, work on attendance reports, prepare the SIS for summer school classes, handle transcript requests on the old QSS Pertaine SIS system, and support California Special Education Management Information System (CASEMIS) issues. This group also handles a number of rollover processes for each new school year. The SIS helpdesk is open from 6 a.m. to 6 p. m. and later on some occasions (e.g., open house, open enrollment). Although this helpdesk generally handles more complex support issues than the first helpdesk group above, it cannot reset a user's Microsoft Active Directory login password, which forces users to contact the support desk in the application support and systems integration group resulting in unnecessary additional time to resolve this issue.

The district also has a QSS helpdesk, which is also in the application support and systems integration group. This is staffed by two senior programmer-analyst positions, which also provide most of the support for QSS programming as well as finance and payroll. One problem with this helpdesk's configuration is that anyone from the finance department can call at any time and expect to get immediate help with a QSS issue. Although users desire this level of support, and should be supported within a reasonable amount of time, it is not cost effective to have highly paid programmer-analyst positions providing it as a first level of support.

All district staff can go online or call in to open a helpdesk ticket with any helpdesk using the district's HEAT ticketing system. Once a ticket is opened, a status email is sent notifying the staff member of the disposition of their help request. To close a ticket, a technician must return to the central office and do so using the helpdesk software.

Recommendations

The district should:

1. Give SIS helpdesk staff the ability to reset passwords in Microsoft Active Directory.

2. Stop allowing staff to call programmers directly for immediate help with QSS issues; instead, assign an existing position in the support desk to receive these calls and relay messages to the programming staff.

Helpdesk Software

The district uses the HEAT helpdesk system from FrontRange Solutions. This software has not been updated in years, which has led to problems. For example, it does not provide information on how many helpdesk tickets are open, does not provide any analytics on calls received, and does not communicate ticket status to mobile devices for technicians in the field. The only way FCMAT was able to obtain an open ticket report was by having an SQL programmer run an SQL query on the database. This query showed that approximately 388 tickets were in open/ hold/waiting/in-progress status. Although this is not an unusually large number for such a large district, the difficulty of obtaining this information is unusual. An updated helpdesk software package is needed for reports and analysis of calls.

The HEAT system does not have a knowledgebase where staff can look up solutions to issues. A self-help lookup feature would greatly help all staff resolve small, easy-to-fix issues without calling helpdesk staff.

While visiting a school, FCMAT observed a clipboard sign-up list in the main office on which staff recorded technology problems. When FCMAT inquired about this, the answer given was that the clipboard was a stopgap measure so that both the technology liaison and microcomputer specialist would know what needed fixing. Having access to this information via mobile devices to communicate new tickets to these staff in real time would eliminate the need for such stopgap measures and give these staff complete information that allows them to resolve all issues at a school site in one visit. Without such access these staff often have to return to the same school the same day to fix another problem.

The district purchased a new helpdesk software system, SA Manage, in July 2015. There was little input from staff on the selection, and the new system had not been implemented at the time of FCMAT's fieldwork. Although SA Manage appears to be a worthwhile software package, the new version of HEAT is also viable and worth evaluating before a final decision is made.

Recommendations

The district should:

1. Include all parties, including users and technology staff who use the helpdesk software in a demonstration of the both the SA Manage and latest HEAT products. After feedback from all staff involved in the use of the ticketing system and a review by all technology management, select a system that is in the best interest of the Technology Services Department and the district.

2. Set up a knowledgebase in the helpdesk software to allow users to look up solutions to frequent problems.

3. Ensure that any helpdesk software implemented allows technology support staff to access support request information on mobile devices.

Technology Asset Management

The district has not conducted a physical inventory of technology assets in several years. All items ordered are entered into the QSS financial system when the purchase is initiated. The district receives all items at the district office warehouse, where items valued at more than $500 are tagged per Administrative Regulation (AR) 3440. However, the location and specifications of individual computer systems are not maintained in QSS.

The Technology Services Department has multiple inventory lists for each computer system type (Windows, Apple, and Chromebook). The department tracks technology assets using software reporting tools and/or physical logbooks; however, it was unable to produce a complete, current and accurate inventory of all technology assets.

Devices that have been entered into Microsoft's Active Directory are not removed from it even after they have been disposed of. Apple devices are maintained in a mobile device management system, but the district has changed from JAMF's product to AirWatch's product. An estimated 6,500 devices are managed with JAMF, and approximately 1,500 using AirWatch. The number of active PC devices reported ranges from 3,000 to 4,900.

As mentioned earlier, teachers are able to take their computer with them if they are transferred within the district. Many principals reported that they have never taken inventory of the computers at their school. Staff reported that devices deemed obsolete are collected and then disposed of after board approval.

An accurate inventory is critical for budget planning, for understanding the resources needed to administer the California Assessment of Student Progress and Performance (CAASPP), and for proper software licensing.

Education Code Section 35168 requires a district's governing board to establish and maintain an inventory of all equipment items with a current market value of more than $500. When state or federal funds have been used for a purchase, the district is required to include additional information in its inventory records, including the funding source, titleholder, and percent of federal participation (34 CFR 80.32 and 5 CCR 3946). In addition, at least once every two years, a physical inventory of equipment must be conducted and the results reconciled with the property records (34 CFR 80.32).

Recommendations

The district should:

1. Determine if any of its existing automated inventory systems can be configured to provide comprehensive and accurate asset reporting. If not, invest in an adequate automated inventory management system capable of creating an inventory of all hardware and software.

2. Conduct and maintain a complete inventory of all qualifying devices as required by Education Code Section 35168, 34 CFR 80.32 and 5 CCR 3946.

Websites and Social Media

The district maintains multiple websites and information portals. The official public site is hosted by Schoolwires and managed by the district's Communications Department. The district has also contracted with Schoology to serve as its learning management system.

These systems have different purposes, and teacher-related content on them can sometimes overlap. Teachers are issued websites on request and can choose to use Schoolwires, Schoology, or both, to create a website, but are not compelled to use either. The Technology Services Department has also set up a locally-managed web portal from Stoneware for students, staff and parents who wish to access various web-based systems. The success of this initiative is unknown, but its intent is to bring together all websites and resources using an integrated single sign-on for both students and staff. The senior director of technology services devoted most of the training for TOSAs to the implementation of Schoology; teachers interviewed were not aware of any training regarding the Schoolwires websites.

The district has also developed multiple in-house web-based systems to facilitate school operations. Some of these are accessible only internally, including the following:

- Absence tracking for staff - Monthly consolidated absence reporting.

- Employee records updating – For direct deposit, maintaining addresses, and other information.

- Open enrollment project - Student open enrollment projection and accounting.

The open enrollment project has been a work in progress for three years and seeks to optimize and balance the requests for open enrollment to any school in the district. The project has grown

considerably over time and does not seem to have a defined scope or any up-to-date documentation.

The district and several schools have Twitter and Facebook accounts. Many districts statewide use social media accounts to improve their community outreach. Teachers also use social media for academic communication with students. However, the district has not yet adopted any policy regarding the use of social media. The California School Boards Association's online policy service, Gamut, includes sample Board Policy 1114, District-Sponsored Social Media, which outlines policy and practice for managing social media use by staff and students.

Recommendations

The district should:

1. Offer Schoolwires website training periodically to teachers and staff who have web publishing duties.

2. Define the scope and final outcomes of the open enrollment project. Although the district will need to continue amending this to meet state mandates, it should define the functionality and project scope and conduct a cost-benefit analysis.

3. Document all custom-built website applications.

4. Adopt Board Policy 1114 and the corresponding administrative regulation regarding social media and student privacy.

Network Infrastructure and Data Center

Network Diagrams

The technology services staff were unable to produce detailed logical network diagrams. The lack of these diagrams can result in confusion when staff are troubleshooting network problems or can cause errors when configuring networking components.

Successful technology operations create detailed network diagrams, keep them updated, and store them on a shared drive that multiple staff members can access.

Recommendation

The district should:

1. Create detailed network diagrams to help staff monitor, troubleshoot and maintain the district's complex networks.

Uninterruptable Power Supplies

The district uses electronic uninterruptable power supplies (UPSs) to provide battery backup and protect critical network equipment and servers. Each school has a main distribution frame (MDF) location with a dedicated UPS device protecting the network equipment and servers.

If a UPS device is not serviced and electronically monitored, it can fail unexpectedly and a school can lose connectivity to the district. At San Juan High School FCMAT found a UPS that was completely disconnected and powered off, leaving the core router without protection.

None of the UPS devices at the schools are monitored. The district's Technology Services Department has not been given the responsibility of maintaining or monitoring the UPS equipment; these duties are assigned to the Maintenance and Operations Department. The UPS systems are critical to the district's network and telecommunications, and it is a best practice to make them the responsibility of the technology department.

Recommendations

The district should:

1. Make all UPSs at all schools the responsibility of the Technology Services Department.

2. Implement a monitoring system for all UPS devices and a recovery plan for when one fails.

Data Center

Backup Power

The district has a data center that houses all its central servers, and network and telecommunications equipment. The data center provides all network and telecommunication services for all schools and district offices. The district has a fiber-optic network that gives each school a dedicated 1-gigabyte (GB) connection. The district's Internet service provider (ISP) is the Sacramento County Office of Education, which provides a 10GB connection. All schools and offices depend

on the ISP connection for Internet access. The district also has a second data room that contains the district Avaya private branch exchange (PBX) telephone system.

The data center and the telephone data room are each connected to their own natural gas generator that provides power in case of an outage. The district uses Onan Quietsite II natural gas generators. The district does not manually test the natural gas generators to ensure that backup power will function during a power outage. Although the generators perform an automated test weekly, the logs of these tests are not checked regularly to see if the generators are functioning properly. The generator that protects the districtwide PBX system failed during the last power outage on November 13, 2015 and the district lost telephone connectivity for an extended time.

It is a best practice for technology departments to perform regularly scheduled manual tests of any backup power generators as part of its data center operating procedures to ensure that backup power will be available in case of an outage.

Recommendation

The district should:

1. Set up and implement a maintenance schedule that includes monthly inspections and manual testing to ensure that both generators operate at their designed power load.

Access Control and Monitoring

The data center has a card swipe access control system, but the Technology Services Department does not check the access control system logs or monitor who accesses the data center. The district lacks a closed-circuit video surveillance system to record who enters or leaves the data center.

It is standard practice to have a means of logging technology staff and outside service personnel as they enter and leave a data center. More information on proper data center physical security can be found at the SANS Institute website at https://www.sans.org/reading-room/whitepapers/awareness/data-center-physical-security-checklist-416.

The district has no central monitoring, alert, or performance tracking of the overall data network, nor are there high temperature alarms or other environmental monitoring of the data center.

A system of network monitoring that provides historical data on infrastructure and server components would allow the Technology Services Department to be more proactive in resolving network and server issues, give it the ability to better plan for hardware upgrades, and allow it to configure alerts based on certain criteria. This system would also increase staff efficiency by providing automated server, infrastructure and environmental monitoring.

The same is true of data center environmental monitoring, which would alert staff of problems based on certain environmental criteria, such as high temperature, thus preventing sustained high temperature and other environmental conditions that can lead to unplanned system shutdowns.

Recommendations

The district should:

1. Install a closed-circuit video surveillance system to monitor the data center. Regularly check the access control system logs and video surveillance videos to monitor who is accessing the data center.

2. Implement a reliable network monitoring system.

3. Install a system for environmental monitoring of the data center.

Telephone Systems

The district uses Avaya for its districtwide telephone system. Eight different generations of Avaya products make up the telephone system. Some of the PBX units are 22 years old, including the district office system. The manufacturer has identified these systems as past their end of life and they are no longer supported. Many districts have successfully replaced their older telephone systems with newer, more flexible voice over Internet protocol (VoIP) systems.

The district has one telecommunications system technician to manage and support its telephone system. No other staff member in the Technology Services Department is cross trained to provide backup in case the technician is not available. Because the telephone system is critical to safety and business continuity, identifying qualified backup support is vital.

Recommendations

The district should:

1. Select a qualified vendor with knowledge of Avaya products to support the telephone system in case the telecommunications system technician is unavailable.

2. Evaluate newer VoIP phone systems to replace the Avaya phone system.

3. Cross train staff so that multiple technicians have the ability and knowledge to support the telephone system.

Disaster Recovery

General Backup and Recovery

Backup Methods

The district uses multiple different backup solutions to back up data and critical server operating systems. Although the district has recently invested in the Nimble storage backup product and uses VMWare to back up servers, it still uses an older EMC and Data Domain storage area network (SAN) devices as physical media on which to store data. The district also uses Commvault and Symantec software to back up data.

The district continues to have intermittent problems with Commvault backing up the Microsoft Exchange email server, so it relies on the older Symantec backup systems and Data Domain storage to back up all district email.

The district's dependence on several different storage and backup software and hardware systems has complicated planning and carrying out data recovery.

Data Recovery

The district does not have a comprehensive disaster recovery plan to protect all data and critical systems and does not perform manual data recovery and restore tests to ensure that critical systems and data can be retrieved in a timely manner to protect operational continuity in an emergency.

The district is setting up an off-site backup recovery site at San Juan High School; this is a work in progress and not all data and systems requirements have been completed. This site is within the district's geographic boundaries, which could pose a serious problem in case of a natural disaster such as earthquake, flood, or fire. The off-site location also relies on the same electrical power grid that serves the district office and the data center.

The following are some best practices for a disaster recovery site:

- Have a secondary data center in a safe location outside the geographic area of the potential disaster. How far away this is depends entirely on which natural disasters are likely to occur in the geographic region.

- Make sure that the disaster recovery site and the data center are on different power grids so that if one power grid fails in a disaster, the disaster recovery site is protected on the second power grid.

- Regularly test all disaster recovery components at a full load to ensure that everything is working properly; make a schedule for these regular tests.

Additional information on disaster recovery centers and best practices can be found at http://searchdisasterrecovery.techtarget.com/Data-center-disaster-recovery-plan-template-and-guide.

Recommendations

The district should:

1. Consolidate backup systems, remove older data recovery software and hardware, and develop a data recovery plan that ensures business continuity.

2. Identify an off-site disaster recovery location that is outside the district's geographic boundaries and that has no probability of being affected by a disaster that affects the organization's primary site. The district should evaluate cloud-based disaster recovery services that offer multiple locations with high-speed connections to achieve a dedicated, geographically redundant cloud-based disaster recovery option that provides data protection and 100% guaranteed uptime.

3. Schedule and conduct regular manual tests on all components of the disaster recovery center to ensure business continuity in case of a disaster.

QSS Backup and Recovery

The district is financially independent and uses the QSS integrated financial system for payroll, finance, accounts payable, and other critical accounting functions. QSS depends on Hewlett Packard HP3000 mainframe computers, which are no longer supported by HP.

The district backs up the QSS financial system on tapes and contracts with an outside professional service called Recall to store the tapes off site. The district does not have an off-site disaster recovery plan for QSS. An off-site recovery site would need to have printers and an HP3000 system with sufficient capacity to restore all financial data and process payroll and other critical systems in case of an emergency.

Recommendation

The district should:

1. Select an off-site disaster recovery service to help restore all critical QSS services in case of a disaster. Companies similar to Ideal Computer Services and the QSS user group provide off-site disaster recovery.

Security

Inventory of Devices on the Network

The district does not have an inventory of authorized and unauthorized devices that access the network. The Technology Services Department was unable to produce a complete, current and accurate inventory of all technology devices. Some devices are tracked in Active Directory but are not removed from it after being disposed of. The department does not have a process for removing these devices from the domain. Apple computers and iPads are managed in different mobile device management systems that do not provide a comprehensive list of which devices are accessing the network. Because the district lacks a centralized device management system that monitors and manages these devices, many systems are out of sync, without the latest patches, security updates and antivirus software.

Potential attackers are quick to take advantage of systems, especially mobile devices, that are not kept up to date with patches and security updates but that have access to an organization's network. Even devices that are not visible from the Internet can be used by attackers who have already gained internal access and are looking for internal jump points or vulnerable systems.

Additional information on effective cyber defense can be found at https://www.sans.org/critical-security-controls.

Recommendations

The district should:

1. Implement and maintain an inventory of all computers and mobile devices to actively manage (inventory, track and correct) all hardware devices on the network so that it can give access only to authorized devices and so that it can identify and deny network access to unauthorized and unmanaged devices.

2. Implement an inventory of all systems connected to the network. Ensure that the inventory includes every system that has an Internet protocol (IP) address on the network, including but not limited to desktops, laptops, servers, mobile devices network equipment (e.g., routers, switches, firewalls), printers, storage area networks, and VoIP telephones.

3. Create a procedure for removing devices from Microsoft Active Directory when they are dispositioned or removed from the district network.

System Updates and Antivirus

The district has numerous machines running outdated operating systems, and many systems without antivirus protection. The Technology Services Department does not have an automated inventory system to identify what software is outdated and which systems need patches installed.

The Technology Services Department uses Microsoft Endpoint antivirus to protect computers from viruses and malware. According to the department, there are more than 16,400 Windows computers in Active Directory; however, only 2,911 Windows computers are protected by Endpoint. None of the district's Apple computers have antivirus software or protection from malware. Approximately 1,300 devices still run the Microsoft Windows XP operating system, which is vulnerable to attacks and is no longer supported by Microsoft.

Attackers continuously scan target organizations looking for vulnerable versions of software that can be exploited remotely. These unmanaged devices are more likely to be running software that is not needed for business or educational purposes and that has security flaws. These systems could be running malware introduced by an attacker after a system is compromised.

Recommendations

The district should:

1. Implement a comprehensive device management and patching system that monitors software updates. The system should be automated and should apply software patches regularly.

2. Update Endpoint to ensure that it manages all computers and devices and protects them from viruses and malware. The antivirus protection should be automated and should update systems as needed to keep them protected.

3. Develop and implement a plan to replace all Windows XP operating systems as soon as possible.

Custom Web-based Programming

The district creates many different custom web-based applications using Linux Apache, MySQL and PHP (LAMP). PHP stands for Hypertext Preprocessor and is a server-side scripting language designed for web development but also used as a general-purpose programming language. Because PHP can have numerous security flaws if not programmed correctly, it is common to see PHP applications that lack security. When programming PHP, programmers need to be aware of all of its security hazards. Several of the district's custom web-based applications contain sensitive information exported from the QSS financial system and can be accessed through the Internet.

The district has no procedures for determining whether an application or its code is secure or if sensitive information may be leaked, nor has it tested any of its custom applications for security.

Information on security related to PHP programing can be found at https://www.owasp.org/index.php/PHP_Security_Cheat_Sheet.

Information on security tools to analyze web-based systems can be found at http://sectools.org/tag/web-scanners.

Recommendation

The district should:

1. Implement a web vulnerability scanning system to test and secure custom web applications. These scans should be automated, and the Technology Services Department should be alerted immediately when a vulnerability is discovered.

Internet Firewall Security

The district uses a Cisco 5580 adaptive security appliance as a firewall. Cisco announced on February 11, 2011 that end-of-sale date for the Cisco ASA 5580 would be July 31, 2012. The last date for support for active service contracts is July 31, 2017.

This firewall is one of an older generation of firewalls that cannot provide the protection needed against many sophisticated cyber-attacks.

It has become crucial for districts to have an up-to-date firewall that can detect and block sophisticated attacks by enforcing security policies at the application level as well as the port and protocol level.

Recommendation

The district should:

1. Install and use an up-to-date firewall that can enforce security policies at the application level and the port and protocol level.

Security Oversight

The district lacks consistency in the processes and procedures used for important security functions. Different groups in the Technology Services Department oversee various levels of system security but do not communicate regularly with each other on security topics.

The district uses Microsoft's Active Directory as the primary authentication method for users to log on to the network and access resources such as files and the Internet. The domain controllers also provide critical network services such as DHCP and Domain Name Services (DNS).

The application support and systems integrations team oversees the domain controllers, and the network/telecommunication team oversees all other network functionality and security including web filtering, firewalls, intrusion detection, access control and data center security.

It is best practice to place responsibility for monitoring and management of all cyber security systems with one unified team.

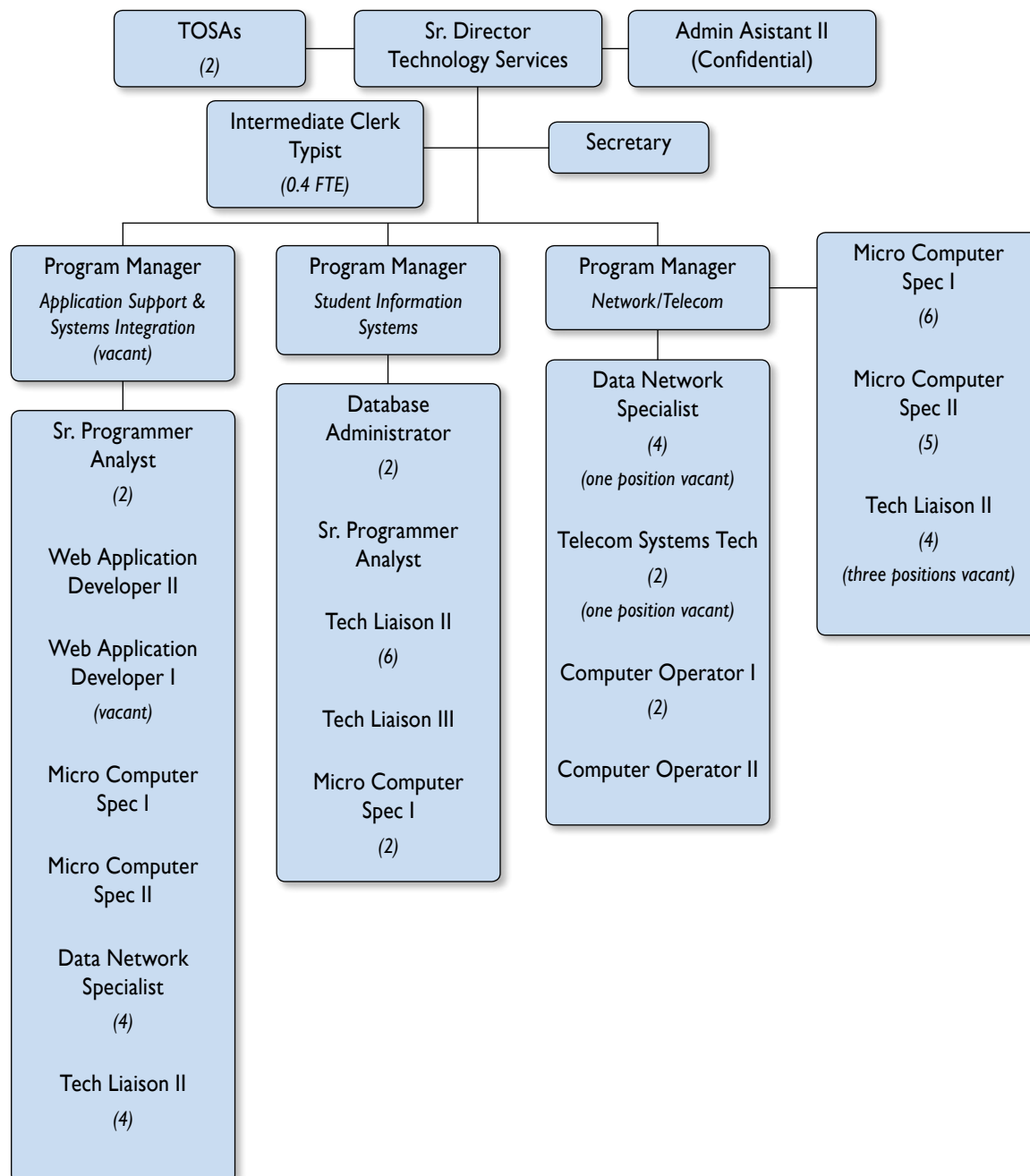## Recommendation

The district should:

1. Combine all cyber security functions and duties under the network/telecommunication team.

Technology Support Staffing and Organization

Technology support is provided by 57.4 full-time equivalent (FTE) positions in the Technology Services Department. All positions are full time except for the intermediate clerk typist, which is 0.4 FTE. Nine positions were vacant at the time of FCMAT's fieldwork.

Leadership of the department is provided by the senior director of technology services, the program manager application support and systems integration, the program manager student information systems, and the program manager network/telecom.

The senior director of technology services is the department leader and reports to the superintendent. The department is organized as shown in the following organizational chart.

TOSAs
(2)

Sr. Director
Technology Services

Admin Asistant II
(Confidential)

Intermediate Clerk
Typist
(0.4 FTE)

Secretary

Program Manager
*Application Support &
Systems Integration*
(vacant)

Sr. Programmer
Analyst
(2)

Web Application
Developer II

Web Application
Developer I
(vacant)

Micro Computer
Spec I

Micro Computer
Spec II

Data Network
Specialist
(4)

Tech Liaison II
(4)

Program Manager
*Student Information
Systems*

Database
Administrator
(2)

Sr. Programmer
Analyst

Tech Liaison II
(6)

Tech Liaison III

Micro Computer
Spec I
(2)

Program Manager
Network/Telecom

Data Network
Specialist
(4)
(one position vacant)

Telecom Systems Tech
(2)
(one position vacant)

Computer Operator I
(2)

Computer Operator II

Micro Computer
Spec I
(6)

Micro Computer
Spec II
(5)

Tech Liaison II
(4)
(three positions vacant)

The following information, analyses and recommendations for current and proposed positions are designed to help the district optimize its technology support.

Leadership and Administrative Support

Senior Director, Technology Services

FCMAT was provided with a job description for the director of technology position that was last revised in 2010. The assistant superintendent of human resources stated that a job description for the senior director of technology services has been developed but has not been approved by the district's governing board.

The job description for senior director of technology services states that the position is responsible for the districtwide vision, implementation and administration of the district's technology service functions; increases effectiveness and reduces costs; serves as the systems manager; and provides highly responsible leadership and technical administrative support in technological services. This position is responsible for 56.4 FTE positions, including three program managers. This significant responsibility requires a department director with both technical and senior management skills.

The qualifications listed on the current job description for the director of technology include any combination of training, education and experience equivalent to graduation from a four-year accredited college with a bachelor's degree in computer science, business or public administration or other acceptable field; increasingly responsible supervisory or managerial experience in the development and maintenance of computers and network systems, and computer and technology repair and service; systems programming, user training, budgeting and management of contracts and contractors.

The required knowledge and skills include knowledge of the principles and methods of systems analysis, computer programming and scheduling; principles and methods of information processing, storage retrieval and networking.

Required abilities include the ability to plan, coordinate and direct the work of subordinates; initiate, conceptualize, formulate, analyze and prepare new programs and systems; and assist in the development and installation of effective techniques for improving data processing design.

A 2013 article in *Educational Leadership* titled, "Power Up! / The Changing Role of the Technology Director," discusses the job description for a chief technology officer. The article states that the core competencies required of a technology leader are changing from:

- Configuring networks and local servers to mediating contracts for cloud-based and contracted services.
- Supervising technicians to evaluating outsourced work and setting up effective help-desk processes.
- Writing technology plans to working interdepartmentally with curriculum, staff-development, public relations, assessment, and strategic-planning leaders.
- Providing technology devices to staff and students to providing access to school network resources accessible with personal devices.
- Writing policies that dictate behaviors and ban activities to writing guidelines and curricula that encourage safe and responsible use.
- Knowing about the how to understanding the why of a new technology in education.

- Preserving the status quo to implementing new technology applications and best practices.

Many medium-sized to large school districts in California have a chief technology officer (CTO) as the executive leadership position overseeing technology. To ensure the proper use of technology throughout the organizations, the vast majority of these positions report directly to the superintendent and serve on the superintendent's cabinet.

Recommendations

The district should:

1. Eliminate the senior director of technology services position.

2. Create a new position of chief technology officer (CTO). Ensure that the job description for this position includes high standards for qualifications, particularly in education, training, managerial experience, knowledge and abilities. Sample job descriptions for CTO positions are included in Appendix A.

3. Ensure that the CTO position reports directly to the superintendent and is a member of the superintendent's cabinet.

Administrative Assistant II – Confidential

There is one administrative assistant II position in the Technology Services Department.

The job description for this position states that the six classifications of administrative assistant positions require employees to perform a wide variety of difficult and responsible secretarial and administrative tasks. The classifications are distinguished by the degree of initiative, decision-making, direction received, breadth of responsibility of the administrative unit, and the level of administrator to whom the assistant is assigned.

The positions are considered confidential when these employees, in the course of duties, have access to or possess information related to employer-employee relations or negotiations. This is consistent with Government Code 3540.1. The job description for the administrative assistant II position was last updated in 2009.

During FCMAT's fieldwork, the employee in this position stated that she coordinates the director's work and ensures that requests made of the department are routed appropriately. She stated she does not develop reports or records related to employer-employee relations or negotiations. The employee explained that she is one of the representatives of the confidential group of employees who meet monthly with the senior director of labor relations.

The employee's task list provided to FCMAT includes the following daily activities: coordinating the senior director's meetings and calendars; coordinating and managing events in the conference rooms; managing the auto door lock system; posting documents to Schoology; coordinating and managing the program managers' calendars; providing office support for teachers on special assignment; serving as office manager for the technology services office staff; managing calls and emails from vendors; and authorizing budget and expenditure transfers.

Recommendation

The district should:

1. If the district creates a CTO position, upgrade the administrative assistant II position to administrative assistant III in keeping with the increased level of initiative and independent decision making that will be required.

Secretary

There is one secretary position in the Technology Services Department.

The job description for this position states that the position performs responsible and varied secretarial and clerical work. Examples of duties include the following: take and transcribe dictation; type a variety of materials; compile reports; and maintain controls for budget accounts, logging purchase orders, mileage claims, and other expenditures. The job description was last revised in 1996.

During FCMAT's fieldwork, the employee in this position stated that they maintain control of the department's budget accounts: they receive all invoices, purchase requisitions, budget transfers, and expenditures. The employee's task list indicated the following daily activities: audit all invoices for accuracy and manage software purchases for school sites. They listed the following as monthly activities: producing budget reports; reconciling credit card statements; maintain E-Rate and teleconnect binders; E-Rate and teleconnect expenditure transfers on phone invoices; audit phone invoices; and cell phone expenditure transfers.

The employee's activities align with the job description.

Intermediate Clerk Typist

There is one intermediate clerk typist position in the Technology Services Department. It is a 0.4 FTE position. The job description for this position states that this classification of position performs a wide variety of moderately difficult and complex clerical tasks. It states that this position is to do the following: perform a variety of clerical and typing work involving specific routines; and type documents. The job description was last revised in 1987.

During FCMAT's fieldwork, the employee in this position stated that they clean and set up the department's three conference rooms; purchase items for department meetings; monitor department employee attendance; help with purchase orders; scan documents; input information into spreadsheets; and answer phone calls.

The task list submitted by the employee in this position indicates the following daily tasks: two hours spent managing the department's attendance; and one hour spent cleaning and setting up the conference rooms. The remaining tasks, such as ordering supplies, verifying that invoices have been paid, and managing overtime cards, are done upon request or monthly.

The work of the intermediate clerk typist could easily be divided between the secretary and administrative assistant II positions.

Recommendation

The district should:

1. Eliminate the intermediate clerk typist position.

Educational Technology

Teachers on Special Assignment as Technology Integration Specialists

The district has two teachers (one elementary and one secondary) on special assignment (TOSAs) as technology integration specialists.

The district does not have a job description for the TOSAs working as technology integration specialists; however, these employees provided a task list for their position that included the following: plan, prepare, and implement technology training and workshops for staff; prepare video tutorials and written documentation on the use of and best practices for district technology resources; facilitate the implementation of new technology; be a voice for teachers in communicating with department managers; and give input on decisions regarding programs, policies, and procedures.

These employees stated that they are responsible for training teachers on programs such as Schoology, distance learning, and blended learning. They would like to develop a matrix of how technology fits into the Common Core State Standards. Last school year they spent a considerable amount of time changing student passwords, and this school year they will be responsible for changing the teacher passwords.

Although these employees do not keep specific data on the impact of their work, they believe approximately 20% to 25% of teachers are using Schoology.

Recommendations

The district should:

1. As recommended elsewhere in this report, increase the number of teachers on special assignment from two to four to increase all teachers' knowledge and use of appropriate instructional technology. One of the new TOSAs should be an elementary school teacher and the other a secondary school teacher.

2. Use data and metrics to measure the impact of the TOSAs' work.

Director of Educational Technology (New Position)

The Professional Development section of this report contains a recommendation to create a new position of director of educational technology.

In addition to the duties and responsibilities listed in the recommendation and in the sample job description in Appendix A, it would benefit the district to make this position responsible for supervision of TOSAs in the Technology Services Department and collaboration with the director of professional development.

The experience required for the position will need to be similar to that required for other department directors, and the position should require an administrative credential because this is required for any position that supervises certificated personnel.

Recommendations

The district should:

1. As recommended in the Professional Development section of this report, create a director of educational technology position, or equivalent, that

reports to the chief technology officer and works closely with the district's Division of Teaching and Learning to uphold the district's curricular vision whenever instructional technology is implemented and used.

2. Adopt a job description for this position that includes the responsibility for supervision of TOSAs in the Technology Services Department and collaboration with the director of professional development, and that requires an administrative credential.

Application Support and Systems Integration

Program Manager, Application Support and Systems Integration

This position is currently vacant. The job description for this position describes it as responsible for developing, planning and facilitating the efficient deployment, integration, administration, management, and support of districtwide information systems, software applications, databases, and websites.

The duties and responsibilities include the following: manage district data systems including but not limited to financial/business systems, instructional applications, specialized management systems, and Internet service provider services; consulting with group managers; and developing and maintaining technical and operational procedures to implement and support hardware and software components of the district's application systems.

The qualifications for the position include five years of progressively responsible and successful leadership experience in the management of large-scale information systems. The knowledge required includes public sector business and education practices and standards; systems development and maintenance techniques; software development lifecycle; computer systems management practices; and programming languages.

It would improve efficiencies and accountability if this vacant position was eliminated and the responsibilities for leading and managing all applications support, including support for student information systems, were combined under a new group called application support. This group would be led by a director of application support. More information on this subject is included elsewhere in this report.

Recommendation

The district should:

1. Eliminate the program manager, application support and systems integration position. Ensure that the duties of this position are included in the new proposed director of application support position.

Senior Programmer Analyst

The district has two senior programmer analyst positions in application support and systems integration.

The job description for these positions states that this classification of position is responsible for the following: develop methods of applying computer technology to solve problems; develop and implement complex programs; and act as lead person. The senior programmer analyst's job is to act as a project leader on complex applications, and/or work independently on more complex

programming and analyst activities. The job description was approved by the governing board in 1986.

The senior programmers in application support and systems integration divide their work: one focuses on data mining and custom reporting; the other focuses on keeping the legacy systems functioning properly. Although there is an effort to move away from custom programs, the district still has approximately 400 custom programs in a variety of programming languages. The senior programmer analysts noted that some of the custom reports they work on are required by union contracts.

These two employees' tasks include the following: installation and maintenance of various databases, servers, and scripts; monitoring and maintaining web application servers; designing, coding, and implementing custom reports; supporting the QSS integrated financial system; and creating, removing and altering user log-ons and menus.

The assignments and tasks of these two positions align with the job description.

As part of the reorganization proposed in this report, these two senior programmer analyst positions in application support and systems integration would become part of the new administrative systems group in application support and would report to the administrative systems supervisor position described later in this report. This would help improve collaboration, cross-training, and focused support.

Recommendation

The district should:

1. Reassign the two senior programmer analyst positions in application support and systems integration to the proposed administrative systems group in application support and have them report to the proposed administrative systems supervisor position.

Web Application Developer I

This position is vacant and the volume of work in this area does not justify filling the position.

Recommendation

The district should:

1. Eliminate the vacant web application developer I position.

Web Application Developer II

The district has one web application developer II position in application support and systems integration. The job description states that this classification of position is responsible for the following: assisting users in the configuration and troubleshooting of more complex web-based applications; analyzing business needs and developing solutions; and implementing standards for application development and deployment.

This position requires knowledge of best practices, procedures, resources and applications for web-based development; current and emerging web technologies and standards; database environments; web server environments; user interface design principles and tools; and software development lifecycle methodologies. The job description was last revised in 2013.

The employee in this position focuses primarily on business-related functions. Tasks include front-end and back-end web development, and the employee often solves problems and directs people to products or solutions that will fit their needs, including off-the-shelf products. Daily tasks include user support; web application development; web content management system configuration and troubleshooting; and web database development.

This employee's job responsibilities align with the job description. Because most of this position's work is related to student data, it would improve overall support and benefit the district to have this position in the proposed application support, student systems group.

Recommendation

The district should:

1. Reassign the web application developer II position to the application support, student systems group.

Microcomputer Specialist I and II

The district has one microcomputer specialist I position and one microcomputer specialist II position in application support and systems integration. The job descriptions for microcomputer specialist I and II state that positions in this classification are generally responsible for developing methods of applying microcomputer technology to solve problems. The job description was last revised in 1996.

The microcomputer specialists I position has the following responsibilities: evaluate and install microcomputer software; interact with users to analyze and resolve microcomputer problems; set up new PC workstations and related equipment.

The microcomputer specialist II position is responsible for performing all duties of the micro-computer specialist I position and handling more complex software problems. This position may also perform on-site surveys of work to be performed; estimate work hours; and assign, assist with, inspect, direct, coordinate, and prioritize the work of the microcomputer specialist I.

Representative duties include performing analysis of microcomputer-based application development, modification and hardware/software capabilities; resolving micro application software problems; responding to user requests; evaluating user needs and making recommendations; and setting up, installing, maintaining and repairing microcomputers and local area networks as well as peripheral and related devices.

The employees in these positions listed activities that align with the job descriptions. These include managing the computer replacement program; setting up and installing applications on Apple iPads; repairing computers; installing and supporting computer equipment and software; providing phone and email support; and on-site computer, network and peripheral setup and repair. This is consistent with FCMAT's observations.

As students' use of technology in schools increases, many school districts have begun to reevaluate and modify technology support staff job descriptions. This includes updating and expanding the duties and responsibilities to include current technology and updating the qualifications needed for these positions. Some districts have also changed the titles of positions to better indicate the work being performed. For example, some districts use the title of technology support specialist and have created different levels of that position based on the complexity of duties and the tasks or systems the position serves.

Creating different levels of support positions allows a district to assign tasks based on the complexity of the work performed and provides a way for staff to advance as their skills and education increase. Many districts assign an initial support ticket to a level one technician and allow the technician to escalate the ticket to next level if needed. This type of tiered approach allows support staff to route work to a staff member who has the skill and knowledge needed to complete it successfully.

Examples of duties for each level of technology support specialist include the following:

- Technology Support Specialist I -- Assigned basic support tickets that include hardware and software service requests, and basic setup and configuration of devices, including mobile devices. Maintains documentation and performs preventive maintenance.

- Technology Support Specialist II -- Assigned more complex tickets that may require additional research, redesign and complex configuration. May be assigned as the primary technician for a system. Responds to tickets that have been escalated by a technology support specialist I. Provides mentoring and training to support technology specialist I staff members.

- Technology Support Specialist III -- Specializes in either network administration or system administration and performs tasks similar to or the same as the technology support specialist II position. Serves as the backup technician for either the network or system administrator. Responsible for completing projects, and coordinates installation of equipment with other support staff. Responds to tickets escalated by technology support specialist II staff. Provides mentoring and training to technology support specialist I and II staff members.

Recommendations

The district should:

1. Reclassify the microcomputer specialist I position in application support and systems integration as a technology support specialist I position. Sample job descriptions are included in Appendix A.

2. Reclassify the microcomputer specialist II position in application support and systems integration as a technology support specialist II position. Sample job descriptions are included in Appendix A.

3. Assign both of the technology support specialist positions to the proposed user support group in technical services and have them report to the proposed user support supervisor.

Data Networking Specialist

The district has four data networking specialists in application support and systems integration. The job description, which was last updated in 1996, states that these positions are responsible for networking and mainframe data file applications.

According to the job description, data networking specialists are responsible for developing methods of networking micro and mainframe data file applications; developing and maintaining wide area networks that interface local area networks and microcomputers with mainframe appli-

cations; developing and implementing complex programs to achieve desired results; and acting as a lead person on networking projects.

The employees in these positions discussed the division of work and indicated that each employee serves as the point person for specific projects. The employees focus on their individual projects and tend to work in isolation. There is no backup or cross training on the projects in which they are involved.

The task lists these employees submitted show the division of projects. Their assignments were aligned with the job description; however, the duties performed are more closely related to the jobs of either network administrator or systems administrator depending on the specific responsibilities and duties performed. Because the job description is 20 years old, it is not similar to current job descriptions in this field.

Recommendations

The district should:

1. Reclassify two of the data networking specialist positions in the application support and systems integrations group as network administrator positions. Sample job descriptions are included in Appendix A.

2. Reclassify two of the data networking specialist positions in the application support and systems integrations group as systems administrator positions. Sample job descriptions are included in Appendix A.

3. Assign the two proposed network administrator and two proposed systems administrator positions to the proposed technical services group and have them report to the network, telecom and systems supervisor.

Technology Liaison II

The district has four technology liaison II positions in application support and systems integration; two of these positions are vacant.

The job description for this position states that it is to develop training materials for districtwide information technology applications; coordinate and conduct training programs; and provide support and troubleshooting services for districtwide networked software applications, online programs and network services. The job description was last updated in 2006.

The employees in these positions in application support and systems integrations stated that their responsibility is to provide helpdesk support for everything except the student information system. They focus on supporting and troubleshooting districtwide networked software applications, online programs and network services. The employees indicated that although the job description states they are to help train staff, they no longer have time to provide formal training.

The tasks and assignments of the technology liaison II employees are not aligned with this position's job description; they are more similar to those of a help desk specialist position.

Recommendations

The district should:

1. Reclassify the two technology liaison II positions in application support and systems integration as help desk specialist positions. Sample job descriptions are included in Appendix A.

2. Assign the two proposed help desk specialist positions to the proposed technical services group and have them report to the user support supervisor.

Student Information Systems

Program Manager, Student Information Systems

The job description for program manager, student information systems states that the position plans, organizes, coordinates and supervises the operation, maintenance and function of the district's student information system. The job description was approved by the governing board in 2009.

Representative duties and responsibilities include participating in the formulation and development of student information system support policies, procedures, programs and standards; managing all support, development, and training related to the district's student information system; and preparing and transmitting data files within established time limits for state- and federally-mandated reports.

Qualifications for the position include a minimum of three years of experience in managing processes and staff responsible for databases and application server deployment and maintenance. The position requires knowledge of student information systems in a school district and of reporting requirements for various student-related reports and surveys.

The task list provided by the employee in this position indicates the employee spends about 50% of his day on programming, analysis and second-tier user support. Approximately 25% of the employee's day is spent on direct supervision of employees.

To improve efficiencies, shared knowledge, best practices and overall accountability for software applications, many districts the size of San Juan Unified place all application support employees and duties in a single application support group, typically led by a director of application support. A minimum requirement of four years of experience managing processes, systems and staff would be appropriate for the director position.

It would benefit the district to have two subgroups in application support: one for administrative systems and one for student systems. Having a working supervisor lead each subgroup would help increase each group's focus and accountability in its respective area of responsibility.

Recommendations

The district should:

1. Eliminate the position of program manager, student information systems. This, as well as any other proposed changes to positions in this report, may be subject to collective bargaining.

2. Combine the application support and systems integration group and the student information systems group into a new group called application support.

3. Create a new position of director of application support, or equivalent, to lead the proposed application support group, and have this position report to the proposed chief technology officer. A sample job description is included in Appendix A.

4. Create a new position of administrative systems supervisor and have this position report to the proposed director of application support. A sample job description is included in Appendix A.

5. Create a position of student systems supervisor and have this position report to the proposed director of application support. A sample job description is included in Appendix A.

Senior Programmer Analyst

The district has one senior programmer analyst position in student information systems. The job description states that positions in this classification are responsible for developing methods of applying computer technology to solve problems; developing and implementing complex programs; and acting as lead person. The senior programmer analyst's job is to act as a project leader on complex applications and/or work independently on more complex programming and analyst activities. The job description was approved by the governing board in 1986.

The employee in this position is focused on data analysis and management for special education. It is their responsibility to integrate special education data into the student database system. This takes approximately 50% of the employee's time; the remaining time is spent supporting the legacy QSS student information system (which is both separate and different from the current QSS financial system) and helping the database administrators with their work. These assignments and tasks align with the job description.

It would help improve collaboration, cross training and focused support to move the senior programmer analyst in student information systems to the proposed student systems group in application support, and have this position report to the student systems supervisor.

Recommendation

The district should:

1. Reassign the senior programmer analyst in student information systems to the proposed student systems group in application support, and have the position report to the student systems supervisor.

Database Administrator

The district has two database administrator positions in the student information systems group. The job description for these positions states that they are responsible for installing, analyzing, maintaining, tuning, monitoring, securing, and troubleshooting a variety of highly complex computer and database management systems. The job description was approved by the governing board in 2009.

The position's duties include database installation, maintenance, tuning, backup, and recovery; upgrading procedures related to database systems and servers; developing specifications, design, and implementation of database queries, scripts and views; data mining and warehousing; developing, maintaining and enforcing database procedures, standards and security practices; and assisting users in the development of ad hoc reports.

The two database administrators work with the Q student information system (formerly known as Zangle), CALPADS and the QSS integrated financial system, and often collaborate with the web application developer II. These employees monitor the daily functions of various databases, and manage various large projects to completion. In addition, they create specialized queries and reporting.

The task lists these employees submitted includes the following daily tasks: database system administration and monitoring; ad hoc data requests; data synchronization; and CALPADS state reporting.

The database administrators' job responsibilities typically include using specialized software to store and organize data, and may include capacity planning, installation, configuration, design of databases, migration, performance monitoring, security, troubleshooting, and backup and data recovery.

These employees' job responsibilities align with the job description.

Recommendation

The district should:

1. Reassign the database administrators in student information systems to the proposed student systems group in application support, and have the positions report to the student systems supervisor.

Technology Liaison II

The district has six technology liaison II positions in student information systems. The job description for these positions states that employees are to develop training materials for districtwide information technology applications; coordinate and conduct training programs; and support and troubleshoot districtwide networked software applications, online programs and network services. The job description was last updated in 2006.

The employees in these positions collaborate and back each other up on some but not all projects. Their assignments include support for the Q student information system, Schoology, CALPADS, gradebook, school schedules, attendance, enrollment, and summer school. One technology liaison II provides occasional training on student attendance; the other five do not have user training responsibilities.

These positions' tasks and assignments are not aligned with those in the job description; they are more closely aligned with those of a student information systems specialist position.

Recommendations

The district should:

1. Reclassify the six technology liaison II positions in student information systems as student information systems specialist positions, and revise the job

descriptions to include the new title and accurate descriptions of the duties performed. Sample job descriptions are included in Appendix A.

2. Assign the six proposed student information systems specialist positions to the proposed student systems group in application support, and have the positions report to the student systems supervisor.

Technology Liaison III

The district has one technology liaison III position in student information systems. The district did not provide a job description for this position.

This position manages all aspects of support for the Q student information system including CALPADS and data for the California School Information Services (CSIS). This position also coordinates the student information system helpdesk provided by the technology liaison II staff, and solves problem as needed. The employee in this position also performs vendor-provided software upgrades and sets user permissions but does not do the work of the database administrators.

This employee's tasks include ongoing projects such as the transfer management system; installing Q updates; assigning and editing Q permissions; implementing new Q modules including testing, custom screens (if needed), and creating and maintaining drop-down screens; setting up and maintaining Parent and Student Connect portals; and troubleshooting issues including those related to Schoology and the School Messenger notification system.

This position's duties and tasks are more similar to those of a coordinator or supervisor of services to users of student information systems than they are to those of a liaison.

Recommendations

The district should:

1. Eliminate the technology liaison III position in student information systems.

2. Create a working or hands-on student systems supervisor position and ensure that its duties and responsibilities include supervision of staff and the responsibilities of the technology liaison III position. A sample job description is included in Appendix A.

3. Have the proposed student systems supervisor position report to the director of application support.

Microcomputer Specialist I

The district has two microcomputer specialist I positions in student information systems. The job description for this classification of positions states that they are to develop methods of applying microcomputer technology to solve problems. The job description was last revised in 1996.

Employees in this position are to evaluate and install microcomputer software; communicate with users to analyze and resolve microcomputer problems; and set up new PC workstations and related equipment.

Representative duties of the position include analyzing microcomputer-based application development, modification and hardware/software capabilities; resolving micro application software problems; responding to users' requests regarding problems; evaluating user needs and making

recommendations; and setting up, installing, maintaining and repairing microcomputers and local area networks as well as peripheral and related devices.

The employees in this position primarily serve the food services department by supporting its point-of-sales equipment, computers and software, including the district's eTrition student nutrition system. In most districts these positions would be part of a technical user support group.

Recommendations

The district should:

1. Reclassify the two microcomputer specialist I positions in student information systems as technology support specialist I positions. Sample job descriptions are included in Appendix A.

2. Assign both of these proposed positions to the proposed user support group in technical services and have them report to the proposed user support supervisor.

Network/Telecommunications

Program Manager, Network/Telecommunications

The program manager, network/telecommunications is responsible for network, telecommunications, networking systems, and user support for school sites. The job description indicates the position develops, plans and facilitates the efficient deployment, integration, administration, management, support and maintenance of districtwide network infrastructure, network technology (local and wide area networks, known as LAN/WAN), telecommunications, and related technical services. The job description was approved by the governing board in 2009.

The duties and responsibilities of this position include managing, supervising, coordinating, and configuring districtwide network systems and infrastructure; collaborating with other technology management to present a cohesive integration of technology; and providing technical expertise and information to the senior director of technology services.

The qualifications for the position include a minimum of four years of progressively responsible and successful leadership experience in network design, network engineering, systems engineering, network security, and telecommunication management. The position also requires knowledge of network operating systems, network security principles, telecommunications network design, and state and federal laws and regulations relating to telecommunications, teleprocessing, and networks.

The program manager, network/telecommunication's task list indicates that this employee spends 25% of their time managing and coordinating operation, management, and enhancement of district network, telecommunications, and VMware infrastructures and systems; 25% of their time managing and coordinating operations of their staff; and 25% coordinating work between teams and other sections of the technology services department. This is consistent with FCMAT's observations.

In many districts the size of San Juan Unified, support for technical services, including support for the network infrastructure, telecommunications, and systems, is combined with user support, which includes support for school site computing equipment and helpdesk functions. This combined group is often called technical services and is usually led by a director position. Under

this arrangement, management of network infrastructure, telecommunications, and networking systems is typically led by a network, telecommunications, and systems supervisor; and management of field technical staff and helpdesk staff is typically the responsibility of a user support supervisor.

Recommendations

The district should:

1. Increase the scope of the program manager, network/telecommunications position, and adjust the job description, to include the assignment of all school site and departmental user computer support currently located in other technology services groups. Because these changes increase the responsibilities of this position, both in scope and in number of direct reports, reclassify the position to director of technical services. A sample job description for this proposed position is included in Appendix A.

2. Create a network, telecommunications, and systems supervisor position that reports to the proposed director of technical services position. Include in this position's duties the responsibility for network systems, and define the position as a working supervisor. A sample job description is included in Appendix A.

3. Create a user support supervisor position that reports to the proposed director of technical services position. A sample job description is included in Appendix A.

Data Networking Specialist

The district has four data networking specialist positions in its network/telecommunications group; one of these positions is vacant. The job description, which was last updated in 1996, states that this position is responsible for networking and mainframe data file applications.

According to the job description, data networking specialists are responsible for developing methods of networking micro and mainframe data file applications; developing and maintaining wide area networks that help local area networks and microcomputers interface with mainframe applications; developing and implementing complex programs to achieve desired results; and acting as a lead person on networking projects.

Typical duties and responsibilities of the data networking specialists in network/telecommunications include installing and configuring switches and routers, wireless access points, firewalls, server virtualization, domain name services, storage area networks, and data backup and recovery.

These employees' assignments and duties are aligned with those in the job description; however, the job description is 20 years old and does not resemble current job descriptions of this type; it more closely resembles those of either a network administrator or a systems administrator position depending on the particular responsibilities and duties performed.

Recommendations

The district should:

1. Eliminate the vacant data networking specialist position in the network/ telecommunications group.

2. Reclassify one data networking specialist position as a network administrator position. Sample job descriptions are included in Appendix A.

3. Reclassify two data networking specialist positions as systems administrator positions. Sample job descriptions are included in Appendix A.

4. Assign the proposed network administrator and systems administrator positions to the proposed technical services group and have them report to the network, telecommunications and systems supervisor.

Voice and Data Telecommunications Systems Technician

The district has two voice and data telecommunications systems technician positions in network/ telecommunications; one of these positions is vacant.

The job description states that this position performs specialized work in the development, installation, repair, alteration, maintenance and modification of district voice and data telecommunication systems and equipment, and troubleshoots and resolves operating problems. The job description was last revised in 2003.

This position requires knowledge of the theory, function and design of communications, electronic, and telecommunications systems and equipment; use of standard practices, materials, tools and equipment used in repairing and maintaining electronic and other telecommunications equipment; and wide area networks interrelating with local area networks.

This is the sole position responsible for the telephone systems for all locations, and the position has no internal backup due to current staffing levels. There is limited documentation on the design of the phone and voice systems and their configuration. Work is contracted out to vendors when necessary, though this is rare.

The task list the employee in this position submitted details work such as administering site PBX servers; repairing phones, broken wiring, and other items; and managing long distance services. This is consistent with FCMAT's observations, and the job description accurately describes the work done by the employee in this position.

Most school districts the size of San Juan Unified have detailed documentation regarding their telephone system and have staff cross trained to keep the system functioning in case of staff turnover or extended absences.

Recommendations

The district should:

1. Eliminate the vacant voice and data telecommunications systems technician position.

2. Develop detailed documentation for the telephone systems.

3. Ensure that additional staff in the network/telecommunications group are cross trained sufficiently to maintain and repair the telephone system.

Computer Operator I and II

Two of the district's computer operator I positions and one of its computer operator II positions are in the network/telecommunications group.

The job description states that positions in this classification are typically responsible for operating computer systems, multiple online teleprocessing systems, auxiliary consoles and peripheral equipment on large-scale computer systems, and for troubleshooting and resolving operating problems. The computer operator II position is distinguished from the computer operator I by the responsibility to provide lead and technical direction to computer operator I employees and to resolve more difficult and complex operational problems.

Examples of duties include operating computer systems; troubleshooting and resolving operating problems; organizing input and output queues; and monitoring operation of system, communication and database software. The job descriptions for these positions were approved by the governing board in 1986 and have not been updated.

Employees in the computer operator I position monitor printers and computers and make sure printing jobs run as intended. The computer operator I who works at night also mops and dusts when they have time.

The task lists submitted by the computer operator I employees include the following daily tasks: monitor HP/QSS systems for print jobs, tape mounts; monitor air conditioners and servers for audible and visual alarms; print payroll prelists, checks; clean equipment and computer room; and answer phones as needed.

The computer operator II does the same work as the computer operator I employees; however if there is a problem that the computer operator I employees cannot resolve, he contacts staff who can help resolve the problem.

In the past, the district had a large amount of printing and other work for the computer operator II, but the volume has decreased dramatically. To keep busy, the computer operator II keeps the printers and computers clean and inventories supplies.

The task list the computer operator II submitted includes the following daily tasks: system backup on all three HP3000 systems; set up tapes for nightly full backups of data; clean accounts payable and payroll sealer machines prior to runs; check accounts payable and payroll printer setting prior to each run; shred misprint forms after each run; inventory accounts payable and payroll forms daily; and turn off various devices.

There does not appear to be sufficient work for three computer operators.

Recommendations

The district should:

1. Closely monitor the workloads of the three computer operator positions. If there is not sufficient work for three positions, consider reducing the number of positions.

2. Assign the computer operator positions to the proposed application support group and have them report to the administrative systems supervisor.

Microcomputer Specialist I, Microcomputer Specialist II, and Technology Liaison II

The microcomputer specialist I and II positions and the technology liaison II positions are in the network/telecommunications group and are responsible for computer equipment installations.

Microcomputer Specialist I

The district has six microcomputer specialist I positions in the network/telecommunications group. Two of these positions are assigned to service point-of-sale systems and computer devices for food services; the remaining four positions are dedicated to school site support. The employees in all of these positions spend a majority of their time working at school sites.

The job descriptions for microcomputer specialist I and II state that positions in this classification are to develop methods of applying microcomputer technology to solve problems. The job description was last revised in 1996.

Microcomputer specialist I employees are responsible for evaluating and installing microcomputer software; interacting with users to analyze and resolve microcomputer problems; and setting up new PC workstations and related equipment.

Representative duties include analyzing microcomputer-based application development, modification and hardware/software capabilities; resolving micro application software problems; responding to user requests regarding problems; evaluating user needs and making recommendations; and setting up, installing, maintaining and repairing microcomputers and local area networks as well as peripheral and related devices.

The employees in these positions listed activities that match those in the job description. These include repairing computers; installing and providing support of computer equipment and software; providing phone and email support; and on-site computer, network, and peripheral setup and repair. This is consistent with FCMAT's observations.

Microcomputer Specialist II

The district has five microcomputer specialist II positions in the network/telecommunications group. Three of these positions have specific roles: one is assigned primarily to the regional occupational program, one to all mobile device repairs, and one to Apple images and Apple device management. The two remaining positions are dedicated to school site support.

Microcomputer specialist II positions are responsible for performing all duties of the microcomputer specialist I positions, as well as handling more complex software problems. Microcomputer specialist II employees may also perform on-site surveys of work to be performed; estimate work hours; and assign, assist with, inspect, direct, coordinate and prioritize the work of microcomputer specialist I employees.

Representative duties include analyzing microcomputer-based application development, modification and hardware/software capabilities; resolving micro application software problems; responding to user requests regarding problems; evaluating user needs and making recommendations; and setting up, installing, maintaining and repairing microcomputers and local area networks as well as peripheral and related devices.

The employees in these positions listed activities that match those in the job description, including managing the computer replacement program; setting up and installing applications on Apple iPads; repairing computers; installing and providing support for computer equipment and software; providing phone and email support; and on-site computer, network, and peripheral setup and repair. The activities listed were consistent with FCMAT's observations.

Some microcomputer specialist II staff members work primarily at the technology center; others visit school sites and other departments to provide assistance.

Technology Liaison II

The district has four technology liaison II positions in the network/telecommunications group; three of these positions are vacant.

The job description states that employees in this position are to develop training materials for districtwide information technology applications; coordinate and conduct training programs; and provide support and troubleshooting services for districtwide networked software applications, online programs and network services. The job description was last updated in 2006.

The technology liaison II assigned to network/telecommunications does complex network and computer repairs. This includes installation and maintenance of network equipment and computers, installation of data wiring, and installation and maintenance of networking equipment in telecommunication racks.

The tasks and assignments of the technology liaison II position in network/telecommunications do not align with those in the job description; they are closer to those of a technology support specialist II position, which is described elsewhere in this report.

Analysis of School Site Support

These various technicians serve more than 70 sites in a district with approximately 39,000 students and 4,700 employees, almost all of whom need computer support for a total of more than 27,000 devices. All these technicians work out of and are dispatched from a central location. Help tickets are entered in the HEAT system and assigned to a staff member, who then travels from the Technology Services Department out to the location to fix or install the equipment. These are the same technicians who set up and install all new equipment and system images at the schools, which leaves little time for repairing and troubleshooting existing hardware.

The number of hours these staff spend providing support varies from school to school, as does the method of funding the support, which creates inequities. At one school FCMAT was told that a parent group pays for a part-time person to help support classroom technology. At another school donations are sought from corporations and community groups to help pay for a part-time person to provide this support

As the use of technology in the classroom has increased, so has the need for timely technical support. With few technicians dispatched from a single central location, many schools, and thousands of items of technology equipment to maintain, install and troubleshoot, the district's school site technology support cannot provide adequate service. Wait times for service are lengthy, and school staff repeatedly reported that technology support is not adequate; some schools receive less than one day of on-site support per week, and not enough time is allocated for the number of repairs requested.

The need for additional school site technology support staff is discussed in detail in the following section.

Recommendations

The district should:

1. Reclassify the six microcomputer specialist I positions in network/telecommunications to technology support specialist I positions. Assign these positions

to the proposed user support group in technical services and have them report to the proposed user support supervisor.

2. Reclassify the five microcomputer specialist II positions in network/telecommunications as technology support specialist III positions because of the more complex skills required. Assign these positions to the proposed network, telecom, and systems group in technical services and have them report to the proposed network, telecom, and systems supervisor. Sample job descriptions are included in Appendix A.

3. Eliminate the three vacant technology liaison II positions in network/telecommunications.

4. Reclassify the remaining technology liaison II position as a technology support specialist II position. Sample job descriptions are included in Appendix A. Due to the network-related duties, assign this position to the proposed technical services group and have it report to the network, telecom and systems supervisor.

Additional School Site Support Staffing

The number of staff providing school site technology support is low and is reflected in long wait times for installation and repairs as well as ongoing frustration among school site staff.

The reorganization proposed by FCMAT creates a user support unit in the technical services group to provide dedicated support for school sites. Following the preceding proposed reorganization would result in the existing positions listed in the table below being reclassified as indicated and reassigned to the new user support unit as either technology support specialist I or II positions.

Existing Position	Current Group	Proposed Title	Quantity
Microcomputer specialist I	Application support and systems integration	Technology support specialist I	1
Microcomputer specialist I	Student information systems	Technology support specialist I	2
Microcomputer specialist I	Network/telecom	Technology support specialist I	6
		Subtotal	9
Microcomputer specialist II	Application support and systems integration	Technology support specialist II	1
		Subtotal	**1**

Different amounts and types of technology are used at each grade level, and higher grades usually require more technology and technical support. In many cases technology support equal to 0.5 FTE can meet the needs of an elementary school. This often increases to 0.75 FTE for middle schools and K-8 schools, and rises to 1.0 FTE for high schools. The district's alternative school and continuation school could be served by a 0.5 FTE technology support specialist I.

The following table gives the number of full-time equivalent technology support specialist positions needed by type of school.

School quantity and type	FTE needed per school	Subtotal FTE needed	Type of position
41 elementary schools	.50	20.5	Technology support specialist I
8 middle schools	.75	6.0	Technology support specialist I
1 alternative school 1 continuation school	.25	.5	Technology support specialist I
Total technology support specialist I FTE needed		**27**	
9 High schools	1.0	9.0	Technology support specialist II
Total technology support specialist II FTE needed		**9**	

To provide staffing as outlined above, the district would need a total of 27 technology support specialists I positions and nine technology support specialists II positions in the user support unit.

The proposed restructuring would reassign nine technology support specialists I positions and one technology support specialist II position to the user support unit. After doing this, the district would still need 18 (27-9) new technology support specialist I and eight (9-1) new technology support specialist II positions. It is best practice to add positions in phases, starting with several technology support positions, then analyzing and evaluating the need for additional support at the school sites for a time before further staffing changes.

One way to assign the technology support specialists is to have them report to the district office at the beginning of each work day for a brief meeting with their supervisor to review any critical information about the status of the network and support requests. Districts with effective technology support often view the technology support staff as a pool from which assignments can be made without permanently assigning specific staff to a particular school. This can help ensure continuity of service when a staff member is absent or leaves the district because other staff will already be familiar with the school that staff member was serving and can take over these responsibilities quickly.

Recommendations

The district should:

1. Evaluate the need to add up to 18 new technology support specialist I positions and eight technology support specialist II positions.

2. Assign the proposed technology support specialist I and II positions to the proposed user support group in technical services and have them report to the proposed user support supervisor.

3. Organize and use technology support specialist I and II employees as a pool from which employees can be assigned as needed.

Reorganization Summary

The district's Technology Services Department's current organizational structure is extremely inefficient and has caused significant breakdowns in communication, support, project management and accountability. To improve services to all users, FCMAT recommends a reorganization of the department. The proposed reorganized structure is presented in the following organizational chart.

Proposed District Technology Services Department Organizational Chart

Superintendent

Chief Technology Officer

Admin Assistant III — Secretary

Director of Educational Technology (New)
(Dotted line to Division of Teaching and Learning)

TOSA (4)
1 Primary and 1 Secondary (existing)
1 Primary and 1 Secondary (new)

Director of Application Support

Administrative Systems Supervisor
- Sr. Programmer Analyst (2)
- Computer Operator I
- Computer Operator II (2)

Student Systems Supervisor
- Sr. Programmer Analyst
- Web Application Developer II
- Database Administrator (2)
- Student Information Systems Specialist (6)

Director of Technical Services

Network Telecom & Systems Supervisor
- Network Administrator (3)
- Systems Administrator (4)
- Technology Support Specialist II
- Telecommunication Systems Technician
- Technology Support Specialist III (5)

User Support Supervisor
- Help Desk Specialist (2)
- Technology Support Specialist I (34)
- Technology Support Specialist II (8)

The proposed revised structure focuses on creating a restructured department that will allow the district to provide unified technology leadership, support and accountability to internal departments and school sites.

The table below lists the district's current technology support positions, summarizes the changes to each as recommended in this report, and shows any estimated annual cost savings. This does not include the costs of statutory and health and welfare benefits.

Current Positions and Proposed Changes

Current	Current group	Proposed	Proposed New Group	Estimated Annual Cost Savings
Senior director of technology services	Leadership and administrative support	Position eliminated	N/A	$150,963
Administrative assistant II	Leadership and administrative support	Administrative assistant III	N/A	
Secretary	Leadership and administrative support	N/A	N/A	
Intermediate clerk typist	Leadership and administrative support	Position eliminated	N/A	$12,612
Teachers on special assignment (2)	N/A	Teachers on special Assignment (2)	Educational technology	
Program manager, application support and systems integration	Application support and systems integration	Position eliminated	N/A	$112,209
Senior programmer analyst (2)	Application support and systems integration	N/A	Application support, administrative systems	
Web application developer I	Application support and systems integration	Position eliminated	N/A	$66,156
Web application developer II	Application support and systems integration	N/A	Application support, student systems	
Microcomputer specialist I	Application support and Systems integration	TSS I	Technical services, user support	
Microcomputer specialist II	Application support and systems integration	TSS II	Technical services, user support	
Data networking specialist (2)	Application support and systems integration	Systems administrator (2)	Technical services, network, telecom & systems	
Data networking specialist (2)	Application support and systems integration	Network administrator (2)	Technical services, network, telecom & systems	
Technology liaison II (2)	Application support and systems integration	Help desk specialist (2)	Technical services, user support	

Current	Current group	Proposed	Proposed New Group	Estimated Annual Cost Savings
Program Manager, Student Information Systems	Student information systems	Position eliminated	N/A	$112,209
Senior Programmer Analyst	Student information systems	N/A	Application support, student systems	
Database administrators (2)	Student information systems	N/A	Application support, student systems	
Technology liaison II (6)	Student information systems	Student information systems specialist (6)	Application support, student systems	
Technology liaison III	Student information systems	Position eliminated	N/A	$49,884
Microcomputer specialist I (2)	Student information systems	TSS I	Technical services, user support	
Program Manager, Network/Telecom	Network/telecom	Position eliminated	N/A	$112,209
Data networking specialist (1)	Network/telecom	Network administrator (1)	Technical services, network, telecom & systems	
Data networking specialist (2)	Network/telecom	Systems administrator (2)	Technical services, network, telecom & systems	
Data networking specialist (1)	Network/telecom	Position eliminated	N/A	$66,156
Voice and data telecommunications systems technician (1)	Network/telecom	N/A	Technical services, network, telecom & systems	
Voice and data telecommunications systems technician (1)	Network/telecom	Position eliminated	N/A	$58,764
Computer operator I and II	Network/telecom	N/A	Application support, administrative systems	
Microcomputer specialist I (6)	Network/telecom	TSS I	Technical services, user support	
Microcomputer specialist II (5)	Network/telecom	TSS III	Technical Services, network, telecom & systems	
Technology liaison II (1)	Network/telecom	TSS II	Technical services, network, telecom and systems	
Technology liaison II (3)	Network/telecom	Position eliminated	N/A	$130,428 ($43,476 each)

The following table lists the recommended new positions and the estimated salaries for each. This does not include the costs of statutory and health and welfare benefits. The suggested placements on the district's salary schedule are solely for evaluating the organizational restructuring; total costs may be considerably higher once the district's Human Resources Department determines

the appropriate salary placement and includes health and welfare and statutory benefits in the total compensation.

Proposed New Positions and Salaries

Title	Estimated Annual Salaries
Chief technology officer	$150,963 (cabinet salary schedule)
Director of educational technology	$118,141 (management salary schedule, salary range 25)
Teachers on special assignment (2)	$111,142 ($55,571 each) (credentialed teachers' salary schedule, step 6)
Director of application support	$118,141 (management salary schedule, salary range 25)
Director of technical services	$118,141 (management salary schedule, salary range 25)
Administrative systems supervisor	$85,703 (management salary schedule, salary range 12)
Student systems supervisor	$85,703 (management salary schedule, salary range 12)
Network, telecom & systems supervisor	$85,703 (management salary schedule, salary range 12)
User support supervisor	$85,703 (management salary schedule, salary range 15)
Technology support specialist I (18)	$1,035,072 ($57,504 each) (general unit salary range 44)
Technology support specialist II (8)	$492,960 ($61,620 each) (general unit salary range 47)

The transition to the new organizational structure shown above can be accomplished by a combination of attrition, reclassification, redefining roles and job descriptions, and other means.

As indicated earlier, changes in positions, titles and salaries may be subject to collective bargaining. The proposed reorganization also includes new positions, the representative duties and responsibilities of which are described earlier in this report. Appendix A contains sample job descriptions for all recommended new or revised positions.

Recommendations

The district should:

1. Work with its employee bargaining units as necessary when making changes to positions and adopting and revising job descriptions.

2. Consider making the proposed changes to management positions first. This would allow the management staff to be involved in restructuring and staffing their areas of responsibility.

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Appendices

Appendix A

Sample Job Descriptions

POSITION DESCRIPTION

Title: Chief Technology Officer

Department: Information Technology	**FLSA Classification: Exempt**
Bargaining Unit: None	**Work Year: 12 Month**
Reports to: Superintendent	**Board Approval Date: 7/10/2013**

Salary Grade: Range 15 –Unscheduled Management Salary Schedule

Primary Function:
Under the supervision of the Superintendent, the Chief Technology Officer provides dynamic, responsive, collaborative and forward-thinking vision, leadership and management of technology systems and services to support the mission and goals of the District. This includes the planning, development, implementation, management and maintenance of all applications, infrastructure, security, networks, technology training and communications, as well as comprehensive support for the teaching and learning activities of the staff and students.

Essential Job Functions include, but are not limited to the following:

1. Works collaboratively with schools and departments to support technology integration and innovation. Identifies and supports instructional applications for technology.
2. Provides oversight and direction for integrated data communications networks and the use of integrated database management systems.
3. Plans, schedules and directs the development of computer programs, including needs analysis, interfaces with other existing and planned programs, debugs, and develops comprehensive documentation.
4. Implements and evaluates systems and procedures to protect data integrity, reliability, security and accessibility.
5. Organizes and coordinates appropriate staff development activities to ensure proper use of equipment and programs. Assures training is both operational and conceptual in scope.
6. Develops functional specifications, standards and requirements for hardware and/or software purchase and design to ensure optimum system and end-user performance.
7. Promotes participation of and collaboration with end-user and staff representatives in needs assessment, program development, service delivery efforts and project review.
8. Evaluates technological changes, emerging technologies and best practices in computer and communication fields to recommend innovative and cost effective integration of new technologies.
9. Directs the assessment and evaluation of the Information Technology Department, and the District standardized testing programs. Develops formative assessment processes in conjunction with Curriculum and Instruction.
10. In conjunction with Curriculum and Instruction, provides implementation to Smarter Balance Assessments and Common Core Standards.
11. Manages the District's presence on the Internet and provides the appropriate technologies to do so.
12. Manages operating budget covering all centralized computer support throughout the District and recommends prudent fiscal approaches for long-term hardware and software acquisition and

maintenance. In conjunction with the Purchasing Department, oversees bid requests, proposals and vendor contracts.

13. Coordinates student and staff events, promoting the use of instructional technology.
14. Serves as a technical resource and assures proper levels of technical support for District personnel; communicates with other administrators, District personnel and outside agencies to coordinate programs and activities, resolve issues and exchange information.
15. Directs the architecture, implementation and management of the District's technology infrastructure and information systems; assures infrastructure supports administrative and instructional technology services District-wide.
16. Directs the development and maintenance of the District's networked information systems including feasibility studies, systems analysis and design, programming, conversion of data, instructional technology and data storage and retrieval.
17. Directs the activities of the Help Desk to assure the resolution of problems and ongoing evaluation of customer satisfaction and problem resolution rate*s.*
18. Confers with and coordinate with District sites and departments that share separate and related services to enhance the integration of technological support to users.
19. Supervises and evaluates the performance of assigned personnel; interviews and selects employees and provides mentoring and coaching to ensure staff development.
20. Provides technical expertise and information to the Superintendent regarding assigned functions and participates in the formulation of policies, procedures and programs; advises the Superintendent of unusual trends or problems and recommends appropriate corrective action.
21. Prepares and delivers oral presentations.
22. Attends and participates in a variety of meetings, workshops, conferences and trainings to maintain current knowledge of emerging technological trends; makes presentations regarding District information services objectives, plans and achievements to groups and committees.
23. Other related duties as assigned.

MINIMUM QUALIFICATIONS
Education and Experience
- Master's Degree from an accredited college/university or extensive experience in Technology, Educational Technology, Computer Science, Information Systems or a related field.
- Demonstrates strong management/leadership skills. A minimum of five years' of management experience.
- Demonstrated record of strategic planning, budget management, integration and staff development.

Licenses/Certifications:
- Teaching or Administrative credential preferred;
- Valid California driver's license.

Abilities
1. Act in a professional and positive manner
2. Establish and maintain cooperative and effective working relationships with others
3. Use tact, patience, and courtesy
4. Ability to articulate and understand complex issues and facilitate effective problem-solving.
5. Knowledge of principles, techniques, procedures and developments for the operation of data processing and communications technology.
6. Understanding of technology integration in support of the instructional program.
7. Knowledge of computerized educational management practices.
8. Knowledge and experience in system design, program development, debugging and system operation.
9. Knowledge of consensus building techniques and conflict resolution strategies.

Working Conditions
While performing the duties of this Job, the employee is often exposed to moving mechanical parts. The employee is occasionally exposed to risk of electrical shock. The noise level in the work environment is usually moderate.

Physical Abilities
While performing the duties of this job, the employee is regularly required to sit; walk; use hands and fingers, handle, or feel objects, tools, or controls; and talk or hear. The employee is occasionally required to stand, stoop, kneel, or crouch, and reach with hands and arms.

Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception and the ability to adjust focus.

VENTURA UNIFIED SCHOOL DISTRICT

CLASS TITLE: CHIEF TECHNOLOGY OFFICER

BASIC FUNCTION:
Under the direction of the Assistant Superintendent-Business Services and the Assistant Superintendent-Education Services, plan, organize, control and direct Technology Services operations and activities including the development, design, installation, operation, analysis, maintenance and repair of computer and network systems and related hardware, software, databases and applications; coordinate and direct the development and maintenance of the District Technology Master Plan; design, develop and implement plans and projects for the integration and networking of computer hardware, software, infrastructure and telephones; supervise and evaluate the performance of assigned personnel.

REPRESENTATIVE DUTIES:
ESSENTIAL DUTIES:
- Plan, organize, control and direct Technology Services operations and activities including the development, design, installation, operation, analysis, maintenance and repair of computer and network systems and related hardware, software, databases and applications including student information systems, district networks, provision of web services, information and system security, telephone and communication systems, and other approved district technology needs.
- Ensure that data processing and network activities are coordinated with all affected district operations and appropriate and adequate service is provided to those district functions and offices that rely heavily on information systems including, but not limited to: the Business Services Office fiscal and attendance accounting functions; Human Resources; the Superintendent's Office; Educational Services; and school cafeteria point-of-sale systems.
- Monitor all District technology systems, including, but not limited to: the student information system, network, web servers, email services, and client machines and make recommendations concerning the purchase of software, supply items, and new hardware designed to increase efficiency, access, and reliability.
- Enable the district to offer technology-based and online learning opportunities for students and explore revenue-generating programs for the District.
- Adapt existing technologies to new uses and envision natural relationships between emerging technology resources that can benefit delivery of educational opportunities and District operations.
- Understand and communicate the ramifications of technology use, and develop medium and long range plans for technology use.
- Coordinate and manage the resources necessary to implement and maintain a comprehensive technology strategy.
- Work with District Purchasing office to establish technology procurement processes for the district that meet regulatory requirements and ensure the best value for district software and hardware purchases and consistent with the District's commitment to environmentally friendly technology.
- Provide student data in order to facilitate data-driven decisions that will guide instruction, improve student achievement, and promote Response to Intervention (RTI).

- Support the integration of K-12 standards-based technology skills into curriculum and assessment.
- Work effectively and communicate with all stakeholders to include, but not be limited to, certificated and classified staff, management, students, parents, governmental entities, and community members.
- Explain, in non-technical terms, what various types of technology do and why each can be essential to learning.
- Communicate and keep the District compliant with legal and ethical issues associated with the use of technology (e.g. cyber ethics, privacy, child protection, public access, copyright).
- Chairs the Technology Committee and works collaboratively to build, manage and monitor the District Technology Plan.
- Confers with all appropriate departments to ensure adequate infrastructure (electrical, structural, temperature controls, etc.) exist throughout the district to support district technology needs.
- Select, supervise and assess the performance of assigned personnel.
- Maintain current knowledge of technological advancements in the computer field; knowledge of personal computers, handheld and personal data devices, network operating systems, bandwidth options, system integration opportunities and emerging technologies.

OTHER DUTIES:
Perform related duties as assigned.

KNOWLEDGE AND ABILITIES:
KNOWLEDGE OF:
- Planning, organization and direction of Technology Services operations and activities including the development, design, installation, operation, analysis, maintenance and repair of computer systems and related hardware, software, networks, databases and applications.
- Computer systems, hardware, software, databases and applications utilized by the District.
- Practices, procedures and techniques involved in the design, set-up, development and modification of computer, telecommunication and network systems, web sites, hardware, software and applications.
- Educational software and technology applications and trends.
- Principles, methods and procedures of operating computers, network systems and peripherals.
- Computerized data collection, management, manipulation and distribution requirements for analysis and reporting functions.
- Principles, practices and methods of database structures, computer programming and system design.
- System utilities and design and program applications.
- Principles and techniques of systems and network analysis.
- District organization, operations, policies and objectives.
- Policies and objectives of assigned programs and activities.

- Applicable laws, codes, regulations, policies and procedures.
- Principles and practices of administration, supervision and training.
- Budget preparation and control.
- Oral and written communication skills.
- Interpersonal skills using tact, patience and courtesy.

ABILITY TO:
- Plan, organize, control and direct Technology Services operations and activities including the development, design, installation, operation, analysis, maintenance and repair of computer and network systems and related hardware, software, databases and applications.
- Coordinate and direct the development and maintenance of the District Technology Master Plan.
- Design, develop and implement plans and projects for the integration and networking of computer hardware, software, infrastructure and telephones.
- Supervise and evaluate the performance of assigned personnel.
- Direct the design, set-up, development and modification of computer, telecommunication and network systems, web pages, hardware, software, databases and applications.
- Evaluate and implement educational technology and software.
- Plan, organize, control and direct the investigation, troubleshooting, diagnosis and repair of hardware, software and network malfunctions.
- Coordinate the installation, configuration, maintenance and repair of telecommunication systems.
- Communicate effectively both orally and in writing.
- Interpret, apply and explain laws, codes, rules, regulations, policies and procedures.
- Establish and maintain cooperative and effective working relationships with others.
- Operate a computer and assigned office equipment.
- Analyze situations accurately and adopt an effective course of action.
- Meet schedules and time lines.
- Work independently with little direction.
- Plan and organize work.
- Prepare comprehensive narrative and statistical reports.
- Direct the maintenance of a variety of reports, records and files related to assigned activities.
- Maintain regular and consistent attendance.

EDUCATION AND EXPERIENCE:
Any combination equivalent to sufficient experience, training and/or education to demonstrate the knowledge and abilities listed above. Typically, this would be gained through: bachelor's or master's degree in computer science or related field and five years increasingly responsible experience in the development, design, operation, analysis, maintenance and repair of computer and network systems and related hardware, software, databases and applications. Recent experience with the evaluation and implementation of educational technology and software is highly desirable.

LICENSES AND OTHER REQUIREMENTS:
Valid California driver's license.

WORKING CONDITIONS:
ENVIRONMENT:
Indoor work environment.
Driving a vehicle to conduct work.

PHYSICAL DEMANDS:
Dexterity of hands and fingers to operate a computer keyboard.
Hearing and speaking to exchange information.
Seeing to read a variety of materials and view a computer monitor.
Sitting or standing for extended periods of time.
Lifting, carrying, pushing or pulling moderately heavy objects as assigned by the position.
Bending at the waist, kneeling or crouching.
Reaching overhead, above the shoulders and horizontally.

Director of Application Support

DEFINITION

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

EXAMPLES OF DUTIES

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

QUALIFICATIONS

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

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

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

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

Director of Educational Technology

DEFINITION

Under direction of the Chief Technology Officer and in coordination with educational services, provides leadership and guidance in the implementation of district wide innovative educational technology; provides and directs technical assistance and support to schools in a variety of computer programs and functions; plans, organizes, recommends and directs district wide training, software adoptions and implementation; oversees application systems and websites.

EXAMPLES OF DUTIES

- Provide leadership in the integration of learning technologies in the classroom as part of innovative/21st century education redesign of classrooms.
- Plans, organizes, schedules and supervises staff in developing detailed and definitive technology use plans for each school in the District.
- Acts as a liaison for the Education Division, attending instructional events and meetings with other district and site leaders.
- Contributes to the leadership and direction in technology planning, assessment programs, equipment acquisition, applications development, and establishment of standards for hardware and software.
- Coordinates the roles of site technology coordinators and TOSAs to implement goals and integrate technology into instruction.
- Participate in the development and implementation of the District's Technology Plan in support of student achievement
- Work with site administrators to help teachers adapt curriculum materials and lesson plans to utilize technology
- Coordinate professional development activities directly related to the integrated use of technology in all content areas, including student demonstration projects, classroom demonstrations, team teaching, and workshops.
- Reviews curriculum, develops training programs, identify best practices, and coordinate integration of technology into the learning process.
- Participates in development and implementation of departmental goals, objectives, policy priorities, standards and procedures.
- Provides leadership and direction in applications development, to increase access to information and facilitate productivity. Support the selection and training for cloud-based applications and adoption.
- Support the integration of technology associated to the Common Core State Standards.
- Support virtual schools and online programs and other digital curriculum projects.
- Consults with division managers to develop solutions that integrate computer systems and data sharing.
- Facilitates ongoing district wide needs assessment and software technology implementation.
- Manages and implement technology grants and related budgets.
- Coordinates and promote participation in organizations, events, and conferences concerning instructional technology.
- Prepares bid requests, evaluate proposals, and oversee vendor contracts.

- Work to set standards for technology use for students and instructional staff.
- Makes recommendations for employment and evaluate performance of assigned staff.
- Performs other duties as assigned.

QUALIFICATIONS

Knowledge of:
Current K-12 instructional practices; principles and techniques of educational technology; project planning, scheduling and control; broad knowledge of public sector business practices; emerging trends in instructional technology and management of budgets.

Ability to:
Supervise, coordinate, and direct teachers, support staff, advisory groups and other stakeholder groups; communicate clearly and concisely, orally and in writing; define specific goals and develop sound strategies to accomplish objectives; incorporate new technology into future plans; use strong management and interpersonal skills to facilitate and lead change; comply with the District's customer service standards, as outlined in Board Policy.

Experience:
Minimum five years of teaching experience. Minimum two years of experience at a site or district level coordinating technology integration into instruction. A minimum of two years experience in a site administration position preferred.

Education
Current California teaching credential.
Educational Administrative Services credential.
Masters degree in related area or postgraduate educational technology coursework preferred

End User Support Manager

DEFINITION

Under the direction of the Director of Technical Services, Technology Services, the End User Support Manager, Technical Services, provides leadership and direction for the area of technical services including desktop support, help desk, and technical training; oversees the day-to-day operations providing school site and departmental installations, repair, maintenance and customer support; manages technical training of District staff for both hardware and software usage; plans, schedules, coordinates and supervises personnel engaged in technical support services; allocates resources and sets priorities; manages technical and user support District-wide; coordinates with all District management and school site administration to plan, manage and oversee comprehensive District TS programs and objectives; performs other duties as required.

EXAMPLES OF DUTIES

- Manages the installation, repair and maintenance of hardware and software
- Manages the customer support needs of District departments and school sites
- Manages the training programs for District administrative and technical staff
- Tracks and analyzes hardware and software problem trends
- Plans, organizes, schedules and supervises technology support specialists
- Manages the hardware and software inventory and warehouse control system
- Contributes to the leadership and direction in technology planning, technology acquisition, applications development and establishment of standards for hardware and software
- Participates in development and implementation of departmental goals, objectives, priorities, standards and procedures
- Contributes to the establishment and enforcement of technology and security policies and standards
- Coordinates personnel related issues including training and evaluating employees

QUALIFICATIONS

Knowledge of:
PC and Apple hardware and software, networking equipment and other peripherals; procedures and policies for ongoing maintenance and support of District staff technology needs; methods for prioritization, scheduling and dispatching technology support services; principles of supervision, training and performance evaluation; principles and techniques for project planning, scheduling and control; K-12 Education business and management practices.

Ability to:
Provide guidance to technology support staff; supervise, coordinate, and direct Technical Services staff in hardware, software and network installation, repair, maintenance, troubleshooting, customer support and training; identify and implement long-term direction for the Technical Services function; define specific goals, develop sound strategies and work systematically to accomplish objectives; use strong management skills to perform planning, directing, reporting and administrative duties; organize work, estimate time, and materials required; prepare concise reports for operational and planning needs; analyze proposals for hardware and software acquisitions; establish and maintain effective organization, community, and public relationships; comply with the District's customer service standards, as outlined in Board Policy.

PREFERRED EXPERIENCE AND EDUCATION
Three years in an information technology environment. Education equivalent to two years of college coursework in information technology or an associate's degree in either information technology or a closely related field. Experience may be substituted for college education on a year-for-year basis.

Help Desk Specialist

DEFINITION

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

EXAMPLES OF DUTIES

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

- Provides hardware and software support to school site and administrative personnel in a professional manner; effectively communicate step by step instructions via the telephone and site visits.
- Provides basic computer and tablet support services to maintain optimum system operations including preventative maintenance.
- Operates computers utilizing a variety of software applications to prepare documents incorporating text, graphs, and charts.
- Maintains and updates various training, hardware, employee and customer databases.
- Utilizes spreadsheets, database information, scanned objects, and graphics for word processing applications.
- Maintains and updates a customer support (Help Desk) database.
- Provides telephone technical support to customers, including instructional and administrative personnel in a high volume help desk.
- Assists with the computer and tablet installation process.
- Assists with the receiving, inventory and asset database process
- Organizes and prepares software application documentation.
- Creates training certificates and surveys for personnel completing classes.
- May train district personnel in the use of hardware and software.
- Prepares training manuals and orders supplies.
- Screens and schedules personnel into training classes.
- Troubleshoots computer, tablet and printer problems via the phone, site visit, and remotely.
- Maintains records on all technology service requests.
- Maintains confidentiality in preparing privileged and sensitive materials.
- Works with vendors on software and hardware troubleshooting, administration and maintenance.
- Prioritizes and completes work within required deadlines.
- Provides assistance with District technology initiatives as needed.
- Performs other related duties as required.

QUALIFICATIONS

Knowledge of:

Methods, tools and equipment used in the support and service of hardware and software; various computer and table operating systems, Microsoft Office suite or other word processing, spreadsheet, desktop publishing and database management software; correct English usage, spelling, grammar, and punctuation; modern office methods, practices, and procedures; current computer technology; basic industry-standard networking principles; current help desk principles.

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

NETWORK ADMINISTRATOR

Purpose Statement

The job of Network Administrator was established for the purpose/s of designing, configuring, installing, maintaining, and repairing network systems, subsystems and servers; overseeing the computer/server room operation and environment; providing information, direction and/or recommendations regarding network installations and configurations; resolving network operational issues; and overseeing and providing technical support to district and site staff.

Essential Functions

- Administers systems and servers related to district LAN and WAN, telephone, and technology installed A/V systems (e.g. email systems, accounts, print queue, workstation ID, IP assignments, computer labs, classroom computers, VOIP, security, antivirus, spyware, etc.) for the purpose of ensuring availability of services to authorized users.

- Designs and creates computer networks, network topology and network engineering (e.g. Internet, Intranet, web mail, FTP servers, etc.) for the purpose of ensuring effective and efficient computer operations.

- Installs and tests server software on a variety of platforms (e.g. service packs, application software, operating software, hardware upgrades, etc.) for the purpose of maintaining District WAN/LAN and telecommunication systems.

- Maintains network operations and software applications (e.g. servers (file, print, application, WEB, database, proxy, etc.), operating systems, districtwide server backup, routine maintenance programs, etc.) for the purpose of ensuring efficient operations.

- Manages assigned projects and program components (e.g. migration to new systems; scheduling installations, product research, etc.) for the purpose of delivering services in compliance with established guidelines and/or objectives.

- Participates in a variety of planning and development activities, including districtwide committees for the purpose of creating short and long range plans for the ongoing support to the district.

- Prepares written materials (e.g. procedures, system level documentation, reports, memos, site surveys, operational documentation, etc.) for the purpose of documenting activities, providing written reference, and/or conveying information.

- Recommends equipment, supplies and materials for the purpose of acquiring required items and completing jobs efficiently.

- Researches trends, products, equipment, tests, etc. for the purpose of recommending procedures and/or purchases.

- Responds to inquiries from a variety of sources (e.g. staff, administrators, school site personnel, outside vendors and service providers, etc.) for the purpose of providing technical assistance and support.

- Trains other District staff (primarily within the technology area) for the purpose of ensuring their ability to use new and/or existing operating systems, application software, hardware and peripherals.

- Troubleshoots malfunctions of network hardware and/or software applications within the District's local and wide area networks, telephones, security systems and A/V systems (e.g. servers, hubs, router/switch, network protocols, etc.) for the purpose of resolving operational issues and restoring services.

Other Functions

- Performs other related duties as assigned for the purpose of ensuring the efficient and effective functioning of the work unit.

Job Requirements: Minimum Qualifications

Skills, Knowledge and Abilities

SKILLS are required to perform multiple, technical tasks with a need to periodically upgrade skills in order to meet changing job conditions. Specific skill-based competencies required to satisfactorily perform the functions of the job include: system networking procedures and typical maintenance processes; various types of inter-relatd equipment, specification and compatibility; system programing requirements and software contingencies; hardware gateways; operating system monitoring and troubleshooting software; adhering to safety practices; planning and managing projects; and preparing and maintaining accurate records.

KNOWLEDGE is required to perform algebra and/or geometry; review and interpret highly technical information, write technical materials, and/or speak persuasively to implement desired actions; and analyze situations to define issues and draw conclusions. Specific knowledge-based competencies required to satisfactorily perform the functions of the job include: current, legacy and emerging operating systems; environments and network protocols; router/switch configurations; Inter/Intranet applications; LAN topologies, logical design, database structures; and data security, project management, processes and methodology.

ABILITY is required to schedule activities, meetings, and/or events; gather, collate, and/or classify data; and consider a variety of factors when using equipment. Flexibility is required to independently work with others in a wide variety of circumstances; work with data utilizing defined and similar processes; and utilize equipment under a variety of conditions for multiple purposes. Ability is also required to work with a wide diversity of individuals; work with a variety of data; and utilize a wide variety of types of job-related equipment. Problem solving is required to identify issues and create action plans. Problem solving with data requires independent interpretation of guidelines; and problem solving with equipment is significant. Specific ability-based competencies required to satisfactorily perform the functions of the job include: setting priorities; establishing effective relationships; being attentive to detail; analyzing a variety of LAN/PC issues and problems and making recommendations; communicating with diverse groups; conveying technical information to non-technical audiences; and working nonstandard hours.

Responsibility

Responsibilities include: working under limited supervision following standardized practices and/or methods; leading, guiding, and/or coordinating others; and operating within a defined budget. Utilization of significant resources from other work units is sometimes required to perform the job's functions. There is a continual opportunity to impact the Organization's services.

Working Environment

The usual and customary methods of performing the job's functions require the following physical demands: significant lifting, carrying, pushing, and/or pulling; some climbing and balancing; significant stooping, kneeling, crouching, and/or crawling; and significant fine finger dexterity. Generally the job requires 30% sitting, 30% walking, and 40% standing. The job is performed under minimal temperature variations and in a generally hazard free environment.

Experience   Job related experience within specialized field is required.

Education   Targeted job related education that meets organization's prerequisite requirements.

Equivalency   A+ or equivalent experience, CCNA or equivalent

Required Testing	**Certificates & Licenses**
None Specified	Valid Driver's License & Evidence of Insurability
	A+ Certification

Continuing Educ. / Training	**Clearances**
None Specified	Criminal Justice Fingerprint/Background Clearance

FLSA Status	**Approval Date**	**Salary Grade**
Exempt		TBD

Ontario-Montclair School District

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CLASS SPECIFICATION
Network Administrator

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GENERAL PURPOSE
Under direction, performs highly responsible and complex professional and technical tasks in the planning, design, development, implementation, maintenance and administration of the District's network infrastructure and network applications, server infrastructure, virtualization; and performs related duties as assigned.

DISTINGUISHING CHARACTERISTICS
A Network Administrator performs advanced professional and technical responsibilities in planning, design, implementation, maintenance and administration of multi-platform network operating systems, including participating in the development of technical standards for the configuration and installation of hardware and software systems. The incumbent performs third-level problem analysis and resolution on matters related to the network operating environment and applications. The Network has overall responsibility for the planning, design, implementation, maintenance and troubleshooting of the District's network and server infrastructure infrastructure.

ESSENTIAL DUTIES AND RESPONSIBILITIES
The duties listed below are intended only as illustrations of the various types of work that may be performed. The omission of specific statements of duties does not exclude them from the position if the work is similar, related or a logical assignment to this class.

1. Provides third-level technical support for the District's network infrastructure, operating systems and applications; provides information, technical direction and training to other Information Services staff on activities required to implement projects, system hardware and software installations and upgrades, new procedures and techniques related to the network infrastructure and server infrastructure including Active Director, Group Policies in a windows server environment.

2. Installs, configures, upgrades, tests and maintains network equipment and devices, including hubs, routers and switches and wireless networks ; provides network server and device support and systems maintenance; works with external technical assistance to resolve hardware and software issues.

3. Installs, upgrades, tests and supports network applications software; plans for, configures and tests to ensure their effective integration into the on-line computing environment.

4. Performs network administration duties, including establishing and maintaining user accounts, file permissions and other authorization files; maintains system and remote access security to ensure system and data integrity; installs and tests security patches; installs and maintains anti-virus protection software.

5. Designs and implements VLAN topologies for securing District computing resources to include administrative computers, servers and other critical network infrastructure and systems. Performs security audits on network and server infrastructure based on industry standards for intrusion detection and intrusion preventions. Makes recommendation for best practices related to network security.

6. Assists in monitoring network speed, reliability and performance, using systems management software and other tools and utilities; troubleshoots and resolves complex issues including performance degradation, problems in interactions between hardware, software and network operating systems and hardware/disk failures; monitors and evaluates system and network statistics; assesses system capacity issues, evaluates software and other alternatives and recommends system upgrades or replacements; installs and tests operating system releases, upgrades and fixes.

7. Oversees and manages server support for databases; monitors memory and disk space for data storage and recommends the clean-up of disk storage; evaluates disk storage capacity and makes determinations on data.

8. Oversees and manages the Districts virtual and SAN server infrastructure for memory and disk space for data storage and recommends the clean-up of disk storage; evaluates disk storage capacity and makes determinations on data storage locations; tunes to improve database performance; performs database startups, shutdowns and recoveries.

9. Develops and reviews documentation of policies, procedures, standards, program solutions and techniques for the design, operation, installation and maintenance of network operating system software; coordinates or participates in review of the technical environment to evaluate and measure system performance and effectiveness.

10. Conducts systems analysis and design studies on proposed network applications, including effects on user base, impacts on computer resources and personnel needs; develops and maintains procedures for the reasonable security of information systems and data integrity.

OTHER DUTIES

1. Participates in the evaluation of proposed solutions by attending demonstrations, performing technical research providing technical input to evaluative committees and participating in the evaluation process.

2. Prepares various reports, as required, including project schedules and updates, charts and diagrams

3. Supervises and manages System Technicians that report directly to the Network Manager and performs staff evaluations.

MINIMUM QUALIFICATIONS
Knowledge of:
1. Network architectures and theory and principles of network design and integration, VLANS, including topologies and protocols.

2. Principles and practices of advanced network administration, including network monitoring and diagnostic methods, practices and procedures, and the TCP/IP protocol suite.

3. Methods and techniques in the installation and configuration of network operating system/ TCP/IP routing, layer 2 and layer 3 switching.

4. Network management systems, including principles and practices of security management.

5. Working knowledge of VMWARE, including principles and practices of server management.

6. Operating principles, parameters, uses, capabilities, characteristics and limitations of mid-range computers, servers, network operating systems, PCs and related equipment.

7. Working knowledge of VLANS/ TCP/IP routing and design to include Cisco IOS version 11.x and above.

8. Principles and practices of business and technical communications, including techniques in the development of system and user documentation.

Ability to:
1. Analyze complex computer system and network issues, identify the reasons for network and network device problems, failures and malfunctions and develop effective solutions.

2. Develop and recommend cost-effective technical system improvements.

3. Monitor network trends and anomalies and make adjustments as required.

4. Read, interpret and apply complex technical publications, manuals and other documentation.

5. Identify information management and data communication issues and opportunities, analyze problems and alternatives and develop sound conclusions and recommendations.

6. Develop, implement and effectively manage procedures and processes, including maintenance of schedules and timetables and preparation of reports on project status.

7. Conscientiously preserve the confidentiality of all proprietary and confidential data and information residing in the District, in accordance with Departmental and District policy and State and Federal law.

8. Operate computers, network equipment and other related hardware.

9. Complete continuing projects while troubleshooting unexpected system problems.

10. Work cooperatively with customers in a responsive, helpful, courteous and tactful manner.

11. Communicate clearly and concisely, both orally and in writing.

12. Establish and maintain effective working relationships other Information Services team members, managers, administrators, staff and others contacted in the course of work.

Training and Experience
A typical way of obtaining the knowledge, skills and abilities outlined above is graduation from a four-year college or university with a major in computer science, information systems or a closely related field; and at least three years of progressively responsible experience in the development, installation and maintenance of networks and network applications; or some combination of education, training and experience that produces the requisite knowledge and ability.

Licenses; Certificates; Special Requirements
Microsoft Certified Systems Engineer (MCSE), Cisco Certified Network Administrator (CCNA) or the equivalent are desirable. A valid Class C California driver's license, good driving record and the ability to maintain insurability under the District's vehicle insurance policy.

PHYSICAL AND MENTAL DEMANDS
The physical and mental demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this class. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Physical Demands
While performing the duties of this class, an employee is regularly required to sit; talk or hear, in person and by telephone; use hands repetitively to finger, handle, feel or operate computers and other standard office equipment; and reach with hands or arms. An employee is frequently required to walk and stand and occasionally to lift up to 50 pounds. Specific vision abilities required by this job include close vision and the ability to adjust focus.

Mental Demands
While performing the duties of this class, an employee is regularly required to use oral and written communication skills; read and interpret complex data, information and documents; analyze and solve problems; observe and interpret situations; use math and mathematical reasoning; learn and apply new skills or information; perform highly detailed work on multiple, concurrent tasks; work under changing deadlines with frequent interruptions; work effectively as a team leader or member; and interact with managers, internal customers, employees, vendors, consultants and others encountered in the course of work.

WORK ENVIRONMENT
The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this class. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. The employee works under typical office conditions, and the noise level is moderately quiet. The employee is on call 24x7 for the resolution of systems and network problems and issues.

Board Approved: 11/14/2012

SAN JUAN UNIFIED SCHOOL DISTRICT

POSITION TITLE: Program Manager, Student Information Systems

DEFINITION: Plan, organize, coordinate and supervise the operation, maintenance and function of the district student information system (SIS); ensure maximum utilization of staff, resources and equipment while meeting production schedules and requirements; perform related duties as assigned.

DIRECTLY RESPONSIBLE TO: Director, Technology Services

SUPERVISION OVER: Classified employees as assigned.

DUTIES AND RESPONSIBILITIES: (Responsibilities will include, but not be limited to)

- Participate in the formulation and development of student information system support policies, procedures, programs and standards;

- Manage all support, development and training related to the district's student information system;

- Prepare and transmit data files within established time limits for CSIS, CBEDS and other state and federally mandated reports and direct and manage the dissemination of student information to outside agencies;

- Develop and implement student information system change management procedures;

- Coordinate with other district departments and divisions to develop solutions to integrate with student information system;

- Assist in developing and implementing the district technology plan;

- Manage classified support technical personnel;

- Monitor the professional development of staff to maintain pace with technology and district needs;

- Keep abreast of technology advancements, and maintain current understanding of changes in the student information system capabilities and requirements;

- Review all hardware and software requests related to the district's student information system;

- Research, compile, prepare, analyze and review technical student information system data, correspondence, analytical studies and reports;

- Recruit, evaluate and support assigned staff;

- Monitor budget and make recommendations regarding expenditures and/or changes;

- Perform other duties as assigned.

QUALIFICATIONS:

Education and Experience:
Any combination of training, education and experience which clearly demonstrates possession of the knowledge and skills necessary to perform job duties; minimum of three years experience in managing processes and staff responsible for databases and application server deployment and maintenance is preferred.

Knowledge and Abilities:
Knowledge of student information systems in a school district environment;
Knowledge of change management practices;
Knowledge of reporting requirements of various student-related reports and surveys;
Knowledge of implementation practices and procedures;
Knowledge of California Education Code and other laws, regulations, and requirements;
Knowledge of student testing and evaluation policies;
Knowledge of PC hardware and software;

Ability to provide technical guidance and specialized support and coordination regarding the District student information system;
Ability to prepare accurate and concise reports;
Ability to establish and maintain cooperative relationships with staff and service providers;
Ability to plan, organize and lead student information system related projects;
Ability to effectively conduct and facilitate meetings;
Ability to communicate effectively both orally and in writing;
Ability to motivate, manage, evaluate and direct the work activities of employees.

Licenses and Certificates:
Possession of, or willingness and ability to obtain a valid California Class C Driver's License issued by the California Department of Motor Vehicles within 30 days of hire or before driving equipment/vehicle requiring this license.

WORKING CONDITIONS:

Environment:
Indoor office environment; drive a vehicle to conduct work.

Physical Characteristics: (Consideration will be given to reasonable accommodation)
Sufficient vision to read volumes of printed material; sufficient hearing to conduct in-person and telephone conversations; sufficient physical mobility to move about the district in a personal automobile; ability to speak in an understandable voice with sufficient volume to be hard in normal conversational distance, on the telephone and in addressing groups; sufficient dexterity to operate office equipment requiring repetitive hand movement and fine coordination including the use of a computer keyboard; sufficient stamina to remain in a stationary position for extended amounts of time; physical ability to transport or move objects and move about the facilities to conduct work.

Board Approved: 3.10.09

Student Information Specialist

BASIC FUNCTION:

Under general direction, assist with the development, documentation, testing, training, and implementation of new and existing computerized student information software systems used by the organization; develop and provide system support and services to school district personnel, including state reporting, student management, office applications, web content management, and electronic communication systems.

REPRESENTATIVE DUTIES:

- Participate with the development, testing, and implementation of new and existing computerized systems operated by the organization.
- Participate in the installation and testing of new systems and features; develop and utilize test data in the operating system and evaluate and report on results; assist and provide support to Technology Services staff.
- Analyze user concerns, requirements, and requests for system features and uses; identify applications, modifications, and enhancements to existing systems to accommodate user needs.
- Analyze hardware and software issues affecting system users, troubleshoot and prioritize these issues. Work closely with vendor and Technology Services staff to correct hardware and software issues affecting the various computerized business systems.
- Develop and provide system support and services to school district personnel with regard to state reporting, student information systems, office applications, web context management, curriculum applications and electronic communication systems.
- Develop, organize and write user manuals, guides and other documentation.
- Develop and prepare training materials and participate in user training workshops to present new systems, features, and enhancements; provide one-on-one training as needed.
- Provide a variety of user support plans; answer user questions, explain system operation and requirements, and serve as a liaison between school district users and Technology Services staff with regard to system applications, changes, hardware, communications and other system operations issues; assure compliance with State Education Code and other regulations.
- Perform tasks to assure successful processing of data; run reports for various student management, student assessment, state reporting, and other software processes; monitor output to verify integrity and accuracy of the system. Perform various tasks related to the operation of the various computerized business systems.
- Prepare or produce a variety of records and reports related to assigned duties; perform periodic tasks and special projects related to supported software systems, such as assisting and advising district personnel, processing data, monitoring State Attendance preparation and reporting, preparing system specifications and producing reports.
- Attend planning meetings and interview users to gather information on needs and desired system features.
- Operate a variety of office equipment, including networked personal computers, various software applications, and printers.

- Perform related duties as assigned.

KNOWLEDGE AND ABILITIES:
KNOWLEDGE OF:
- Accounting and student policies and procedures in Education.
- Student Information Systems policies and procedures in Education.
- Operation of client-server and microcomputer equipment.
- Database concepts, including file specifications and layouts.
- Networking systems including LAN and WAN applications.
- Analysis procedures, use and interpretation of data, and technical writing.
- Development and presentation of training materials and workshops.
- Application of business systems to user needs in public education.
- Correct English usage, grammar, spelling, punctuation and vocabulary.
- Applicable sections of the State Education Code and other applicable laws.
- Interpersonal skills using tact, patience and courtesy.

Job Title: Student Information System Specialist

Basic Function: Under the direction of the Director of Educational Technology and Information Systems, the Student Information System Specialist is responsible for the maintenance and support of the District's Student Information System (SIS) program as well as all related software. Support duties include working directly with school and district staff regarding the enrollment, attendance, scheduling, grading and school setup processes. The Student Information System Specialist is also responsible for all state reporting requirements and outside agencies exports.

Representative Duties:

- Participate with the development, testing, and implementation of new and existing computerized systems operated by the organization.
- Participate in the installation and testing of new systems, features, and/or updates; develop and utilize test data in the operating system and evaluate and report on results; assist and provide support to technology staff.
- Analyze hardware and software issues affecting system users, troubleshoot and prioritize these issues. Work closely with vendors, VCOE and technology staff to correct hardware and software issues affecting the various computerized business systems.
- Develop and provide system support and services to local school district personnel with regard to state reporting, student information systems, office applications, web context management, curriculum applications and electronic communication systems.
- Participate in the preparation of documentation and user support materials to assist district personnel in using the systems; develop, organize and write user manuals, guides and other documentation.
- Develop and prepare training materials and participate in user training workshops to present new systems, features, and enhancements; provide one-on-one training as needed.
- Train and assist in the technical preparation of school master schedules.
- Train school and district staff regarding the use of the student information system and any office productivity or other software as it relates to the SIS program.
- Provide a variety of user support plans; answer user questions, explain system operation and requirements, and serve as a liaison between school district users and technology staff with regard to system applications, changes, hardware, communications and other system operations issues.
- Perform tasks to assure successful processing of data; run reports for various software processes including student information management, assessment, and state reporting; monitor output to verify integrity and accuracy of the system. Perform various tasks related to the operation of the various computerized business systems.
- Prepare or produce a variety of custom forms, records and reports related to assigned duties; perform periodic tasks and special projects related to supported software systems, such as assisting and advising district personnel, processing data, monitoring State Attendance preparation and State reporting, progress reporting, grade reporting, scheduling, queries, preparing system specifications and producing reports.
- Operate a variety of office equipment, including networked personal computers, various software

applications, and printers.
- Attend assigned conferences to provide and receive training.
- Performs other duties as assigned.

Knowledge and Abilities:
Knowledge of:
- Database concepts, including file specifications and layouts.
- Large relational databases structure and function.
- Principles, practices, procedures and techniques involved in the collection, processing, input, verification, analysis and reporting of statistical data.
- Applicable sections of the State Education Code, legal requirements and regulations pertaining to student records and attendance.
- Principles, practices and techniques used in spreadsheets and relational databases, specifically student information systems as well as Windows computer operating systems, and Microsoft Office Suite.
- Report writing and statistical record-keeping techniques.
- Principles, theories, problems and practices pertaining to computer operations, peripheral equipment and customer support.
- Interpersonal skills using tact, patience and courtesy.
- Principles of training and providing help desk support.
- Internet usage and terminology.
- Operation and use of computers and related peripheral equipment.

Ability to:
- Maintain and analyze District computer systems and databases to meet the data collection, analysis and reporting needs of the District.
- Maintain confidentiality with discretion of sensitive information.
- Make independent judgments without direct supervision in a fast paced environment.
- Read, understand, follow, and write job procedures, user manuals, and related materials.
- Meet schedules and time lines.
- Write at a professional level, with a focus on accuracy, quality, and clarity required.
- Provide technical expertise and training to users.
- Maintain current knowledge of technological advancements in related areas.
- Interact positively, flexibly and patiently while having to multitask with coworkers, supervisors, community and vendors to maintain cooperative and effective working relationships.
- Travel to attend training meetings or conferences as needed.

Education/Licenses/Experience: Graduation from high school or equivalence and an Associate Degree in computer technology or related field or four years of increasingly responsible experience providing technical support for computer systems or databases, including at least three years of increasingly responsible experience using student information system required. Experience with SQL is desirable.

Licenses/Certificates: Valid California driver's license.

Working Conditions:

Environment: Indoor environment. Driving a vehicle to conduct work.

Physical Demand/Hazards: Dexterity of hands and fingers to operate a computer keyboard. Sitting for extended periods of time. Lifting, carrying, pushing or pulling moderately heavy computer equipment.

Salary Range: Range 128

Student Systems Supervisor

BASIC FUNCTION:

Under general direction of the Director of Applications Support, assist with and supervise the development, documentation, testing, training, and implementation of new and existing computerized student information software systems used by the district; develop and provide system support and services to school district personnel, including state reporting, student management, office applications, web content management, and electronic communication systems.

REPRESENTATIVE DUTIES:

- Supervise, coordinate, and participate in the development, testing, and implementation of new and existing computerized systems operated by the organization.

- Supervise and coordinate the installation and testing of new systems and features; develop and utilize test data in the operating system and evaluate and report on results; lead and provide support to Student Systems staff.

- Collaborate with the Technology Support Services Managers and Supervisors to present a cohesive integration of technology across the District.
- Analyze user concerns, requirements, and requests for system features and uses; identify applications, modifications, and enhancements to existing systems to accommodate user needs.
- Analyze hardware and software issues affecting system users, troubleshoot and prioritize these issues. Work closely with vendor and Student Systems staff to correct hardware and software issues affecting the various computerized business systems.
- Develop and provide system support and services to school district personnel with regard to state reporting, student information systems, office applications, web content management, curriculum applications and electronic communication systems.
- Lead and supervise the development, organization, and writing of user manuals, guides and other documentation.
- Develop and prepare training materials and participate in user training workshops to present new systems, features, and enhancements; provide one-on-one training as needed.
- Lead and provide a variety of user support plans; answer user questions, explain system operation and requirements, and serve as a liaison between school district users and Student Systems staff with regard to system applications, changes, hardware, communications and other system operations issues; assure compliance with State Education Code and other regulations.
- Supervise and perform tasks to assure successful processing of data; run reports for various student management, student assessment, state reporting, and other software processes; monitor output to verify integrity and accuracy of the system. Supervise and perform various tasks related to the operation of the various computerized business systems.
- Prepare or produce a variety of records and reports related to assigned duties; perform periodic tasks and special projects related to supported software systems, such as

assisting and advising district personnel, processing data, monitoring State Attendance preparation and reporting, preparing system specifications and producing reports.

- Attend planning meetings and interview users to gather information on needs and desired system features.
- Operate a variety of office equipment, including networked personal computers, various software applications, and printers.
- Perform related duties as assigned.

KNOWLEDGE AND ABILITIES:
KNOWLEDGE OF:

- Accounting and student policies and procedures in Education.
- Student Information Systems policies and procedures in Education.
- Operation of client-server and microcomputer equipment.
- Database concepts, including file specifications and layouts.
- Networking systems including LAN and WAN applications.
- Analysis procedures, use and interpretation of data, and technical writing.
- Development and presentation of training materials and workshops.
- Application of business systems to user needs in public education.
- Correct English usage, grammar, spelling, punctuation and vocabulary.
- Applicable sections of the State Education Code and other applicable laws.
- Interpersonal skills using tact, patience and courtesy.

ABILITY TO:

- Analyze, design, write, test, implement and maintain application programs and systems;
- Assign, prioritize, and monitor work assignments;
- Lead, empower, train, supervise and provide input into the evaluation of personnel;
- Exercise tact, patience, compassion and courtesy in working with people;
- Communicate technical issues orally and in writing to users, management and peers; and
- Read, understand and integrate new concepts and ideas.

EDUCATION AND EXPERIENCE:

Any combination equivalent to: Associate of Arts/Science degree in Information Technology related field and five years experience at the level of a senior systems analyst, involving increasingly complex systems analysis, design and implementation.

Licenses and Certificates:

Possession of, or willingness and ability to obtain a valid California Class C Driver's License issued by the California Department of Motor Vehicles within 30 days of hire or before driving equipment/vehicle requiring this license.

 WORKING CONDITIONS:

<u>Environment</u>:

  Indoor office environment; drive a vehicle to conduct work.

  <u>Physical Characteristics:</u> (Consideration will be given to reasonable accommodation)

Sufficient vision to read volumes of printed material; sufficient hearing to conduct in-person and telephone conversations; sufficient physical mobility to move about the district in a personal automobile; ability to speak in an understandable voice with sufficient volume to be hard in normal conversational distance, on the telephone and in addressing groups; sufficient dexterity to operate office equipment requiring repetitive hand movement and fine coordination including the use of a computer keyboard; sufficient stamina to remain in a stationary position for extended amounts of time; physical ability to transport or move objects and move about the facilities to conduct work.

Systems Administrator

Under general direction, responsible for providing professional-level technical support services to ensure the integrity and reliability of assigned servers, operating systems, and related network applications and services; participates in the most complex systems infrastructure upgrades, enhancements, conversions and troubleshooting; serves as a technical lead for major platforms and operating systems; leads and manages completion of projects to meet District time, budget and quality requirements.

DISTINGUISHING CHARACTERISTICS
Incumbents are expected to administer and manage assigned systems with high reliability and a minimum of supervision and direction, while providing leadership and technical guidance to other staff performing system administration tasks. Work requires in-depth technical knowledge of the District's overall systems infrastructure and associated integration and interoperating requirements and challenges. Windows group policy creation and modification using advanced scripting techniques to automate and manage the district computer population.

ESSENTIAL DUTIES/RESPONSIBILITIES:

Administers assigned enterprise server platforms running a variety of operating system software in both physical and virtual environments; installs, configures, tests, integrates and administers Windows 2008, R2, 2008, 2003/Active Directory, document management systems and other major servers, including system monitoring and management software tools; using applicable tools and utilities, monitors system performance, including server utilization and availability; performs performance tuning to achieve optimal system speed, reliability and performance; ensures systems security, disaster response and recovery processes are followed; monitors computer room environment for appropriate cooling and power consumption.

Administers or participates in administering enterprise-wide data storage in a Storage Area Network (SAN), Network Attached Storage (NAS) environment; participates in planning storage allocation architecture and allocating storage capacity; tunes and maintains SAN and NAS systems and SAN network connectivity; provides technical oversight of backup strategy; configures and maintains offsite disaster recovery databases.

Researches, troubleshoots and resolves complex and ambiguous problems often involving a combination of hardware, operating system, internally developed and vendor application software and database structure configuration, resource conflict and/or interoperating problems; installs and tests operating system patches, releases, upgrades and fixes; assesses system capacity issues, evaluates software and other alternatives and recommends system upgrades or replacements. Performs systems administration for district-wide applications; monitors daily e-mail notifications generated by scripts; researches and documents server and client configuration issues and the resolution of problems; works with external entities to research and resolve authentication and routing issues; installs and administers spam filters and anti-virus software; interacts with users to determine needs and recommend solutions to email and messaging needs; provides administration support for specialized and complex systems and software.

Monitors disk usage to ensure adequate database resources and provides disk storage as required; assists database administrators with database performance issues; with guidance, makes changes to data permissions, performs cleanup of obsolete data and supports the migration and archiving of data; performs backup and recovery processes; develops scripts to automate routine system maintenance tasks.

Provides technical assistance during the installation and testing of software; installs, tests and configures applications and new software functionalities to applicable server and client platforms; using applicable

languages, tools and utilities, provides technical advice to applications development staff of methods of performing application problem troubleshooting and resolution; recommends and installs program modifications to enhance system performance.

Participates with members of the technology services team, vendors and end users to ensure effective integration, operation and concurrent connectivity of multiple platforms and networks; participates in the development and implementation on systems and network standards and procedures.

Works with customers and other technology stakeholders to evaluate the uses of new technology to meet business process requirements; participates in the evaluation of new software and technologies to determine their functionality, interoperability, reliability, availability and supportability and expected return on investment; prepares periodic reports on new trends and opportunities.

Participates in or conducts assigned research and development projects, including assisting network consultants in testing in a virtual environment; participates in developing new methodologies, standards, frameworks and tools; trains other staff on uses of new technology tools.

Maintains up-to-date technical knowledge by attending educational workshops, reviewing professional publications, establishing personal networks and participating in professional associations. Performs other job-related duties as assigned.

JOB COMPETENCIES: KNOWLEDGE, SKILLS, AND ABILITIES:

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KNOWLEDGE OF:

Operating system architectures, characteristics, components and commands applicable to enterprise information systems and multiple platform operating systems; principles of network design and integration, including topologies and protocols;
Data storage technology principles, practices, hardware, components and software including SAN and Windows 2008 R2/Active Directory environments;
Principles, practices and methods of systems/network administration and maintenance, including configuration, performance tuning and diagnostic tools;
Principles and practices of disaster recovery; database management systems and software, including architectures, diagnostic tools, commands and utilities; Tools and utilities used in monitoring and tuning systems, database and application performance.
Systems integration design concepts and practices.
Systems security and capacity planning principles, methods and practices;
Principles, practices, methods and techniques of project management as they apply to information technology projects.
Script languages including, command line, visual basic, powershell and other relevant languages.

ABILITY TO:

Perform complex systems administration in a multi-platform and operating systems environment independently and with a high degree of understanding of inter-operating and integration issues.
Establish and maintain project schedules and balance responsibilities for multiple activities to ensure timely, high-quality results.
Perform advanced systems troubleshooting and tuning to resolve complex systems management, communication and inter-operating problems.
Communicate clearly and effectively, both orally and in writing.
Prepare clear, concise and accurate proposals, reports, documentation and other written materials.
Exercise sound independent judgment within general policy guidelines.
Keep technical skills current to meet continuing systems administration responsibilities.
Use tact and diplomacy when dealing with sensitive, complex and/or confidential issues and situations.
Establish and maintain highly effective, customer-focused working relationships with all end users, other CVUSD staff, representatives of other agencies and others encountered in the course of work.
Maintain an appropriate work pace to accomplish an acceptable volume of work

MINIMUM ENTRANCE QUALIFICATIONS: EDUCATION/EXPERIENCE:
Graduation from an accredited college or university with a degree in management information systems, information technology, computer science or a closely related field, AND at least four (4) years of current systems administration experience in a Windows/Active Directory environment, including configuring, coordinating and implementing releases, upgrades or changes to complex operating systems, servers and related software in a high-availability environment.

LICENSES/CERTIFICATIONS/SPECIAL REQUIREMENTS:
Valid California Class C Driver's License

PRE-EMPLOYMENT REQUIREMENTS

- California Department of Justice and Federal Bureau of Investigation fingerprint check.
- Tuberculosis screening
- Back X-Ray
- Job knowledge/experience based selection tests to assess minimum job competency and placement on the eligibility list established for filling job vacancies in the job class.

TOOLS/EQUIPMENT:

In order to effectively perform the essential functions of the classification, an incumbent is subject to properly operating the following tools/equipment with or without reasonable accommodation and/or on-the-job training upon job entry.

- Operate a variety of technology related tools and equipment, including, but not limited to: server and workstation hardware, switches, routers, network cable installation/termination and testing tools; software tools for troubleshooting and configuration, and assorted peripheral devices. Utilize dollies, hand-carts, or other equipment to transport heavy equipment or ojects. Operate a variety of office equipment including personal computers and job-specific software applications, and related peripheral equipment, including, but not limited to fax machine, copier, and printer.

WORK CONDITIONS:
PHYSICAL DEMANDS
Level – Moderate / Performance of position duties/responsibilities is subject to occasional standing, walking, reaching, twisting, turning, kneeling, bending, squatting, and/or stooping, while performing duties requiring lifting, pushing, pulling, carrying, moving, and/or positioning objects weighting up to 25lbs frequently and up to 50lbs occasionally; the position is subject to exercising continuous manual dexterity (i.e., coordinated and/or precise movement of hands, arms and fingers) throughout a work shift to operate computer equipment and peripherals.

ENVIRONMENT/HAZARDS

- Indoor office and/or classroom setting
  Minimal temperature vaiations; generally hazard free environment
- Occuasion exposure to nuisance dusts
- Frequently climbing ladders up to 10 ft. and occasionally up to 15 ft.
- Occasional bio=hazards, such as exposure to rodent feces, etc.
- Driving a personal or district vehicle to District sites to conduct work

CLASSIFICATION APPROVAL:
APPROVED: 10/24/2012

TECHNOLOGY SUPPORT SPECIALIST I

DEFINITION

Under general supervision, to provide technology assistance at elementary and/or middle schools in the operation, maintenance and support of a computer network including all computers, software, and peripherals; install and configure personal computer equipment; install and configure necessary software applications; perform related work as required.

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. Operates and maintains a variety of equipment including computers, printers, network servers, and other networking equipment.
2. Provides basic desktop support services to maintain optimum system operations including preventative maintenance.
3. Assists in the maintenance of the school Local Area Network (LAN) including coordination of daily administration and management tasks.
4. Assists in the implementation and support of network security on the elementary and middle schools Local Area Network (LAN).
5. Reviews hardware and software requirements.
6. Maintains records and inventory of equipment and software.
7. Sets up and configures new and existing instructional and administration Windows and Macintosh computers.
8. Installs software on new and used Windows and Macintosh systems.
9. Responds to hardware and software service requests.
10. Troubleshoots computer and printer problems.
11. Maintains records on all computer installations and technology service requests.
12. Works with vendors on software and hardware installations, troubleshooting, administration and maintenance.
13. Provides assistance with District technology initiatives as needed.
14. Performs preventative maintenance on hardware and software.
15. Performs other related duties as required.

QUALIFICATIONS

Knowledge of:

Methods, tools and equipment used in the installation and service of hardware and software; Windows and Macintosh computer operating systems; current computer network technology; basic industry standard networking principles.

Ability to:

Install computers, printers and other peripheral devices; install and test software and hardware; communicate clearly and concisely both oral and written; demonstrate good interpersonal skills to work with students, teachers, administrators, supervisors, co-workers and vendors; learn new skills to keep current with technology changes; instruct others in the use and care of computer technology and software; adapt to changing technologies and learn functionality of new equipment and systems; work with limited supervision; multi-task while maintaining patience and flexibility; manage time effectively between multiple sites understand and carry out oral and written instructions; establish and maintain cooperative working relationships; comply with the District's customer service standards, as outlined in Board policy.

Education/Experience:

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

License/Certificate Requirement:

Possession of a valid California Driver's License.

PHYSICAL DEMANDS AND WORKING ENVIRONMENT

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

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

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

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

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

TECHNOLOGY SUPPORT SPECIALIST II

DEFINITION

Under general supervision, to provide technology support in the operation, maintenance and support of a computer network including all computers, software, and peripherals; install and configure personal computer equipment; install and configure necessary software applications; perform related work as required; provide assistance, direction and training to users and school site staff; work at various sites to troubleshoot problems with servers, network equipment, workstations, printers and software; communicate with District and site support staff on technical issues.

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. Operates and maintains a variety of equipment including computers, printers, network servers, and other networking equipment.
2. Reviews hardware and software requirements.
3. Responds to hardware and software service requests.
4. Sets up and configures new and existing instructional and administration Windows and Macintosh computers.
5. Installs software on new and used Windows and Macintosh systems.
6. Provides desktop support services to maintain optimum system operations including preventative maintenance.
7. Troubleshoots computer and printer problems.
8. Performs preventative maintenance on hardware and software; performs basic hardware repair; may provide limited support and scheduling duties for the video distribution system.
9. Assists in the basic maintenance, upgrades, and security of the District's various Local Area Networks (LAN).
10. Installs and configures Microsoft and Apple servers for network placement.
11. Installs and configures networked applications.
12. Installs and performs basic configuration of network switches and hubs.
13. Troubleshoots and resolves basic network problems.
14. Maintains records on all computer installations and technology service requests; maintains equipment and software inventory.
15. Coordinates networking data wiring layouts and additions.
16. Works with vendors on software and hardware installations, troubleshooting, administration and maintenance.
17. Creates documentation and other technical documents.
18. May provide cell phone support for District staff; assists users with cell phone and PDA setup and troubleshooting.
19. May assist with the administration of the laptop program; configures, distributes, updates, and monitors laptops for District staff.
20. Provides assistance with District technology initiatives as needed.
21. Performs other related duties as required.

QUALIFICATIONS

Knowledge of:

Methods, tools and equipment used in the installation and service of hardware and software; Windows and Macintosh computer operating systems and Microsoft Office suite; current computer network technology; basic industry-standard networking principles; basic understanding of networking

protocols, hardware and technology; understanding of physical wiring standards including CAT-5 and fiber optics.

Ability to:

Install computers, printers and other peripheral devices; install and test software and hardware; assist with the maintenance and troubleshooting of network hardware and software; communicate clearly and concisely both oral and written; demonstrate good interpersonal skills to work with students, teachers, administrators, supervisors, co-workers and vendors; learn new skills to keep current with technology changes; instruct others in the use and care of computer technology and software; adapt to changing technologies and learn functionality of new equipment and systems; work with limited supervision; multitask while maintaining patience and flexibility; manage time effectively between multiple sites; understand and carry out oral and written instructions; establish and maintain cooperative working relationships; comply with the District's customer service standards, as outlined in Board policy.

Education/Experience:

Any combination equivalent to: Completion of the twelfth grade supplemented by training and/or coursework in computer and network operations. Associates degree preferred but not required; and one year of computer related experience or any combination of experience and coursework in such areas as installation, configuration, troubleshooting, and repair of computer hardware, software and peripheral devices preferably in a networked environment. MCP/MCSE preferred but not required.

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 computer 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.

TECHNOLOGY SUPPORT SPECIALIST III

DEFINITION

Under general supervision, to provide technology support in the operation, maintenance and support of a computer network including all computers, software, and peripherals; install and configure personal computer equipment; install and configure necessary software applications; perform related work as required; provide assistance, direction and training to users, technology staff, and school site staff; work at various sites to troubleshoot problems with servers, network equipment, workstations, printers and software; communicate with District and site support staff on technical issues.

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. Operates and maintains a variety of equipment including computers, printers, network servers, and other networking equipment.
2. Reviews hardware and software requirements.
3. Provides leadership to other technology support staff.
4. Responds to hardware and software service requests.
5. Sets up and configures new and existing instructional and administration Windows and Macintosh computers.
6. Installs software on new and used Windows and Macintosh systems.
7. Provides desktop support services to maintain optimum system operations including preventative maintenance.
8. Troubleshoots computer and printer problems.
9. Performs preventative maintenance on hardware and software; performs basic hardware repair; may provide limited support and scheduling duties for the video distribution system.
10. Assists in the maintenance, upgrades, and security of the District's various Local Area Networks (LAN).
11. Installs and configures of Microsoft and Apple servers for network placement.
12. Installs and configures networked applications.
13. Installs and performs basic configuration of network switches and hubs.
14. Troubleshoots and resolves basic to intermediate network problems.
15. Maintains records on all computer installations and technology service requests; maintains equipment and software inventory.
16. Coordinates networking data wiring layouts and additions.
17. Works with vendors on software and hardware installations, troubleshooting, administration and maintenance.
18. Creates documentation and other technical documents.
19. May provide cell phone support for District staff; assists users with cell phone and PDA setup and troubleshooting.
20. May assist with the administration of the laptop program; configures, distributes, updates, and monitors laptops for District staff.
21. Provides assistance with District technology initiatives as needed.
22. Performs other related duties as required.

QUALIFICATIONS

Knowledge of:

Methods, tools and equipment used in the installation and service of hardware and software; Windows and Macintosh computer operating systems and Microsoft Office suite; current computer network

technology; basic industry-standard networking principles; basic understanding of networking protocols, hardware and technology; understanding of physical wiring standards including CAT-5 and fiber optics.

Ability to:

Install computers, printers and other peripheral devices; install and test software and hardware; assist with the maintenance and troubleshooting of network hardware and software; communicate clearly and concisely both oral and written; demonstrate good interpersonal skills to work with students, teachers, administrators, supervisors, co-workers and vendors; learn new skills to keep current with technology changes; instruct others in the use and care of computer technology and software; adapt to changing technologies and learn functionality of new equipment and systems; work with limited supervision; multitask while maintaining patience and flexibility; manage time effectively between multiple sites; understand and carry out oral and written instructions; establish and maintain cooperative working relationships; comply with the District's customer service standards, as outlined in Board policy.

Education/Experience:

Any combination equivalent to: Completion of the twelfth grade supplemented by training and/or coursework in computer and network operations. Associates degree preferred but not required; and two years of computer related experience or any combination of experience and coursework in such areas as installation, configuration, troubleshooting, and repair of computer hardware, software and peripheral devices preferably in a networked environment. MCP/MCSE preferred but not required.

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 computer equipment requiring repetitive hand movement and fine coordination including use of a computer keyboard; and to verbally communicate to exchange information.

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

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

Appendix B

Study Agreement

FCMAT
FISCAL CRISIS & MANAGEMENT
ASSISTANCE TEAM

CSIS California School Information Services

FISCAL CRISIS & MANAGEMENT ASSISTANCE TEAM
STUDY AGREEMENT
October 12, 2015

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

1.   BASIS OF AGREEMENT

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

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

2.   SCOPE OF THE WORK

A.   Scope and Objectives of the Study

The scope and objectives of this study are to:

1.   Conduct a comprehensive analysis of the district's technology. Interview principals, department directors and classified staff to gather data on the software and hardware used. Review and analyze the district's technology master plan with an emphasis on integration with the Local Control Accountability Plan (LCAP).

2.   Analyze the status of the following:
a.   Project management
b.   Infrastructure planning, deployment, and maintenance
c.   Network administration
d.   User account and password management
e.   Help desk system and ticketing process

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        f.   Website development and support, with an emphasis on content management and board policies, including social media policies

        g.   Hardware installation and setup

        h.   Software applications used at the district and school sites

        i.   Technology in the classrooms

3.   Review the job descriptions, skill level, and staffing of the technology department, including school site support.

4.   Review the management of devices over their lifespan, including acquisition, disposal and inventory management.

5.   Make staffing recommendations based on the support needed to meet the district's technology requirements.

6.   Review the network design for safeguards against a catastrophic event or security breach of systems and data.

7.   Perform a high-level review of network topology with emphasis on current and planned bandwidth and core networking equipment.

8.   Review the processes or planning used to ensure that hardware and software are up to date.

B.   Services and Products to be Provided

1.   Orientation Meeting - The team will conduct an orientation session at the district to brief district management and supervisory personnel on the team's procedures and the purpose and schedule of the study.

2.   On-site Review - The team will conduct an on-site review at the district office and at school sites if necessary.

3.   Exit Report - The team will hold an exit meeting at the conclusion of the on-site review to inform the district of significant findings and recommendations to that point.

4.   Exit Letter – Approximately 10 days after the exit meeting, the team will issue an exit letter briefly summarizing significant findings and recommendations to date and memorializing the topics discussed in the exit meeting.

5.   Draft Reports - Electronic copies of a preliminary draft report will be delivered to the district's administration for review and comment.

6.   Final Report - Electronic copies of the final report will be delivered to the district's administration and to the county superintendent following completion of the review. Printed copies are available from FCMAT upon request.

7.   Follow-Up Support – If requested, FCMAT will return to the district at no cost six months after completion of the study to assess the district's progress in implementing the recommendations included in the report. Progress in implementing the recommendations will be documented to the district in a FCMAT management letter.

3. **PROJECT PERSONNEL**

The study team will be supervised by Michael H. Fine, Chief Administrative Officer, Fiscal Crisis and Management Assistance Team, Kern County Superintendent of Schools Office. The study team may also include:

A. Scott Sexsmith   *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*
G. To be determined   *FCMAT Consultant*

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

4. **PROJECT COSTS**

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

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

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

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

       Based on the elements noted in section 2 A, the total estimated cost of the study will be $29,000.

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

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

5.   <u>RESPONSIBILITIES OF THE DISTRICT</u>

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

B.   The district will provide the following if requested:

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

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

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

6.   <u>PROJECT SCHEDULE</u>

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

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

7. **COMMENCEMENT, TERMINATION AND COMPLETION OF WORK:**

FCMAT will begin work as soon as it has assembled an available and appropriate study team consisting of FCMAT staff and independent consultants, taking into consideration other jobs FCMAT has previously undertaken and assignments from the state. The team will work expeditiously to complete its work and deliver its report, subject to the cooperation of the district and any other parties from whom, in the team's judgment, it must obtain information. Once the team has completed its field work, it will proceed to prepare a preliminary draft report and a final report. Prior to completion of field work, the district may terminate its request for service and will be responsible for all costs incurred by FCMAT to the date of termination under Section 4 (Project Costs). If the district does not provide written notice of termination prior to completion of field work, the team will complete its work and deliver its report and the district will be responsible for the full costs. The district understands and agrees that FCMAT is a state agency and all FCMAT reports are published on the FCMAT website and made available to interested parties in state government. In the absence of extraordinary circumstances, FCMAT will not withhold preparation, publication and distribution of a report once field work has been completed, and the district shall not request that it do so.

8. **INDEPENDENT CONTRACTOR:**

FCMAT is an independent contractor and is not an employee or engaged in any manner with the district. The manner in which FCMAT's services are rendered shall be within its sole control and discretion. FCMAT representatives are not authorized to speak for, represent, or obligate the district in any manner without prior express written authorization from an officer of the district.

9. **INSURANCE:**

During the term of this agreement, FCMAT shall maintain liability insurance in an amount not less than $1 million unless otherwise agreed upon in writing by the district, automobile liability insurance in the amount required under California state law, and workers compensation as required under California state law. FCMAT shall provide certificates of insurance, with additional insured endorsements, indicating applicable insurance coverages prior to the commencement of work.

10. **HOLD HARMLESS:**

FCMAT shall hold the district, its board, officers, agents and employees harmless from all suits, claims and liabilities resulting from negligent acts or omissions of its board, officers, agents and employees undertaken under this agreement. Conversely, the district shall hold FCMAT, its board, officers, agents and employees harmless from all suits, claims and liabilities resulting from negligent acts or omissions of its board, officers, agents and employees undertaken under this agreement.

11. **CONTACT PERSON**

Name: Kent Kern, Superintendent
Telephone: (916) 971-7104
E-mail: KKern@sanjuan.edu

_____   10/13/15
Kent Kern, Superintendent   Date
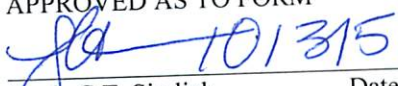San Juan Unified School District

_____   October 12, 2015
Michael H. Fine   Date
Chief Administrative Officer
Fiscal Crisis and Management Assistance Team

APPROVED AS TO FORM

_____
Linda C.T. Simlick   Date
General Counsel, SJUSD