MOORPARK COLLEGE

**Information Technology Operations Plan**

**2019-2020**

## Introduction

Technology support is a consolidated service through District Information Technology. Moorpark College maintains a full- time on-site Information Technology Services (ITS) department comprised of one Director and five technology support specialists. The College technicians support a collaborative framework, allowing the IT department to leverage skill sets between campuses. The District Administration Center (DAC) supports administrative computing, core fiscal and operational systems, and administers networked services district-wide.

### OVERVIEW

Through active collaboration with District IT, Moorpark College has developed a Strategic Technology Plan that encompasses all aspects of technology. The plan is aligned with the Educational Master Plan and the Facilities Master Plan. The Strategic Technology Plan lays out the strategic goals and objectives for technology at Moorpark College and will be updated again during the 2018-2019 academic year.

This Technology Operational Plan will guide the development of tactical business plans, aligning with the District's and College's vision, mission, strategic initiatives, and prioritization criteria.

Resource prioritization and allocation are facilitated by College Facilities and Technology Committee on Accreditation and Planning (F/T CAP) committee and driven through the College's program review process. Currently, there is one technology committee and one workgroup at Moorpark College:

➢ The Facilities and Technology Committee on Accreditation and Planning (F/T CAP) which plans, monitors, and evaluates institutional technology including hardware and training needed to support student learning; the Technology Master Plan and Technology Inventory; funding for technology based on an allocation of at least 30% of instructional equipment funding dedicated each year to technology equipment, and hardware needs identified in the Technology Plan and annual program plans.

➢ A work group of F/T CAP is the Technology Resource Allocation Work Group (TRAWG). This group has been tasked with prioritizing purchase requests for new and replacement computers and related equipment and also working with other committees that need to have information relating to the College's use of technology. A standards and criteria document has been established to formalize the ranking of needs.

## Mission

The mission of the Moorpark College Information Technology department is to serve the technology needs of the institution. The following objectives must be met to satisfy the growing technology and service support needs of the College:

## Objectives

The following are guidelines to meet the growing technology support needs of the College:

- Maintain a high level of support services
- Use resources efficiently to better serve College
- Use a work order system to measure service levels and outcomes
- Enhance and maintain open communication with all users
- Facilitate innovation and planning in order to meet technology needs

# Support Standards

## Service Levels

The College ITS department will continue to maintain effective service levels through proper use of College committees, as well as collaborative relationships with other College groups and/or departments.

Service Level Agreements (SLA) are internal contracts that define the prioritization and timeframe for delivery of services. The agreements set expectation levels for support services. The following table briefly describes priority levels assigned to work orders and initial response time expectations.

| Level | Description | Initial Response | First Contact | Escalation |
|-------|-------------|------------------|---------------|------------|
| 1 | Critical/Urgent | 15 Minutes | Call xt.4660 | 1. Campus IT Director |
| 2 | Urgent/High | 1 Hour | Call xt.4660 | 2. Vice President of Business Services |
| 3 | Normal | 4 Hours | mchelpdesk@vcccd.edu | 3. Associate Vice Chancellor of Information Technology |
| 4 | Low/Scheduled | 1 Day | mchelpdesk@vcccd.edu | |
| 5 | Project Based | Scheduled | mchelpdesk@vcccd.edu | |

## Priority Level Detail Examples

**Priority 1** – 15-minute response
Defined: Immediate impact upon instruction
- Classroom technology failure, preventing the class from proceeding
- Critical service failure for one or more divisions/business groups

**Priority 2** – 1-hour response
Defined: Urgent, or high priority, issues directly impacting instruction, or business operations
- Classroom technology failure that must be addressed before the next class meeting
- Staff inability to access core services
- Faculty or staff computer is non-functional and preventing them from working
- Virus infection

**Priority 3** – 4-hour response
Defined: Day-to-day support issues of a non-urgent nature
- One or more applications will not function, but an alternative exists
- Classroom technology problems that do not prevent the class from proceeding
- Issues of an inconvenient nature, but not impacting day-to-day business operations

**Priority 4** – 1-day response
Defined: Low priority or scheduled requests
- The user has requested A/V for a class in the future
- An appointment is made for new or replacement equipment to be set up
- Computer OS or Software updates
- Equipment/phone moves and setup

**Priority 5** – Project-based requests
Defined: These requests are considered informational, or project-oriented, and will be addressed as part of larger projects or ongoing maintenance issues.
- Any request for non-essential help without time constraints
- Technology initiatives or projects
- Non-urgent software or equipment purchase consultation

## Work Order Tracking

Technology related work order requests are tracked via the NetHelpdesk work order system which is hosted by the ITS department. The NetHelpdesk system was implemented to capture work order requests and provide a mechanism for measuring efficiency and determining staffing level adjustments.  Functionality includes call management and tracking, knowledge management, problem resolution, and self- help capabilities.

The Help Desk is currently maintained by a combination of student workers and ITS staff Monday through Friday and offers an alternate method for communicating service requests. The day-to-day supervision of the Help Desk falls under the Director of College Information Technology Services.



The College utilizes the NetHelpdesk application to manage work order requests in union with the District's TrackIT help desk system. The ITS department is committed to working closely with the District in this endeavor, as the NetHelpdesk application becomes crucial for ITS support tracking.  Built-in reporting quantifies department activities in the validation of service level expectations.

## Resource Sharing

Resources for technology support (parts, vendors, tools) are centrally shared by College ITS staff. The College also depends on District IT for certain levels of repairs and support issues. This alliance creates an environment of shared resources and provides for greater efficiency.

## Common Methodologies

Common methodologies and processes for implementing and maintaining technology on each campus within
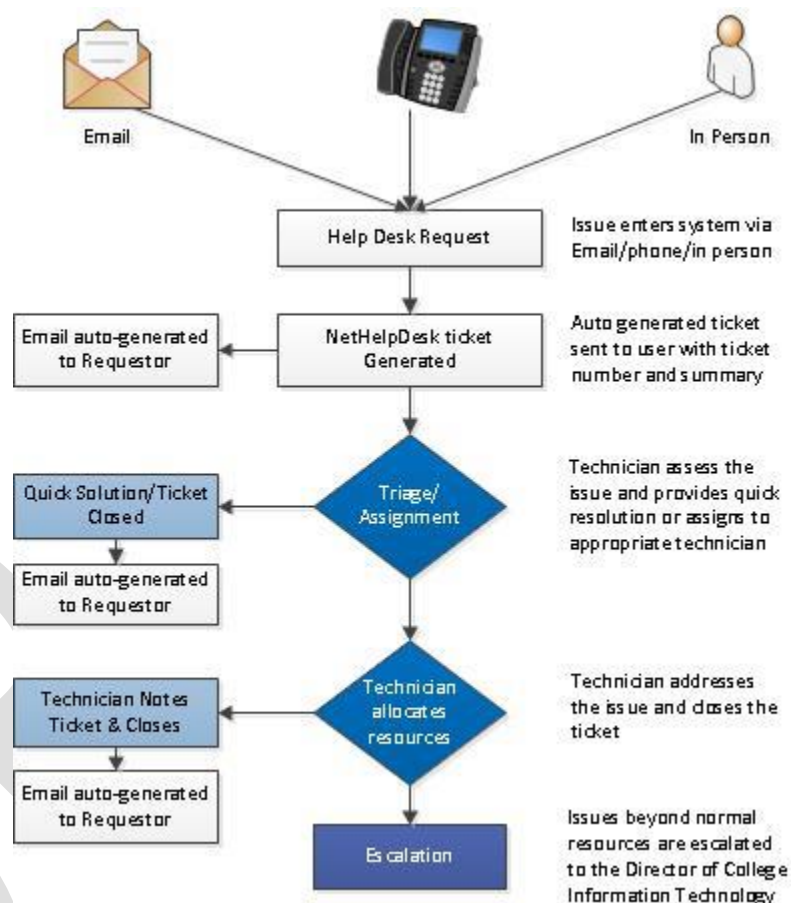
the District will be supported and actively cultivated to maximize efficiencies. This will allow for the training of staff and will allow flexibility in allocating staffing resources.

## Staffing Levels

The Director of College Information Technology Services directs the day-to-day ITS operations. The department support staff consists of three Information Technology Support Specialist IIs and two Information Technology Support Specialists IIIs.  Each staff member is dedicated to supporting technology needs across the College. Additional staffing is desperately needed but is dependent on hiring prioritization and funding.  As a comparison, Ventura College has 7 full-time ITS staff members and one Director compared to the 5 full-time ITS staff members and one Director at Moorpark College.
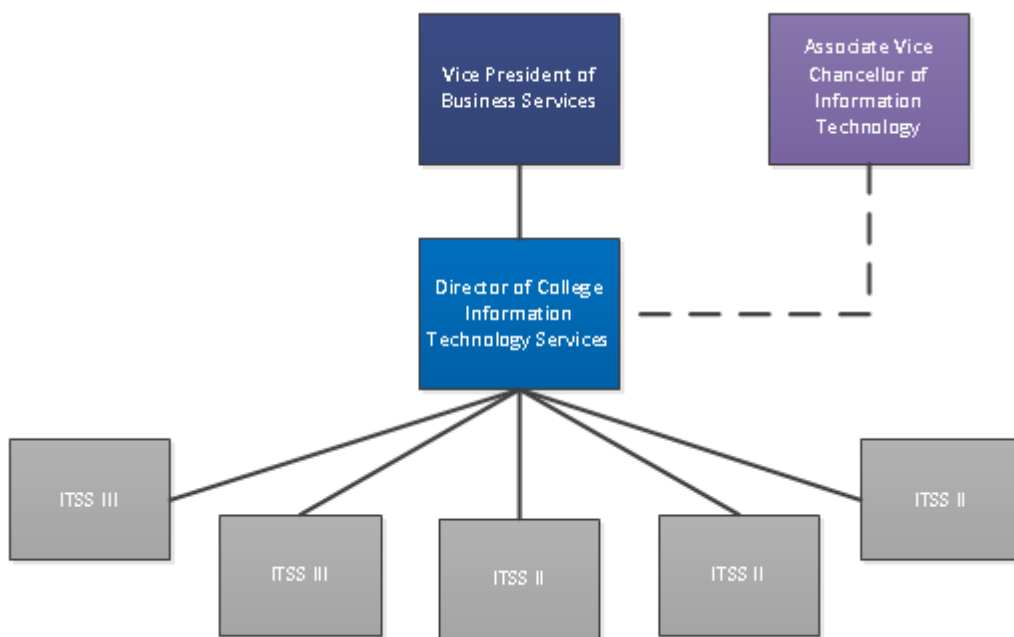


### College and District Responsibilities

District IT provides support in a number of key areas:

- Administrative applications, including Banner, GradesFirst, OnBase, DegreeWorks, and Outlook (email)
- College connectivity to other District facilities and the Internet
- College cabling infrastructure, to the wiring closet level
- College network backbone, including switches, firewalls, and routers
- Server and data storage management

## Major Technology Projects for 2019-2020

## Overview

The College has numerous technology initiatives each year that involve upgrades to existing technology and new technology deployments. There are many major technology projects for the 2019-20 academic year. Some of the projects are district-wide initiatives and others are local projects.

### Windows 10 / MS Office 2016

Microsoft announced that support and updates for Windows 7 will end in January 2020. The ITS department will increase the rollout of systems with the Windows 10 operating system and the Microsoft Office 2016 suite will be deployed for end users. All computer labs will have Windows 10 and MS Office 2016 installed by the Fall 2019 semester. The rollout of Windows 10 for staff and classroom labs will be performed with the use of disk imaging software and deployment applications with the goal to be complete the migration by the end of 2019. There are currently 700 systems that will need to be upgraded before the end of 2019.

### Replace Voice Circuits

Some of the features of Skype for Business include video conferencing to the desktop, voicemail files to your email inbox, Voice over IP (VoIP), and workgroup instant messaging. Calls from internal phones or soft clients externally exit the campus over a Session Initiation Protocol (SIP) circuit provided by CenturyLink. The existing circuit is expensive and has been problematic. The College IT department will be working with District IT to convert the SIP circuit to a circuit provided by AT&T. The new circuit will save the District and campus money and should provide greater stability.

### Replace Virtualization Desktop Infrastructure and Thin Clients

The Virtualization Desktop Infrastructure (VDI) used in the Open Access Lab (OAL) and several other locations has reached the end of its useful life expectancy. The District and College ITS departments have decided to replace the thin clients and VDI environment used in these locations with micro PCs. This decision was made due to overall costs associated with replacing the VDI environment with another solution and for performance. The micro PCs are much more powerful and responsive compared to the thin clients and VDI environment.

In this new paradigm, ITS maintains one image of the system with all necessary applications, and all computers in a lab are targeted to those images, dramatically reducing the upgrade time for a facility. This will be performed with a combination of disk imaging software, deployment software, updates, and restoration software.

Additional testing of applications will be an ongoing requirement. A process to provide better communications between ITS and faculty has been developed and implemented. The upgraded systems have demonstrated greatly improved performance and resiliency. Further upgrades to the systems are planned to occur on a constant basis due to updates and new threats. Expansion into other areas of the College may be planned in the future with similar configurations.

### Safety Initiatives

Information Technology continues to work closely with Campus Police to update and deploy technology to improve safety at the College. The technologies include on and off campus mass notification, video surveillance, emergency phones, and radio systems.

The College and District IT departments are refining a Request for Proposal (RFP) for a new emergency notification system. This new system will provide emergency notification via text, telephone, sirens, and audio and visual notifications in the classroom. The project will consist of hardware, cabling, switching, and software solutions with the goal of eventually installing notification devices in every classroom for mass notification if the project is approved.

### Information Security

The College is currently working with the District office to complete the Payment Card Industry (PCI) compliance project. This project will help keep credit card information safe during transactions. Many components of the project have already been installed and implemented. The project is expected to be completed in the Fall of 2019.

The College IT department will work with District IT to continually upgrade the College's high availability (HA) pair of firewalls with the latest operating systems and threat prevention. This HA pair increases reliability, protects information assets, and provides business continuity. This is an ongoing project that will never stop.

The College and District are evaluating enterprise endpoint protection applications. Once a solution is finalized, College IT will either upgrade the existing endpoint protection to a new version or install a new endpoint protection application on all administrative computers.

### Uninterruptable Power Supply (UPS) Replacement and Installation

The College is in need of having UPS units installed in every wiring closet that contains network infrastructure. A UPS will keep infrastructure powered on in the event of a power outage. IT intends to install a UPS in the primary wiring closet of a building first followed by secondary and tertiary closets. This will help ensure that Power over Ethernet (PoE) phones are functional during a power outage. The UPS replacement project will be a long and ongoing process that will need to take place during off-hours to prevent downtime for users. This project is dependent on funding.

### Infrastructure

Some of the network infrastructure on campus is aging and will be replaced. District and College IT will be replacing the remaining 10/100Mbps network switches with switches that provide 1Gbps throughput to each interface. The new network infrastructure equipment installation is dependent on funding. The project to replace the aging network switches will be completed by the end of Spring '20 if funded.

Infrastructure upgrades also include installing additional wireless access points to provide greater wireless coverage on campus. An increase in exterior wireless coverage is planned. The College IT department will

replace these devices during off hours as to prevent any downtime for users.

## Tech Refresh

The College will be refreshing 410 computers located in the OAL and classrooms throughout the campus. The College will also refresh a total of 80 faculty and staff computers. The campus will be replacing 22 aging projectors located in classrooms in the CDC, HSS, LLR, LMC, PS, TECH, and ZOO buildings.  The replacement of these computers and projectors will take place throughout the 2019-2020 fiscal year.

| **Projects** | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | April | May | Jun |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Windows 10/Office 2016 | Ongoing Process | | | | | | | | | | | |
| Upgrade Voice Circuits | Implementation Period | | | | | | | | | | | |
| Thin Client Replacement | Ongoing Process | | | | | | | | | | | |
| Safety – Emergency Notification System | Dependent on Funding Approval | | | | | | | | | | | |
| Security – PCI Compliance | Ongoing Process | | | | | | | | | | | |
| Security – Firewall Upgrades | Ongoing Process | | | | | | | | | | | |
| Security – Endpoint Protection | Ongoing Process | | | | | | | | | | | |
| UPS | Implementation Period | | | | | | | | | | | |
| Infrastructure - switches | Implementation Period | | | | | | | | | | | |
| Infrastructure – Wireless Access Points | Ongoing Process | | | | | | | | | | | |
| Tech Refresh - Computers | Ongoing Process | | | | | | | | | | | |
| Tech Refresh - Projectors | Implementation Period | | | | | | | | | | | |

## <u>Overview</u>

The College currently has a plan in place for replacing aging computer hardware. As technology continually evolves, there is a need to keep the computer equipment reasonably current. New technologies tend to require additional capacity and computing power compared to older systems.

The plan was created through the cooperation of the Facilities Technology Committee on Accreditation and Planning (F/T CAP). The plan will guide the College technology efforts as it relates to the College's growth and needs.

With the increase in new technology cycles, the baseline for technology requirements has been raised. New technologies in the areas of information search and streaming video have significant processing requirements.

## <u>Existing Refresh Method</u>

The current system for replacing aging equipment is a combination of new equipment and a "trickle-down" process. New equipment has been purchased using various funding sources, including IELM, CTE, Student Success, Infrastructure, and Equity. The equipment being replaced can be redeployed based on whether the equipment specifications are adequate. Eventually, older equipment is removed from inventory and cycled out.

## Five-Year Computer Refresh Program

Most standards for organizations and white papers recommend a four to five-year refresh period for technology. The College has been very proactive over the last few years, via the Refresh Program. The ability of the Refresh Program to remain proactive will be greatly influenced by future budgets. While the California Community College Technology II Initiative in 2001 set a goal for state campuses to have a three-year program to refresh equipment, the District currently has adopted a five-year program. With current budget constraints, in-place upgrades (hard drives and RAM) of existing systems has now been adopted across the District as a means to extend the life of existing equipment beyond four years.

## Peripherals

### Monitors

LCD flat-panel monitors have a theoretical useful life of over ten years. Any systems purchased that are replacing systems with CRT monitors will include an LCD flat panel. A 19-22 inch LCD will be sufficient for classes that teach one application at a time. Computers that require the use of multiple applications simultaneously will require a 22 inch LCD or larger. These areas include all administrative offices, the Staff Resource Center (SRC), and the training room. Other exceptions include systems purchased for use by the visually impaired, and programs that require high-end graphics, such as the AutoCAD and Adobe Creative Cloud suite programs. LCD monitors will be replaced on an as-needed basis.

### Printers

Printers are purchased on an as-needed basis, depending upon use, program needs, and changing technology. For purposes of better energy and consumables management, future purchases will prioritize the use of Ricoh workgroup printers, de-emphasizing the deployment of individual devices.

# Smart Classrooms & Location Summary

## Standard Components

### Ceiling Mounted LCD Projector

The projector should have WUXGA or better resolution with high brightness to allow use under classroom lighting conditions; power zoom and lens shift, 2000 hour or better lamp life; dual HDMI and video inputs; the case should incorporate cover for cable connection panel; 3-year or better overnight replacement warranty. Current standard: Epson PowerLite 2250U.

### Projector Mounting Bracket

Projector-specific mounting bracket, ceiling mounting bracket/plate. Projector mounts must have seismic bracing to prevent the unit from falling.

### DVD/Blu-ray player

Smart classrooms will contain a DVD or Blu-ray player as needed.

### Self-Amplified Powered Speakers

Ceiling mounted speakers, connected through a projector for volume control.

### Projector Control System

Smart panel programmable control system, mounted on instructor's station providing power and volume control, source selection, DVD/VCR transport Controls. Current standard: Crestron Digital MPS system. The College is currently looking at alternatives to the Crestron control system.

### DVD/VCR Combo Drive

VCR/VHS capacity will continue to be phased out and will not be replaced as equipment fails.

### Document Camera

Digital presenters for physical demonstrations will be installed as needed.

### Projector Installation and Cables

Type of projector and cables vary by installation and classroom use.

### Instructor's Multimedia Workstation

Teaching station with locking cabinets for audio-visual equipment and internally mounted computer and monitor. Projector control system panel mounted on the desktop surface. Cabling provisions for connecting a laptop to the projector can include VGA, HDMI, and Display port depending on the room capabilities.

### PC Workstation with minimum 22" LCD display

Standard Dell CPU mounted in instructor's workstation.

| Moorpark College | | |
|---|---|---|
| **Smart Classroom Location Summary[1]** | | |
| Building | Rooms | Total |
| AA | 115, 124, 132, 136, 143, Forum | 6 |
| AC | 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 221, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310 | 34 |
| Admin | 138, PCR | 2 |
| CC | 146, CCCR | 2 |
| CDC | 114, 132 | 2 |
| EATM | 101, 102, 103, 208 | 4 |
| COM | 109, 129, 150 | 3 |
| FH | 112, 117, 118, 120, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220 | 13 |
| HSC | 101A, 101B, 102A, 102B, 103, 104, 105, 109, 130, 202, 203, 204, 207, 208 | 14 |
| HSS | 100, 101, 104, 111, 121, 129, 140, 201, 202, 203, 204,205, 206, 222, 223, 230, 238, 239 | 18 |
| LLR | 121, 122, 124, 126, 210, 301, 305, 322 | 8 |
| LMC | 121, 122, 123, 124, 125, 138, 139, 216, 217, 218, 219, 220, 227, 228 | 14 |
| M | 106, 105, 109, 114 | 4 |
| PA | 100, 107, 119, 128, 149 | 5 |
| PS | 102, 103, 104, 107, 110, 115, 134, 135, 202, 203, 204, 205, 207, 208, 209, 222, 224 | 17 |
| SSA | 111A | 1 |
| Tech | 105, 108, 109, 114, 118, 119, 120, 205, 210, 211, 212, 215, 216, 217 | 14 |
| ZOO | 2 | 1 |
| | **TOTAL** | **162** |

## Current Standards

To maximize purchasing and support resources, the District has established a standard for desktop and laptop systems. The configuration matrix outlined below describes the minimum specification for four configurations. Alternate platforms can be identified and implemented based on business or instructional need. The 2019-2020 standards:[2]

| | **Enterprise Laptop** | **Ultralight Laptop** | **Desktop** | **All in One** | **Thin Client** |
|---|---|---|---|---|---|
| Processor | Intel Core i5 | Intel Core i5 | Intel Core i5 | Intel Core i5 | Intel Atom N280 |
| Display | 14" 1366x768 or better | 11-13" 1366x768 or better | 22" 1600x900 or better | 22" 1600x900 or better | N/A |
| Video Card | Intel Integrated GMA | Intel Integrated GMA | Intel Integrated GMA | Intel Integrated GMA | Intel GL40 |
| RAM | 8.0GB | 8.0GB | 8.0GB | 8.0GB | 2.0GB |
| Primary Storage | 256 GB SSD | 256 GB SSD | 256 GB SSD | 256 GB SSD | 4GB Flash RAM |
| Optical | None or external | None or external | None or external | None or external | N/A |
| Battery | Standard runtime | Standard runtime | N/A | N/A | N/A |
| Ethernet | 1000Mbps or better | 1000Mbps or better | 1000Mbps or better | 1000Mbps or better | 1000Mbps or better |
| Wireless LAN | integrated AC | integrated AC | N/A | N/A | N/A |

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[1] Detailed break out of room equipment available in Appendix C
[2] Standard Spec is shown. Vendor proposals are currently under review to establish manufacture standard for purchase for FY 18.

# Technology Infrastructure and Network

## __Overview__

The network infrastructure at Moorpark College enables data and voice communications connecting all facilities on the College, plus connections to the other District locations and the Internet.

The District Information Technology Department has primary responsibility for network design, implementation, maintenance, and troubleshooting. The local IT group is responsible for local connections of desktop or server devices and works with District IT on resolving network problems.

### Cabling Infrastructure

The District has adopted cabling standards that conform to industry standards, including TIA/EIA, ANSI, IEEE, and BICSI. All new facilities conform to these standards. Existing facilities have been retrofitted to the standards, as the budget has permitted.

Cabling inside buildings conforms to TIA/EIA standards.

### Local Area Network Topology and Infrastructure

The local area network (LAN) is comprised of a mix of manufacturer switching equipment, both at the core and the edge. The current network core provides high scalability, performance, and redundancy for greater uptime.

The edge network devices located in each building mix of manufacturer switching equipment. The District and College IT will continue to replace aging edge switches with devices that have greater speeds and functionality on an as-needed basis.

The network has multiple segments segregated by virtual local area networks (VLANs). Instructional and administrative network traffic is separated on different network segments, providing greater security for information systems on the administrative network.

### Wide Area Network

The primary wide-area network (WAN) connectivity to the other District sites is via a high speed 10 Gbps WAN circuit between Moorpark College and the other District sites. Secondary and tertiary circuits running at OC-3 speeds (155 Mbps) run through a district-owned RF microwave network. The connection from Moorpark College to the microwave WAN is connected via South Mountain in Santa Paula. The County of Ventura owns the South Mountain facility and the District rents space there.

AT&T is the provider of telecommunications circuits, T1 voice circuits, and Internet circuits (via CENIC). Level 3 provides the SIP (Session Initiation Protocol) circuit used for the College VoIP (Voice over Internet Protocol) unified communication system. The circuits are all provided on the state CalNet 2 contract at substantial discounts over commercial rates. The District also participates in the California Teleconnect Fund, which reduces some circuit costs by up to 50 percent.

### Internet Connectivity

Internet connectivity is provided by the Corporation for Education Network Initiatives in California (CENIC). From their website, "CENIC designs, implements, and operates CalREN, the California Research and Education Network, a high-bandwidth, high-capacity Internet network specially designed to meet the unique requirements of these communities, and to which the vast majority of the state's K-20 educational institutions are connected". The College currently has dual 10 Gbps Internet connections.

### Wireless

The District uses equipment from the same vendor as a standard wireless network for all locations. The solution is easy to manage, is secure, and very scalable. Enhancements and expansion of the wireless network is part of IT's operational standard. The College currently has 115 access points installed across the College with plans to install more to provide greater coverage.

Access to the student wireless networks requires students to login with their student portal username and password for authentication. Authentication for access to the staff wireless requires staff members to login with their College username and password. A guest wireless network was created to allow guests to access the Internet while on campus. Separate networks are configured for mobile labs.

### Voice Communications

District and College ITs maintain the voice network infrastructure. This system supports analog, digital, and IP phones on the College. The College's users are all are using the Microsoft Skype for Business unified communications platform. Skype for Business uses special Voice over Internet Protocol (VoIP) based telephones and soft client software on computers to provide voice, video, conference calling, screen sharing, and instant messaging communications.

Currently, there is network connectivity to the other campuses and the District via dedicated dual 10Gbps Internet circuits, a single 10 Gbps WAN circuit, and a secondary WAN circuit running through a district-owned RF microwave network. The local and long distance service is provided by CenturyLink via a SIP circuit with failover to Ventura College.

## Information Security

# __Overview__

The District makes every effort to comply with all federal, state, and local security rules and regulations, including the Family Educational Rights and Privacy Act (FERPA), Health Insurance Portability and Accountability Act (HIPAA), and Payment Card Industry Data Security Standard (PCI DSS). Best industry practices are used to secure the information assets at all facilities.

### Firewall

District IT provides firewall protection for the administrative and instructional networks. The District utilizes state-of-the-art next-generation firewalls from multiple vendors to protect the network from external and internal threats. Additional firewalls are being evaluated to protect the administrative segments of the College.

### Antivirus

District IT maintains an anti-virus site license. The College uses an enterprise antivirus program for end user protection. The enterprise console provides a more comprehensive and easier way to manage the system and at a lower cost.
The College also uses an enterprise antimalware solution to combat the latest threats, including malware and phishing. Deployment of these newer defenses is ongoing.

### Updates and Patching

The College IT department consistently updates all campus servers with security patches.  End-user systems have security patches automatically installed in a controlled manner.  These security patches help protect the servers and client stations from vulnerabilities.

Applications are updated to take advantage of new features and security measures.  The updates are made as licensing permits.  Updates are performed on a test set of systems and verified before larger scale implementation is performed.

### Funding

Funding for network infrastructure projects will be funded from general funds, College and District Technology Refresh budgets, as well as other sources. The District will fund IT expenditures for District infrastructure projects including the WAN, core, and datacenter infrastructure needed to provide connectivity to the campus and District services.

# Appendix C. Smart Classroom Status Detail

Key:

CPU means computer at the instructor workstation.

Doc Cam means a document camera which projects opaque materials.

Transparency Projector means an overhead projector.

Interface refers to the software and user panel which allows the instructor to control multiple pieces of equipment. These are indicated by company name such as "Crestron" and "Pixie", or in the case of projectors controlled by a remote control the word "Remote".

| Rm | Projector or TV | CPU | Install Base and Existing Equipment -- AA DVD | VCR | Doc Cam | Transparency Projector | Interface |
|---|---|---|---|---|---|---|---|
| AA-115 | √ | √ | √ | √ | None | None | Crestron |
| AA-124 | √ | √ | √ | None | | None | Crestron |
| Forum | √ | √ | √ | √ | √ | N/A | Crestron |
| AA-132 | √ | √ | √ | None | None | None | Crestron |
| AA-136 | √ | √ | √ | None | None | N/A | Remote |
| AA-143 | √ | None | √ | √ | None | N/A | Crestron |

| Rm | Projector or TV | CPU | Install Base and Existing Equipment -- AC DVD | VCR | Doc Cam | Transparency Projector | Interface |
|---|---|---|---|---|---|---|---|
| AC-101 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-102 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-103 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-104 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-105 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-106 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-107 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-108 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-109 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-110 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-111 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-112 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-113 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-201 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-202 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-203 | √ | √ | √ | √ | √ | N/A | Crestron |

| Rm | Projector or TV | CPU | DVD | VCR | Doc Cam | Transparency Projector | Interface |
|---|---|---|---|---|---|---|---|
| AC-204 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-205 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-206 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-207 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-208 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-209 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-210 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-221 | √ | √ | √ | | √ | | Crestron |
| AC-301 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-302 | √ | √ | √ | √ | √ | √ | Crestron |
| AC-303 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-304 | √ | √ | √ | √ | √ | √ | Crestron |
| AC-305 | √ | √ | √ | √ | √ | √ | Crestron |
| AC-306 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-307 | √ | √ | √ | √ | √ | √ | Crestron |
| AC-308 | √ | √ | √ | √ | √ | N/A | Crestron |
| AC-309 | √ | √ | √ | √ | √ | √ | Crestron |
| AC-310 | √ | √ | √ | √ | √ | N/A | Crestron |

| Install Base and Existing Equipment -- Admin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Rm | Projector or TV | CPU | DVD | VCR | Doc Cam | Transparency Projector | Interface |
| A-138 | √ | None | None | None | None | None | Remote |
| PCR | √ | √ | None | None | None | None | Remote |

| Install Base and Existing Equipment -- CC | | | | | | | |
|---|---|---|---|---|---|---|---|
| Rm | Projector or TV | CPU | DVD | VCR | Doc Cam | Transparency Projector | Interface |
| CC-146 | √ | None | None | None | None | None | Crestron |
| CCCR | √ | √ | None | None | None | None | Crestron |

| Install Base and Existing Equipment -- COM | | | | | | | |
|---|---|---|---|---|---|---|---|
| Rm | Projector or TV | CPU | DVD | VCR | Doc Cam | Transparency Projector | Interface |
| COM-109 | √ | √ | None | None | None | None | Remote |
| COM-129 | √ | None | None | None | None | None | Remote |
| COM-150 | √ | √ | None | None | None | None | Crestron |

| | Install Base and Existing Equipment -- EATM | | | | | | |
|---|---|---|---|---|---|---|---|
| Rm | Projector or TV | CPU | DVD | VCR | Doc Cam | Transparency Projector | Interface |
| EATM-101 | √ | √ | √ | √ | √ | None | Crestron |
| EATM-102 | √ | √ | √ | √ | √ | None | Crestron |
| EATM-103 | √ | √ | √ | √ | √ | None | Crestron |
| EATM-208 | √ | √ | √ | √ | √ | None | Crestron |

| | Install Base and Existing Equipment -- FH | | | | | | |
|---|---|---|---|---|---|---|---|
| Rm | Projector | CPU | DVD | VCR | Doc Cam | Transparency Projector | Interface |
| FH-112 | √ | None | None | None | None | None | Remote |
| FH-117 | √ | √ | √ | √ | √ | N/A | Pixie |
| FH-211 | √ | √ | √ | √ | √ | N/A | Pixie |
| FH-212 | √ | √ | √ | √ | √ | N/A | Pixie |
| FH-213 | √ | √ | √ | √ | √ | N/A | Pixie |
| FH-214 | √ | √ | √ | √ | √ | N/A | Pixie |
| FH-215 | √ | √ | √ | √ | √ | N/A | Pixie |
| FH-216 | √ | √ | √ | √ | √ | N/A | Pixie |
| FH-217 | √ | √ | √ | √ | √ | N/A | Pixie |
| FH-218 | √ | √ | √ | √ | √ | N/A | Pixie |
| FH-219 | √ | √ | √ | √ | √ | N/A | Pixie |
| FH-220 | √ | √ | √ | √ | √ | N/A | Pixie |

| | Install Base and Existing Equipment -- HSC | | | | | | |
|---|---|---|---|---|---|---|---|
| Rm | Projector | CPU | DVD | VCR | Doc Cam | Transparency Projector | Interface |
| HSC-101A | √ | √ | √ | √ | √ | None | Crestron |
| HSC-101B | √ | √ | √ | √ | √ | None | Crestron |
| HSC-102A | √ | √ | √ | √ | √ | None | Crestron |
| HSC-102B | √ | √ | √ | √ | √ | None | Crestron |
| HSC-103 | √ | √ | √ | √ | √ | None | Crestron |

| Rm | Projector | CPU | DVD | VCR | Doc Cam | Transparency Projector | Interface |
|---|---|---|---|---|---|---|---|
| HSC-104 | √ | √ | √ | √ | √ | None | Crestron |
| HSC-105 | √ | √ | √ | √ | √ | None | Crestron |
| HSC-109 | √ | √ | √ | √ | √ | None | Crestron |
| HSC-130 | √ | √ | √ | None | None | None | Crestron |
| HSC-201 | √ | √ | √ | √ | √ | None | Crestron |
| HSC-202 | √ | √ | √ | √ | √ | None | Crestron |
| HSC-203 | √ | √ | √ | √ | √ | None | Crestron |
| HSC-204 | √ | √ | √ | √ | √ | None | Crestron |
| HSC-205 | √ | None | None | None | None | None | Remote |
| HSC-208 | √ | √ | √ | √ | √ | None | Crestron |

| | Install Base and Existing Equipment -- HSS | | | | | | |
|---|---|---|---|---|---|---|---|
| Rm | Projector | CPU | DVD | VCR | Doc Cam | Transparency Projector | Interface |
| HSS-100 | √ | √ | √ | √ | √ | √ | Remote |
| HSS-101 | √ | √ | None | None | √ | None | Remote |
| HSS-104 | √ | √ | None | None | √ | √ | Remote |
| HSS-111 | √ | √ | √ | √ | √ | √ | Remote |
| HSS-121 | √ | √ | √ | √ | √ | √ | Crestron |
| HSS-129 | √ | √ | None | None | √ | None | Crestron |
| HSS-140 | √ | √ | √ | None | √ | √ | Remote |
| HSS-202 | √ | √ | √ | √ | √ | √ | Pixie |
| HSS-203 | √ | √ | √ | √ | √ | √ | Pixie |
| HSS-204 | √ | √ | √ | √ | √ | √ | Crestron |
| HSS-205 | √ | √ | √ | √ | √ | None | Crestron |
| HSS-206 | √ | √ | √ | √ | √ | √ | Crestron |
| HSS-222 | √ | √ | √ | √ | √ | None | Crestron |

| Rm | √ | √ | √ | √ | √ | √ | Interface |
|---|---|---|---|---|---|---|---|
| HSS-223 | √ | √ | √ | √ | √ | √ | Crestron |
| HSS-230 | √ | √ | √ | √ | √ | √ | Crestron |
| HSS-238 | √ | √ | √ | √ | √ | √ | Remote |
| HSS-239 | √ | √ | √ | √ | √ | √ | Remote |

| **Install Base and Existing Equipment -- LLR** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Rm** | **Projector** | **CPU** | **DVD** | **VCR** | **Doc Cam** | **Transparency Projector** | **Interface** |
| LLR-121 | √ | √ | None | None | None | N/A | Remote |
| LLR-122 | √ | √ | None | None | √ | N/A | Remote |
| LLR-124 | √ | √ | √ | √ | √ | N/A | Pixie |
| LLR-126 | √ | √ | √ | √ | √ | N/A | Crestron |
| LLR-210 | √ | √ | √ | √ | √ | N/A | Pixie |
| LLR-305 | √ | √ | √ | √ | √ | N/A | Pixie |
| LLR-322 | √ | √ | None | None | None | N/A | Pixie |
| LLR-301G | √ | √ | √ | | None | N/A | **Crestron** |

| **Install Base and Existing Equipment -- LMC** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Rm** | **Projector** | **CPU** | **DVD** | **VCR** | **Doc Cam** | **Transparency Projector** | **Interface** |
| LMC-121 | √ | √ | None | None | None | None | Remote |
| LMC-122 | √ | √ | √ | √ | √ | None | Crestron |
| LMC-123 | √ | √ | √ | √ | √ | √ | Crestron |
| LMC-124 | √ | √ | √ | √ | √ | None | Crestron |
| LMC-125 | √ | √ | None | None | √ | √ | Remote |
| LMC-138 | √ | √ | None | None | None | None | Remote |
| LMC-139 | √ | √ | None | None | None | None | Remote |
| LMC-216 | √ | √ | √ | √ | √ | √ | Remote |

| Rm | | | | | | | |
|---|---|---|---|---|---|---|---|
| LMC-217 | √ | √ | √ | √ | √ | √ | Remote |
| LMC-218 | √ | √ | √ | √ | √ | √ | Remote |
| LMC-219 | √ | √ | √ | √ | √ | √ | Remote |
| LMC-220 | √ | √ | √ | √ | √ | √ | Remote |
| LMC-227 | √ | √ | √ | √ | √ | √ | Remote |
| LMC-228 | √ | √ | √ | √ | √ | √ | Remote |

| Install Base and Existing Equipment -- M | | | | | | | |
|---|---|---|---|---|---|---|---|
| Rm | Projector | CPU | DVD | VCR | Doc Cam | Transparency Projector | Interface |
| M-106 | √ | √ | √ | √ | None | √ | Crestron |
| M-105 | √ | None | None | None | None | N/A | None |
| M-109 | √ | √ | √ | √ | √ | N/A | Pixie |
| M-114 | √ | √ | √ | √ | √ | N/A | Pixie |

| Install Base and Existing Equipment -- PA | | | | | | | |
|---|---|---|---|---|---|---|---|
| Rm | Projector | CPU | DVD | VCR | Doc Cam | Transparency Projector | Interface |
| PA-100 | √ | √ | None | None | None | N/A | Crestron |
| PA-107 | √ | √ | √ | None | None | N/A | Crestron |
| PA-119 | √ | √ | √ | √ | None | N/A | Crestron |
| PA-128 | √ | √ | √ | None | √ | N/A | Crestron |
| PA-149 | √ | √ | √ | None | None | N/A | None |
| PA-154 | None | None | None | None | None | N/A | None |

| Install Base and Existing Equipment -- PS | | | | | | | |
|---|---|---|---|---|---|---|---|
| Rm | Projector | CPU | DVD | VCR | Doc Cam | Transparency Projector | Interface |
| PS-102 | √ | √ | √ | None | √ | None | Crestron |
| PS-103 | √ | √ | √ | None | √ | None | Crestron |
| PS-104 | √ | √ | √ | None | √ | None | Crestron |
| PS-107 | √ | √ | √ | None | √ | None | Crestron |
| PS-110 | √ | √ | √ | √ | √ | √ | Remote |
| PS-115 | √ | √ | √ | √ | √ | √ | Crestron |
| PS-134 | √ | None | None | None | √ | √ | Remote |
| PS-135 | √ | None | √ | √ | √ | √ | Crestron |
| PS-202 | √ | None | √ | √ | √ | √ | Remote |

| Rm | | | | | | | |
|---|---|---|---|---|---|---|---|
| PS-203 | √ | None | √ | √ | √ | √ | Crestron |
| PS-204 | √ | None | √ | √ | √ | √ | Remote |
| PS-205 | √ | None | √ | √ | √ | √ | Remote |
| PS-207 | √ | None | √ | √ | √ | √ | Crestron |
| PS-208 | √ | √ | √ | None | √ | √ | None |
| PS-209 | √ | √ | √ | None | √ | None | None |
| PS-222 | √ | √ | None | None | √ | √ | Remote |
| PS-224 | √ | √ | √ | None | √ | √ | Crestron |

| Install Base and Existing Equipment -- SSA | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Rm** | **Projector or TV** | **CPU** | **DVD** | **VCR** | **Doc Cam** | **Transparency Projector** | **Interface** |
| SSA-111A | √ | √ | None | None | √ | None | Remote |

| Install Base and Existing Equipment -- TECH | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Rm** | **Projector** | **CPU** | **DVD** | **VCR** | **Doc Cam** | **Transparency Projector** | **Interface** |
| T-105 | √ | √ | √ | None | None | None | Crestron |
| T-108 | √ | √ | √ | √ | √ | None | Crestron |
| T-109 | √ | √ | √ | √ | √ | None | Crestron |
| T-114 | √√ | √ | √ | None | √ | None | Crestron |
| T-118 | √ | √ | √ | √ | None | None | Remote |
| T-119 | √ | √ | √ | √ | √ | None | Crestron |
| T-120 | √ | √ | √ | None | √ | None | Crestron |
| T-205 | √ | √ | √ | None | None | None | Remote |
| T-210 | √ | √ | √ | None | √ | None | Crestron |
| T-211 | √ | √ | √ | None | None | None | Remote |
| T-212 | √ | √ | None | None | None | None | Remote |
| T-215 | √ | √ | √ | √ | None | None | Remote |
| T-216 | √ | None | None | None | √ | √ | Pixie |
| T-217 | √ | √ | √ | √ | None | None | Crestron |

| Install Base and Existing Equipment – ZOO | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Rm** | **Projector or TV** | **CPU** | **DVD** | **VCR** | **Doc Cam** | **Transparency Projector** | **Interface** |
| ZOO-2 | √ | √ | None | None | √ | None | Remote |