Los Angeles Community College District PROGRAM MANAGEMENT SERVICES

Facilities Master Planning & Oversight Committee

District-wide Information Technology Assessment Findings and 40J Technology Update

September 21, 2016

BuildLACCD

AECOM

Building for tomorrow's leaders

Agenda

- Introductory Comments

- Assessment Goals and History

- Stakeholders

- Assessment Categories

- Assessment Findings and Recommendations

- Proposed 40J Technology Strategic Execution Plan

- Next Steps

BuildLACCD
Building for tomorrow's leaders

AECOM

Assessment Goal & History

GOAL: To develop a Measure J Bond eligible District-wide solution that brings baseline uniformity to the Colleges

April 2015	September 2015	November 2015	September 2016
Districtwide IT account status presented to FMP&OC	College specific priorities presented to FM&POC and direction was issued to establish a more inclusive process	Joint Task Force established and recommendation is made to perform a Districtwide IT Assessment by a third party	Assessment findings, recommendations, and SEP presented to FMP&OC

BuildLACCD
Building for tomorrow's leaders

AECOM

Stakeholders

Joint Task Force (JTF)

- ✓ Technology Policy and Planning Committee
- ✓ District Administrative Council
- ✓ District Technology Council
- ✓ Build-LACCD

College Stakeholders

- ✓ VPs of Administration
- ✓ IT Managers and Staff
- ✓ Facilities Managers
- ✓ LA County Sheriff's Department – CC Bureau

Consulting Team

- ✓ Burwood Group
- ✓ TK Design
- ✓ Paxbello

BuildLACCD

AECOM

Building for tomorrow's leaders

Assessment Categories

1) Baseline Infrastructure

2) Safety and Emergency Response Systems

3) Instructional Systems

BuildLACCD

Building for tomorrow's leaders

AECOM

Assessment Findings and Recommendations

BuildLACCD
Building for tomorrow's leaders

AECOM

Baseline Infrastructure

Sub Category	Key Findings	Primary Recommendations
Backup and Recovery	• Onsite backup is insufficient for college needs. • Offsite backup systems are limited across the district.	• Implement capabilities to restore education critical systems in event of disaster.
Cybersecurity	• End of life and end of support hardware is in use.	• Replace end of life critical cybersecurity hardware.
Telephone and Mass Notification	• E911 functionality unavailable in older phone systems. • Insufficient public address coverage and integration.	• Implement a digital voice system with E911 automatic location identification. • Implement standard public address capability.

Safety and Emergency Response

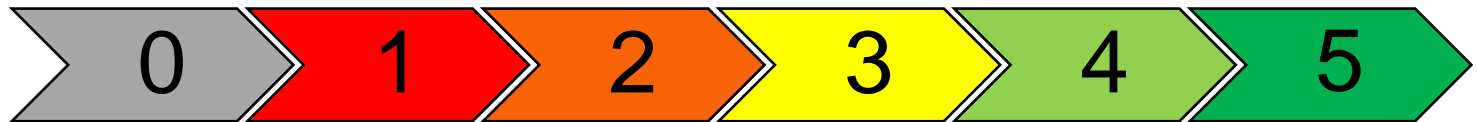| Sub Category	Key Findings	Primary Recommendations
Emergency Phones	• Lack of emergency phones in classrooms. • Limited strategy for outdoor emergency phone deployment.	• Implement emergency phones in all classrooms. • Develop a master plan for emergency phone deployment at each college.
Access Control (Card Readers)	• Inconsistent deployment of access control. • Physical keys being used. • Enterprise access control system deployed but not adopted.	• Implement standardized access control system.
Video Surveillance	• Ineffective and inefficient CCTV camera technology. • Ineffective camera placement. • Insufficient long term video archiving capability.	• Implement strategic guidelines to install new cameras to improve monitoring angles. • Increase video archive capability.

BuildLACCD

Building for tomorrow's leaders

AECOM

Instructional Systems

| Sub Category	Key Findings	Primary Recommendations
Onsite Instructional Systems	• Inconsistent deployment of audio visual (A/V) systems across the district. • High number of analog systems in use. • No centralized system management capabilities.	• Develop district wide A/V deployment standards. • Convert all analog systems to digital. • Implement centralized management system.
Distance Education	• Inadequate deployment of lecture capture and virtual lab capability for distance learning.	• Implement a standard distance education toolset for real-time distance learning.

BuildLACCD

Building for tomorrow's leaders

AECOM

Rating Scale

0	1	2	3	4	5

- **0**
  - None
  - Not Deployed.
- **1**
  - High risk to delivery of education.
  - Does not meet technology standards.
- **2**
  - Potential for high risk to delivery of education.
  - Meets limited standards.
- **3**
  - Medium risk to delivery of education.
  - Meets standard baseline deployment.
- **4**
  - Low risk to delivery of education.
  - Standard baseline deployment and industry best practices.
- **5**
  - Minimal risk to delivery of education.
  - Exceeds standards baseline deployment and industry best practices.

Assessment Ratings – Current State

Assessment Category		LACC	ELAC	LAHC	LAMC	LAPC	LASC	LATTC	LAVC	VDK	WLAC	ESC
Baseline Infrastructure	Networking	2	3	2	3	2	2	3	3	2	3	3
	Wi-Fi	2	2	3	2	2	3	3	2	2	2	2
	Voice	2	3	1	2	2	2	2	2	2	2	1
	Servers	2	3	2	3	2	3	3	3	3	3	3
	Storage	2	3	2	3	2	4	3	2	3	2	2
	Backup	2	2	2	2	2	2	2	2	2	2	2
Safety and Emergency Response		1	1	1	1	2	1	1	1	1	1	4
Instructional Systems		1	2	2	3	2	1	2	1	2	2	0
Non Bond Eligible Assessment Items												
Baseline Infrastructure	Virtual Desktops	0	2	3	3	3	0	2	2	0	0	3
	Accounts and Email	2	2	1	2	1	2	3	1	2	1	2

| 0	1	2	3	4	5
	Low Score				High Score
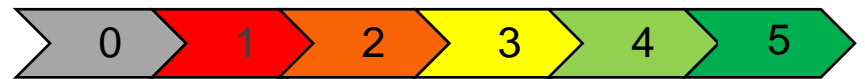
BuildLACCD

Building for tomorrow's leaders

AECOM

Projected Post - Implementation Rating

Assessment Category		LACC	ELAC	LAHC	LAMC	LAPC	LASC	LATTC	LAVC	VDK	WLAC	ESC
Baseline Infrastructure	Networking	4	4	4	4	4	4	4	4	4	4	4
	Wi-Fi	3	3	3	3	3	3	3	3	3	3	3
	Voice	4	4	4	4	4	4	4	4	4	4	4
	Servers	3	3	3	3	3	3	3	3	3	3	3
	Storage	4	4	4	4	4	4	4	4	4	4	4
	Backup	4	4	4	4	4	4	4	4	4	4	4
Safety and Emergency Response		3	3	3	3	3	3	3	3	3	3	4
Instructional Systems		3	3	3	3	3	3	3	3	3	3	0
Non Bond Eligible Assessment Items												
Baseline Infrastructure	Virtual Desktops	0	2	3	3	3	0	2	2	0	0	3
	Accounts and Email	2	2	1	2	1	2	3	1	2	1	2

0	1	2	3	4	5
	Low Score				High Score
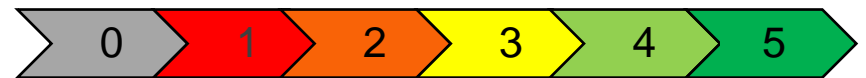
BuildLACCD

Building for tomorrow's leaders

AECOM

40J Technology Strategic Execution Plan

Baseline Infrastructure

Backup, Disaster Recovery, Business Continuity Hardware and Software

Firewall and Cybersecurity Deployment

Network Cabinet and Cabling Enhancement

Core Network Deployment

Data Storage Capacity Enhancement

Wi-Fi Controller and Access Point Deployment

VoIP Phone System Upgrade

Leased Bandwidth

Safety & Emergency Response

Mass Notification Deployment

Access Control Deployment

CCTV Deployment and Surveillance Monitoring

SAP Security and Mobility Enhancements

Emergency Phone Deployment

Instructional Systems

Digital Classroom Deployment

Distance Education Toolset

Standard Resource Management System Deployment

BuildLACCD
Building for tomorrow's leaders

AECOM

Next Steps

❑ Begin Project Planning

❑ Perform Project Implementation

BuildLACCD

Building for tomorrow's leaders

AECOM

Appendix

Network Cabinets

Vs.
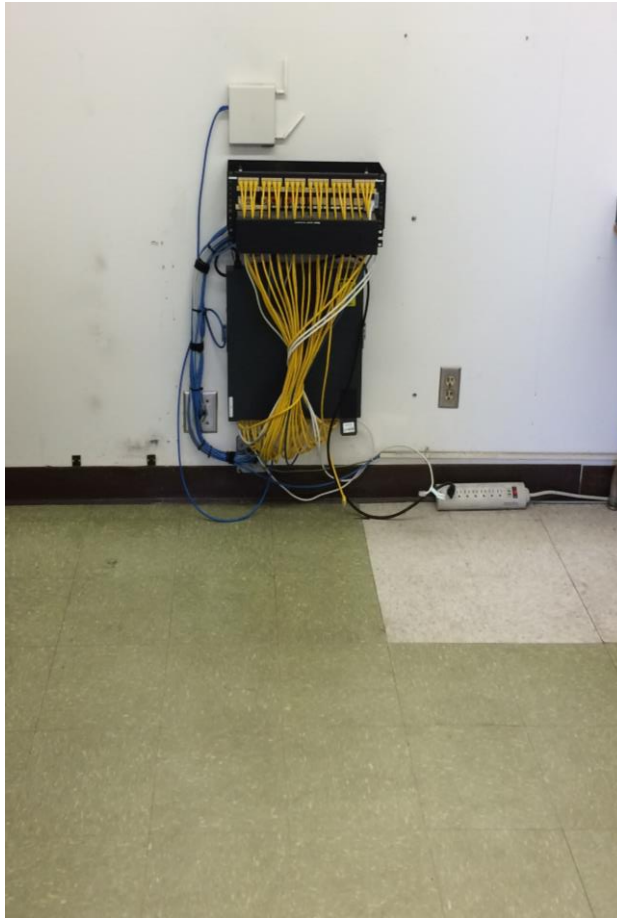
Exposed network cables in a classroom pose security and connectivity risks

Enclosed and lockable cabinet mounted high on wall

BuildLACCD
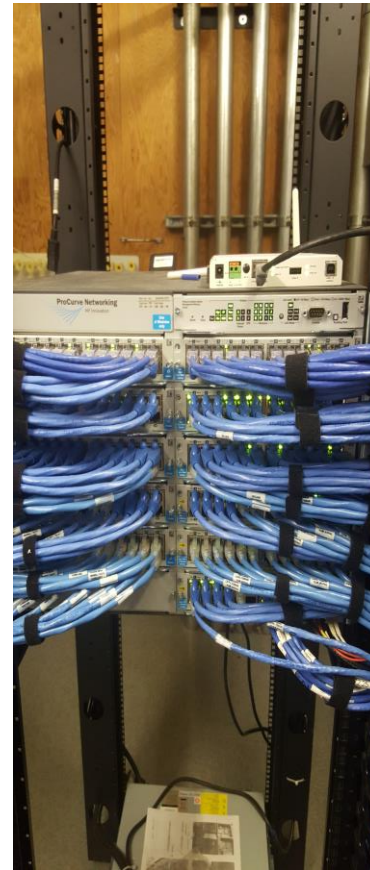*Building for tomorrow's leaders*

AECOM

Network Closets

Vs.
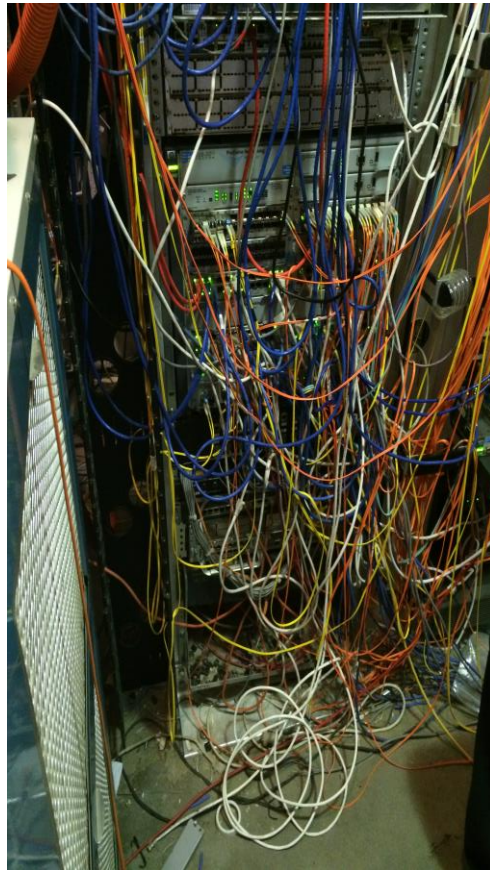
Improper cable management poses risk to timely network administration

Proper cable management improves airflow, and enhances network administration capability.

BuildLACCD
Building for tomorrow's leaders

AECOM

Instructional Systems Analog vs Digital

Vs.

BuildLACCD
Building for tomorrow's leaders

AECOM
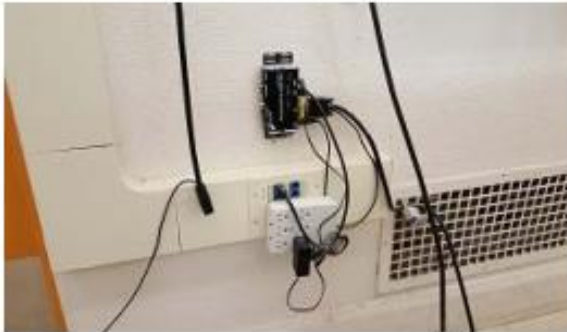
CCTV Technology Capability

Facial Recognition Vs Situational Awareness

Figure 1(a). A Closed-Circuit Television Image Likely to be Suitable for Personal Identification.

Figure 1(b). A Closed-Circuit Television Image Not Likely to be Suitable for Personal Identification.

Figure 1(c). Cropped, Enlarged, and Enhanced Image Processed from Figure 1(a).

Figure 1(d). Cropped, Enlarged, and Enhanced Image Processed from Figure 1(b).

18

BuildLACCD

Building for tomorrow's leaders

AECOM

Executive Summary: District-Wide Technology Assessment

Los Angeles Community College District

Prepared by:

Keith Arthur
Senior Project Manager

karthur@burwood.com
(949) 430-7667

Tom Howard
Account Executive

thoward@burwood.com
(949) 430-7669

August 8, 2016
Version 2.0

Revision History:

1.0   August 1, 2016 by Keith Arthur

2.0   August 8, 2016 by Keith Arthur

A Confidential report prepared for the LACCD Joint Task Force

This report represents the findings of the External Evaluation Team that performed a District Wide Technology Assessment March 14th – August 1st 2016

smarter solutions. **better outcomes.**

Table of Contents

Table of Figures

smarter solutions. **better outcomes.**

1 Background

Build-LACCD desired an independently-performed, district-wide technology assessment of the technology, security, emergency response, and instructional systems (classroom audio visual) for all nine (9) Los Angeles Community College District (LACCD) colleges, including the LACCD Education Services Center (ESC). This independent assessment needed to encompass both the physical and logical topology infrastructure.

Build-LACCD engaged Burwood Group, a nationally-recognized technology consulting firm, to complete this assessment. Burwood is pleased to present this document as an Executive Summary of the District-Wide Technology Assessment.

2 Executive Summary Objective

Burwood Group presents this Executive Summary as a succinct report of the assessment findings and recommended remediation priorities to close gaps in technology throughout the Los Angeles Community College District. This document includes:

- Burwood's assessment methodology and approach.

- High-level summaries of the findings and best practice recommendations for each technology area assessed.

- A ratings report card scoring each technology area's maturity on a 1-5 scale.

The specific technology areas of focus are as follows:

Networking	Storage
Wireless	Backup
Voice	Active Directory Exchange
Virtualization	Safety and Emergency Response
Virtual Desktop Infrastructure	Audio Visual

It is the intent of this report to educate the LACCD executive team on the project findings and next steps. Burwood Group welcomes the opportunity to engage in further discussion with LACCD about these assessment findings and potential next steps.

smarter solutions. **better outcomes.**

3 Education Vision

The rapid pace of technology evolution is changing the way we learn, work and educate. Today's learning environment is ripe with examples of technology's massive impact on the lives of educators, staff, and students. From virtual learning environments to mobile collaboration, thoughtful alignment of new technologies to key outcomes is critical to maximizing investments and creating a difference in the quality of education.

Burwood Group helps educational institutions leverage technology investments to deliver knowledge to their end users. Administrators, educators, and students have varying requirements and expectations for access, collaboration, and experience. Burwood's consultants are experts in creating technology solutions that address user requirements and maximize IT investments and resources. We believe technology purchases should impact the primary issues facing educational institutions today:

- Improving student retention, engagement, and outcomes.

- Applying technology to teaching and learning.

- Creating a funding model for core services, growth, and innovation.

A thorough understanding of your current technology environment is critical to making informed, forward-thinking decisions about future investments and priorities. Once this current-state is understood, it becomes possible to identify opportunities for new technology integration and the potential to impact the end user experience:
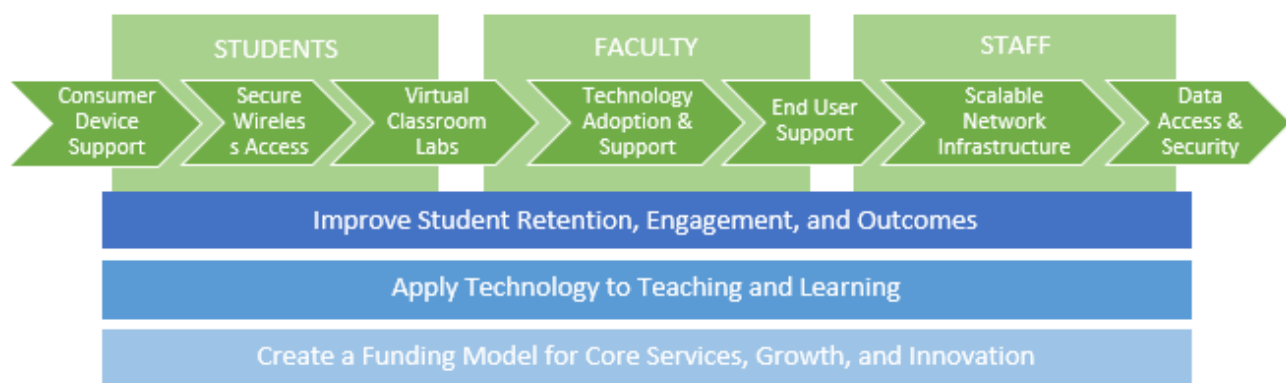
The Burwood Group project team for LACCD believes in this vision of connecting technology to educational outcomes. We believe that these assessment results have the potential to chart a course toward reliability, scalability, and innovation in the LACCD technology environment.

smarter solutions. **better outcomes.**

4 Approach and Methodology

Burwood Group commenced the district-wide assessment with campus walkthroughs for each College and the District Office (ESC). Photos were taken of all Data Centers and IT closets to collect visual representations of the campus layout and identify physical issues or risks with technology deployment. After the onsite visits, district-wide remote access was provided through Bomgar to provide access to the necessary systems to perform remote scans.

Upon completion of the remote assessments, Burwood consultants analyzed and scored the findings against a common grading rubric. Scores were given to each LACCD college in the following areas:

Networking	**Storage**
Wireless	**Backup**
Voice	**Active Directory Exchange**
Virtualization	**Safety and Emergency Response**
Virtual Desktop Infrastructure	**Audio Visual**

This diagram shows the workflow process:
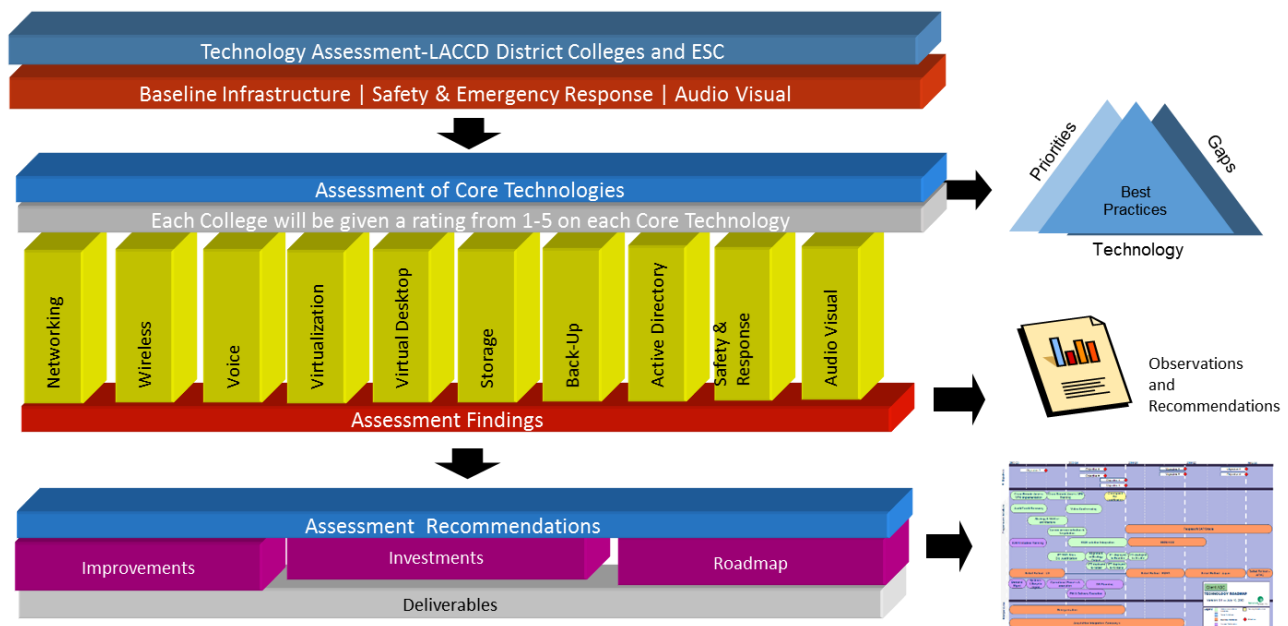

Figure 4-1 Assessment Approach

smarter solutions. **better outcomes.**

4.1 Project Organization and Methodology

For the District-Wide Technology Assessment project, Burwood Group provided a team of nine Senior Consultants, four Managing Consultants, and a Senior Project Manager. The Burwood Account Executive and Executive Sponsor were available throughout the project for oversight and issue escalation as necessary. Burwood partnered with Pax Bello, a leading safety and emergency response consultant, to assist with in-person college visits and campus walkthroughs.

The Burwood Senior Project Manager focused on communications, planning, scheduling, managing risk/issues, and ensuring a positive end-user experience through the course of this project. Burwood's Project Management Methodology is based upon the following core principles:

- Collaboration and integration of the comprehensive project team.

- Clearly defined roles and responsibilities for all team members.

- Effective communication of project status, risks, issues, action items, etc.

- Successful management and tracking of the four major constraints to ensure project success (scope, schedule, cost, and quality).

With the help and support of the Build-LACCD project management team, LACCD Vice Presidents of Administrative Services, IT management, and various College Staff, Burwood Group was able to complete the assessment on time, on schedule, and within the budget. Following is a diagram of project phases and summarized activities per phase:
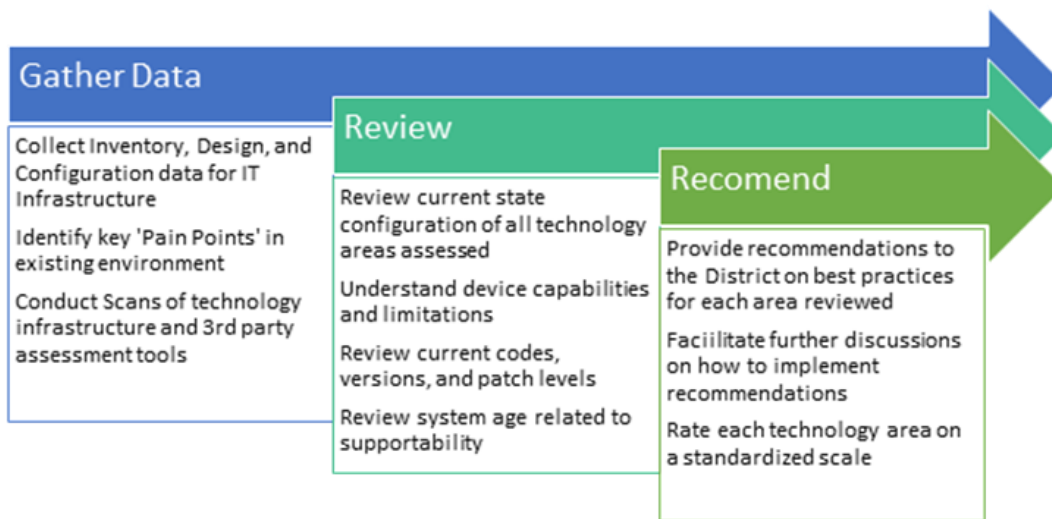

Figure 4-2 Project Methodology

smarter solutions. *better outcomes.*

5 Assessment Findings

This section provides a summary of the key observations and primary recommendations from the assessment.

5.1 Networking

5.1.1 Data Center

Key Observations: The Data Centers storing technology equipment lack sufficient power, cooling, and space requirements to sustain a long-term baseline infrastructure. The cabling in most Data Centers and equipment closets has been neglected, causing a considerable amount of additional time required to trace hardware issues. Furthermore, this neglect impedes airflow through equipment to keep it cool and dust free, which is essential to achieve optimal performance, reliability, and lifespan. Fiber optic cables are very fragile, but have become the standard for speed and performance of a network and communication. Fiber optic cables operate in pairs, and there are several instances where the fiber optic is mismatched or not managed appropriately. Similarly, there are instances where the fiber cable is bent; this can lead to breakage, which will cause a disruption to the delivery of data running on that path of communication.

Primary Recommendations: Completely rebuild infrastructure from the ground up to include proper power, cooling, and space requirements, followed by careful planning of all networking and cabling standards. Additionally, Burwood recommends that efforts be made to procure support agreements for all future RFPs to ensure that future systems are aligned to 3-5 year support contracts. This will ensure functional system upkeep.

5.1.2 Critical System Redundancy

Key Observations: Burwood consultants discovered that critical systems (e.g. internet access) lack sufficient redundancy to ensure that education delivery can continue in instances of hardware or service failure. Currently, most district locations have asymmetric internet path redundancy; the primary circuit is provisioned at 1Gbps with the backup provisioned as a 45Mbit circuit. In an outage of the primary circuit, the backup does not provide enough bandwidth for functional usage.

Primary Recommendations: The Colleges should have redundant systems for all education critical systems, as well as redundant internet circuits of equal bandwidth to ensure that network communication can continue.

5.1.3 Network Security

Key Observations: Hardware and software throughout every College and the District Office have expired or expiring manufacturer or vendor support. Support renewal is available for these devices; however, manufacturers may require a renewal to be paid through any duration of a lapse of coverage (i.e. if a support contract has been expired for a year, the past year of coverage will be charged against a policy renewal). There is also hardware and software that have reached manufacturer end-of-life, meaning that updates by the manufacturer are no longer available and support contracts cannot be renewed. Hardware and software not under an active support policy pose a significant risk to the District as any failure will impact education delivery services while replacement systems are procured, configured, and implemented which can in many cases take three (3) or more days unless a support agreement is in place.

Primary Recommendations: Renew support and licenses for critical network infrastructure (e.g. Firewalls). Replace end of life hardware with expired service contracts. All future RFP's should include funding for a minimum of 3 years of support or service and maintenance.

5.2 Wireless

Key Observations: On average each student and faculty member brings two wireless devices to campus: a mobile device and a laptop or tablet. Wireless connection success has a large impact on student and faculty satisfaction. The Colleges' existing wireless networks were not designed for supporting multiple devices per user. When multiple devices are used across a campus, the wireless coverage may be sufficient but the wireless speed may not be sufficient (this is referred to as wireless density). Upgraded wireless systems will allow the colleges to accommodate more devices per student and faculty and increase performance and reliability.

Primary Recommendations: Upgrade wireless network controllers and wireless access points to support a higher density of wireless devices on the campuses. Ensure that all controllers have a redundant system to ensure that wireless access is available to the students and faculty to avoid disruption to the delivery of education.

5.3 Voice

5.3.1 Voice and Unified Communications

smarter solutions. **better outcomes.**

Key Observations: Many Colleges are using end-of-sale or end-of-life voice and communication systems. This places some Colleges at very high risk of losing functionality and support. Without new technology, the District is not taking advantage of new advancements in voice communication and collaboration that has potential to enhance student and prospective student engagement and support.

Primary Recommendations: Replacing legacy telephony systems and standardizing across the district will allow the District to take advantage of greater features and capabilities to enhance the student and prospective student experience. In addition, it is highly recommended that a Contact Center be developed to support student engagement.

5.3.2 Enhanced 911 (E911)

Key Observations: Enhanced 911 is the new standard for sending detailed location information automatically through the telephone system to a 911 dispatcher. The phone systems at the colleges are not passing detailed location data to the 911 Response Center and, in some cases, are sending incorrect location information. It was observed that only the primary address of each campus is automatically available to the 911 Response Center; not the building, floor, or room location from where the call was placed. Some emergency calls are being routed locally to the campus sheriff office and then relayed to the local 911 Response Center when required. This can create a lag in response time as well misunderstood communications.

Primary Recommendations: Implementing a system that automatically provides more granular location information on placed 911 calls can decrease emergency worker response time and improve situational awareness during a security event.

5.4 Virtualization

Key Observations: Server hosts have reached end-of-life and are no longer under support by the manufacturer. Burwood consultants also discovered that many servers lack sufficient computing resources to properly sustain the workload that is assigned to that server.

Primary Recommendation: Retire and replace physical servers that have reached end-of-life support. Replace servers that lack sufficient computing power with server chassis and blades that support current workloads, and provide space for adding additional server blades and computing resources (CPU, memory, etc.) as needed.

smarter solutions. **better outcomes.**

5.5 Virtual Desktop Interface (VDI)

Key Observation: VDI has acquired a negative perception and connotations across the District because many Colleges have failed at deploying VDI solution with proper design and end user adoption. VDI is not widely deployed throughout the District and there are no standards for establishing a consistent VDI experience. Colleges are running legacy versions of VDI and are missing opportunities to enhance distance learning and provide virtual labs.

Primary Recommendation: There has been some recent success at East LA College deploying Citrix in their virtual labs. This should be used as a model for future VDI deployments across the District. A Virtual Desktop (VDI) is a centralized computer that allows multiple users to access a desktop computer over the internet, saving institutions money on licensing and hardware costs, as well as centralizing administration. Virtual Desktops are widely used in virtual labs, and where security or hardware needs require more control over the user experience. It is recommended that the District standardize on updated VDI technology.

5.6 Storage

Key Observations: There is a critical shortage of available storage capacity across the District. Networked storage is a mission-critical system because it impacts the speed of data being retrieved by various information systems, determines the performance of virtualized servers and virtualized desktops, and allows Colleges to store information. Local storage on critical safety information such as camera recordings is also below recommended capacity across the district. When storage reaches 90% utilization, many systems will experience performance degradation that can slow down the retrieval of information to the point of causing application failure.

Primary Recommendations: Consolidating and standardizing on a fewer number of vendors will increase adherence to regulations as well as industry and district standards. This will also increase capability to provide timely support and maintenance. Burwood recommends replacing all storage systems that have reached end of manufacturer support, and upgrading the storage capacity on all College storage arrays to support current and future needs. No storage system should exceed 60% of capacity.

smarter solutions. **better outcomes.**

5.7 Backup and Disaster Recovery

Key Observations: Colleges have insufficient backup capacity to meet District-defined retention objectives. Sites are only capable of retaining backup data for days rather than months. Colleges typically lack any offsite backup and storage; moreover, where offsite backup has been implemented it is tape backup technology. While backup to tape for offsite archival is an inexpensive option, recovery from tape is a slow process. It is further complicated by the widely varying backup software deployed throughout the district. If an event occurs that requires data recovery from tape, an alternate campus is not likely to have software compatible for recovery.

Primary Recommendation: All storage systems should have a redundant system for backup. All systems that are critical to the delivery of education and student support should be backed up to an offsite data center. Due to the risk of natural disaster in Southern California, it is recommended that disaster recovery data be backed up at least 100 miles away and ideally to another state.

5.8 Active Directory and Exchange

5.8.1 Active Directory and Exchange

Key Observation: Current domain controllers are running Microsoft Server 2003, which reached end of life on July 14, 2015. Active Directory is misconfigured in many instances and there are old user accounts that are no longer active that need to be removed. Domain controllers are also running older versions of Microsoft Server, and need to be upgraded.

Primary Recommendation: Domain controllers are critical systems as they control all network logins, user names, passwords, and access control groups to information systems across the college and district. Burwood recommends upgrading all domain controllers to Microsoft Server 2012. In addition, we recommend clean up of Active Directory at all Colleges and removal of old and expired accounts.

5.8.2 Exchange

Key Observation: Exchange is the primary email system on all Colleges and ESC. Many Colleges have old email accounts still enabled. Versions of Exchange appear to have not been patched for some time, and in some cases are two or more major versions behind the current available release (Exchange 2016). Where there is more than one Exchange server deployed at a single college, some instances are running different versions which can cause failover and redundancy issues.

smarter solutions. **better outcomes.**

Primary Recommendation: Migrate all Colleges to Microsoft Office 365 to take advantage of deep education discounts by Microsoft. This keeps all Colleges on the latest versions of Exchange with no additional administration required. Colleges can still manage and administer Exchange as they do currently, but the physical resource demands in the data center are moved to Microsoft which releases critical computing resources back to the Colleges to repurpose for other critical systems.

5.9 Safety and Emergency Response

5.9.1 Access Control

Key Observations: Access control is not being consistently used throughout the District even though a District-wide enterprise system has been deployed. It was observed that some colleges are using their own Access Control system that is no longer under manufacturer support, and in many cases the access control is not fully functional, or not being used for the intended purpose. Physical keys are still being distributed and in cases where faculty teach at multiple colleges, multiple keys, or access key cards are being distributed which can cause security and administrative overhead, and risks.

Primary Recommendations: Centralize on one standard Access Control system throughout the district that can be managed by each College or the District to enhance security, student safety, and faculty safety, and efficiency. Issuing College Identification Cards to all students, faculty and staff using the electronic access control system to control opening and closing doors for classes and labs can improve campus security by reducing the number of traditional keys issued, provide a visual identification for law enforcement and security for those who belong on campus, and reduce the labor needed to open and secure doors in the morning, after hours and on weekends.

5.9.2 Physical Security Systems (Campus Emergency Phones, Security Cameras, and Public Announcement)

Key Observations: There are Emergency Phones across the district that are not operational. There is no specific strategy regarding the placement of Emergency Phones, Closed Circuit Television (CCTV), or PA Systems. This can cause a major risk to student and faculty safety in an emergency and present a College liability risk. Dummy cameras are placed at some Colleges which pose a significant public safety risk as well as College liability. Some Colleges have no Public Announcement (PA) system in place. Lighting around the District is not maintained, and many outages were noted. There is no maintenance identification on any light structures to assist in identifying which lights are out. Some landscape lighting, while aesthetically appealing, causes the inability to identify approaching persons late at night due to shadow effects.

smarter solutions. **better outcomes.**

Primary Recommendations: Priority should be given to repair all emergency phones and a master plan created to ensure proper placement and standardization of Emergency Phones, CCTV, and PA Systems.

5.9.3   Sheriff's Stations

Key Observations: The Sheriff's station is where the security camera monitoring is being done and the computers controlling the camera software are old, out of date, and running Microsoft Windows XP which is no longer supported. The Cameras are not being monitored or the screens on which the display is viewed are not functional, or not sufficient.

Primary Recommendations: Upgrade computers and monitors being used by the campus Sheriff's and Cadets and upgrade all cameras and software to current supported standards.

5.10 Instructional Systems (Audio Visual)

Key Observations: There are no standards set with audio visual across the district and there is a great lack of attention being given to the delivery of education with these systems. Many classrooms have audio visual systems capable of meeting current needs but are not operational due to lack of support agreements with the vendor, or lack of a proper maintenance process in place. There is also a lack of modern laptop connections to existing audio visual systems that can render a system useless if the faculty member requires it. In some classrooms an audio visual system is installed, but a cart containing a portable camera is wheeled into the classroom because the faculty member has a newer connection on his/her laptop that is not supported by the permanently installed system.

There are older room layouts and/or architectures that do not support current AV technology needs, including instances of screen size/display being smaller than required for viewing distances. The location of some projectors direct light at the instructor's eyes during lectures, teaching station connectivity is overly complicated, cabling is difficult to find (lack of cable management), and student sight lines from the seat to the projection screen and whiteboards are impacted by the instructor desk or podium, columns, or others students.

Primary Recommendations: Negotiate support contracts with vendors to get current and modern A/V systems operational. Implement a centralized management system. Retire all analog audio visual systems and replace with digital systems as all audio visual and connected technology is now operating with digital connections. This will enhance the viewer experience and provide better screen resolution.

7 Closing Summary

A capable technology infrastructure is critical to leveraging new innovations and integration possibilities that can impact the higher education end user experience. Burwood Group recommends that all LACCD Colleges focus on building a solid technology foundation with an eye towards standardization, support, and modernization. A redundant, backed-up, and supported infrastructure networking system will enable IT managers to deploy new technologies such as smart classrooms, video surveillance systems, virtual desktops and many more. Until these foundational improvements are made, Burwood strongly recommends no technology upgrades that current systems cannot support.

Burwood will be meeting with each individual College IT Manager and Vice President to discuss College-specific assessment findings and remediation recommendations. Burwood's goal is to enable each College with the intelligence and information required to raise report card scores to a level of five (5). This level of improvement will directly impact education delivery, student and faculty satisfaction, and environment safety. The diagram below depicts the order in which issues should be addressed to establish the foundation needed for future growth.
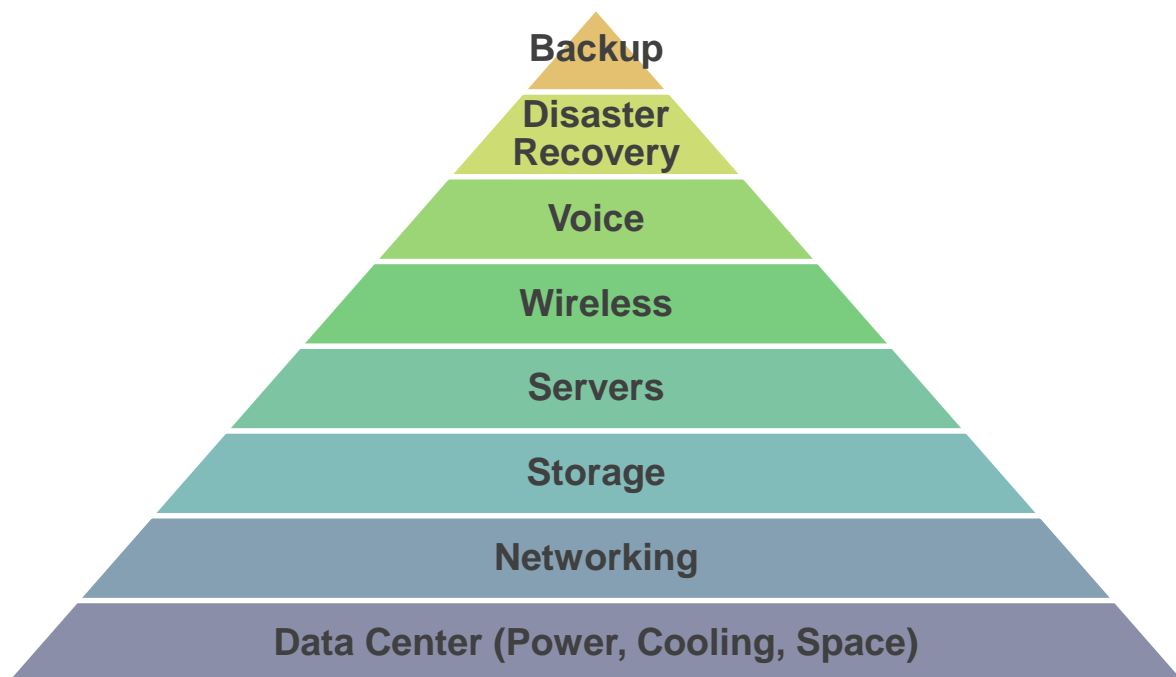

Figure 7-1 Remediation Approach

40J Technology Reallocation

Initiative	Current Budget	Spent	Budget Remaining	Reallocation
Technology Coordinators	$8,026,926	$8,026,654	$272	$272
Student Information System (SIS)	$46,068,040	$24,446,337	$21,621,703	$21,621,703
Connect LACCD Network	$27,452,547	$58,887	$27,393,660	$27,393,660
One card System (Physical Security) and Monitoring	$6,000,000	$4,915,709	$1,084,291	$0
Facility Management (CMMS) and Building Management interface	$6,009,377	$6,009,377	$0	$0
Standards, Process Mapping and Program Strategy/ Management	$8,731,964	$6,047,725	$2,684,240	$2,684,240
Servers & Support Equipment	$18,117,151	$6,293,945	$11,823,206	$11,823,206
Distance Education Collaboration	$10,000	$0	$10,000	$10,000
Media Lab Enhancement	$10,000	$0	$10,000	$10,000
Project Support	$367,649	$338,178	$29,471	$29,471
ProjectWise	$2,068,837	$2,012,899	$55,937	$0
IT Program Management	$3,853,522	$2,905,742	$947,780	$947,780
Physical Security and Hardware*	$7,208,299	$560,142	$6,648,157	$0
TOTAL	**$133,924,312**	**$61,615,596**	**$72,308,717**	**$64,520,331**

*Indicates a project in which funds were transferred into the 40J from a pre-existing college bond project.

BuildLACCD

Building for tomorrow's leaders

AECOM