CHABOT-LAS POSITAS COMMUNITY COLLEGE DISTRICT

INFORMATION TECHNOLOGY MASTER PLAN

ITS DETAILED SPECIFICATIONS

Updated 2008

CLPCCD DISTRICT ITS ITMP
UPDATE 2008

This document summarizes the progress and changes made to the Information Technology Master Plan during 2008. As funded by the Measure B bond, these initiatives continued to improve the state of technology at the CLPCCD Chabot and Las Positas campuses.

1.0 DESKTOP STANDARDS

CLPCCD District and the College Technology staff reviewed the desktop standards in preparation for the next desktop bid and 2009 procurement. The committee assessed the requirements for slim, ultra-slim and standard tower desktops, as well as a performance desktop. The resultant standards were determined to be:

PC DESKTOP BASELINE STANDARD (MINI-TOWER):

Processor:	Intel® Core™2 Duo E8400 processor (3.00 GHz, 6 MB L2 cache, 1333 MHz FSB) vPro-Technology – Q45 Chipset
RAM:	4GB PC2-6400 (DDR2-800) SODIMM 2x2GB
Video Card:	ATI Radeon 3470 256MB SH PCIe Card
Monitor:	High-end 19" LCD wide-screen
Network Card:	All NIC cards supporting 10/100/1000 Mbps
Disk Drive:	160GB 7200RPM SATA Hard drive.
CD/DVD+/-R/-RW/	24X Combo Drive
Floppy Drive:	1.44 MB
Keyboard:	Regular 101/104 keyboard. (If vendor provides USB keyboard, then additional USB ports are needed.)
Mouse:	2-Button Optical Scroll mouse. (If vendor provides USB mouse, then additional USB ports are needed).
Operating System:	Vista Ultimate, down-gradable to Windows XP Professional
Headphone outlets:	Front-mounted connections
Microphone outlets:	Front-mounted connections
USB ports:	front and rear
FireWire:	Yes
Tower:	Mini-Tower
Support:	4-year on-site hardware warranty on parts and labor. (All equipment will be provided with warranty costs included in hardware price.)

PC DESKTOP BASELINE STANDARD (SMALL FORM FACTOR/SLIM):

Processor:	Intel® Core™2 Duo E8400 processor (3.00 GHz, 6 MB L2 cache, 1333 MHz FSB) vPro-Technology – Q45 Chipset
RAM:	4GB PC2-6400 (DDR2-800) SODIMM 2x2GB
Video Card:	ATI Radeon 3470 256MB SH PCIe Card
Monitor:	High-end 19" LCD wide-screen
Network Card:	All NIC cards supporting 10/100/1000 Mbps
Disk Drive:	160GB 7200RPM SATA Hard drive.
CD/DVD+/-R/-RW/	24X Combo Drive
Floppy Drive:	1.44 MB
Keyboard:	Regular 101/104 keyboard. (If vendor provides USB keyboard, then additional USB ports are needed.)
Mouse:	2-Button Optical Scroll mouse. (If vendor provides USB mouse, then additional USB ports are needed).
Operating System:	Vista Ultimate, down-gradable to Windows XP Professional
Headphone outlets:	Front-mounted connections
Microphone outlets:	Front-mounted connections
USB ports:	front and rear
FireWire:	Yes
Tower:	Small Form Factor Desktop
Support:	4-year on-site hardware warranty on parts and labor. (All equipment will be provided with warranty costs included in hardware price.)

PC DESKTOP BASELINE STANDARD (ULTRA-SLIM):

Processor:	Intel® Core™2 Duo E8400 processor (3.00 GHz, 6 MB L2 cache, 1333 MHz FSB) vPro-Technology – Q45 Chipset
RAM:	4GB PC2-6400 (DDR2-800) SODIMM 2x2GB
Video Card:	ATI Radeon 3470 256MB SH PCIe Card
Monitor:	High-end 19" LCD wide-screen
Network Card:	All NIC cards supporting 10/100/1000 Mbps
Disk Drive:	160GB 7200RPM SATA Hard drive.
CD/DVD+/-R/-RW/	24X Combo Drive
Floppy Drive:	1.44 MB
Keyboard:	Regular 101/104 keyboard. (If vendor provides USB keyboard, then additional USB ports are needed.)
Mouse:	2-Button Optical Scroll mouse. (If vendor provides USB mouse, then additional USB ports are needed).
Operating System:	Vista Ultimate, down-gradable to Windows XP Professional
Headphone outlets:	Front-mounted connections
Microphone outlets:	Front-mounted connections
USB ports:	front and rear
FireWire:	Yes
Tower:	Ultra-Slim Desktop
Support:	4-year on-site hardware warranty on parts and labor.

PERFORMANCE PC DESKTOP BASELINE STANDARD:

Processor:	Intel® Core™2 Duo E8600 processor (3.33 GHz, 6 MB L2 cache, 1333 MHz FSB) vPro-Technology - X Series Performance Chipset
RAM:	4GB PC2-6400 (DDR2-800) SODIMM 2x2GB
Video Card:	ATI Radeon HD 2400 XT 256MB
Monitor:	High-end 19" LCD display wide-screen
Network Card:	All NIC cards supporting 10/100/1000 Mbps
Disk Drive:	160GB 7200RPM SATA Hard drive.
CD/DVD+/-R/-RW	24X Combo Drive
Floppy Drive:	1.44 MB
Keyboard:	Regular 101/104 keyboard. (If vendor provides USB keyboard, then additional USB ports are needed.)
Mouse:	2-Button Optical Scroll mouse. (If vendor provides USB mouse, then additional USB ports are needed).
Operating System:	Vista Ultimate, down-gradable to Windows XP Professional
Headphone outlets:	Front-mounted connections
Microphone outlets:	Front-mounted connections
USB ports:	front and rear
FireWire:	Yes
Tower:	Mini-Tower
Support:	4-year on-site hardware warranty on parts and labor.

Configuration options include:

VIDEO CARD:	ATI Radeon HD 2400 XT 256MB
HARD DISK:	250 Gig Drive, 7200 rpm,
MONITOR:	22" LCD Wide with VGA, DVI, S-video, RCA, HDMI
SPEAKERS:	

Based on these configurations, the committee then prepared for a new bid process in 2009. The Chabot and Las Positas campuses each deal with different requirements and as such will deploy different quantities of these desktops in their labs and offices during the coming year.   As procurement proceeds, placement and quantities of each type of these desktop standards will be determined by individual college academic program needs.

5.0 CONSTRUCTION

In 2008, CLPCCD District ITS has been an integral part of many construction activities at the Chabot and Las Positas campuses. As projects have moved from design to construction, CLPCCD District ITS has frequently provided expertise in field coordination. With additional new design projects, CLPCCD District ITS has continued to provide design input and review so that projects were able to move forward with conformance to the CLPCCD Network Infrastructure standards.

5.1 CONDUIT INFRASTRUCTURE

With the Measure B Bond construction projects, considerable progress has been made in the past year to augment the telecommunications conduit infrastructure at the Chabot and Las Positas campuses.

5.1.1 Chabot Campus

As part of the Central Plant design/build project awarded to Southland Inc. and their subcontractor, Redwood City Electric, a utility conduit infrastructure is being constructed around the campus. The first phase of this infrastructure connected buildings 200, 300, 500, 800, 900/1000, 1100 and 1200, with future conduit stub-outs to the IOB and CSSC. The utility infrastructure included conduits for voice/data cabling, and conduits for Central Plant hot/cold water. The routing was developed for both utility systems to run in parallel in a deep trench with data above the water. In the initial design, each building was to be provisioned with three (3) four-inch conduits that would penetrate the exterior building walls, to provide access for the backbone cabling. Investigation of the building footings by Redwood City Electric indicated that the conduit sweeps could not be made close enough to the buildings. Redwood City Electric proposed a set of self-standing NEMA cabinets that would provide a pathway, offset from the building. These NEMA cabinets would be mounted on a concrete pedestal by each building. The project progressed with the installation of these cabinets. See below for an example:

Cabinet outside of Chabot College Building 200

The original design called for three (3) four-inch conduits as building penetrations on the exterior wall in a location nearest to the Telecom Room (IDF) in each building. This design complied with the NEC 50 foot cable limitation, for exposure of unrated data fiber/voice copper cabling inside a building. To help alleviate cost increases, the conduit designs were revised so that for most buildings on campus, the data conduits penetrated by the mechanical rooms where the hot/cold water pipes were also routed.

Progress to date of the construction of the new data conduits has been substantial. The construction proceeded towards the Theatre, Child Care, Buildings 1400, and clockwise around the campus. The conduit paths are close to complete. Work remains on the Central Plant building itself, but it is expected that the data conduits will be completed within the next few months.

5.1.2   LPC Campus

At the LPC campus, the following progress was made towards construction of replacement conduit routing through the areas of campus that would be disrupted by construction.

a) **MD Building Connectivity:** The original routing for the backbones to the MD Building crossed the undeveloped landscape diagonally from the loop road to the PE building. Since that routing was subject to demolition with the construction of the new soccer field, an alternate path was constructed from the Loop Road MH LPC-3 vault towards the MH G-1. To accommodate the numerous bends in the pathway, a new vault MH 2400-3 was also placed in the sidewalk on the northeast corner of the MD Building. This provides a bank of eight conduits routing from the Loop Road to the G-1 vaults. Construction around the MD building's western side continued the conduit path to the MD building telecom room destinations.

b) **Fire Road conduits:** As part of the LPC Aquatics Center project, a bank of eight conduits was extended from the MH G-2 vault, along the southern border of the Pool project towards the fire road. This positioned the conduits so that they can be extended across the fire road, which is work that is currently included in the Child Care Center project. This conduit path will provide a new route for future fiber backbone cabling to the east side of the campus, adding diversity to the existing routing, and shortening the backbone cable length requirements by hundreds of feet.

c) **Central Plant:** During the LPC Central Plant project, Southland Industries was hired to extend telecommunications conduits from the existing MH 1900-D vault across the grassy area by the Science Building, and into the center of campus to connect with the MH 2000A vault. This path paralleled the route by the Central Plant water conduits for the future SSA building. The data conduits were installed to provide routing for new backbones extending from Building 1900 to the buildings in the central part of campus (1800, 2000, 2100, etc.). In addition to the conduits, a pull box was installed in the hillside by Science, so that when the LPC Building 2000 expansion progresses, new data conduits can be extended from this box to the new MDF that is scheduled to be included in the new addition.

d) **CCA Project:** The College Center for the Arts project will build an amphitheatre on top of the data conduits running between MH 400A vault and MH 400B vault. It was

recommended by Parsons and LPC Construction Management, that the project for the replacement conduits and voice/data cabling be "bundled" with the CCA construction to achieve the following:

    a. Get the construction underway.

    b. Include the data conduits and cabling in an existing LPC project, rather than a separate bid.

    c. Coordinate the CCA construction with the conduit and voice/data cabling installation such that i) there would not be any delay charges levied by projects because of schedule changes and ii) the onus is placed on one GC to keep the existing voice/data conduits in service, with no disruptions, until the new services are completed.

Sandis was engaged by LPC to develop a plan for the rerouting of all utilities that would be impacted by construction on campus. CLPCCD District ITS met with Sandis and their low voltage design sub-contractor, Point-to-Point Communications, to finalize the routing design. A set of drawings was prepared by Point-to-Point Communications and submitted through Sandis for inclusion in the CCA bid package. This included conduits and fiber/copper backbone. These drawings are included as a discrete set of Telecom drawings in the Civil section of the bid, separate from the conduits and cabling specified by TMAD, who is the engineer of record for the telecom infrastructure specific to the CCA building.

5.2 BACKBONE CABLING

Many existing fiber/copper backbones will be impacted by the new Measure B construction projects. In preparation for those projects, selected recabling of fiber/copper backbones was performed. All drawings and specifications were based on the CLPCCD Cabling Standard using Commscope Systimax products.

5.2.1 Chabot Campus

With the new conduit routing from the Central Plant project in place, CLPCCD District ITS was able to quickly bid, award and construct new fiber backbone cables to buildings 1100 and 1200. These buildings suffered temporary service disruptions because of construction excavation that disrupted the old conduit runs before the rerouted backbones were in place. Telephone cabling was routed through an alternate path back to Building 1400 and did not require rerouting.

5.2.2 LPC Campus

At the LPC campus, the following fiber/copper backbone rerouting projects took place:

    a) **PE cabling:** Demolition of the cabling that routed in the undeveloped area across the soccer field occurred early in the project. Since the production voice and data backbone cabling servicing the PE telecom rooms routed through this path, it was necessary to pull in new cabling. However, schedules required that a temporary hook-up, cascading PE off the MD building, be implemented. This connection provided service to PE for several

months, without disruption or performance impact to the rest of the campus. Concurrent with the bid for fiber backbones to Chabot's Buildings 1100/1200, new voice copper and single mode fiber backbone cables were installed between Building 1900 and PE. This provided new connectivity in a route not impacted by other construction projects.

b) **CCA project:** As with the conduits described earlier, the CCA project was expanded to include the single mode data fiber and copper voice backbones to the buildings on campus which would suffer a disruption in services with the Amphitheatre construction. Point-to-Point Communication provided drawings, and a merged specification for both the backbone and CCA building requirements was provided by CLPCCD District ITS. In compliance with the CLPCCD Network Infrastructure Cabling Standards, the cabling materials were standardized on Commscope SYSTIMAX products using Category 6A cabling for inside the CCA buildings, and TeraSPEED fiber for the backbone.

5.3 CONSTRUCTION PROJECTS

CLPCCD District ITS participated in the review of the construction projects on the campuses. The projects included:

5.3.1 Chabot Campus

Name	Scope	CLPCCD ITS contribution
Central Plant	New data conduit/vault system, new central plant building	- Review/redline of drawings for proposed conduit routing and vaults submitted by Redwood City Electric (RCE) - Attendance at weekly construction meetings - Review/approval of submittals - RFI responses - Review of in ground construction for first phase construction (200, 300, 500, 800, 900/1000, 1100, 1200, IOB.CSSC)
Villas	Temporary portable housing for faculty.	- RFI responses. - Building commissioning, network equipment installation and configuration. - Integration of security cameras to CLPCCD network and AMAG server hosted at LPC.
Chabot Telephones	Improvement of Building 200 voice terminations	- design of rack-mounted voice protection units for efficient space utilization - coordination with 800/900, IOB and CSSC projects to accommodate new termination methodology
800/900/1000	Modernization of Buildings 800/900/1000	- Submittals review. - RFI responses. - Job walkthrough, inspection, punchlist - Building commissioning, network equipment installation and configuration

		- Integration of security panel(s) to CLPCCD network.
300/500	Modernization of Buildings 300/500 with phasing for ITS relocation	- Review of design documents. - Discussion of Data Center uptime, HVAC and power (UPS & generator) requirements during phased construction. **Note:** Building 300 project is now postponed indefinitely pending the move of District ITS to the new building on LPC campus.
1900	Modernization of Building 1900/Planetarium	- Review of design documents - Creation of detailed specification section for inclusion in Project Manual. **Note:** This project may not provide new fiber backbones to the building. Instead it may be possible to reuse the MMF that currently services the building by coiling it back for storage and then rerouting it in.
2200	First Floor renovations for Dental Program	- Review of DD documents. - Development of new space for IDF. - Coordination of design integration with voice/data system on second floor (unremodeled) space.
Fields	Renovation of Track, Baseball, Tennis and Concession areas	- Review design and construction of voice/data connectivity in Fields bic - Development of new design for installation of voice/data station and backbone cabling to buildings and Track Press Box. - Creation of detailed specification section for inclusion in project bid.
2600	Temporary Strength Center	- Review of DSA submittal drawings (no drawings provided prior to this set) - Recommendation for the addition of voice/data connectivity to meet end-user requirements.
4100	New Strength/Fitness building	- Review of 100% DD drawings. - Recommendation for the addition of cabling connectivity for wired and wireless data support, voice and connectivity to Talk-a-Phone paging..
Demolition	Demolition of buildings 400/600/700	- Removal of switching equipment from buildings - Cut back and removal of old cabling from old conduits and vaults
IOB	New Instructional Office Building	- Review of submittals - RFI response
CSSC	New Community & Student Services Building	- Review of submittals - RFI response

Security	Deployment of Talk-a-Phones, WEBS paging and security devices	- Review of design drawings - Attendance at weekly construction meetings. - Review of submittals - RFI responses. - Coordination with contractor for network integration issues. - Integration of security panels to data network.
Parking Lots	Construction of Parking Lots A/B, G/H. Deployment of Talk-a-Phones, WEBS paging and security devices	- Review of as-built installation. - Coordination with design team for connectivity to conduit/vault infrastructure and IDF equipment installation. - Documentation of cable products and termination standards.

5.3.1 LPC Campus

Name	Scope	CLPCCD ITS contribution
MD	Construction and inspection of Multi-Disciplinary Building	- Submittals review. - RFI responses. - Field coordination with contractor. - Job walkthrough, inspection, coordination for change to design for cabling locations.
Central Plant	New data conduit/vault system, new central plant building	- Field coordination with Southland for construction of new conduits from MH1900D to MH2000A. - Attendance at weekly construction meetings - Review/approval of submittals - RFI responses
Aquatics and Soccer Facility	Construction of new Soccer Field and Aquatics	- Design and Submittals review. - RFI responses. - Job walkthrough, inspection, coordination for conduit and vault routing.
CDC	Construction of new CDC building, provisioning of replacement fiber/copper backbones to Building 2200, new fire road conduits	- Review of design documents. - Creation of detailed specification section for inclusion in Project Manual.
IT Building	Construction of new IT Building	- Review of design documents and project manual in preparation for bidding. - Coordination with design engineering for correct power and data provisioning. - Field Coordination with Southland Industries for construction of road stub-outs for IT Building redundant backbone path.

CCA	College Center for the Arts and TeleData Reroute	- Review of drawings with substantial reline markups for building cabling design. - Coordination with Sandis and Point-to-Point for correct design of rerouted voice/data backbones. - Creation of detailed specification section for inclusion in project bid. - RFI responses during bidding phase. - Onsite coordination meetings, job walkthroughs, RFI responses during construction. - Review of data submittals.
M&O Facility	Review of M&O drawings	- Design of data outlet locations. - Conduit connection to weather station apparatus from central server/PC.
Parking Lot	Construction of Parking Lot G. Deployment of Talk-a-Phones, WEBS paging and solar devices	- Review of drawings. - Coordination with design team for connectivity to conduit/vault infrastructure for Talk-a-phone cabling. - Coordination with design team for installation of equipment in IDFs, including wireless equipment on PE building roof. - Analysis of wireless communication and server controllers for solar panel systems.
PE III	Construction of Track, Baseball and Tennis areas	- Creation of design for field "data pedestals" for provisioning of voice/data and video pathway and cabling to field locations. Schematic design of small/medium/large pedestal designs to accommodate wireless, scoreboard and field technology locations. - Submittal of schematic designs to engineering and architect teams for inclusion in drawings. - Review of DD drawings, with substantial markups for conduit routing, security device connectivity, etc. - Creation of detailed specification section for inclusion in project bid.
Dublin Center	Planning of new Campus in Dublin	- Walkthrough and investigation of new - Schematic design for new cabling infrastructure at new campus - Budgetary analysis and solutions design for data (WAN) connectivity, network equipment, UPS and

7.0 DISASTER RECOVERY

During 2008, CLPCCD District ITS has made significant progress to improving the survivability of the Chabot Data Center. With the prolific construction activity on the Chabot campus, the frequency of power irregularities had increased, particularly with the IOB and CSSC construction projects adjacent to building 300. These power issues have had some disastrous impacts on the Chabot Data Center systems, leading to end-user and system downtime. In striving towards a 100% uptime model, the following improvements have been made:

New Data Center UPS: The new Chabot UPS was originally included as an upgrade in the Building 300 renovation, but that project has experienced numerous delays and is currently unscheduled. In the summer of 2008, a Data Center failure precipitated the purchase of a new 30 KVA UPS, as replacement for the existing 24 KVA UPS. This new UPS offered some expandability over the previous one. Close coordination with the CLPCCD M&O department allowed installation of a new electrical service panel, expanded electrical service and the UPS system. Since the deployment, the Data Center systems are now reliably supported for upwards of 30 minutes before clean shutdown.

Generator Support in Building 300: Further to the implementation of the new UPS was the adjustment of the generator support through the new electrical facilities. Many construction projects require electrical shutdowns for wiring of new campus transformers or switchgear. These necessitate hours of electrical outage, which would negatively impact student access for registration and web access. With the electrical revisions required for the new UPS, corresponding electrical upgrades to support generator access were made. Although current generator support is a manual system with rented equipment, it is anticipated that the connection will be upgraded to an automatic switchover with permanent equipment as part of the Building 300 renovation.

Generator Support for Building 200: A key element of connectivity is the network router and DS-3 access to CENIC which is hosted in Building 200. These devices control inbound connections from the Internet and are critical in maintaining uptime when campus power irregularities may occur. A new electrical bypass service was installed to allow for the provisioning of a temporary generator which can be brought into service during extended planned outages. This electrical connectivity, and recent UPS additions in the Building 200 MPOE room, can support continuous uptime with generator support when campus-wide power outages occur.