

**Pasadena City College**



**Technology Master Plan  
2016-2020**

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## **Technology Master Plan Objective**

The Pasadena Area Community College Technology Master Plan is meant to provide a framework for the implementation of technology training, hardware, software, services, and processes from 2016-2020 in support of the District's Mission, Educational Master Plan, strategic goals, and accreditation standards.

### **Development of the Plan**

#### **The District Technology Standing Committee**

The District Technology Committee (formerly Academic Technology Committee) met from August 2015 to May 2016 to recommend the strategic direction for district technology from 2016 to 2020. The committee membership appointments are made annually, with successive terms of up to three years possible. Term limits do not apply to ITS managers. The committee membership is as follows:

1. Co-Chair: Director, Technical Services
2. Co-Chair: Faculty - Appointed by Academic Senate
3. Classified - Appointed by Classified Union,
4. Classified - Appointed by Classified Senate
5. Classified - Appointed by Classified Senate
6. Faculty - Appointed by Academic Senate
7. Faculty - Appointed by Academic Senate
8. Student - Appointed by Associated Students
9. Student - Appointed by Associated Students
10. Instructional Manager: Appointed by Management Association
11. Student Services Manager: Appointed by Management Association
12. ITS Manager: Information Technology Services
13. ITS Manager: Information Technology Services
14. DSPS Office - Standing
15. Web Office - Standing
16. Distance Education Department – Standing

### **Survey Results**

A technology survey was sent to employees in February and March of 2016. A copy of the survey results can be on the [college website](#). These survey results were used to inform recommendations in this document. Questions will be added to the district's reoccurring surveys (i.e. Fall Student Survey and the Professional Development Survey) to assess needs and make annual updates to this master plan.

## **Annual Updates**

Technology evolves very quickly. The needs of Pasadena City College may also change during the period covered by this master plan. Therefore, the Technology Master Plan will be updated annually by the District Technology Committee to address changing technologies and the changing needs of our students, faculty, staff and administration.

# **College Mission, Values and Educational Master Plan**

## **College Mission**

The mission of Pasadena City College is to provide a high quality, academically robust learning environment that encourages, supports and facilitates student learning and success. The College provides an academically rigorous and comprehensive curriculum for students pursuing educational and career goals as well as learning opportunities designed for individual development. The College is committed to providing access to higher education for members of the diverse communities within the District service area and to offering courses, programs, and other activities to enhance the economic conditions and the quality of life in these communities.

### **At Pasadena City College we serve our students by:**

- Providing courses and programs, in a variety of instructional modalities, which reflect academic excellence and professional integrity;
- Fostering a dynamic and creative learning environment that is technologically, intellectually and culturally stimulating;
- Challenging our students to participate fully in the learning process and encouraging them to be responsible for their own academic success;
- Respecting them as individuals who may require diverse and flexible learning opportunities;
- Supporting organizational practices that facilitate student progress towards their goals; and
- Encouraging and supporting continuous learning and professional development in those who serve our students: faculty, staff, managers, and administrators.

## **Institutional Core Values**

As an institution committed to successful student learning in an environment of intellectual freedom, Pasadena City College is guided by the following essential, enduring and shared values:

### **A Passion for Learning**

We recognize that each one of us will always be a member of the community of learners.

### **A Commitment to Integrity**

We recognize that ethical behavior is a personal, institutional and societal responsibility.

### **An Appreciation for Diversity**

We recognize that a diverse community of learners enriches our educational environment.

### **A Respect for Collegiality**

We recognize that it takes the talents, skills and efforts of the entire campus community, as well as the participation of the broader community, to support our students in their pursuit of learning.



## **A Recognition of Our Heritage of Excellence**

We recognize that we draw upon the college's rich tradition of excellence and innovation in upholding the highest standard of quality for the services we provide to our students and community.

## **Educational Master Plan**

Below are excerpts from the EMP which pertain to technology:

### **Information Technology**

Technology will be a primary focus for improving and integrating office, educational, and support spaces. Increased use of technology will complement the educational experience, streamline administrative processes, and increase communication—both internally and externally. Whenever possible, PCC technology systems will be upgraded and implemented to capitalize on cutting-edge innovations and instructional methods.

The district identified twelve mission critical priorities in the EMP lettered A-L. [Two of these priorities closely relating to technology are Professional Development and Technology.]

### **Professional Development**

B2: Create centers of excellence and innovation hubs that are cross-functional and cross-divisional

B2.2: Develop consistent training programs to enable faculty, staff, and managers to learn new technology as it becomes available

### **Technology**

C1: Identify and address the technology needs that support the successful operations of the institution

C1.1: Implement a technology plan that ensures that all systems are fully integrated and reduces duplication of effort

C1.2: Increase the use of technology to enhance productivity and efficiency

C2: Identify and address the technology needs that support innovative and successful teaching and learning methodologies

C2.1: Enhance and grow high quality distance learning programs, hybrid and online courses

C2.2: Create state-of-the-art "learning studios" for the development of faculty innovations

C2.3: Ensure that all classrooms are equipped with state-of-the-art technologies

C3" Identify and address the technology needs that sustain all student support service and the library

C3.1: Provide varied student communication mechanisms (online, smart phones, social networks, etc.) to address students' needs

C3.2: Create a state-of-the-art, easily accessible student information system that includes a web page and web portal for admissions, registration, advisement, counseling, etc.

C3.3: Re-design the application, admission, financial aid, degree audit and other student services processes to leverage web-based tools

C4 Identify and address students' technology needs and provide necessary training to prepare them to enter technology-driven professions

C4.1: Review and update course curricula to address real-world technology demands

### **ACCJC Accreditation Standard III C**

- i. Technology services, professional support, facilities, hardware, and software are appropriate and adequate to support the institution's management and operational functions, academic programs, teaching and learning, and support services.
- ii. The institution continuously plans for, updates and replaces technology to ensure its technological infrastructure, quality and capacity are adequate to support its mission, operations, programs, and services.
- iii. The institution assures that technology resources at all locations where it offers courses, programs, and services are implemented and maintained to assure reliable access, safety, and security.
- iv. The institution provides appropriate instruction and support for faculty, staff, students, and administrators, in the effective use of technology and technology systems related to its programs, services, and institutional operations.
- v. The institution has [policies and procedures](#) that guide the appropriate use of technology in the teaching and learning processes.

## **Current Technology Equipment**

### **Computing and Infrastructure Refresh Cycles and Standards**

Standards for technology hardware and software reduce variation and complexity. Standards also capture the economies of scale to maximize the purchasing power of the district. PCC has adopted the approach to standardize equipment whenever possible to efficiently deliver technology services to PCC's students, faculty, staff and administrators. Furthermore, in support of ACCJC standards IIIC 2 & 3, EMP goal C2.3, it is important for PCC to adopt a comprehensive technology refresh plan. Funding for campus-wide refresh should be budgeted annually. PCC has a variety of technologies which require varying refresh cycles. These technologies, their standards and their recommended annual refresh cycle costs are broken down below.

### **Desktop/Laptop Computers**

*(EMP C2.3, ACCJC Standard III-C2)*

The District currently owns approximately 3200 desktop computers and laptops. A large majority of these are located in computer labs or laptop carts used by instruction. The current model standards are outlined in Appendix D.

#### *Recommendation 1:*

*District computers (desktops and laptops) should be refreshed every five years for most purposes to support current software and services. Some specialized areas such as computer aided design (CAD) labs require more frequent refresh cycles of three years. The estimated cost to achieve this is \$775,000 annually.*

#### *Recommendation 2:*

*Implement a unified method for employees using Macintosh computers to backup files.*

### **Smart Room/Presentation Systems**

*(EMP C2.3, ACCJC Standard III-C2)*

The district has 260 instructional spaces equipped with presentation systems. In addition, the district also has 22 conference spaces/event venues which also have presentation systems. The district educational master plan reads, "Ensure that all classrooms are equipped with state-of-the-art technologies". Standards for these spaces are identified in Appendix E. Each standard sized room costs \$15,000 - 20,000 to upgrade to the latest standard. This includes a projector, interactive whiteboard, document camera, computer, touch panel control system, room speakers, and lectern where instructors control and access all equipment. Larger venues such as the CEC Multipurpose room (room 126) require significantly larger projectors and more complex control systems and therefore can cost considerably more than a standard sized room.

*Recommendation 3:*

*When factoring in the quantity of rooms, cost per room, and the reliable life of the equipment installed, an 8 year refresh cycle is recommended for smart classrooms and presentation systems... Funding for campus-wide refresh should be budgeted for annually, with current funding needs of approximately \$650,000 per year.*

## **Network Equipment**

*(EMP C1, ACCJC Standard III-C2, III-C3)*

The district's network infrastructure is composed of the wired and wireless networks. The wired network includes critical equipment in the central cores and data center. Failure of these components would interrupt services districtwide.

*Recommendation 4:*

*The district should replace critical equipment in the central cores and datacenter every 5 years at an annual cost of \$80,000 to ensure reliable delivery of services and to keep up with the ongoing growth in network traffic. This growth has been measured at 360% between 2013 and 2016 (Appendix F).*

The wired network also includes less critical equipment outside the central cores and data center. These components are far greater in number when compared to core network equipment. Failure of these components would impact parts of a building but not the entire district.

*Recommendation 5:*

*The district should replace these components every 10 years at an annual cost of \$150,000 to ensure the consistent delivery of networked services.*

Finally, the wireless network supports wireless devices. The wireless network is heavily used by students. It is also used by many instructors when utilizing mobile devices for instruction. Through the deployment of newer and more intelligent wireless networks, the district is not only able to keep up with the phenomenal growth in wireless demand but also to determine specifically where additional wireless capacity is needed. The technology industry recognizes the dramatic growth in both wireless devices and the network bandwidth they require. As such, newer and faster wireless standards are evolving in the IEEE 802.11 arena. Adopting the newest wireless technologies utilizing newer standards will be needed to support the growing number of devices and the traffic they will generate.

*Recommendation 6:*

*The district should replace wireless networks on a 7-year life cycle upgrading approximately 1/7 of the infrastructure each year at an expected annual cost of \$50,000.*

## **Servers**

*(EMP C1, ACCJC Standard III-C2, III-C3)*

The district has over 100 physical and virtual servers to host the district's systems including Banner suite of enterprise systems, DegreeWorks, email, website, student labs, authentication, shared files and backups. These systems support vital functions of the college including registration. Therefore, the health and performance of these servers is critical to the operation of the college.

### *Recommendation 7:*

*The district should replace servers on a 5-year cycle to ensure maximum uptime and minimize the disruption of services vital to serving students. The expected annual cost is \$100,000 per year.*

## **Campus Safety Systems**

*(EMP C1, ACCJC Standard III-C2, III-C3)*

The district has approximately 180 security cameras which work in conjunction with several storage and management servers to assist Police and Safety Services in investigating and reducing crime. In addition, there are over 200 emergency dialers across district locations including elevators, parking lots, in corridors and in open areas.

### *Recommendation 8:*

*This equipment is exposed to the elements and eventually requires replacement. The estimated annual cost to replace campus safety system components to ensure a high level of reliability is \$110,000.*

## **Printing**

The current printing environment includes both employee printers and student printers. Printers are repaired/replaced as needed. The college maintains standards for black and white as well as color printers and multi-function devices. Additionally, faculty, staff, and administrators may submit larger or more complex print/copy orders to Office Services.

Most student printing in open lab areas and the library use pay-per-print solutions, currently split between GoPrint and CCS printing services. Faculty and staff printing is also a mixed environment. Some devices are managed by HP Print services and are used as shared devices. Most single-user printers are maintained by department staff.

### *Recommendation 9:*

*When feasible, reduce the number of print devices and adopt a model of shared devices to lower the district's total printing costs.*

*Recommendation 10:*

*Have all print devices managed by an outside service to minimize time spent by district employees in buying, storing, installing and disposing of toner/ink.*

*Recommendation 11:*

*Implement an online print order solution so faculty, staff, and administrators can submit print requests to Office Services online.*

*Recommendation 12:*

*Implement a uniform, Wi-Fi accessible, student pay-per-print environment across the district while being mindful of revenue generated with existing pay-per-print systems used to fund any existing critical student services.*

## **Telephone and Video Conferencing**

*(EMP C1, ACCJC Standard III-C3)*

The district telephone system currently consists of approximately 1350 Nortel 1120 and 1140E voice over IP telephones, approximately 250 emergency phones and approximately 50 departmental fax machines. The telephone system relies on two redundant PBX cores which are located in two different buildings on the main campus. The current system was installed in 2008 during a comprehensive network/telecom upgrade funded by the Measure P bond.

The California Community Colleges Chancellor's Office funds two solutions which have proven valuable to Pasadena City College. The first is CCC Confer, which allows for simple conference bridges that are accessible via a standard dial in phone number or via an Internet connected computer or smartphone. The second is ConferNow which is a video conferencing solution powered by Zoom. ConferNow offers powerful video conferencing capabilities at zero cost to the district for service. It allows video conference invitations to be sent to anyone, which alleviates some of the complexities and challenges that come with services which require all participants to hold an account.

*Recommendation 13:*

*Plan upgrades of the telephone system to improve integration with email, instant messaging and public announcement systems.*

*Recommendation 14:*

*Transition to using Session Initiation Protocol (SIP) connections to utilize external voice over IP services and lower overall telephone service costs*

*Recommendation 15:*

*Provide training of communication resources available including resources provided by the Chancellor's office.*

## **Disaster Recovery and Business Continuity**

*(EMP C1, ACCJC Standard III-C3)*

The District currently backs up critical systems to tape. These tapes are stored offsite. The district is currently engaging consulting resources to assist in developing a comprehensive disaster response and business continuity plan for technology and non-technology areas. One focus in managing district's technology systems is determining the institution's recovery point objectives (RPO) and recovery time objectives (RTO).

*Recommendation 16:*

*Identify district recovery point objectives (RPO) and recovery time objectives (RTO) for critical systems.*

*Recommendation 17:*

*Develop a backup datacenter to maintain the delivery of services if a catastrophic event were to impact the district's primary.*

*Recommendation 18:*

*Develop a secondary utility access to enhance redundancy of the district's access to the Internet*

## **District Applications**

### **LancerPoint aka Ellucian's Banner ERP (Enterprise Resource Planning)**

The college purchased [Ellucian's Banner ERP](#) in 2012. The suite of products, commonly referred to as **LancerPoint**, consists of Self-Service Banner (SSB), Banner INB, Banner Student, Banner Financial Aid, Banner Finance, Banner Human Resources, DegreeWorks, Banner Operational Data Store (ODS), Luminis Portal, Argos Reporting, DegreeWorks Degree Audit/ Educational Plan product, and other ancillary and hosted services. Ellucian assisted the college with the implementation from fall of 2012 through early 2014.

In 2015 PCC worked with Strata Information Group (SIG) for additional training and configuration of some portions of the system, namely Finance, Human Resources, and Financial Aid. In 2016 SIG will be helping implement the Faculty Load and Compensation (FLAC) module, Banner Workflow, Banner Electronic Personnel Action Form (EPAF). SIG will also assist with the upgrade of our Luminis portal (LancerPoint) to the latest 5.3 release. During this upgrade, we will also synchronize our Luminis test and production environments.

For 2017 – 2018 the college would like to implement any remaining components of Banner including Fixed Assets, Banner Document Management, Travel and Expense Module, Banner Communication Management, Grants and Research Accounting, and Recruitment Module.

Ellucian is expected to release a major update to Banner known as Banner 9 or Banner XE. This version of Banner has been in development for over 5 years and is a major modernization of the Banner User Interface for both administrative users and the end users. This upgrade will take 12 – 24 months to complete.

*Recommendation 19:*

*The district should develop a staffing plan to support the Banner ERP and all ancillary systems and hosted services.*

*Recommendation 20:*

*The district should develop an implementation plan for Banner XE that is similar in scope to a new product implementation. (Faculty / Staff test groups, training sessions, broad distribution of information – internal marketing.)*

*Recommendation 21:*

*The district should develop workflows to automate processes and increase efficiencies. For example a single workflow could automate the notification of the required stakeholders and perform a series of actions including dropping students when a class is cancelled. Another example would be one to notify an approver when there are finance requisitions awaiting approval for more than 48 hours.*

## **Single Sign-On**

LancerPoint in its current state incorporates only part of the products and tools that are commonly used by students, faculty and staff. At this time the campus community can access tools like online registration, DegreeWorks degree audit, faculty grade and drop rosters by logging in to LancerPoint. Other frequently used tools such as Kronos (staff timesheet reporting), ATIFiler and NOLIJ (existing document imaging systems), and the PARS faculty reporting system for positive attendance hours exist as stand-alone systems that are accessed through the website and require a separate login that may or may not be the same as the LancerPoint login. As a result, access to critical products and tools is disorganized and cumbersome for users to navigate.

The vision for LancerPoint is to create a true single sign-on environment that would provide access to all of the commonly used products and tools behind a secure single login.



*Recommendation 22:*

*We recommend modifying LancerPoint to become a true single sign-on environment that will incorporate access to all of the products and tools regularly utilized by college students, faculty and staff behind a single login.*

## **Ancillary Systems**

### **DegreeWorks**

Degree Works' Student Educational Plan tool has been in use by Counseling faculty since fall 2015 and will be released to students in Fall 2016. Staff and faculty training sessions, student pilot groups are planned to introduce the Degree Works product. It should be noted that full functionality of this product is dependent upon the implementation of the Lexmark Imaging Suite, conversion of existing articulation data into Banner, and implementation of course-to-course articulation.

### **College Scheduler**

Student Services will also implement College Scheduler, a product that will allow students to plan their registration schedules using their DegreeWorks Educational Plan, in fall 2016.

### **Lexmark Imaging Suite**

In 2016 – 2017 Student Services will implement the Lexmark Imaging Suite that will enable the capture of transcript data to be imported directly into Banner to facilitate course-to-course articulation. This will allow the college to better serve our students because transfer work will be used for developing student educational plans, prerequisite checking, degree auditing, and financial aid determination. To further this project, the college has engaged Strata Information Group to develop and implement a process to convert all existing course articulation data from the Transfer Equivalency System (TES) system into Banner.

### **PCC Employee Email**

The district currently utilizes Microsoft Exchange 2010 as its email platform. This platform runs on three servers in the district's data center and utilizes an additional security appliance to serve as a SPAM filter.

*Recommendation 23:*

*In an effort to reduce the number of servers the district maintains and to enhance the redundancy architecture of employee email, we recommend employee email be migrated to the Microsoft Cloud solution known as Office 365. This approach will also significantly expand the current standard mailbox sizes of 3GB.*

## **Mobile Application**

In 2011, there was strong interest to develop a mobile application for PCC so that students could easily access essential information and services from their devices -- including the schedule of classes, Learning Management System, directory information and news/events. The long term goal was to offer students an app that would also allow for enrollment, registration and payment for courses. Blackboard Mobile was selected as the mobile app platform/provider in spring 2011 and an ad hoc committee participated in its development. The app was developed over the course of a year and launched in spring 2012 (IOS and Android). Since no single area was responsible for the product, ongoing updates, maintenance and further development of the mobile application beyond the initial implementation did not occur. The product was not marketed effectively, though students did find and download the app. The product was cancelled in spring 2015.

### *Recommendation 24:*

*After the upgrade to LancerPoint is completed, we recommend creating a task force to investigate the benefits and demand for a mobile-friendly interface for LancerPoint services.*

## **Pasadena City College Website**

After three years of development, the district launched a new website on June 28, 2016. The new site is responsive and functional on many different devices. Strategic Communications and Marketing is in the process of rolling out training to users who will be keeping the content current. In the meantime SC&M is maintaining content.

With the relaunch of the new website PCC has the advantage of a fresh start across the entire site: the information, photos, graphics, and other content are current and correct. It will be a challenge to maintain this freshness going forward. Distributed content oversight allows departments across campus to own responsibility for the information they showcase on the web, but additional effort will be required — from SC&M and from other departments — to ensure a consistent voice aligning with PCC's character on every page of the site. The Web Office staff will provide a series of training workshops for faculty and staff who will be managing their own pages.

Future efforts will focus on strengthening and enhancing the content management system that undergirds the site, ensuring expected functionality with third-party software through systems integration efforts, and assessing various ways the public website and, potentially, other enterprise applications work together to improve PCC's business processes.

# Instructional Technology Resources

## Distance Education

The Distance Education Department supports the college's mission to expand access and increase student completion by offering courses utilizing the latest technology in online instructional delivery methods. The goal is to provide a greater array of accessible learning opportunities for students through individualized, learner-centered instruction. PCC offers a variety of distance education courses that can be completed partially or totally online using the Canvas Learning Management System. The Distance Education Department administers and provides support for Canvas, associated educational technology integrations (i.e. TurnItIn), and course development tools for online, hybrid and web enhanced instruction. Authentication is supported through college-assigned secure logins/passwords (LDAP/Active Directory).

## Technology Support

### ITS HelpDesk

The Information Technology Services (ITS) HelpDesk is a single point of contact for technology support for district employees. The helpdesk provides a variety IT support services including phone support, dispatching technicians, directing employees to support resources and facilitating the purchase of technology. The helpdesk operates each weekday with limited weekend hours during the first week of a semester as well as during finals.

PCC ITS has developed draft Service Level Agreements (SLAs) that will be implemented. The purpose of the SLAs is to define acceptable service levels provided to the PCC faculty and staff by ITS. ITS will report on SLA compliance annually.

### *Recommendation 25:*

*The SLAs should be reviewed and adjusted annually as appropriate. SLAs can be found in Appendix C.*

## Instructional Classroom and Lab Technology

Maintenance and fulfillment of change requests for hardware and software in classrooms and computer labs are fulfilled by a small group within Information Technology Services. This group is responsible for the maintenance of over 2400 devices. The number of devices has grown significantly in recent years through the expanded use of technology in academic programs. This growth is supported by a variety of funding sources including state programs such as the SSSP, Equity and instructional equipment funds. The number of devices has grown by nearly 50% in the last few years. The quantity and complexity of technology in instructional areas is expected to continue to increase in the coming years. Unfortunately, the staffing level to support classroom and computer lab technology has been reduced by one employee over the last 10 years. This combination of increased technology demand and reduced support resources is an area which requires attention.

*Recommendation 26:*

*With the growing quantity and complexity of instructional technology, we recommend the district increase staffing levels to adequately support instructional technology.*

## **Distance Education Support**

The Distance Education Department offers ongoing workshops/training for Canvas and supported educational technologies used in online, hybrid and web enhanced instruction.

## **LancerPoint Support**

Student – support is currently provided by Admissions and Records staff through in-person contact, phone calls and emails. Support is limited to office hours only and by the availability of knowledgeable staff to respond to student needs. A “Welcome Window” is open for a few hours each day, staffed by College Assistants who provide LancerPoint support to students in person.

Faculty – support is provided primarily by Admissions and Records staff, with some assistance through division offices and other sources. Support is limited by the availability of knowledgeable staff.

*Recommendation 27:*

*The use of technology will only increase in the community college environment. A more accessible source of support is needed to provide assistance after office hours and on weekends; and to address the more technical issues which cannot be resolved through the solutions available to non-technical staff. Therefore we recommend that the college consider a 24/7 helpdesk solution for employees and students.*

*Recommendation 28:*

*The district should identify and provide support for specific departments as subject matter experts responsible in fulfilling the ongoing training and support needs of different district user groups (students, faculty and staff) in the use of the LancerPoint system.*

# Processes for District Technology

## Computer labs

For the purpose of this document, a computer lab shall be defined as any group of two or more computers that are configured for student use in areas such as open labs, instructional spaces, and student services areas. These systems follow a separate configuration process than those intended for faculty and staff use and require more lead time to change or deploy. The computer lab listing can be found in Appendix A. New computer labs should be requested and prioritized through the existing Integrated Planning Model.

## Computer lab software add/changes

Changes to existing lab software can take a full semester to implement if a new software title is being added. Requests for changes should be made as early as possible to allow for the configuration changes necessary. The current process can be found in Appendix B.

Removal of an instructional computer lab shall be requested by the Vice President of Instruction or the Dean of the instructional division. These spaces should be prioritized through the existing Integrated Planning Model.

## Enterprise Software and/or Services adds/changes

Enterprise software and/or services includes non-instructional software and/or services used by the college community. A formal review process has been developed to review significant adds or changes to address a variety of areas including checking for duplication, accessibility and total cost of ownership. A summary of the form outlining the criteria for this review can be found in Appendix G.

## Technology Training

*(EMP B2.2, C1.2, C2.2, ACCJC Standard III-C4)*

The need for additional training was mentioned in several areas of the [technology survey](#). Faculty, staff and administrators can benefit from ongoing technology training. Training in a variety of areas will help increase the effective use of district technology and reduce frustrations.

## Onboarding

Training for faculty, staff and administrators should start as soon as they are hired. There are a variety of systems, tools and resources the district offers. Being trained on utilizing these resources can provide value to the college. Developing new onboarding processes and leveraging existing processes such as the new faculty orientations can be excellent opportunities to assist new members of the PCC family in being better prepared to be effective in their roles at the college

*Recommendation 29:*

*We recommend offering security training to all employees. Employees with access to sensitive data should be required to complete training before being provided access.*

## **Security training**

Security awareness training is a valuable defense against being a victim of a data breach. The California Community Colleges Information Security Center offers Security Awareness training geared towards administrators and staff who handle secure information or deal with private student data, personal identity information, research data, social security numbers, or financial aid data as part of their job functions.

<http://cccsecuritycenter.org/services/security-awareness-training>

*Recommendation 30:*

*We recommend expanding ongoing training for technology through recommendations from the Professional Development committee. Existing technology support staff may be able to provide formal training opportunities. These staff members will need training as well so it is vital to train our trainers.*

## **Ongoing technology training**

Technology is always changing. Therefore it is vital to provide ongoing training to ensure Faculty, Staff and Administrators are prepared to adjust to new technology or changes in existing technology.

*Recommendation 31:*

*We recommend a comprehensive onboarding training process to prepare new staff and administrators in utilizing technology resources at the college. ITS should continue to work with the academic senate to support technology training for new faculty.*

## **Accessibility**

There are numerous technology accessibility challenges. These include evaluating technology purchases for accessibility compliance, designing new computer labs and smart classrooms that are optimized for accessibility, training college employees to create accessible electronic documents, ensuring that self-service technologies are accessible (print station, information kiosk, room reservation, etc.), and assessing that technology provided to the college by the California Community College Chancellor's Office is accessible (Common Assessment Initiative, Online Education Initiative, etc.).

*Recommendation 32:*

*We recommend the District Technology Committee develop a Technology Accessibility Plan that provides guidelines to help the college meet accessibility standards per Section 508, W3C and other relevant regulations. The plan should be updated annually. Each division would identify an individual to serve as their*

*primary technology accessibility resource person. These resource representatives would advise members of their respective divisions with regards to accessibility issues and provide yearly updates to the District Technology Committee.*

*Recommendation 33:*

It is recommended that professional development be offered to inform faculty of the existing options for accepting assignments digitally and to provide training in their use to further promote equity, accessibility and sustainability.

## **Bond Opportunities and Projects**

During the March 2002 general election, the Pasadena Area Community College District voters approved Measure P, a \$150 million in General Obligation Bonds at interest, to repair and rehabilitate its facilities to meet current health, safety, accessibility and instructional standards, replace worn-out plumbing, upgrade existing electrical systems to better access technology, replace aging heating, ventilating and air conditioning systems, renovate outdated classrooms and other vocational training facilities, and construct other facilities to relieve overcrowding.

Measure P allowed for significant improvements to the district's facilities and technology infrastructure. In 2007, the District utilized Measure P funding to overhaul the data network and telephone system into a new, merged voice over IP network. This overhaul also included the installation of over 240 wireless access points across the main campus and the Community Education Center.

As the Measure P bond closes out, the district is finalizing its Centennial Facilities Master Plan. This plan will carry Pasadena City College into the middle of the 21st century. The development of this plan will also require support of our community. This plan will also require funding in the form of a new bond that must be approved by the voters for our district.

Along with much needed facilities improvements that will come with the implementation of a Centennial Facilities Master Plan, a 21st century Pasadena City College will require a robust, secure and agile approach in supporting the every changing technology needs of our students, faculty, staff and administrators. No one can predict how technology will evolve over the next 25 years. Therefore, the approach to long-term planning must include both budgeting for known needs as well as establishing a funding structure which supports our educational master plan by "ensuring that all classrooms are equipped with state-of-the-art technologies".

Some of the known infrastructure needs include:

- In case the primary system is down due to maintenance or catastrophic failure redundancy improvements which will minimize interruptions in services
  - Creating a second point of entry for data services
  - Building a secondary datacenter to enhance redundancy

- Full upgrade of the telephone system to maintain reliability and lower service costs.
- Upgrade of the fiber optic infrastructure to support growing needs for speed and redundancy.
- Installing and upgrading air conditioning in the district's network rooms

To support keeping Pasadena City College “equipped with state-of-the-art technologies”, funding for infrastructure equipment such as smart classroom systems, networking equipment, and servers are critical. These costs can exceed \$30,000,000 over the life of a 25-year bond when excluding the addition of new classrooms or facilities. Therefore, a funding structure which can spread the upgrade of the technology infrastructure over the life of a bond will help support Pasadena City College’s goal in providing facilities equipped with state-of-the-art technologies as these technologies become available.

## **State Initiatives**

### **Common Assessment Initiative**

The Common Assessment data will be used for placing and advising community college students to enhance their success with and completion of their postsecondary education objectives. CCCAssess is one tool that will be used by California Community Colleges to enhance access and success by providing effective core matriculation services of orientation, assessment and placement, counseling and education planning, and academic interventions. PCC will adopt the common assessment in spring 2018 for student placement in the fall 2018 semester.

### **Education Planning Initiative**

The development of a comprehensive Student Education Plan is required by SB 1456, the Student Success and Support initiative. The Education Planning Initiative (EPI) is hosted by Foothill-DeAnza Community College District through funding from the CCC Chancellor’s Office. Its goal is to provide an Education Planner and Degree Audit System to colleges that do not have a system in place, and to support existing Education Planners by helping to integrate data into a cohesive system. Participation is voluntary.

Pasadena City College currently uses DegreeWorks’ Student Education Plan and Degree Audit and will integrate it with College Scheduler’s “Schedule Builder” during the 2016-17 year in order to provide students with accurate educational plans and registration schedules that support their educational goals. PCC will assess the EPI product to determine what value-added features it might provide for our students.

### **Online Education Initiative**

The Online Education Initiative (OEI) is a project intended to increase CCC students’ access to online courses statewide. For those colleges that choose to participate, OEI will provide a portal environment through which data will be shared between colleges to simplify the process for a student to identify online courses at other CCCs that will fulfill their requirements, be admitted to another college, register and utilize their financial aid resources at that college. The project is hosted by Foothill-DeAnza College in partnership with the California



Community Colleges Technology Center (CCCTech), and supported by funding from the CCC Chancellor's Office.

Since participation in OEI is voluntary, PCC will have the opportunity to assess how the product works for pilot CCCs before deciding whether or not to use it. OEI requires the use of the Canvas online distance education system, which PCC already uses. There are several challenges still be addresses with OEI, including the developer's' intent that students not be required to apply at a college where they are taking online classes, that the "receiving" college accept the "home" college's residency determination, and determining how financial aid and student loans will work between the colleges.

The Online Education Initiative is helping the college save approximately \$250,000 annually licensing costs.

### **CCCApply**

Pasadena City College uses the OpenCCCApply online application for admission. OpenCCCApply provides a "common" online application for use by community colleges; students can use it to apply to one or more community colleges. Participation is voluntary, although funding from the CCC Chancellor's Office in the form of implementation grants has ensured that the majority of California Community Colleges use the product. OpenCCCApply is hosted by the CCC Technology Center at Butte College.

PCC still needs to implement the March 2016 upgrade; major upgrades are done once a year, and patches are released throughout the year. In addition, the new International Student application was also launched in March 2016; PCC is still evaluating whether or not to utilize this product. There is also statewide interest in the development of an application specifically for non-credit programs, which would enable colleges to more efficiently separate credit and noncredit populations starting from the point of admission.

OpenCCC will also play a role in the state's Common Assessment Initiative in that students will be required to have a CCCID in order to participate in CAI. This is a problematic requirement since there are substantial populations that cannot utilize the online application, including minors under age 14 and many incarcerated students. The issue has been brought to the attention of the CCC Chancellor's Office, the OpenCCCApply Steering Committee and the CCC Technology Center.

### **eTranscript California**

Pasadena City College will implement eTranscript California (eTranCA) within the 2016-17 year. eTranCA is the electronic transcript transmission solution for California Community Colleges, allowing participating CCCs to send and receive electronic transcripts to other CCCs, many California State University campuses and a few University of California and private college campuses. The product is hosted by XAP Corporation, and funded through implementation grants from the CCC Chancellor's Office.

PCC utilizes Credentials Solutions as their online transcript production system, and is able to send and receive electronic transcripts in a variety of formats to and from schools nationwide, including the CCC. The implementation of eTranCA and integration with Credentials Solutions will complete our “suite” of options for sending and receiving electronic transcripts.

## **CENIC**

The Corporation for Education Network Initiatives in California (CENIC) provides Internet connectivity to Pasadena City College. Through CENIC’s support, PCC became one of the first California Community Colleges to receive a 10Gbps primary Internet connection in the summer of 2015. This increased PCC’s bandwidth to the Internet by 10 times, allowing for continued support of high speed Internet access to our students, faculty and staff.

CENIC along with the Chancellor’s office are helping the college save approximately \$25,000 annually in Internet service costs.

## **Opportunities for Improvement**

### **Technology Governance**

The District Technology Committee is charged to “advise the College Council on matters relating to technology matters in support of the Educational Master Plan.” As mentioned earlier in this document, the quantity and complexity of technology has grown significantly at the college over the last few years. While the District Technology Committee advises and makes recommendations to the College Council, the depth of discussion required to make such recommendations is often difficult within a single body. As such, other technology groups exist on campus to discuss, prioritize and make recommendations. An opportunity for improvement would be to eliminate this fragmentation and structure these groups as work groups of the District Technology Committee. This would allow the District Technology Committee to holistically and effectively “advise the College Council on matters relating to technology matters in support of the Educational Master Plan.”

### **College-wide business process improvement**

Since the college implemented LancerPoint in 2013, the college has seen improvements in stability and reliability of software. The system has also provided 24/7 availability and an increase in computing capacity to simultaneously process thousands of registering students. To expand on these improvements, the college has continued to look for opportunities for improvement of processes through technology. In 2016, the district developed interfaces to synchronize PCC’s Banner system with the Los Angeles County Office of Education (LACOE) PeopleSoft system. This synchronization is automating tasks which consumed hundreds of hours annually, reducing errors and providing the district with current fiscal information.

The district should invest in the continual automation and improvement of business processes to increase the overall efficiency of the college's operations. This efficiency can free resources to further improve efficiencies and to dedicate more resources to the college's core objectives.

While improvement of processes requires broad participation, there are two positions which are at the core of that improvement. The first is the Business Analyst, who has detailed knowledge of processes and technologies within functional areas (administrative services, student services...etc). A Programmer Analyst has the skills to read and write computer code to implement the business analyst's recommendations. A Business Analyst teamed with a Programmer Analyst can work together to develop or modify technologies to automate processes/systems and streamline existing (often manual) processes.

*Recommendation 34:*

*We recommend the district invest in Business Analysts and Programmer Analysts where appropriate to document, review and automate district processes to continually increase the district's operational efficiency and capacity.*

## **Digitization of paper documents**

There are a few opportunities for improvement through the digitization of paper files and paper-based processes. The district has paper archives which consume significant space. Some benefits of digitizing archives includes freeing up space, reducing the time to retrieve files, and allowing backups of these files for business continuity. Aside from archives, moving from paper-based workflows to electronic workflows would reduce processing times and paper consumption.

*Recommendation 35:*

We recommend the district digitize administrative paper archives such as human resources, fiscal and student records.

*Recommendation 36:*

We recommend the district reduce paper consumption through the use of electronic resources wherever possible.

## Summary of Recommendations

Some of the recommendations of this Master Plan require funding upgrades of existing the technology to ensure that the technological foundation of the college remains current to minimize interruptions of services to the campus community. The cost of some recommendations needs to be further researched and quantified. Some of the recommendations are expected to have a negative total cost due to the efficiencies they are expected to yield. The sum of the costs of recommendations 1, and 3-8, which focus on technology upgrades and refresh, is \$1,915,000 annually. Through several budget cycles, the District has made progress in developing a budget to meet this need through a variety of funding sources. Growth in enrollment, cost of living increases and the expected increase in the use of technology in all areas of the college is expected to increase this annual cost in the coming years. This cost estimate for all recommendations will be reviewed and revised in each annual update to this document.

It is also worth noting that some of the state initiatives such as the Online Education Initiative and Common Assessment are leveraging the economies of scale of the California Community College system to save community districts money and standardize services to students. Having key district employees well versed in these initiatives in their early stages will help Pasadena City College maximize the benefits of these initiatives.

Summary of recommendations 1-36:

1. District computers (desktops and laptops) should be refreshed every five years for most purposes to support current software and services. Some specialized areas such as computer aided design (CAD) labs require more frequent refresh cycles of three years. The estimated cost to achieve this is \$775,000 annually.
2. Implement a unified method for employees using Macintosh computers to backup files.
3. When factoring in the quantity of rooms, cost per room, and the reliable life of the equipment installed, an 8 year refresh cycle is recommended for smart classrooms and presentation systems. Funding for campus-wide refresh should be budgeted for annually, with current funding needs of approximately \$650,000 per year.
4. The district should replace critical equipment in the central cores and datacenter every 5 years at an annual cost of \$80,000 to ensure reliable delivery of services and to keep up with the expected growth in network traffic. This growth has been measured at 200% between 2013 and 2015 (Appendix F).
5. The district should replace these components every 10 years at an annual cost of \$150,000 to ensure the consistent delivery of networked services.
6. The district should replace wireless networks on a 7-year life cycle upgrading approximately 1/7 of the infrastructure each year at an expected annual cost of \$50,000.

7. The district should replace servers on a 5-year cycle to ensure maximum uptime and minimize the disruption of services vital to serving students. The expected annual cost is \$100,000 per year.
8. This equipment is exposed to the elements and eventually requires replacement. The estimated annual cost to replace campus safety system components to ensure a high level of reliability is \$110,000.
9. When feasible, reduce the number of print devices and adopt a model of shared devices to lower the district's total printing costs.
10. Have all print devices managed by an outside service to minimize time spent by district employees in buying, storing, installing and disposing of toner/ink.
11. Implement an online print order solution so faculty, staff, and administrators can submit print requests to Office Services online.
12. Implement a uniform, Wi-Fi accessible, student pay-per-print environment across the district while being mindful of revenue generated with existing pay-per-print systems used to fund any existing critical student services.
13. Plan upgrades of the telephone system to improve integration with email, instant messaging and public announcement systems.
14. Transition to using Session Initiation Protocol (SIP) connections to utilize external voice over IP services and lower overall telephone service costs
15. Provide training of communication resources available including resources provided by the Chancellor's office.
16. Identify district recovery point objectives (RPO) and recovery time objectives (RTO) for critical systems.
17. Develop a backup datacenter to maintain the delivery of services if a catastrophic event were to impact the district's primary.
18. Develop a secondary utility access to enhance redundancy of the district's access to the Internet
19. The district should develop a staffing plan to support the Banner ERP and all ancillary systems and hosted services.
20. The district should develop an implementation plan for Banner XE that is similar in scope to a new product implementation. (Faculty / Staff test groups, training sessions, broad distribution of information – internal marketing.)
21. The district should develop workflows to automate processes and increase efficiencies. For example a single workflow could automate the notification of the required stakeholders and perform a series of actions including dropping students when a class is cancelled. Another example would be one to notify an approver when there are finance requisitions awaiting approval for more than 48 hours.

22. We recommend modifying LancerPoint to become a true single sign-on environment that will incorporate access to all of the products and tools regularly utilized by college students, faculty and staff behind a single login.
23. In an effort to reduce the number of servers the district maintains and to enhance the redundancy architecture of employee email, we recommend employee email be migrated to the Microsoft Cloud solution known as Office 365. This approach will also significantly expand the current standard mailbox sizes of 3GB.
24. After the upgrade to LancerPoint is completed, we recommend creating a task force to investigate the benefits and demand for a mobile-friendly interface for LancerPoint services.
25. The SLAs should be reviewed and adjusted annually as appropriate. SLAs can be found in Appendix C.
26. With the growing quantity and complexity of instructional technology, we recommend the district increase staffing levels to adequately support instructional technology.
27. The use of technology will only increase in the community college environment. A more accessible source of support is needed to provide assistance after office hours and on weekends; and to address the more technical issues which cannot be resolved through the solutions available to non-technical staff. Therefore we recommend that the college consider a 24/7 helpdesk solution for employees and students.
28. The district should identify and provide support for specific departments as subject matter experts responsible in fulfilling the ongoing training and support needs of different district user groups (students, faculty and staff) in the use of the LancerPoint system.
29. We recommend offering security training to all employees. Employees with access to sensitive data should be required to complete training before being provided access.
30. We recommend expanding ongoing training for technology through recommendations from the Professional Development committee. Existing technology support staff may be able to provide formal training opportunities. These staff members will need training as well so it is vital to train our trainers.
31. We recommend a comprehensive onboarding training process to prepare new staff and administrators in utilizing technology resources at the college. ITS should continue to work with the academic senate to support technology training for new faculty.
32. We recommend the District Technology Committee develop a Technology Accessibility Plan that provides guidelines to help the college meet accessibility standards per Section 508, W3C and other relevant regulations. The plan should be updated annually. Each division would identify an individual to serve as their primary technology accessibility resource person. These resource representatives would advise members of their respective divisions with regards to accessibility issues and provide yearly updates to the District Technology Committee.

33. It is recommended that professional development be offered to inform faculty of the existing options for accepting assignments digitally and to provide training in their use to further promote equity, accessibility and sustainability.
34. We recommend the district invest in Business Analysts and Programmer Analysts where appropriate to document, review and automate district processes to continually increase the district's operational efficiency and capacity.
35. We recommend the district digitize administrative paper archives such as human resources, fiscal and student records.
36. We recommend the district reduce paper consumption through the use of electronic resources wherever possible.

## Appendices

### Appendix A - District Computer Labs and Instructional Laptop Carts

Lab/ Room	Division/ Department	QTY	Current Model
C107	Performing & Comm Arts	26	Macs & PC
C109	Performing & Comm Arts	2	PC
C121J	Performing & Comm Arts	3	PC
C124	Performing & Comm Arts	14	PC
C315	Social Sciences	18	PC
C315	Social Sciences	20	PC Laptops
C341	English	25	PC
C345	English	37	PC
CA002	Performing & Comm Arts*	20	Mac
CA116	Performing & Comm Arts*	17	Mac
CA219	Visual Arts & Media Studies*	11	Mac
CA304	Visual Arts & Media Studies*	25	PC
CA306	Visual Arts & Media Studies*	3	Mac
CA308	Visual Arts & Media Studies*	25	Mac
CA314	Visual Arts & Media Studies	26	Mac
CA316	Visual Arts & Media Studies*	3	Mac
CA320	Visual Arts & Media Studies*	25	iPads
CA320	Visual Arts & Media Studies*	21	Mac Laptops
CalWorks	CalWorks	10	PC Laptops
CC105	Student Affairs	10	PC
CC105b	Student Affairs	14	PC
CC208J	Visual Arts & Media Studies*	12	Mac
CDC219	Child Development Center	3	PC
CEC	Health Sciences	80	PC Laptops
CEC105B	Community Education Center	2	PC
CEC105G	Community Education Center	3	PC
CEC108	Community Education Center	28	PC
CEC114	Community Education Center	25	PC
CEC116	Community Education Center	26	PC
CEC136	Community Education Center	8	PC
CEC137A	Community Education Center	31	PC
CEC137B	Community Education Center	39	PC
CEC138	Community Education Center	46	PC
CEC207	Health Sciences	24	PC
CEC226	Community Education Center	36	PC
CEC226C	Community Education Center	27	PC
CEC228	Community Education Center	5	PC
CEC230	Community Education Center	25	PC
D101	Learning Assistance Center	31	PC
D104	Learning Assistance Center	34	PC
D206	Assessment**	43	PC
D208	Disable Students Program/Srvcs	10	PC
D300	Learning Assistance Center	50	PC
D301	Languages	41	PC
D302	English	12	PC



D306	ESL	20	PC Laptops
E210	Natural Sciences*	4	PC
E215	Natural Science	30	PC Laptops
E220	Natural Sciences	22	PC
E302	Natural Sciences	19	PC
E310	Natural Sciences	10	PC
GM112A	Physical Education	18	PC
IT105	Engineering and Technology	5	PC
IT117	Engineering and Technology	6	PC
IT212	Engineering and Technology	24	PC
IT214	Engineering and Technology	26	PC
IT215	Engineering and Technology	26	PC
IT224	Mathematics	4	PC
IT226	Engineering and Technology	12	PC
IT230	Engineering and Technology	13	PC
L003	Wellness Center	3	PC
L103	Career/Job Placement Center	13	PC
L104U	Counseling	24	PC Laptops
L110	Transfer Center	7	PC
LL100	Library	70	PC
LL100	Library	15	Mac Laptops
LL100	Library	14	PC Laptops
LL100	Library	15	PC Laptops
LL100D	Library	49	PC
LL212	Library	8	PC
LL214	DSPS	2	PC
LL300	Library	11	PC
LL311	Library	30	PC Laptops
Observatory	Natural Sciences	10	PC Laptops
R118	Health Sciences	4	PC
R202	Business & Computer Technology	41	PC
R206	Business & Computer Technology	31	PC
R211	Business & Computer Technology	31	PC
R216	Mathematics	25	PC
R322	Mathematics	30	PC Laptops
R322	Mathematics	30	PC Laptops
R405	Mathematics	32	PC
R407	Mathematics	32	PC
R408	Mathematics	32	PC
R417	Business & Computer Technology	20	PC
R420	TLC	32	PC
R420	TLC	30	PC Laptops
R421	Business & Computer Technology	37	PC
R502 and R508	Health Sciences	10	PC
RSMD105	Rosemead Center	6	PC
RSMD224	Rosemead Center	40	PC
SV23	Natural Sciences	2	PC
SV24	Natural Sciences	15	PC
V101	Engineering and Technology	27	PC

V102	Title III	24	PC
V102 - TLC	Title V (TLC)	20	PC Laptops
V107	Title V (TLC)	20	PC Laptops
V109	Engineering and Technology*	32	Mac
W101	Learning Assistance Center	31	PC
W108	Counseling	10	PC

## **Appendix B - Process to add/change student facing software/hardware in classrooms or computer labs.**

**Process Duration:** 8 – 18 Weeks

**IT Manager Responsible:** Todd Hampton - Manager, IT Support Services

**Process initiation:** This process starts when an academic manager (i.e. dean) contacts the helpdesk to make a change request in a lab. A change request would include adding, removing or altering student facing software or hardware in a classroom or computer lab. A change request would not include replacing defective equipment or installations associated with lab refreshes. Defective devices are part of regular support services provided by ITS and take less than 8 weeks. Lab refresh installations are coordinated with the dean/departments and are usually done during summer or winter breaks.

### **Summary of 18 week process and the 6 steps (Request, ITS review, funding/requisition, license/Contract Review, order fulfillment and installation)**

The process to add or change student facing software or hardware in classrooms or computer labs begins with a request to the ITS HelpDesk. The request takes approximately 18 weeks to fulfill if the district does not already own the software licenses or hardware being requested. Upon review, if the district owns the requested resource(s), the process is reduced to 8 weeks.

Given this duration, planning and assessment of your software needs at least one semester in advance is crucial.

### **6 Steps of the 18 week process:**

#### **1. Division office contacts ITS Helpdesk to request hardware/software add/change.**

The division dean, administrative assistant or clerk emails the ITS HelpDesk ([helpdesk@pasadena.edu](mailto:helpdesk@pasadena.edu)) with details about the initial request. The Educational Technology Specialist or ITS Manager will contact you to get more details about your request.

The initial request needs to include the following information:

- **Room number(s):** List all room location(s) where the hardware/software needs to be accessed.
- **Software title:** List specific title(s) and versions required.
- **Number of licenses:** Estimated number of concurrent users that need to access the software.
- **Requestor:** Include the name and email of the faculty or staff member who is requesting the software.
- **Additional installations:** Faculty laptop or desktop systems (outside the student lab/classroom) which need access to the software for course preparation ( include PCC# and location of these systems in the request)
- **CRN(s):** List the CRN(s) that require the software as part of the curriculum.

## **2. ITS reviews the request (2 weeks).**

- ITS reviews the request for the following factors
- Technical compatibility review – is this software compatible with the hardware and software currently in use in the location?
- Existing software – does the campus already own or have access to licensing for software that will address this need. If so, skip to step 6.
- Accessibility Review by DSPS – Does this software comply with section 508 of the rehabilitation Act of 1973, as amended in 1998 (29 U.S.C. § 794 (d))
- If nonconformance is determined and an appropriate alternative is not available, an appropriate accommodation plan will be developed
- If, upon review, it is determined the software should be ordered, ITS will obtain official quotes from the vendor, license agreements, and request a VPAT.

## **3. Funding and requisition (1 week).**

Once the quote is obtained, a funding source (account number) is required from the requestor(s) to enter a requisition in Banner. The requisition is entered by ITS within 2 business days of receiving a funded account number from the requesting department to charge to. Unless otherwise noted by ITS, the ongoing cost to license the software will be the responsibility of the requesting department. Ongoing licensing costs are not optional and must be budgeted by the requesting department. ITS will enter the requisition once the funding source has been identified. If funding is not available, the request should be placed in the requesting department's annual resource request through the integrated planning process.

## **4. License agreement review (6 weeks).**

After the requisition is entered, the offices of Purchasing and General Counsel must review and approve the license agreement. In some cases, the Board of Trustees must also approve the licensing agreement. This process can take up to six weeks.

## **5. Purchase order fulfillment (1 week).**

After approval by the Purchasing department, the purchase order is processed and the vendor receives and processes the order.

## **6. Installation of hardware/software (up to 8 weeks)**

Software needs to arrive eight weeks prior to the semester it is needed. This will allow ample time to develop, test, and deploy a new image for the requested classroom(s)/lab(s).

## **FAQs and General Information Regarding the Process –**

## 1. How are Software Licensing and Purchasing Handled?

All requisitions for software for the student labs must be created by ITS and all licensing and installation media is stored in ITS. Although ITS creates the requisition, the fund/cost center manager is still in control of their budget and responsible for approving the requisition. Without this approval, the requisition does not proceed to an actual order.

Involving ITS from the very beginning when you are researching software allows ITS to:

- Verify the correct licensing type and quantity of licenses needed
- Verify systems requirement both local and network can be met.
- Assist in getting accurate quotes from the software vendor.
- ITS may also be able to identify other software solutions which the district already owns or can be acquired free of charge (freeware).
- Funding: ITS will also review funding requirements of software which is utilized for classes by more than one department for use in the labs and lecterns for the next fiscal year. In most circumstances, cost-sharing between the requesting departments will be required. Budget restrictions limit the ability of ITS to purchase all software requested. ITS serve to cover annual licensing costs for district wide applications like Microsoft Office and Adobe Creative Suite through a centralized budget.

## 2. What are the Limits on Installing New Software?

Although ITS makes every attempt to accommodate faculty software requests, occasionally certain pieces of software will simply not work within the campus network environment, not work correctly in the current OS, conflict with existing software, or constitute a threat to network security due to their design. Any software that is submitted for installation must be supported by the vendor for the current operating system in that lab. Users are encouraged to upgrade their existing curricular programs whenever possible. ITS reserves the right to remove, after notification, software that is no longer supported under an operating system when the operating system used in the computer labs is upgraded. ITS provides limited support for departmental curricular programs. What this means to you is that while we will make every effort to install the software requested and get it running, we cannot provide technical support for individual student users, or provide guidance on how to use these programs. With over 200 programs available in various labs on campus, ITS staff cannot be familiar with the details of the many programs that users request. Users are responsible for obtaining usage instructions from the vendor or other resources.

**IMPORTANT:** Users must deliver to ITS any special details regarding configuration of the software. If these are not provided, the software will be installed using the default settings and ITS testing will be very basic and limited to determining that the program's main page will open and close.

### 3. Textbook CDs & Student software

Changes made to the lab computers are wiped out when the machines are restarted, due to the special security hardware and software installed on them. Software that is licensed to students (often included with textbooks or sold at a nominal fee) that does not require the computer to be restarted may be used at the owner's discretion. Some CD/DVDs require the computer to be restarted after they are installed and thus must be included in the lab image. You are encouraged to go into the labs and test the CD/DVDs for yourself to see how they behave. However, if you have any doubts about a CD/DVD you are planning to use, you may deliver a copy to ITS before the software request deadline and we will be happy to determine whether or not the CD/DVD will work correctly on the lab machines.

**IMPORTANT:** Many publishers refuse to allow student software to be permanently installed on the network or lab stations because it is not owned by or licensed to the District. Be sure to contact the publisher to determine the nature of their licensing agreements before requesting that a CD/DVD be installed on the campus computer labs and provide a written copy of such agreements to ITS. It is the requestor's responsibility to collect this licensing information and provide it to ITS with the installation media.

### 4. How is a Lab "Image" created?

Building the image for a lab includes:

- Installing network software on the campus network servers.
- Testing those network installations.
- Installing the software that must be loaded locally on the lab machine hard drives.
- Running set-up programs for the software that is delivered via the network.
- Configuring individual software packages with various templates, options, etc.
- Installing drivers for printers or other peripheral devices.
- Identifying and resolving conflicts between different programs.
- Troubleshooting various problems with individual pieces of software.
- Freezing the image to prevent modifications and maintain stable consistency across all labs.

Note: freezing may prevent textbook CDs from loading properly.

An absolutely critical part of this process is the testing of the image. As the image is built, it is tested by ITS staff. We ask faculty/ staff to also test the new image under "real world" conditions in the lab on a designated machine or in an area ITS has setup prior to deploying the software on all machines requested. If problems are identified and fixed, the image must be retested and redeployed.

ITS will not put software in the labs that has not been adequately tested, as every new piece of software carries with it the potential to interfere with existing programs and could destabilize the labs. Therefore, we try to restrict the installation of new software to periods between semesters or times when the labs are not as heavily used. Adherence to deadlines is critical to the reliable functioning of the labs.

To investigate software at any time of the year or if you have any questions about the process for software installation requests in the labs, please contact the Educational Technology Specialist, Maureen Davidson at 626-585-7082 or [msdavidson@pasadena.edu](mailto:msdavidson@pasadena.edu).

## **Appendix C - Service Level Agreement**

### **Pasadena City College Services Level Agreement – 2016/2017**

#### **Purpose**

The purpose of this document is to define service levels provided to Pasadena City College, to ensure supported business needs are met. This Service Level Agreement (SLA) identifies customer expectations and defines services provided by Pasadena City College Information Technology Services (ITS), stating agreed-upon service level goals, operating practices, and reporting policies.

#### **Commitment to excellence**

ITS is committed to delivering excellent customer service by:

- Responding to requests for support within published time frames.
- Interacting with the Pasadena City College Community in a respectful and courteous manner.
- Requesting feedback for opportunities for improvement
- Continuously working to improve quality of service
- Regularly reviewing and monitoring performance based on this SLA.
- Publicly publishing weekly status reports. Reports will be published to [www.pasadena.edu/its](http://www.pasadena.edu/its)

#### **Scope**

ITS provides support to Pasadena City College employees in the following categories:

- Computing devices – desktops, laptops, etc.
- Campus Audio/Video equipment
- Telephones
- Fax machines
- Supported software applications (See addendum)
- Operating System, hardware, firmware, and supported software updates
- Anti-virus and power management software
- Access to shared folders
- Peripherals such as printer and scanners
- Installation and upgrade of smart classroom and lab technology

ITS will provide consultation regarding new hardware or software purchases.

#### **Out of Scope**

- Any equipment that is not owned by the Pasadena Area County Community College District or Pasadena City College.
- Personal computers, laptops, tablets, or smart-phones of faculty, staff or students.
- ITS will provide instructions to users showing how to connect smart phones to PCC email. Instructions can be found at <http://www.pasadena.edu/its/>
- Third party software not installed by ITS



- District or College purchased software cannot be installed on personal systems

**Hours of Operation**

Normal hours of operation are Monday through Thursday, 7:00 – 18:00, Friday 7:00 - 16:30. All campus-observed holidays are excluded.

**Requesting Service/Assistance**

Phone: Call the ITS Help Desk at 626.585.7523 or dial 4357 (HELP) from any campus phone

Email: An incident can be generated by sending an email to helpdesk@pasadena.edu

Walk-In: The ITS Help Desk is located in LL149.

**Web Form:** <http://www.pasadena.edu/servicedesk/>

**Priority Levels**

When a user calls the help desk, an incident will be created. ITS will make every effort to resolve issues at the time of the call. If the problem cannot be resolved over the phone, the incident will be placed in the queue. ITS will assign priorities for all requests not resolved at the time of the initial call, based on the below definitions. Requests will be handled according to the priority of the incident, as determined by ITS.

The following table briefly describes priority levels assigned to incidents, and initial response time expectations. While every effort will be made to resolve all issues immediately, circumstances may delay remediation or repair. In such cases, a resolution path and approximate time frame will be determined, and communicated to the end-user.

Level	Description	Initial response	First Contact Point	Escalation
1	Critical/Emergency	15 minutes	Call 626.585.7523 or x4357	1. Manager, IT Support Services
2	Urgent/High	1 hour	Call 626.585.7523 or x4357	2. Director, Technical Services
3	Normal	4 Hours	helpdesk@pasadena.edu	3. Executive Director, Information Technology Services
4	Low/Scheduled	1 day	helpdesk@pasadena.edu	
5	Project Based	Scheduled	helpdesk@pasadena.edu	

## **Response**

ITS will respond to incidents based on priority level. The response will be either verbal or via help desk email, and will inform the user when the incident will be worked on. A response will not guarantee a resolution, but a timeframe for investigation.

**Priority levels in detail** (bullet points are illustrative and not inclusive of possible range of issues)

### Priority 1 – 15 minute response

Defined: Immediate impact upon instruction or student-facing services

- 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
- A time is setup/appointment 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
- Installation or upgrade of lab software
- Installation or upgrade of classroom lectern computer

### Exceptions:

During traditionally busy times, such as the first week of a semester, response times may be longer than normal. Help Desk staff will inform callers if a delay is to be expected.

Response times do not guarantee resolution times, although every effort will be made to resolve all incidents upon first contact. If an immediate resolution is not available, interim solutions will be suggested and made available. Examples of delays:

- A part needs to be ordered to return a computer to operation. In this example, a loaner computer will be made available
- A subject matter expert must be contacted in order to resolve the problem

### **Customer Responsibilities**

To help facilitate the ITS support process, the Pasadena City College community is requested to:

- Provide a clear, detailed narrative of the problem, including location and contact information.
- Make efforts to be available to communicate with the technician. ITS will make 3 attempts to contact the user over the course of 1 week via PCC email or telephone. If no response comes from the user, the incident will be closed.
- Provide a clean, safe and hospitable work environment for ITS staff while they are in your office, class or lab.
- Notify ITS in advance of any pre-determined need
- Interact with ITS staff in a respectful and courteous manner
- Attend training opportunities offered on campus for technology that will be used

### **Feedback and escalation**

To give feedback or for escalation, please contact the Pasadena City College Manager of Information Technology Support Services, listed below. Further escalation should be directed to the Director of Technical Services.

#### Manager, Information Technology Support Services

Name: Todd Hampton

Extension: 7162

Email: [tjhampton@pasadena.edu](mailto:tjhampton@pasadena.edu)

## **Appendix D - Current Computer/Laptop Standards - 2016**

Classified staff will be provided a desktop computer; faculty and administrators will be given the choice of a desktop or laptop computer. All computers issued will have Microsoft Office and Adobe Acrobat Professional installed. The standard for these systems used will be updated annually or as needed. Standards as of spring 2016 are listed below.

### **Windows desktop standard:**

Dell OptiPlex 3020

- Intel Core i5 Processor (Quad Core, 3.30GHz)
- 8GB DDR3 Memory
- 128GB Solid State Hard Drive
- Dell 22" Monitor

### **Laptop standard"**

Lenovo ThinkPad T450S

- Intel Core i5 Processor (Dual core, 2.7GHz)
- 8GB DDR3 Memory
- 128GB Solid State Hard Drive
- 14" screen
- Docking station
- Dell 22" Monitor

### **MacBook Air standard:**

- Intel Core i5 Processor (Dual Core, 2.7GHz)
- 8GB DDR3 Memory
- 128GB Solid State Hard Drive
- 13.3" screen
- Landing Zone docking station
- Dell 22" Monitor

### **iMac 21.5" Standard**

- Intel Core i5 Processor (Quad Core, 2.8GHz)
- 8GB DDR3 Memory
- 256GB Solid State Hard Drive

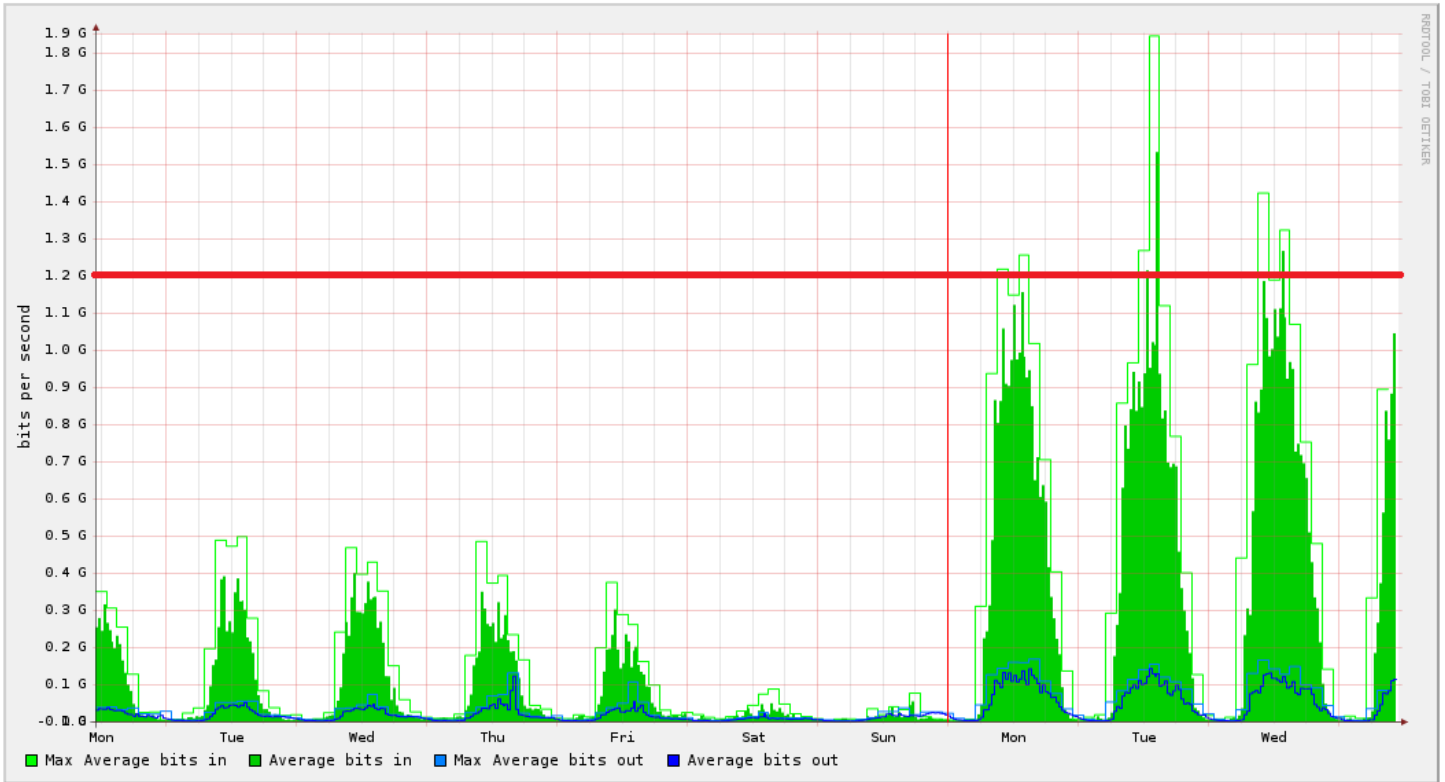
## **Appendix E - Smart Classroom/Presentation Equipment Standards - 2016**

A typical classroom is equipped with the following standard list of equipment. The District Technology Committee will review this standard annually and update this standard as necessary.

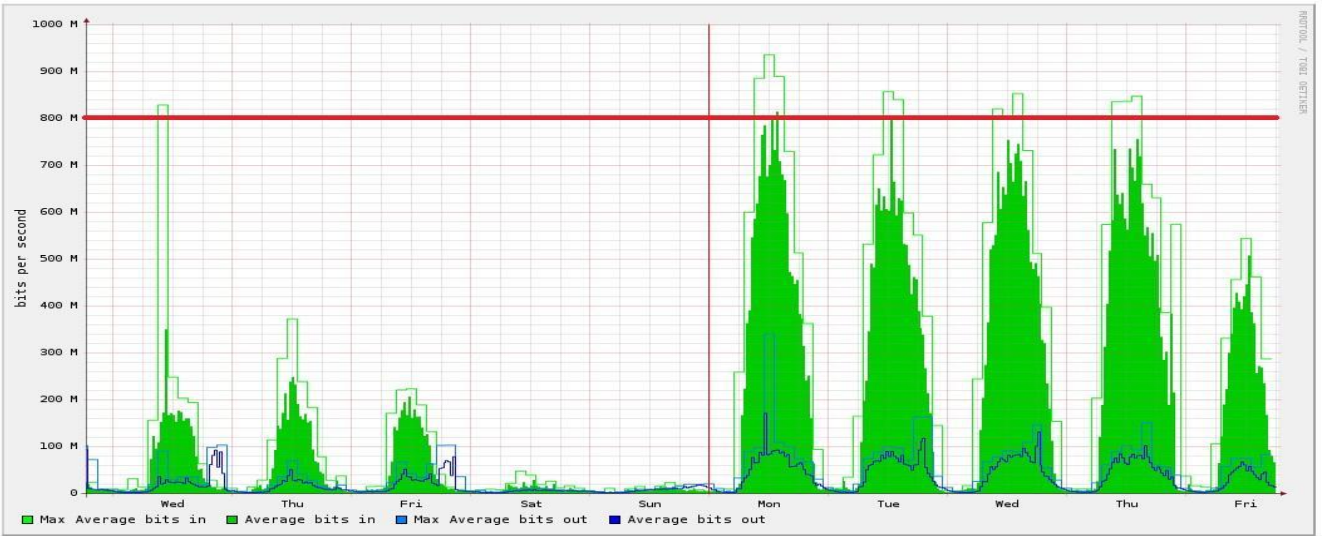
- Epson Powerlite 585W ultra short throw projector
- Steelcase Eno 2810 96" diagonal interactive whiteboard
- Epson DC-21 Document Camera
- Dell OptiPlex 3010 small form factor PC with 4GB of memory and a SSD hard disk
- Dell 22" Monitor
- Extron control system including touch panel and amplifier
- 1-2 pairs of room speakers
- Blu-ray player
- Spectrum Media Manager 2 or Freedom XRS Lectern in Cherry Black

The original version of this standard was developed in 2012 by the Learning Technology Advisory Committee for the Pasadena City College Smart 18 initiative.

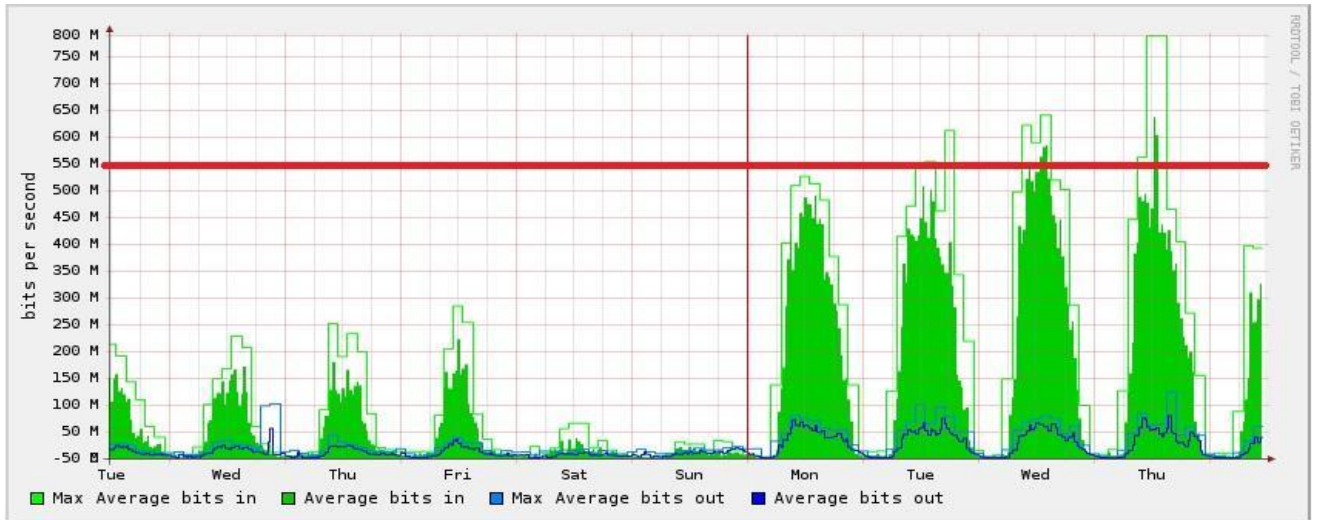
# Appendix F - Internet traffic on the first week of Fall Semester 2013 -2016



Fall 2016 – First Week Daily Peak Usage approximately 1200 Mbps (1.2Gbps)

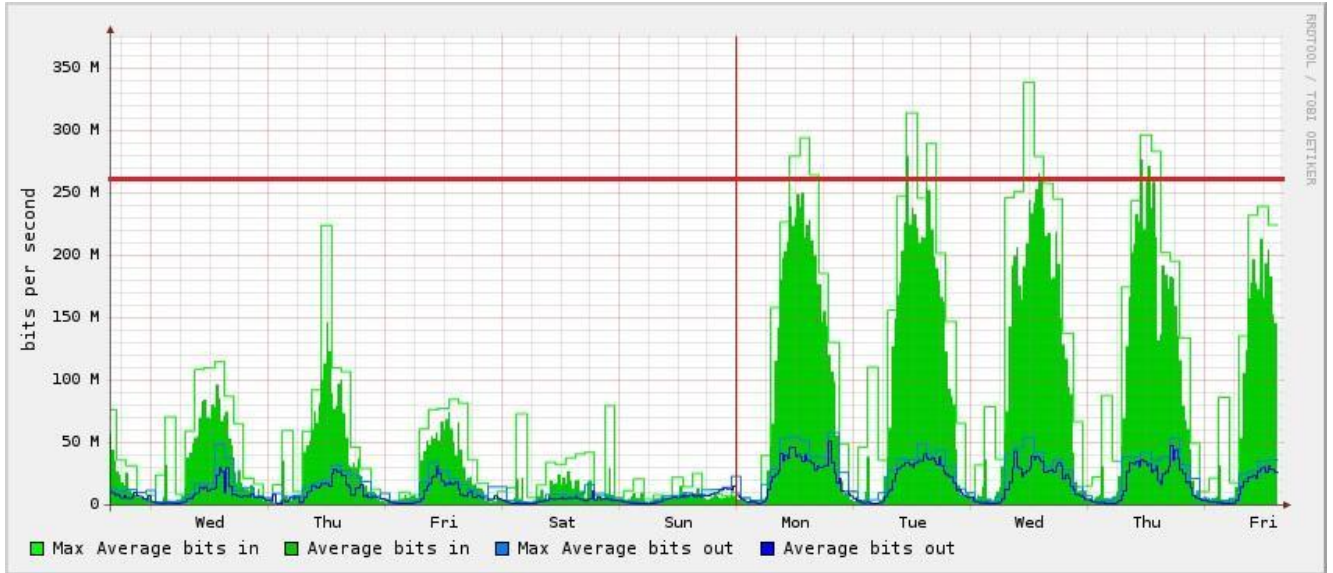


**Fall 2015 – First Week Daily Peak Usage approximately 800 Mbps**



**Fall 2014 - First Week Daily Peak Usage approximately 550 Mbps**





**Fall 2013 - First Week Daily Peak Usage approximately 260 Mbps**

## Appendix G - Process and review criteria for adding/changing enterprise software/services

**Applicability:** Enterprise software and/or services includes non-instructional software and/or services used by the college community.

**Timeline:** This review process will include key stakeholders and will require 10 weeks from the time the ITS Helpdesk incident is generated requesting the add or change.

### **Questions:**

1. **Need:** Describe the need/desired outcome for this solution. Is this solution required to meet a legal mandate? If so, what is the mandate and deadline?
2. **Description:** Is this request for additional software/service or a change to an existing product the district owns?
3. **Security:** Will this solution intake, transfer, store or otherwise involve protected data (FERPA, HIPAA, PCI..etc)?
4. **Planning:** How will this solution support PACCD students and how does it tie to the Educational Master Plan? Was this requested in the last program/unit review?
5. **Fiscal Impact:** What are the estimated initial and ongoing cost of this solution? Is additional revenue expected with this solution? How were these estimates developed? Which account(s) will fund this solution? Is there a deadline to expend these funds?
6. **Work impact:** Which district department(s)/classification(s) may see an increase in effort to support this solution? Which department(s)/classification(s) may see a reduction of effort? Also include any efficiencies in work effort expected with this solution including department(s)/classification(s).
7. **TCO:** In reviewing #5-6 above, what is the estimated total cost of ownership for the first 5 years of this solution?

### **Signatures required to complete the form:**

1. Requestor: Area Manager
2. Technology: Executive Director, ITS
3. FERPA Compliance Officer: Director, Admissions & Records
4. Accessibility Officer: Dean Special Services

### **Signatures as necessary:**

1. Chief Business Officer (if there is an increase in ongoing costs – see #5 above)
2. HIPAA Compliance Officer (see #3 above)
3. Instruction: Chief Instructional Officer (if there is a direct impact to instruction)
4. Student Services: Chief Student Services Officer (if there is a direct impact to student service areas)