Capital Programs Management System

"CPMS is proving to be a very powerful tool for campus, and for the system users at all levels."

--- Mary-Alice Avila, Physical Plant Facilities Analyst

Campus Impact

The Capital Programs Management System (CPMS) provides a tremendous opportunity for transparency, “one-stop-shopping”, accountability, and collaboration.

Dynamic and complex campus and external environments often exceed any single individual’s ability to manage space, renovation, alteration and expansion issues: thus a systems approach is needed.

Simply stated – campus growth now requires UCR to reconsider how it manages capital planning, design, construction, and facilities maintenance.

Business Need

The complexities associated with campus capital initiatives require that project scope, associated timeline, and funding requirements and sources be clearly understood by everyone involved in construction planning and review.

UCR’s CPMS has been designed to meet these evolving business system requirements in support of capital planning, design, construction, and maintenance.

- Common Verbiage and Definitions
Common Planning and Approval Processes
Tightly Integrated, Seamless Service
Transparent Project Scope, Timeline, and Funding Sources & Requirements

More Buildings, More Faculty, More Students, More Complexity

UCR’s growing student body has resulted in more residence halls as well as the recently completed Highlander Union Building. Construction and renovations must address the associated requirements of very complicated equipment, systems, electronics, etc. located in campus buildings that have significant power, cooling, ventilation, and structural support issues. The number of faculty has also grown, as has associated research efforts and the infrastructure required to carry out this research. The number of campus buildings, offices, classrooms, labs, and assignable square feet has grown dramatically during the past decade.

More Regulations, More Mandates, More Complexity

- Americans with Disability Act Requirements (ADA) impacts all new construction and remodeling initiatives.
- Green / Sustainability Requirements and Objectives (e.g. LEEDS) are also important considerations.
- Evolving Legal, UC, and other Regulatory Requirements must be considered during planning, design, and construction efforts.

Transparency, Accountability, Collaboration

- UCR requires common verbiage, definitions, and language to support construction and renovations efforts as they occur across campus (e.g. “light alterations” should have the same meaning for everyone). The campus also requires a common process relating to planning and approvals of capital projects and renovations.
- Planning, design, construction, and maintenance support must be tightly integrated and available as a seamless service to campus stakeholders.
**VIEW: Capital Programs Management System – Common Definitions for Capital Project Requests**

Below: The CPMS provides users with a set of common choices for project requests.

<table>
<thead>
<tr>
<th>Request Type</th>
<th>Functional Definition</th>
<th>Example</th>
<th>Approvals</th>
<th>Select</th>
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</thead>
<tbody>
<tr>
<td>Space Assignment</td>
<td>You need space for program or operational requirements which you can’t address from already available space.</td>
<td>You are adding new full-time faculty or staff, and need individual offices to accommodate them.</td>
<td>Requires Departmental approval. Requires Budget/Finance approval if cost estimate is greater than $35,000.</td>
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<td>Ununderstand Project</td>
<td>You need to explore having work done, but need assistance in determining the scope of the undertaking, and potential alternatives before proceeding.</td>
<td>You have an objective, but not a pre-determined notion of how to realize it. You may or may not have any notion of funding/resources which may be brought to bear on the problem. You need assistance in the development of the proposal itself. Requires Departmental, Organizational approval. Requires Budget/Finance approval if cost estimate is greater than $35,000.</td>
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<td>&quot;Light&quot; Alterations</td>
<td>You need assistance completing work that involves changes in building finishes, simple building maintenance, simple equipment installation, or simple repair work. Typically this kind of work does not involve moving walls, creating doorways in existing walls, or changes to building systems.</td>
<td>You need work done such as re-carpeting a floor, painting an office, installing an electrical outlet, installing dented water, installing a sink, etc. Please note: &quot;Light&quot; Alterations may also involve site related work outside of buildings (e.g., fencing, interior signage, sidewalk repairs, etc.). Requires Departmental approval. Requires Budget/Finance approval if cost estimate is greater than $35,000.</td>
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<td>&quot;Complex&quot; Alterations</td>
<td>You need assistance in meeting completion of work that is more complicated, requiring several specialized building trades, or even engineering design work. Complex alterations typically range in cost between $100,000-$400,000. Depending on the value of the work to be completed, a &quot;Complex Alteration&quot; may be performed by campus Physical Plant personnel, or an outside contractor.</td>
<td>You need to consider remodelling a laboratory, or perhaps creating new offices within existing space, adding a lab bench, or lab equipment that in turn impacts a building’s mechanical and plumbing systems. Please note: &quot;Complex&quot; Alterations may also involve site related work outside of buildings (e.g., retaining walls, reconfiguration of parking lots, improvements to campus landscapes, etc.). Requires Departmental, Organizational approval. Requires Budget/Finance approval if cost estimate is greater than $35,000.</td>
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<tr>
<td>Major Capital Project</td>
<td>You might need assistance in defining a project which happens to be over $400,000 in total value. This project type is known as a &quot;Major Capital Project&quot;, and typically requires engineering design work, and construction is performed by an outside contractor. Project approval and authorization of funds is required at the Chancellor’s level.</td>
<td>You might have need for a building addition, a modular facility, a major lab remodel, or major renovation project. Typically these types of projects involve changes to a building’s structure and building utility systems, and often result in the creation of new space. Requires Departmental, Organizational approval. Requires Budget/Finance approval if cost estimate is greater than $35,000.</td>
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**Technical Highlights**

- Seamless integration with the Physical Plant Work Order System via web services
- Priority given to requests related to General Assignment Classrooms, Faculty Recruitment, and Life Safety
- Transparent reporting functionality available to all users (see below)
- Available via the campus portal – R’Space, and is accessible via campus single sign on infrastructure
- Integration with Facilities Management System for Location/Facility Lookup
- Easily obtain project estimates from Physical Plant
- Electronic Workflow / Routing / Approvals through common Enterprise Access Control System

**VIEW: Capital Programs Management System – Reporting**
Below: The CPMS provides users with best-of-breed reporting capabilities
The Process: Technology and Implementation

**CPMS and Physical Plant/Facilities Work Order System Integration**

When requests are determined to be “Maintenance”, “Light Alteration”, or “Minor Capital Project”, the request is sent DIRECTLY to the Physical Plant system. All information required by the Physical Plant Work Order System (including funding sources and FAUs), is entered into CPMS and automatically transferred into the Physical Plant Work Order System when Physical Plant will perform the work.

**VIEW: Start a Capital Programs Request from within the Physical Plant Work Order System**

Below: Requests can be initiated from either the Physical Plant Work Order System (many users are very familiar with this starting point) or they may start from the CPMS.

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**CPMS-Physical Plant Web Service**

The CPMS and Physical Plant integration utilizes a web service to provide seamless transfer of data between each system. Each system can send data to the other via this web service, which transfers request information such as:

- Request number
- Description
- Dollar Amount
- FAUs (multiple including percentages)
- Locations (multiple)
- Primary Contact
- Phone Number of Contact
- Estimate Number

Please note that the system uses UCR’s standard Oracle tools and development environment, and is deployed on UCR’s virtualized Solaris database server, web server, and load balanced environment.
VIEW: Route a Capital Programs Request electronically to the Physical Plant Work Order System
Below: When necessary, CPMS Requests are routed electronically via web services to the Physical Plant Work Order System.
CPMS and Physical Plant System Integration Process Flow

**VIEW: Capital Programs Management System – Integration with Physical Plant Work Order System**

Below: Requests can be initiated from either the Physical Plant Work Order System (many users are very familiar with this starting point) or they may start from the CPMS. Either option facilitates the efficient request submission that campus users expect.
CPMS and Physical Plant System – Automated Estimation Functionality

**VIEW: Capital Programs Management System – Automated Estimation Functionality**

Below: The CPMS allows for an estimate to be provided by Physical Plant. Data is transferred from system-to-system electronically while automated email notifications are sent to notify those involved.
Testimonials

The Capital Programs Management System (CPMS) provides the campus users with one place to go to obtain help for changes to facilities on campus. Established business rules route the Project Request through the initial approvals for submission, and then the Dispatcher takes over determining the approvals needed, and which campus departments should be involved in designing and implementing the request. In the past, departments were left to determine what was needed and who best to implement the changes—Purchasing, Physical Plant, or Capital Programs. As the Dispatcher, I have been able to help the departments through the review and approval process, while routing the request for further scoping, design, engineering, and estimating. CPMS provides a means for me to initiate and coordinate with the various departments that might touch a project—Environmental Health & Safety (Fire Marshall), Architects & Engineers (Campus Architect and code compliance reviews), Capital Resource Management (CEQA, Campus Planning and space utilization), Physical Plant (existing conditions and return on investment), Computing and Communications (telecom and media services), Resource Planning and Budget (funding sources), Accounting (sequestering funding) and Police Department (safety).

As the Dispatcher in CPMS, I have the resources of the campus at my command in reviewing and approving changes to facilities on campus. Through the system, campus architects, engineers, planners, physical plant, fire marshal, purchasing, police, accounting, and resource planning & budget can all weigh-in as they review the project request. Campus users have the ability to check on the status of their requests at any time and also receive email notifications as the request progresses through the review. CPMS is proving to be a very powerful tool for campus, and for the system users at all levels.

--- Mary-Alice Avila, Physical Plant Facilities Analyst

I have been a user of CPMS for about 6 months now. I use CPMS on a weekly basis and overall have been pleased with the system. In my experience, CPMS is a very user friendly system with a variety of functionality that allows different users the ability to perform various tasks pertaining their respective job duties. In addition, the administrators of the system have continually made themselves available for questions and comments. They have been open to and in some cases implemented additional suggestions on how to better improve the system for its users. This has really given the user a customized feel when working in CPMS. It is very apparent a lot of time & effort went into the development and deployment of CPMS and therefore I commend the IT staff on their contribution to this system and the University.

--- Christina Gidley, UCR Plant Accountant

Since its introduction in December 2011, I have utilized the CPMS system as platform to interface with Project Managers, Estimators and Facility Managers.
I appreciate being alerted of upcoming projects, such process creates opportunity collaborative efforts and effective planning. The Development of such application presents opportunity to bridge and expand greater continuity among project stakeholders.

--- Lionel Bradford, Communication Services

The CPMS system is a great new tool for Communication Services staff who work very closely with Capital Planning, Physical Plant, and Design and Construction on all campus projects. I love having the ability to login to the CPMS system and see the campus projects for which estimate requests have been made to my staff and review the information provided.

--- Jill Hishmeh, Director Communications, C&C

**Timeline**

- March 2010: Project Initiation
- September 2010: Program Testing with C&C and FBO
- January-March 2011: Presentations to Campus and Training Conducted
- April 2011: Production Deployment and announcement to campus
- March 2011: Deployment and announcement to campus

**On the Web**

Production site: http://cpms.ucr.edu/
Support site: http://cnc.ucr.edu/cpms/

**Team Members**

**Computing & Communications**
- Chuck Rowley, AVC C&C
- Steven Lee, Lead Developer
- Sumita Roy Chowdhury, Developer
- Joel Nylander, Primavera Project Manager
- Eric Martin, CPMS Project Manager

**Campus Partners, Project Stakeholders**
- Gretchen Bolar, Vice Chancellor Finance & Bus. Operations
- Tim Ralston, AVC Capital Planning
- Kieron Brunelle, Executive Director, Capital Resource Mgmt.
- Mary-Alice Avila, Physical Plant Facilities Analyst
- Greg Artman, Director Plant Administration
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