



## Appendix D

### ***Inventory of Business Practices Report***

The following report presents a consolidation of all results of ten half-day risk assessment sessions held at each University of California campus in addition to the Office of the President. The sessions were designed to evaluate the business practices in place at each location to manage the top 10 risks regarding the successful implementation of the University's capital program, as identified by the Capital Program Risk Assessment Steering Committee. In addition to assessing the University's readiness towards successful capital program implementation, the risk assessment program was designed to share the best practices that exist across the University system.

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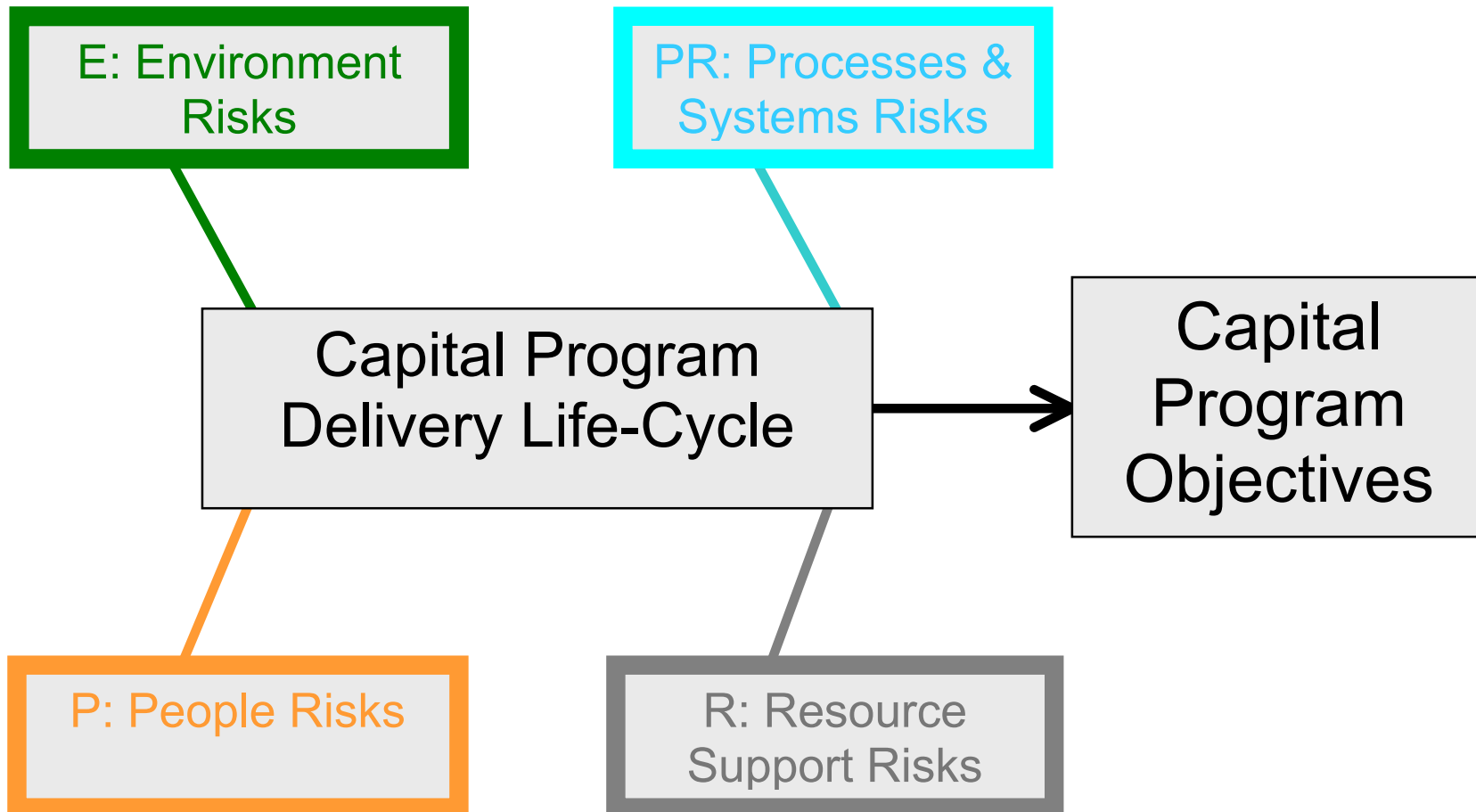
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## Quantitative Results

The following 6 pages summarize the quantitative assessments established at each session, and depict a total average of all session results combined. Each risk area and its associated contributing factors were discussed with participants prior to anonymous quantitative voting. Risks have been categorized by the four color-coded areas illustrated below and labeled for simple reference.



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## ***Assessment Parameters***

Inventory participants followed the numerical parameters below to establish their quantitative assessment of the top 10 University risks:

**1 – 3:** Significant need for improvement in the practices to increase efficiency and effectiveness.  
– **Unacceptable Readiness**

**4 – 6:** Current practices need some improvement to increase efficiency, however, practice is consistently effective.  
– **Partial Readiness**

**7 – 9:** Current activities performed represent best practices, (i.e. they are fully automated, systems are integrated, benchmarking has been performed, etc.) = Location is ready to address the issues.  
– **Acceptable Readiness**

*If a particular contributing factor was not applicable to inventory participants, it was assessed with a 'NA' rating.*

## Assessment Results - Top 10 University Risks

Results are color-coded to indicate their associated level of readiness: **red= Unacceptable Readiness**, **yellow=Partial Readiness**, **green=Acceptable Readiness**.

<b>Top Ten Capital Program Risks</b> (In descending order of readiness score – top to bottom)	<b>Overall</b> (Average)
Failure to provide effective project management and administration throughout the project (PR3)	5.8
Difficulty in consistently securing quality contractors (includes bid procurement process) (E3)	5.4
Inconsistent quality of construction documents produced by architects (PR1)	5.4
Standard contract language and business processes lack sufficient flexibility to meet some project needs (PR2)	5.3
Delays and costs associated with actions and requirements of public and regulatory agencies (E1)	5.2
Multiple disconnects and lack of coordination within the University at all levels (P2)	5.1
Inadequate sharing of information about delivery processes and practices among campuses (PR4)	4.9
Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems) (R1)	4.5
Difficulty managing projects under the current overhead limits (limits that do not reflect modern / complex building requirements) (R3)	4.0
External market affects UC's ability to recruit and retain capable campus personnel (E2)	3.9

<b>Individual Location Scores</b> (In descending order of readiness score – left to right)										
7.4	7.3	7.3	7.2	6.2	6.1	4.7	4.4	4.1	3.4	
7.6	7.4	6.8	5.9	5.8	5.2	4.6	4.6	3.1	2.8	
7.4	6.5	6.4	6.2	6.1	5.6	5.5	5.3	3.8	2.9	
7.2	6.9	6.8	6.5	4.7	4.7	4.6	4.4	3.5	3.4	
6.4	6.4	6.3	6.2	5.9	4.7	4.3	4.3	4.0	3.9	
7.0	6.7	6.6	6.0	6.0	4.7	4.0	3.6	3.3	2.6	
7.7	6.5	5.1	5.0	4.8	4.8	4.3	3.6	3.5	3.5	
7.3	6.5	6.1	5.7	5.5	3.6	3.0	2.7	2.7	2.2	
7.4	7.2	6.5	3.6	3.4	2.6	2.6	2.3	2.1	1.9	
6.2	4.7	4.6	4.1	3.9	3.6	3.0	2.9	2.8	2.7	

<b>All Risks Combined</b>	5.4
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## Qualitative Results

The following section documents the qualitative information gathered and discussed at all campus and OP sessions and agreed to by session participants. Information includes *current practices* employed to mitigate each risk and associated contributing factor, *consequences* associated with each risk, and *additional campus or OP actions* that could, if implemented, further help to mitigate each risk. All session results have been consolidated and grouped under common thematic headings within each contributing factor section for each of the ten risk areas. The numbers in parentheses indicate the number of locations employing a stated process or indicating similar views on the issue being discussed.

The information gathered for each of the ten risk areas is presented in the following order:

1. Statement of the General Risk Area
2. Statement of each Contributing Factor associated with the Risk Area
  - a. Bolded statements that group similar mitigation practices currently employed by one or more location
  - b. Specific statements or examples within these groupings from the individual campus sessions
3. Listing of Consequences identified as having a likelihood of occurring if the overall Risk Area is not adequately managed
4. Listing of Additional Campus Activities identified as having potential for improving the management of each Risk Area
5. Listing of Additional OP/Systemwide Activities identified as having potential for improving the management of each Risk Area

*The statements included in this report represent raw data grouped in similar categories to serve as a resource for campus and systemwide staff and administrators in the continued examination of their collective management of the capital program. The statements, observations, and/or recommendations contained in the following sections serve as an inventory and a preliminary guide for what works and what may not be working in the context of the current workload and market environment.*

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# Risk E1. Delays and costs associated with actions of the public and regulatory agencies

## Identified Program Risks

- \*E1. *Delays and costs associated with actions of the public and regulatory agencies***
- \*E2. *Difficulty recruiting and retaining capable campus personnel***
- \*E3. *Difficulty in consistently securing quality contractors (includes low bid procurement process)***
- \*PR1. *Inconsistent quality of construction documents produced by architects***
- \*PR2. *Standard contract language and business processes lack sufficient flexibility to meet some project needs***
- \*PR3. *Failure to provide effective project management and administration throughout the project***
- \*PR4. *Inadequate sharing of information about delivery processes and practices among campuses***
- \*P2. *Multiple disconnects and lack of coordination within the University at all levels***
- \*R1. *Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)***
- \*R3. *Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)***

**Risk E1. *Delays and costs associated with actions of the public and regulatory agencies***

**Contributing Factors:**

- 1. *Some campuses have difficulty working with city councils (some councils are anti-growth, for example) and in local political environments***
- 2. *Regulatory organizations are restrictive and uncooperative***

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## E1. Delays and costs associated with actions of public and regulatory agencies

### CONTRIBUTING FACTOR 1

*Some campuses have difficulty working with city councils (some councils are anti-growth, for example) and in local political environments*

#### Current Mitigating Business Practices: Contributing Factor 1

- **Strong working relationships are maintained with community and city council members and agencies (6)**
  - A building permitting process has been established as a negotiated relationship with the city
  - Campus relies on positive relationships with some organizations are to help combat opposing groups/organizations
- **Continual public meetings and outreach programs are established to educate the public of project activities and identify city council concerns (6)**
  - Public presentations are held regarding increases in campus growth
  - Public workshops are hosted to discuss the various subjects/concerns of a particular project; community members are able to interact one-on-one with campus personnel
  - A community advisory group representing various community constituencies assists in long range development
  - One-on-one meetings are held with city officials and community leaders
  - Student representation is allowed on campus project committees to minimize disruptions in project delivery due to student activities
- **Potential public protests and regulatory interventions are assessed and their impacts minimized through thorough project planning (5)**
  - Strategies / activities which help minimize political impacts are developed on a project-by-project basis
  - The primary risk reduction strategy of one UC location is the creation of competent documents during planning, which are well supported to serve the University in potential judicial circumstances
  - Three separate planning efforts are carried out in conjunction with the community, addressing land use, urban design and transportation issues

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## E1. Delays and costs associated with actions of public and regulatory agencies

### Continued - Current Mitigating Business Practices: Contributing Factor 1

- **Various campus functions and external support are developed to minimize conflicts with public and regulatory agencies (campus fire stations, campus fire marshal, external consultants, etc.) (3)**
  - Archeologists are hired on every project to help deal with Native American burial issues that may arise
  - External personnel are hired to maintain adequate awareness of animal rights groups on job sites
  - Strong security measures are implemented to minimize the destructive involvement of animal rights groups
  - A single contact person is utilized to handle all political issues, minimizing campus time and energy and funneling issues through a central resource
- **Project scopes and budgets are adjusted at times to help mitigate issues stemming from local political entities (2)**
  - Portions of projects are changed in reaction to city council and community concerns

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## E1. Delays and costs associated with actions of public and regulatory agencies

### CONTRIBUTING FACTOR 2

*Regulatory organizations are overly restrictive and uncooperative*

- The Coastal Commission does not have an established handbook of rules to play by, so it is extremely difficult for the University to negotiate effectively
- The Coastal Commission is driven primarily by local politics, not environmental concerns and sensitivities
- OSHPD can take a full year to review and approve projects, causing serious delays and added costs
- Campuses have little control over Fire Marshal activities. For example, Fire Marshal interpretations regarding building codes may not be challenged
- Campuses continually wrestle with CEQA requirements
- Local Historical Society battles campuses with projects over some older buildings
- Concerns and restrictions regarding the State Architect Review exist

#### Current Mitigating Business Practices: Contributing Factor 2

- **Regularly scheduled meetings and/or partnering sessions are held with various regulatory agencies to prevent issues during project implementation (8)**
- A two-phase management planning process is established to ensure compliancy with regulatory issues

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## E1. Delays and costs associated with actions of public and regulatory agencies

### Continued - Current Mitigating Business Practices: Contributing Factor 2

- **Personnel with specific regulatory experience are hired to manage / work with troublesome organizations (5)**
  - A campus Fire Marshal, deputized by the State Fire Marshal, has been established
    - +The State Fire Marshal is brought onto campuses for assistance when needed
  - An employee with experience in large hospital projects handles inspection reporting
  - The SHPO head is employed as a campus consultant to help minimize associated compliance issues
  - Environmental lawyers are hired to review the EIRs of larger projects
  - Additional campus OSHPD inspectors are being trained for increased regulatory support
  - A single contact person has been assigned to work with the DSA regarding access and compliance
- **Good working relations are established with regulatory members to minimize delays regarding project approvals (3)**
  - A positive relationship with the State Architect's Office has been developed and nurtured
    - +An Internal Access Committee serves as an interface with the State Architect
- **Regulatory impacts are anticipated well before they occur (2)**
  - Time is taken to understand the way various organizations work and better understand potential areas for costs and delays
- **Funds are increasingly allocated for the mitigation of regulatory issues (2)**
  - Significant dollars are spent to mitigate delays and costs associated with public and regulatory agencies
    - +These expenditures have proven worthwhile
- **Communication between regulatory agencies and internal campus groups are made early and frequently during the development of each project (2)**
  - Clear, quick communications with the State Architect's office are maintained via computer link
  - Campus staff work closely with OSHPD staff to establish what needs to be done more efficiently in the future
- **A small campus-level database is being developed to capture 'lessons learned' from past projects, and minimize the repetition of problems on future projects (1)**

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**E1. Delays and costs associated with actions of public and regulatory agencies**

**Continued - Current Mitigating Business Practices: Contributing Factor 2**

- The quality of CEQA documents have improved, reducing potential adverse regulatory issues (1)
- A regulatory checklist is maintained and followed at one location for future project implementations (1)
- Lobbyists are hired when appropriate, and when funds are available (1)

## E1. Delays and costs associated with actions of public and regulatory agencies

### CONSEQUENCES

*Significant consequences which currently exist or may surface in the future due to this risk:*

#### ***Various Regulatory Impacts on Project Schedules and Costs***

- **There are additional costs associated with the time needed to prepare and process *CEQA* documents. In many cases documents require public review (4)**
  - OGC makes changes to the requirements for preparation of CEQA documents at times, resulting in time-consuming changes at the campus level. OGC does not keep campuses adequately informed of various changes
- ***Fire Marshals* have inefficient and inconsistent interpretations, which can cause project delays (2)**
  - Document reviews are delayed
  - Field directives are unbudgeted and unanticipated
- ***OSHPD* does not provide an adequate number of campus inspectors, resulting in 12-month reviews, delays and extra costs. OSHPD only has 250 inspectors for the entire state of California (2)**
- **Many internal *campus organizations* create political barriers (2)**
  - Faculty / students tend to oppose projects which hold no direct benefits for them
- **The *Coastal Commission* (CC) is a very difficult agency to manage: The relationship between the University and CC is difficult in as much as their interests do not often match, and CC requirements for campus projects are higher than those of other entities (1)**
- **Local *water districts* do not cooperate with campuses regarding reclaimed water. Reviews and inspections are untimely, rules and requirements are changed often, and additional taxes are being considered (1)**
- **The *Public Records Act* limits campus access to contractor's files, yet requires campuses to provide all their files(1)**
- ***FEMA*'s record keeping and maintenance requirements result in additional project costs**
  - Meeting FEMA standards to pass FEMA audits can be difficult (1)
- **Additional troublesome organizations / laws noted by particular UC locations:**
  - The Department of Fish and Game, US Fish and Wildlife, The Army Core of Engineers, The Department of Finance, Animal rights groups, The Design Advisory Review Board, local water districts, Native American rights groups, The Air Quality Management District, NIH*

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## E1. Delays and costs associated with actions of public and regulatory agencies

### ADDITIONAL CAMPUS ACTIVITIES

*Activities that could improve the management of this risk if implemented:*

- **Improve the consultant selection process (both design and other) to ensure consultant experience and relationships with regulatory agencies are sufficient / successful (2)**
    - One location discussed a need to establish a reference list of good consultants based on experience
    - One location noted a need to increase the skill level of design professionals to improve compliance with OSHPD code requirements, especially with respect to larger projects
  - **Establish realistic campus schedules that fully consider likely impacts of public and regulatory agencies (1)**
  - **Improve internal campus communication regarding the management and flow of information from regulatory and other public entities (1)**
    - One location noted a need to improve communication between the FD&C and EH&S
  - **Establish additional campus outreach programs with the public and other regulatory agencies (1)**
  - **Influence local elections to help ensure the most rational candidates run and win (1)**
    - Good public policy is created through good political leadership
- Fire Marshall**
- **Outsource some Fire Marshall activities to increase efficiency (2)**
- OSHPD**
- **Campus Community Relations representatives should not be a liaison for permitting issues. Campuses should request a meeting with OSHPD and campus fire marshals on conflicting guidance to reduce liaison work. Campuses should push OSHPD to make field personnel delegations as promised (1)**
  - **Ensure processes are performed 'to OSHPD code' through improved project reviews prior to OSHPD review (1)**

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## E1. Delays and costs associated with actions of public and regulatory agencies

### ADDITIONAL EXTERNAL ACTIVITIES

*Activities that could improve the management of this risk if implemented:*

- **Establish more OP support and system-wide coordination between campuses, both in general and specifically with respect to regulatory compliances (4)**

- Establish an overall University management plan to ensure regulatory compliance
- Establish a University-wide data sharing system (world wide web, databases, etc.)

#### OSHPD

- **OP should provide additional support to campuses to negotiate with and gain influence with OSHPD (3)**

- Establish a single University-wide OSHPD representative to meet and discuss concerns with the OSHPD Director
- OP needs to help campuses work with OSHPD to review procedures and augment pool of with campus inspectors
- OP should pool the efforts of the five campus hospitals to establish more influence with OSHPD:
  - +Lobby to eliminate multiple authorizations for similar work; request timely OSHPD responses; encourage OSHPD to give higher priority to important requests; receive greater concurrence between Central Fire Marshall opinions and local authorities' opinions

#### CEQA

- **OGC needs to keep campuses well informed regarding the various changes that occur with CEQA document preparation (1)**
- **Campus clients must be very conservative when approaching CEQA (1)**

#### SHPO

- **Additional OP resources and funding are needed to maintain SHPO compliance (1)**

#### NIH

- **Provide additional OP guidance over the entire UC system regarding NIH contracting conditions (1)**
  - Campuses are unaware of which NIH conditions are and are not added into construction contracts

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## Risk E2. Difficulty recruiting and retaining capable campus personnel

### Identified Program Risks

- \*E1. Delays and costs associated with actions of the public and regulatory agencies*
- \*E2. Difficulty recruiting and retaining capable campus personnel*
- \*E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)*
- \*PR1. Inconsistent quality of construction documents produced by architects*
- \*PR2. Standard contract language and business processes lack sufficient flexibility to meet some project needs*
- \*PR3. Failure to provide effective project management and administration throughout the project*
- \*PR4. Inadequate sharing of information about delivery processes and practices among campuses*
- \*P2. Multiple disconnects and lack of coordination within the University at all levels*
- \*R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)*
- \*R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)*

### **Risk E2. Difficulty recruiting and retaining capable campus personnel**

#### **Contributing Factors:**

- 1. Difficulty in recruiting due to noncompetitive compensation plans, incentive packages and benefits*
- 2. Failure to retain key personnel due to poor work environment*
- 3. University employees include many people who are very uncivil and disrespectful towards capital project staff, creating a poor working environment*

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## E2. Difficulty recruiting and retaining capable campus personnel

### CONTRIBUTING FACTOR 1

*Difficulty in recruiting due to noncompetitive compensation plans, incentive packages and benefits*

- Campus compensations levels do not match those of private entities (e.g. outside construction managers are compensated 20% more than project managers on some campuses)
- Lack of bonuses and incentives to reward good work

#### Current Mitigating Business Practices: Contributing Factor 1

- **Many new staff are brought in by contract, providing flexibility in the hiring process and compensation (5)**
  - 95% of the professional staff at one location are on contracts, allowing some flexibility within the campus structure
  - Some campuses are able to provide more incentives to contract personnel
  - On rare occasions, excellent outside consultants / contractors have been hired to fill permanent positions
- **Attractive UC geographical locations, work within academic communities, etc., can serve to attract applicants (5)**
  - The positive aspects inherent to the academic arena and campus culture are promoted
  - UC employees share a strong work ethic; many employees feel UC offers great projects, architects, and exciting work
- **Pay scales have been increased and job descriptions expanded to help UC compete with other entities (4)**
  - The salary range within one campus has been elevated by 20%
  - The governor has approved a state-wide program to establish 1-2% / year salary increases for campus staff (for five years)
- **Although minimal, bonuses and incentives have been established within campus financial means (4)**
  - The campus benefit package is more attractive than those of private entities
  - Some campus administrative groups (i.e., Advancement Group) establish large incentives for those who meet set goals, etc. (however, many groups do not have sufficient funding for significant incentives)
  - A proposal for tuition discounts is currently being considered by UC and will be brought to The Regents for discussions within the year
- **Positive reputations regarding employee treatment and support have been established (2)**
  - Adequate training is provided
  - Social events are held to establish a more 'family-type' work environment
  - Necessary technological tools and software have been provided

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## **E2. Difficulty recruiting and retaining capable campus personnel**

### **Continued - Current Mitigating Business Practices: Contributing Factor 1**

- **Easier, internet-based employment applications and advertisements are utilized (2)**
- **The need for additional personnel is addressed in advance and anticipated through on-going workload projections (2)**  
-Managers and department heads are responsible for developing creative ideas to help mitigate recruitment issues within their unit / department
- **A large number of junior personnel are staffed and trained, eliminating the costs associated with high-salaried senior personnel (1)**
- **Additional attractive ways to house faculty and staff are being explored (1)**  
-Affordable housing areas and housing programs are being investigated
- **Additional budgeting strategies are considered to help recruit and retain personnel (recharge options, etc.) (1)**
- **UC Extension Office resources are utilized to help recruit personnel (1)**

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## E2. Difficulty recruiting and retaining capable campus personnel

### CONTRIBUTING FACTOR 2

*Failure to retain key personnel due to poor work environment*

- Excessive workloads for personnel
- Lack of adequate administrative workspace

#### Current Mitigating Business Practices: Contributing Factor 2

- **Alternative / additional administrative work locations to relocate crowded personnel are being researched (5)**
  - Trailers and off-site spaces have been temporarily established
  - Major improvements are being made to office workspaces, in addition to campus hardware and software upgrades
- **Campuses rely on their attractive geographical locations, academic communities, etc. to attract applicants (4)**
  - The positive aspects of an academic environment and campus culture are promoted
  - UC employees share a strong work ethic; many employees feel UC offers great projects, architects, and exciting work
- **To bolster retention, successful project managers are allowed flexibility in managing their workloads (2)**
  - Project managers are empowered to manage projects their way
  - Managers are allowed to work from home at times
- **Contract personnel are retained to augment permanent staff (2)**
  - External project managers have been hired at times
- **Project manager programs have been established to increase PM support and education (2)**
  - A 'pilot program' to help support the growth of entry level project managers is currently being implemented at one UC location
- **A variety of alternative delivery methods are made available to attract in-house design professionals (1)**
  - The design-build process is very attractive to many professionals
- **A review of salaries and other compensation data within the market place has been initiated to help retain qualified employees (1)**
- **Certain incentive awards (i.e., bonus programs based on merit) are established to maintain quality personnel (1)**
  - Note: awards may not continue due to objections of some staff unions

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## E2. Difficulty recruiting and retaining capable campus personnel

### CONTRIBUTING FACTOR 3

*University employees include many people who are very uncivil and disrespectful towards capital project staff, creating a poor working environment*

- Faculty members question the knowledge and capabilities of staff
- When errors occur, people spend time finding someone to blame rather than focusing on solutions

#### Current Mitigating Business Practices: Contributing Factor 3

- **Activities / initiatives are established to better communicate with and educate project clients and university employees (6)**
  - A 'PR campaign' has been established to promote the positive impact of projects and address the need to respect capital project staff
  - Town hall meetings are held to address particular concerns that come up on campus (particularly faculty concerns)
  - Project checklists are created to establish a realistic client understanding regarding what a project manager's work entails
  - A 'system' is in place to minimize the number of faculty who give input and influence projects
  - Campus web pages are utilized to provide general information to employees regarding current projects, etc.
  - Internal review processes have been established to improve understanding and communication
- **Project managers are trained to appropriately handle client relations (2)**
  - The Human Resources Department offers conflict resolution training classes
- **The FD&C group focuses on early project problem identification and resolution (1)**
  - Project Manager meetings and regular project status reports address problems as early as possible, and promote a proactive working environment
- **The Capital Planning Committee and Design Review Board maintain good working relationships with university faculty (1)**
  - Smaller administration size helps to promote continual interaction with faculty
- **The campus chancellor is increasingly focused on improving the working environment on campus, including community relations and civility towards staff (1)**
  - Focus is pressed by the Academic Senate

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## **E2. Difficulty recruiting and retaining capable campus personnel**

**Additional Contributing Factor – Established During an Individual Workshop**  
The isolated locations of some UC campuses impact the available labor pool

### **Current Mitigating Business Practices**

- **Application outreach activities have been established**
- **Positions are advertised over a broader geographical area**
- **The campus salary structure has been expanded 20%**

## E2. Difficulty recruiting and retaining capable campus personnel

### CONSEQUENCES

*Significant consequences which currently exist or may surface in the future due to this risk:*

#### **Difficult Working Environments**

- **Salary differences between new and existing personnel create morale problems (6)**
  - New staff brought in by contract are placed in a salary structure that is not flexible
  - Campuses are unable to match the entrance level salaries of private entities (i.e., inexperienced and non-licensed new graduates expect starting salaries of \$60K / year; those with experience expect twice that amount)
  - Campus salaries do not match the responsibility of many campus positions
- **The lack of personnel create difficult working environments (3)**
  - Campus needs may fail to be met
  - The soft cost cap restricts money needed to adequately staff many projects
- **The lack of resources create personnel conflicts (1)**
- **Serious scheduling issues are possible in the future, as campus personnel are spread too thin (1)**
  - Losing a single staff person at some locations would have serious consequences

#### **Poor Personnel Quality**

- **Many personnel are not motivated to perform quality work (4)**
  - Poor incentive packages and high work loads exist
  - Campuses are understaffed; existing staff are overworked and stressed
  - Burnt-out personnel either leave the University or become less productive
- **UC does not have sufficient numbers of experienced personnel (2)**
  - Locations are forced to hire people with less experience and fewer qualifications

#### **Inadequate Recruitment**

- **As the current economy is booming, campuses cannot find enough people who will accept campus offers (3)**
  - The average number of applicants at one UC location have decreased over the years from 40 to 5-10
- **The isolated locations of some campuses impact the labor pool available to choose from (1)**
- **The major restrictions for some UC locations are the cost of housing and low campus salaries (1)**
  - There is difficulty competing with private sector sign-on bonuses and employment options

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## E2. Difficulty recruiting and retaining capable campus personnel

### Continued - Consequences

*Significant consequences which currently exist or may surface in the future due to this risk:*

#### ***Inadequate Retention***

- **Good personnel leave due to inadequate salaries (3)**
- **Limited work space issues cause personnel loss (1)**

#### ***Insufficient Workspace***

- **The rapid increase in campus growth rates requires offices designed to serve one individual to serve 2 to 4 (2)**  
-The doubling up on administrative personnel for space creates less privacy

#### ***Insufficient Funding***

- **Due to insufficient funding, any funding utilized to create necessary administrative space results in less money to hire additional personnel (2)**

#### ***Project Delay***

- **Many construction projects are delayed or untimely (1)**

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## E2. Difficulty recruiting and retaining capable campus personnel

### ADDITIONAL CAMPUS ACTIVITIES

*Activities that could improve the management of this risk if implemented:*

- **Establish different compensation strategies (5)**

- Campuses need to lobby OP regarding bonus and incentive pool increases for strong performing personnel; OP assistance is needed
- OP and campuses need to prioritize their programs to better focus resources on such key elements as recruitment and retention; this is a top-down effort
- Campuses may have other means to increase the equitable raises if necessary
- Some campuses may be able to provide additional flexibility in housing allowances

- **Establish additional time and programs for educating project clients and university employees to minimize complaints and issues (2)**

- Client / university employee sensitivity programs currently held within certain campus groups need to be expanded to all other campus areas

- **Increase the administrative support, mentoring, and training of UC personnel (2)**

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## E2. Difficulty recruiting and retaining capable campus personnel

### ADDITIONAL EXTERNAL ACTIVITIES

*Activities that could improve the management of this risk if implemented:*

- **Establish compensation studies on a system-wide basis (3)**
  - Compensation studies need to be analytically based, rather than based on 'anecdotes'
  - Project manager compensation ranges need to be reviewed
- **Additional funding is needed to support project manager support, education programs, and baseline costs, etc. (3)**
  - OP needs to work with the state to change the current 18% rule
    - +Current allocations are insufficient and inappropriate
  - Campuses need additional 19900 funding to help cover some supporting staff and baseline costs
- **Increase the UC incentive pool to enable sufficient bonuses (2)**
  - Tuition discounts as an incentive package should be established (currently being discussed)
  - The quality of campus staff overall has improved, resulting in an increasing need for improved incentives
- **University salary ranges need to be further improved and modified (1)**
  - As the economy booms, 10-20% raises are expected by employees
- **Sensitivity programs currently held within certain campus groups need to be expanded to all other campuses across the university system (1)**
- **Increase awareness and tolerance of current campus personnel skill levels that result from low salaries (1)**
  - Some campus skill sets are not as high as they should be, and reflect insufficient funding

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## **Risk E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)**

### Identified Program Risks

- \*E1. Delays and costs associated with actions of the public and regulatory agencies*
- \*E2. Difficulty recruiting and retaining capable campus personnel*
- \*E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)***
- \*PR1. Inconsistent quality of construction documents produced by architects*
- \*PR2. Standard contract language and business processes lack sufficient flexibility to meet some project needs*
- \*PR3. Failure to provide effective project management and administration throughout the project*
- \*PR4. Inadequate sharing of information about delivery processes and practices among campuses*
- \*P2. Multiple disconnects and lack of coordination within the University at all levels*
- \*R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)*
- \*R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)*

### **Risk E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)**

#### **Contributing Factors:**

- 1. The California construction market has become highly competitive: construction market costs are very high, and it is difficult for campuses to compete for contractors, particularly with limited construction budgets**
- 2. Impacts of the required bid processes and how they are administered**
- 3. Many contractors and sub-contractors do not perform quality work**
- 4. Bid protests hinder and delay the bidding process**

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### E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)

#### CONTRIBUTING FACTOR 1

*The California construction market has become highly competitive: construction market costs are very high, and it is difficult for campuses to compete for contractors, particularly with limited construction budgets*

#### Current Mitigating Business Practices: Contributing Factor 1

- **Numerous outreach processes are employed to attract contractors (5)**
  - Additional contractors are solicited prior to going to bid to ensure maximum campus opportunity
  - Contractors are matched with projects to target the best contractors to the type of projects / contracts
  - Efforts are made to recruit and retain quality contractors that show an interest in UC work
    - +Information regarding the prequalification process is shared with the contracting community
    - +Certain adjustments are allowed at times to keep quality contractors within the bid pool
  - Contractor deposits are lowered to attract smaller contractors
  - Bid dates are changed to ensure a sufficient pool of quality contractors
  - An 'outreach program' is held for quality bidders (i.e., individual walk-throughs are performed)
  - Subcontractor prequalification processes have been established
- **More desirable contracts and alternative delivery processes are currently being developed (4)**
  - Many contractors will not bid on traditional design-bid lump-sum contracts
  - Multiple Prime (MP) contracting has been established on various major contracts
    - +MP contracting is attractive to potential bidders as they are assured quicker payments during project implementation
  - Some campuses are working with OP to develop alternative delivery processes (e.g., development of a design-build family of documents is currently underway)
- **Contractors are attracted to various benefits inherent to working on university projects(2)**
  - Good working environments are maintained (i.e., quality personnel, quicker pay, contract profitability)
  - Amore project opportunities exist at some locations, as campus growth rates increase
- **Contractors with proven UC track records are contacted for bid opportunities (2)**
  - One UC location has developed a contractor reference guide that lists local contractors by specialty

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### E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)

#### Continued - Current Mitigating Business Practices: Contributing Factor 1

- **The campus has benefited from an established reputation of treating contractors fairly (1)**
  - Contractors are ensured that proper funding is in place
  - Contract payments are timely; change orders are prompt
- **Ensure all project parties are promptly informed of construction cost changes and projections (1)**
  - Close communication with construction estimators is maintained
  - FD&C is cognizant of market increases in construction costs and passes information on to client departments for consideration of alternate design in bid packages
  - All project phases include cost projections
- **Various advertising methods are utilized (internet, newspaper, etc.) (1)**
  - Advertising could become more robust; however there is some question whether additional efforts would prove worthwhile

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### E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)

#### CONTRIBUTING FACTOR 2

*Impacts of the required bid processes and how they are administered*

- Bid awards generally focus on the lowest responsible bid, rather than on quality contractors
- Industry data shows that the lowest bidder is not always the lowest in cost by project completion
- The bid process does not always function effectively because people do not have set responsibilities assigned to them

#### Current Mitigating Business Practices: Contributing Factor 2

- **A prequalification process with quality expectations is established to eliminate poor and low bidders (5)**
  - Pre-screening committees are established to ensure each bid process yields multiple qualified bidders
  - Contractors and subcontractors are required to submit a campus prequalification packet prior to project bidding
  - Unqualified contractors (those with a history of high claims, etc.) are filtered out
- **Personnel involved in the bid process are well experienced, educated, and assigned clearly established responsibilities (4)**
  - The same group of people are involved in a project from start to finish
  - Staff training is performed to ensure staff understands how to keep records, etc.
  - A Contract Unit Group is in place to ensure personnel understand the bid process
- **Alternative contracting mechanisms and delivery processes are utilized at times (2)**
  - Mechanisms do not rely solely on pricing
  - Alternative delivery processes include design-build and CMGC (bringing the general contractor into projects early)
- **Contractor change-orders are minimized by having project expectations and plans reviewed by the design / construction group and building users (1)**
- **An annual or semi-annual contractor assembly is planned to keep contractors informed of recent news, policy changes and contracts, etc. (1)**

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### E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)

#### CONTRIBUTING FACTOR 3

*Many contractors and sub-contractors do not perform quality work*

##### Current Mitigating Business Practices: Contributing Factor 3

- **Contractors / subcontractors are screened through a thorough prequalification process (6)**
  - Contractor interviews are videotaped to thoroughly review candidates
  - Contractors / subcontractors are required to submit a campus prequalification packet prior to project bidding
  - Unqualified contractors (those with a history of high claims, etc.) are filtered out
- **Vigorous inspections are completed during the course of projects to ensure quality work is performed (5)**
  - FD&C Construction Inspection Services perform continual reviews
  - Inspectors are asked to help contractors identify project issues early in the process
  - Reference checks are implemented to understand contractor experience in relation to current project 'specifics'
  - Trade unions review specific projects to determine if proper levels of experienced tradesmen are on-site
- **Alternative delivery strategies designed to secure the involvement of contractors have been proposed and, in some instances, implemented (2)**
  - Multiple Prime contracting methods have been used for the purpose of increasing UC control
- **Project mock-ups are utilized to maintain the standard of quality (1)**
- **Contractors are partnered with UC staff to ensure adequate, comfortable work environments (1)**
- **Internal monthly meetings are held between building managers and project managers to discuss the quality of contractors (1)**
- **A list / pool of qualified contractors is maintained (1)**
  - Contractors in the pool understand what is expected on UC projects (particularly with smaller projects)

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### E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)

#### CONTRIBUTING FACTOR 4

*Bid protests hinder and delay the bidding process*

##### Current Mitigating Business Practices: Contributing Factor 4

- **Hearing officers are employed to handle bid protests and minimize project delays (3)**
  - Campus level hearing officers exist
  - A panel of independent hearing officers is retained by OP; officers receive cases that were not able to be resolved at the campus
- **Clear, strong documentation is maintained to avoid bid protests (3)**
  - Quality reviews of contracts are performed to ensure documentation does not include language that may generate protests
- **Pre-bid meetings are established to address potential bidding issues, clarify requirements in advance, and educate project managers (3)**
  - Project managers are taught how to use contracts and avoid situations that lead to claims
- **Outreach programs are performed to educate contractors on bidding and increase communication opportunities (2)**
  - During some projects, a Contract Unit Group sends a representative to bidders to review contracts prior to bid
- **A well-coordinated procurement process is in place for larger projects (1)**
  - The contractor community is involved in developing an effective procurement process; plans of action have been developed

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**E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)**

**ADDITIONAL CONTRIBUTING FACTOR – IDENTIFIED DURING AN INDIVIDUAL WORKSHOP**

*The structure of the bid documents can confuse bidders, creating incorrect bidder information and disqualification*

**Current Mitigating Business Practices**

- Pre-bid conferences and job-walks are held to discuss bid forms, the way they are filled out, etc. Bidders are required to attend job-walks

**ADDITIONAL CONTRIBUTING FACTOR – IDENTIFIED DURING TWO INDIVIDUAL WORKSHOPS**

*The isolated location, old age, and lack of space on the campus impacts the contractor and labor pools*

**Current Mitigating Business Practices**

- Surveys are given to contractors to aide UC to understand their concerns and issues
- Focus groups have been established involving contractors and consultants for educational and information-sharing purposes
- Annual meetings are held to discuss what could be done to be a better customer, etc.

**ADDITIONAL CONTRIBUTING FACTOR – IDENTIFIED DURING AN INDIVIDUAL WORKSHOP**

*Many bidders file erroneous claims for profit*

**Current Mitigating Business Practices**

- Constructability reviews are performed
- A full-time inspector reviews major campus projects
- Clear, concise documents are established to help minimize errors
- Extremely low bidders have been personally contacted in an effort to weed out erroneous bids
- A campus documentation system for tracking RFIs is utilized
- Daily reports are required by campus staff members and contractors

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### E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)

#### CONSEQUENCES

*Significant consequences which currently exist or may surface in the future due to this risk:*

##### **Small Bidder Pool Size**

- **UC locations find difficulty attracting an adequate pool of bidders (6)**

- Quality general contractors are hesitant to bid on projects due to campus reputation that projects often get extended
- +Many times, contractors must support extension costs out of their pocket
- The contractor turnover of key positions has impacted campus control during transition periods
- Bonding and insurance issues limit the pool of contractors willing to bid

##### **Additional Project Expenses Incurred**

- **Campuses may be required to bid in non-economical ways, paying more for services and confusing bids due to the complexity of multiple funding sources (3)**

- The process of prequalifying contractors can be expensive
- State funded projects do not allocate the needed resources to support adequate incentives / bonuses

- **Many times low bidders manufacture claims to boost profits (1)**

##### **Poor Contractor Quality**

- **The low quality of local contractors and subcontractors affects the success of projects (3)**

- The lack of an adequate prequalification process can result in the retention of inexperienced contractors (i.e., complex facility project experience)
- Quality contractors may become poor contractors as a result of poor management, unrealistic expectations, and lack of support from the University

##### **Project Delay**

- **Projects have been delayed recently due to bid protests and lowest bidder requirements (3)**

- Bid protests cause at least a 6-week delay. If bids are thrown out, 2 months are added to the process as the bid process is repeated
- The lowest bidder requirement creates time-consuming demands on project management

##### **Poor Alternative Delivery Processes**

- **Some campuses are informally working with each other to develop alternative delivery processes (1)**

- Poor delivery processes may introduce additional elements of risk if not well planned

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### E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)

#### ADDITIONAL CAMPUS ACTIVITIES

*Activities that could improve the management of this risk if implemented:*

- **Campuses and OGC need to work together to create contracts /and related documents that minimize protest (4)**
  - Simplify the materials and paper work which bidders are required to fill out, in addition to offering the option of bid alternatives
    - +Many protests arise from paper work errors made by bidders
    - +Unclearly defined documents create 'opportunities' for low bidders to find holes and exceptions
  - Establish one contact at each campus to network with and serve as a liaison with contractors
  - One UC location has used an alternative contracting mechanism based on qualifications that did not consist solely of pricing
    - +By virtue of the contracting mechanism, the project stayed on budget
- **Minimize the extension of projects beyond planned budget / time (2)**
  - Building users, including faculty, need to be pushed to move into buildings soon after completion
    - +Contractors do not feel a sense of urgency to complete projects on-time due to the history of some users having a reputation of moving into buildings well after project completion
  - Create standard invoice forms for project efficiency
- **Establish adequate incentives for contractors / subcontractors during projects (2)**
  - Incentives should reach beyond that of current 'token incentives'
  - UC locations lose potential contractors to those entities offering proper incentive packages
  - Incentive packages will become increasingly important at many UC locations as campus growth continues
- **Campuses need to hire sufficiently competent project managers who are able to identify poor quality contractors (1)**
  - Campuses and project managers need to take adequate time to manage the bidding process and protests
    - +Project managers and project manager support are the major factors preventing contractor quality and project success
- **Establish effective post-occupancy reviews (1)**
- **Establish adequate design standards to reduce the opportunities contractors have to avoid accountability for quality (1)**
  - The operations and maintenance side of the University is hampered by the fact that, in many cases, design standards in place are inadequate

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### E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)

#### ADDITIONAL EXTERNAL ACTIVITIES

*Activities that could improve the management of this risk if implemented:*

- **Campuses and OGC need to work together to create contracts and related documents that minimize protest (5)**
  - Simplify the materials and paper work which bidders are required to fill out, in addition to the options of bid alternatives
    - +Many protests arise from paper work errors made by bidders
    - +Unclearly defined documents create 'opportunities' for low bidders to find holes and exceptions
  - Establish one contact at each campus to network with and serve as a liaison with contractors
- **Develop a university-wide shared database of contractor performances, prequalification information, 'lessons learned', etc. (5)**
  - Information should include contractor criteria, different prequalification methods, project success and failure stories, etc.
  - Shared information is valuable as UC explores alternative prequalification techniques
  - Many UC locations do not know that prequalification processes exist at other locations
  - Prequalification procedures are not uniform across the University because procedures are difficult to implement.
  - Moreover, the instructions in the Facilities Manual are difficult to understand and the actual prequalification document is hard to download
  - Many campuses do not have the resources to establish an effective prequalification process
- **OP needs to review and simplify / streamline bidding forms and procedures (3)**
  - Simplification needs are applicable to multiple fund source projects (i.e., format of bid submission)
  - The quality point evaluation of bidders needs to be considered
  - There are other ways to handle low bids: In Denmark, for example, low bid rules allow for selection of the second lowest bidder (thus eliminating the lowest bidder)
- **Pursue legislative changes that would allow UC to change its contracting practices (2)**
  - State legislature needs to establish negotiating options similar to those within the private sector regarding construction costs
  - State legislature needs to give campuses the ability to limit who can and cannot bid (based upon past performance, etc.)
- **OP needs to research the benefits and implications of global contracting for large projects (hiring individuals / firms over long periods of time) (1)**
  - Analyze if global contracting saves substantial money and time
  - Some UC locations believe global contracting has proven effective on smaller projects
  - Campuses need a contractor pool that can continually be utilized to obtain profitable bids

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### **E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)**

#### **Continued - Additional *EXTERNAL* activities**

*Activities that could improve the management of this risk if implemented:*

- **Additional work and coordination between OP and campuses is needed to establish additional alternative delivery processes (1)**
- **Offer owner-provided insurance to help address insurance requirement issues (1)**  
-Many contractors cannot meet UC insurance requirements or can not provide a payment bond, etc.

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# Risk PR1. Inconsistent quality of construction documents produced by architects

## Identified Program Risks

- \*E1. Delays and costs associated with actions of the public and regulatory agencies*
- \*E2. Difficulty recruiting and retaining capable campus personnel*
- \*E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)*
- \*PR1. Inconsistent quality of construction documents produced by architects*
- \*PR2. Standard contract language and business processes lack sufficient flexibility to meet some project needs*
- \*PR3. Failure to provide effective project management and administration throughout the project*
- \*PR4. Inadequate sharing of information about delivery processes and practices among campuses*
- \*P2. Multiple disconnects and lack of coordination within the University at all levels*
- \*R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)*
- \*R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)*

### **Risk PR1. Inconsistent quality of construction documents produced by architects**

#### **Contributing Factors:**

- 1. There are occasions when architects are good at design but poor at construction documents*
- 2. Architects do not have the necessary support during the constructability review process*

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## PR1. Inconsistent quality of construction documents produced by architects

### CONTRIBUTING FACTOR 1

*There are occasions when architects are good at design but poor at construction documents*

- Architects are generally chosen based on their presentation ability and not on their effectiveness in the construction process
- Construction documents do not effectively attract suitable and competitive bids

#### Current Mitigating Business Practices: Contributing Factor 1

- **Various review boards and procedures have been established to ensure quality construction documents and architects (8)**
  - Outside consultants are hired to perform peer reviews
  - Extensive in-house reviews have been implemented
    - +Internal engineering groups inspect documents and review personnel performance at various project stages
    - +Construction managers are involved in constructability reviews during the Construction Document phase
    - +A FD&C Design Review Board has been established at one UC location
    - +A process is in place to review project managers, architects and contractors at project-end
- **Architect interview and selection processes are strenuous and thorough (6)**
  - Hiring is based on high qualifications
  - The quality of construction documents are examined during selection processes
  - Some campuses implement a mandatory screening process for all architects, measuring presentation abilities and the ability to handle construction issues and project management
  - One UC location enables the campus architect selection committee to require that the architect demonstrate the capability to perform in all necessary skill areas related to the potential assignment
- **Design and design-build processes have been modified to help ensure document quality (4)**
  - During project bidding, document completion becomes the joint responsibility of the executive architect and project contractor
  - Design architects and project architects work together to establish project drawings on larger projects
  - Architects are assisted in developing fire safety elements within project design
  - All service units (design, construction, operations and maintenance, etc.) are involved in design process
  - Regarding 'as-built' documents, inspector records specify linear offsets and conditions from start to end
    - +As-builts are reviewed on a monthly basis

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## PR1. Inconsistent quality of construction documents produced by architects

### Continued - Current Mitigating Business Practices: Contributing Factor 1

- **Architectural specifications and expectations are standardized and communicated to architects (2)**
  - During architectural presentations, architects are required to demonstrate production capabilities and professional history regarding change orders
  - Architectural documentation standards are enforced to establish consistency
- **Higher fees have been established in order to secure higher quality services from design professionals (2)**
  - Fees are negotiated at levels higher than the OP standard
- **New technological advances are being developed (1)**
  - A 'test project' is underway, utilizing a web-based database to store all project information from start to finish
- **The prestige that comes with University projects is promoted to attract many quality architects (1)**
- **OGC helps look at the litigation history of design professionals (1)**
  - Campuses are able to ask design professional about their litigation history
- **Round table discussions are facilitated, bringing people of like disciplines together to meet and discuss issues (1)**
  - The general quality of documentation is improved as a result
- **Firms with proven capabilities to handle project complexities are hired (1)**
  - Firms with UC experience and / or references of other campus architects are preferred

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## PR1. Inconsistent quality of construction documents produced by architects

### CONTRIBUTING FACTOR 2

*Architects do not have the necessary support during the constructability review process*

-Campuses cannot rely on architects alone to ensure documents are build able and complete; an additional set of eyes is needed

#### Current Mitigating Business Practices: Contributing Factor 2

- **Additional architect support and technology has been established from internal and external sources (7)**

- Construction managers participate in project reviews and supplement the architect's processes

- +Construction managers are involved in constructability reviews during the Construction Document phase

- An internal engineering group reviews and inspects documents and personnel performance at various project stages

- +Mechanical engineers are utilized early in project planning to share project information, identify existing structures, etc.

- External constructability reviewers are hired to help ensure the quality of documents

- Architects are provided an AutoCAD computer system for computer-aided, standardized drawings

- **Constructability peer reviews are performed (3)**

- Strong relationships with quality contractors have been established; these contractors to help analyze architectural documents during peer reviews

- Utility and building management personnel are brought together to discuss project design and other issues

- +Discussions focus on system effects, maintainability, load capacities, etc.

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**PR1. Inconsistent quality of construction documents produced by architects**

**ADDITIONAL CONTRIBUTING FACTOR – IDENTIFIED DURING AN INDIVIDUAL WORKSHOP**

*Scope changes in design by faculty / end-users cause delay, confusion, and additional costs*

**Current Mitigating Business Practices**

- **Faculty involvement is minimized after the design development / construction document phases**
- **Formal amendments are created to inform faculty of budget and time ramifications in the event of project change requests**

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## PR1. Inconsistent quality of construction documents produced by architects

### CONSEQUENCES

*Significant consequences which currently exist or may surface in the future due to this risk:*

#### **Additional Project Costs**

- **Poor construction documents result in additional costs (4)**

- Quality services require high fees
- Sliding fee scales are unrealistic
- After negotiating 'basic' services, campuses must negotiate extra fees which extend beyond 'basic' services
- Poor documents attract low bidders, increasing the potential for additional claims during project implementation
- The quality of documents is considered a high impact risk due to the potential for significantly increased costs
  - +Campuses spend large amounts of money to help mitigate the risk of poor documents

#### **Project Delay**

- **Campuses must delay projects to compensate for problems stemming from poor construction documents (3)**

- 'As-built' documents are incomplete and difficult to track
- The percentage of change orders related to construction documents has considerably increased

#### **Inability to Evaluate Architects**

- **Campuses have difficulty judging the ability of architects to produce quality documents, due to recent CADD (computer aided drafting and design) programs that perform a majority of the work (1)**

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## PR1. Inconsistent quality of construction documents produced by architects

### ADDITIONAL CAMPUS ACTIVITIES

*Activities that could improve the management of this risk if implemented:*

- **Increase the scope of and expertise involved in architect reviews (4)**
  - Include the mechanical and electrical aspects of projects within reviews
  - Architects should develop a constructability analysis during the review process
    - +Constructability analyses are particularly necessary during renovation projects
  - Develop a design consultant report card to facilitate performance feedback
  - The increasing sophistication of campus buildings require additional reviews
- **The criteria regarding professional hiring needs strengthening (2)**
  - ‘Division One’ needs to be provided to architects in order to improve the quality of specifications
  - Increase the control over who is assigned to be the construction administrator during the construction phase
- **Increase the continuity throughout projects (1)**
- **Enforce a process to review project managers, architects and contractors at project-end (1)**
- **Improve the identification process regarding needed renovation work (1)**
  - An investigation process of actual conditions prior to bid documents is needed
  - Ensure the general contractor and project manager identify they are doing two separate contracts (one for demolition and one for renovation) to incorporate items found after demolition into the drawings
- **Reject poor sub-consultants who have been selected by architects for their design team (1)**

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## PR1. Inconsistent quality of construction documents produced by architects

### ADDITIONAL *EXTERNAL* ACTIVITIES

*Activities that could improve the management of this risk if implemented:*

- **UC General Counsel should approve various design consultant report card approaches (2)**
  - Inquiries concerning litigation histories of design professionals need to continue on a broader system-wide basis
- **Adjust OP's budgeting parameters to allow higher architect fees (1)**
- **OP contracts need to establish more effective quality control regarding construction documents (1)**
- **Provide additional OP budgetary support in order to establish proper document review processes (hiring outside consultants, etc) (1)**
  - The 18% limit should be changed
- **Utilize consistent technologies on a campus and system-wide basis (1)**
  - For example, the ConDoc numbering system can be utilized
- **Ensure architect performance contracts are based upon project outcome (i.e., the building's audit at the end of the project) (1)**
  - Architects should then receive bonuses for meeting standards (i.e., energy requirement standards)

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## Risk PR2. Standard contract language and business processes lack sufficient flexibility to meet some project needs

### Identified Program Risks

- \*E1. Delays and costs associated with actions of the public and regulatory agencies*
- \*E2. Difficulty recruiting and retaining capable campus personnel*
- \*E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)*
- \*PR1. Inconsistent quality of construction documents produced by architects*
- \*PR2. Standard contract language and business processes lack sufficient flexibility to meet some project needs*
- \*PR3. Failure to provide effective project management and administration throughout the project*
- \*PR4. Inadequate sharing of information about delivery processes and practices among campuses*
- \*P2. Multiple disconnects and lack of coordination within the University at all levels*
- \*R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)*
- \*R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)*

### **Risk PR2. Standard contract language and business processes lack flexibility to meet some project needs**

#### **Contributing Factors:**

- 1. OP is unable to create standardized contracts that are sufficiently flexible to accommodate every campus situation**
- 2. Bigger firms resist signing UC contracts because the contracts call for contractors to accept unlimited liability**
- 3. OP does not allow campuses to modify contracts without approval**
- 4. Contract language and policies are not written clearly**

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## PR2. Standard contract language and business processes lack flexibility to meet some project needs

### CONTRIBUTING FACTOR 1

*OP is unable to create standardized contracts that are sufficiently flexible to accommodate every campus situation (project type, delivery method, etc.)*

-OP does not take part in the day-to-day campus processes to see the contractual ramifications of the standardized documents

#### Current Mitigating Business Practices: Contributing Factor 1

- **Changes in campus bidding documents and processes are implemented as appropriate (5)**

- Alternative ways to bid jobs and develop language applicable to different situations have been established
  - +Areas where standardized contract language may be helpful have been identified and utilized (i.e., 'boilerplate language')
  - +Contract specifications are generally adapted on a project-by-project basis
- An effective, workable campus design-build document has been established
- Multiple prime delivery mechanism contracts have been developed in coordination with OP for several projects
- The lack of experience with alternative delivery methods is being addressed
  - +Historically, there have been problems with making changes to standard contracts

- **Campuses have taken initiative to work and interact with OP and OGC on contract issues (4)**

- Needed campus support is articulated to OP
- All items requiring OP review are prepared sufficiently in advance to facilitate the discussions
- Frequent discussions are held between campuses and OGC and OP
- Campus seeks to work with particular OP / OGC personnel, based on positive reputations and past interactions
  - +OP personnel are dealt with one-on-one early-on during projects (during the construction document phase of projects or sooner)
  - +Targeted contacts with OGC are made to discuss needed contract changes in order to create timely contracts

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**PR2. Standard contract language and business processes lack flexibility to meet some project needs**

**Continued - Current Mitigating Business Practices: Contributing Factor 1**

- **OP / OGC support has increased noticeably over the past year (4)**
  - OP and OGC are better staffed to support contracting activities
  - +Newly hired general counsel personnel have helped to improve the responsiveness of OGC
  - OP's Facilities Administration notifies campuses of changes to the contract boiler-plate
- **Generic architectural agreements are sent out to architects in advance with requests for proposal (1)**
  - Numerous issues are prevented in advance
- **Project managers are held responsible for ensuring the incorporation of design standards within each project (1)**
  - OP provides significant help to some campuses

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**PR2. Standard contract language and business processes lack flexibility to meet some project needs**

**CONTRIBUTING FACTOR 2**

*Bigger firms resist signing UC contracts because the contracts call for contractors to accept unlimited liability*

**Current Mitigating Business Practices – Contributing Factor 2**

- **Requests by consultants to modify UC liability provisions are denied at times (1)**
  - Consultants are expected to accept contracts on campus terms
  - Often consultants will still work with the campus, even if provisions are not modified
- **Consultant agreements are available on the world wide web (1)**
  - Consultants are given adequate opportunity to review agreements
- **Project contracts are required to be signed before any project design activities can begin (1)**
- **Campus Design and Construction staff work with OGC and Campus Counsel on liability provisions (1)**
- **Negotiations between the UC legal counsel and vendor's legal counsel are directed by the campus (1)**

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**PR2. Standard contract language and business processes lack flexibility to meet some project needs**

**CONTRIBUTING FACTOR 3**

*OP does not allow campuses to modify contracts without approval*

**Current Mitigating Business Practices: Contributing Factor 3**

- **Initiative to proactively work with OP on contract language modifications has been taken (2)**  
-Targeted OGC contacts are called regarding needed contract changes in order to create timely contracts
- **OP allows minimal flexibility regarding campus modifications to contract documents (1)**  
-However, there are basic principles that cannot be compromised
- **OP approval turnaround times have improved due to a recent increase in OP staff (1)**

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**PR2. Standard contract language and business processes lack flexibility to meet some project needs**

**CONTRIBUTING FACTOR 4**

*Contract language and policies are not written clearly*

**Current Mitigating Business Practices: Contributing Factor 4**

- **Initiative to proactively work with OP on contract language modifications has been implemented (2)**  
-At times, campuses work with OGC to develop clear contract language
- **Contract language and policies are clarified by the campus when dealing with minor issues (1)**
- **OP is working to include campuses in the development and review of new contracts (1)**  
-Process is on-going
- **Campus boot camps and additional training have been established to educate new staff regarding contract language and policies (1)**  
-Not following established policies is more of an issue than the actual contract language and policies themselves
- **Policies and procedures are currently available online (1)**

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## PR2. Standard contract language and business processes lack flexibility to meet some project needs

### CONSEQUENCES

*Significant consequences which currently exist or may surface in the future due to this risk:*

#### **Project Delay**

- **Campuses are unable to receive timely OP / OGC revisions and approvals (3)**

- OP does not support campus architect formulated agreements regarding design-build documents
- Untimely contract modification approval turnaround creates the risk of delays
- Major campus contract changes must go through a very time-consuming approval and modification process
- +Campuses must physically visit OGC at times

#### **Small Contractor Pool**

- **Construction contractors will not bid on campus projects because business is easier to do elsewhere (2)**

- Contractors are not as interested in campus projects when there is a lot of other work available
- Campuses are unable to have firms sign UC contracts primarily because firms object to the liability provisions

#### **Additional Project Costs**

- **Although standardized contracts minimize some business risks (i.e., contractor arguments), their inflexible nature raises the costs of doing business (1)**

#### **Inadequate PSA Change Notification Process**

- **The process for notifying campuses when PSA (professional services agreements) contracts have changed is inadequate (1)**

- Difficulties arise when vendors request numerous changes to PSA and design professional agreements

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**PR2. Standard contract language and business processes lack flexibility to meet some project needs**

**ADDITIONAL CAMPUS ACTIVITIES**

*Activities that could improve the management of this risk if implemented:*

- **Establish a master contract applicable to all project types and situations (4)**
  - Develop a master contract specifications guide using AIA Master and US Navy specifications
  - Work together with OP to establish an updated, effective contract
  - Explore the potential of additional contract methods that are not currently approved by OP
- **Simplify various project documents which are not written clearly (1)**
  - The construction manager's agreement needs to be re-written and simplified
- **Establish an internet function to better handle in-house activities (monitoring drawings, etc) (1)**
- **Utilize the contracts that have already been standardized on campus (1)**

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## PR2. Standard contract language and business processes lack flexibility to meet some project needs

### ADDITIONAL EXTERNAL ACTIVITIES

*Activities that could improve the management of this risk if implemented:*

- **Help campuses establish updated, effective contracts and processes (5)**
  - Help develop standard contract specifications or guidelines
    - +All 'OP approved' contracts need to be standardized
  - Align contracts with industry standards
  - Look at trends to see which contracts and delivery processes are beneficial to the institution
  - Establish a global contract model, with the option for campus modifications
  - Unlimited liability issues cannot be solved at the campus level
  - Hold FAQ / information sessions regarding UC contracts to solicit and resolve campus questions
- **Simplify various UC project documents which are not written clearly (2)**
  - Some documents are conflicting, redundant, and unclear
- **Increase the level of communication between OP functional areas (OGC, Facilities, contracting units, etc.) (2)**
  - OP areas need to come to consensus, rather than send differing signals to campuses
    - +OGC needs to work with general contractors and E&O providers to eliminate disconnects and to verify what is and is not insurable regarding unlimited liability
  - Campuses listen to the OP area that supports their position and then lets OP deal with any consequences of any differences
- **OGC needs to inform campuses regarding where flexibility is allowed within contracts (2)**
  - Campuses need to know when Regent approval is necessary, etc.
  - Campuses would like the authority to make some minor contractual modifications without OP approval
- **Create a user-friendly executive summary of the 10-volume Facilities Manual to campuses (1)**

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# Risk PR3. Failure to provide effective project management and administration throughout the project

## Identified Program Risks

- \*E1. Delays and costs associated with actions of the public and regulatory agencies*
- \*E2. Difficulty recruiting and retaining capable campus personnel*
- \*E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)*
- \*PR1. Inconsistent quality of construction documents produced by architects*
- \*PR2. Standard contract language and business processes lack sufficient flexibility to meet some project needs*
- \*PR3. Failure to provide effective project management and administration throughout the project***
- \*PR4. Inadequate sharing of information about delivery processes and practices among campuses*
- \*P2. Multiple disconnects and lack of coordination within the University at all levels*
- \*R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)*
- \*R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)*

### **Risk PR3. Failure to provide effective project management and administration throughout the project**

#### **Contributing Factors:**

- 1. Project management is impacted by the difficulty of establishing accountability and continuity**
- 2. An effective business management system has not been established**
- 3. Project managers do not have the time or skill to provide necessary oversight to insure that reconciliation accounting is being performed**
- 4. Inability to begin crucial project activities early enough in the delivery cycle**

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## PR3. Failure to provide effective project management and administration throughout the project

### CONTRIBUTING FACTOR 1

*Project management is impacted by the difficulty of establishing accountability and continuity. Accountability /continuity issues are caused by:*

-Staff turnover, workload issues, inadequate record maintenance procedures, etc

#### Current Mitigating Business Practices: Contributing Factor 1

- **Project management reporting meetings are held regularly (4)**
  - Project Manager status reports are used to discuss project management issues
  - Personnel are kept informed on current project accounting, budgets, etc.
  - Joint A&E, planning and budgeting meetings address personnel roles and responsibilities during projects
  
- **Project personnel are well integrated and teamed together from project inception through completion in order to maintain accountability (3)**
  - Budgeting and implementation groups are well integrated (all report to the same AVC)
  - Project managers actively participate in project study teams during new building projects to ensure adequate input and knowledge of project planning
    - +Studies include a project manager, budget planning individual(s), and the Fire Marshal
  
- **Project managers are assigned early-on in the project process (2)**
  
- **Various comprehensive record maintenance systems have been established (2)**
  - The PRISM System has been adopted by 4 other campuses
  - A web-based database is currently being created to help mitigate record maintenance issues
    - +Campuses will be able to track data, enforce accountability for lacking areas, and be made aware of problems immediately
  
- **Communication lines between separate functional groups are strong and clear (2)**
  - Extensive written communications insures clarity of requirements
  
- **Project Managers are held accountable for meeting project schedules and budgets (1)**

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**PR3. Failure to provide effective project management and administration throughout the project**

**Continued - Current Mitigating Business Practices: Contributing Factor 1**

- **Project manager assistants with adequate knowledge of the project process are hired (1)**  
-Quality assistants bring continuity to projects
- **Projects are managed on an 'extended team' basis: separate functional areas and outside consultants are outsourced at various times (1)**
- **Potential salary increases are being discussed for project management staff (1)**
- **Cross-training is utilized to mitigate potential continuity issues (1)**
- **Project processes have been formalized on campus over the last four years, improving continuity (1)**

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### PR3. Failure to provide effective project management and administration throughout the project

#### CONTRIBUTING FACTOR 2

*An effective business management system has not been established*

- The general ledger is not useful
- Some existing project management systems are not tailored to capital project-specific needs
- UC does not possess an effective business control system for project delivery systems on campuses

#### Current Mitigating Business Practices – Contributing Factor 2

- **Project management systems and activities that provide accurate and timely information for detailed oversight of project schedules and costs have been either established or are in the process of being developed (9)**
  - The FM business system supports project processes and provides project managers the ability to manage project budgets
    - +Project managers do not interact directly with the GL; FM accounting staff reconcile the business system to the GL
    - +System works well with reconciliation accounting, follows projects from start to finish, and tracks everything
  - A 'home-grown system' is in place to track change orders
  - The new business management system IBEX has been established
    - +Effectively forecasts projects, anticipating future change orders, etc. Forecasts are presented to the user group and management on a monthly basis to show a continual real-time status of where money is going, etc.
    - +Tracks every change order by contractor, every field order issued, and identifies all potential cost impacts during the construction period with dates to ensure they are being addressed. Accountability is easily monitored
    - +Shows GL information in addition to consolidated GL information that is more useful to project managers
    - +GL is real time data and is available on-line for review, providing the project manager day-to-day accountability
    - +GL does not incorporate overall project budget at this point
  - A new construction management system is being planned for implementation in October 2000
    - +System can drop contract types into easy-to-use templates
  - The shadow accounting system PRISM is in place
  - Many automated and manual systems are in place on campus: a shadow accounting system, excel spreadsheets, weekly meetings, scheduling systems, tracking forms, Microsoft Project, etc.
  - A good paper-based filing system is in place

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**PR3. Failure to provide effective project management and administration throughout the project**

**Continued - Current Mitigating Business Practices: Contributing Factor 2**

- **A new, better qualified business manager has been hired to support the management system (1)**
- **Query-based and online systems exist to create concise pre-formatted reports (1)**
- **OP is seeking a better understanding of the systems already in place at several campuses to establish an acceptable set of functionality, control, and report definitions to assist project managers in their efforts and to provide for accountability (1)**
- **OP is investigating the possibility and benefit of a single, university-wide management system (1)**

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## PR3. Failure to provide effective project management and administration throughout the project

### CONTRIBUTING FACTOR 3

*Project managers do not have the time or skill to provide necessary oversight to insure that reconciliation accounting is being performed*

#### Current Mitigating Business Practices: Contributing Factor 3

- **Project meetings, support activities, and training opportunities have been established to maintain an adequate level of readiness of project management staff and to provide necessary support for project managers (8)**
  - Weekly project management and inspection staff meetings discuss recent issues
  - Staff development activities are held quarterly, focused on increasing efficiency levels (team building, trust building, etc.)
  - The Project Management Institute program provides training for new project managers
  - In-house and outsourced project management training programs have been established
  - Design-build conferences are held within the design and construction community to build strong relationships and knowledge
  - Contractor partnering activities build understanding, confidence, and efficiency among contractors
  - Historical project data is shared among project managers and used for realistic comparisons
    - +Various project information is being placed online for project manager review
  - Project Managers have been given resources for accounting functions (budget reports, General Ledger, etc) on particular projects
    - +FD&C reconciles accounting data and provides Project Managers with accurate and timely information via monthly project cost status reports
  - Project management and accounting sides of projects continually work together
    - +Quarterly project reviews take place involving management and accounting staff
- **The business management system works well with reconciliation accounting (3)**
  - System follows projects from start to finish, and tracks everything
  - The new IBEX management system is in place to help support project managers' roles and functions
  - Project managers are able to utilize the current business system to monitor the progress of projects
    - +Project managers are able to see if something is missing
  - An in-house accounting system is being established
    - +System will better indicate accounting problems as they occur

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**PR3. Failure to provide effective project management and administration throughout the project**

**Continued - Current Mitigating Business Practices: Contributing Factor 3**

- **Project managers are expected to perform reconciliation accounting duties (3)**
  - The management system does not allow project managers to perform reconciliation accounting duties
  - Reconciliation accounting is performed by accounting personnel
  - Project managers do not perform reconciliation accounting but have the necessary skills for adequate oversight
    - +Project managers individually assess the financial aspects of projects and meet monthly to ensure reasonable reconciliation occurs
- **Project managers are brought into projects early in the process (1)**
- **Clear project manager directives are established during project development (1)**
- **Assistant project managers are hired to aid the management process and allow project managers time to effectively manage more projects (1)**

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### PR3. Failure to provide effective project management and administration throughout the project

#### CONTRIBUTING FACTOR 4

*Inability to begin crucial project activities early enough in the delivery cycle*

- The planning of project phasing is not implemented early enough to ensure phasing concerns are incorporated during design development
  - Building system and cost control management is addressed long after it should be (during design development)
    - Campus maintenance groups are not involved during the design development process
    - Campuses have difficulty understanding appropriate design and maintenance standards
- Campuses need an architect on board sooner in the project process to develop appropriate cost and program structure, but campuses are not able to allow architects to sign contracts until the regents and OP approve the project and the architect selection, a lengthy process

#### Current Mitigating Business Practices: Contributing Factor 4

- **Various functional groups are involved in project support on a timely / regular basis (5)**
  - A formal process has been established to **bring campus and outside resources together** throughout the project
  - Maintenance groups are involved in regular project development meetings, etc.
  - The maintenance group works closely with other campus functions to maintain a documented list of current campus standards
  - The facility group is well integrated into many project delivery processes (e.g., renovation work, etc.)
  - Physical plant is included in value engineering sessions
  - Architects are involved early-on in the project delivery process (during pre-design, helping to develop PPGs, etc.)
  - FD&C consults with client departments to obtain specific project requirements
  - FD&C references historical data for like structures for planning purposes
  - Project activities regularly include early project kick-off meetings with key campus units
- **Various Project studies and reviews are performed (4)**
  - Design review occurs at all project stages by the Physical Plant
    - +Value engineering occurs throughout the process
    - +Campus design standards are updated regularly and provided to architects early in the process
  - Pre-design studies are established (at times through outside consultants) to help better define projects
  - A&E and planning groups forecast when to do project planning guides
  - Major costs are reviewed before design begins
  - Project managers hold weekly meetings to review project successes and potential problems

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### PR3. Failure to provide effective project management and administration throughout the project

#### Continued - Current Mitigating Business Practices: Contributing Factor 4

- **Project Managers are adequately trained to manage projects appropriately (2)**
  - Many managers have been practicing architects
  - The Project Management Institute provides the training and sharing of practices among campuses to find better ways to cope with UC delivery processes and resource constraints
- **Sound funding for project management and thorough/frequent budget and cost analysis is key to success (3)**
  - At least 2 cost estimates are required; one from architects and one from construction management
  - Some core funding is utilized to help begin activities on time
  - Campus budget office will at times pre-fund activities that need to take place to help ensure projects begin on-time
  - Utility connection issues are currently being addressed at the budgeting stage
- **A modified design-build process is implemented to incorporate design standards prior to bid (1)**
- **The campus business system enables project managers to monitor the progression of projects (1)**
- **The architect selection process is completed early enough to involve architects in project DPP work (1)**
- **A pre-contract agreement for professional services is utilized rather than a full-blown contract (1)**
  - Preliminary studies for cost estimates are performed under this pre-contract agreement
- **Construction managers are utilized as a backup for project managers for certain campus issues (1)**
  - Construction managers indicate whether construction will be on schedule and budget
  - Construction managers advise project managers on issues for which the PM or in house UC staff do not have the required expertise

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### PR3. Failure to provide effective project management and administration throughout the project

#### Additional Contributing Factor – Established During an Individual Workshop

*Lack of support from campus administration to combat scope creep / program changes during design / construction phase*

#### Current Mitigating Business Practices

- **Campus scope control procedures are effective**

### CONSEQUENCES

*Significant consequences which currently exist or may surface in the future due to this risk:*

#### **Heavy Workloads**

- **The inability to hire the necessary staff creates heavy workload issues (6)**
  - Managers are given heavier loads with less time per project, which can result in inadequate project management
  - With the rapid growth in capital programs, it is difficult to establish adequate staff support

#### **Project Delay and Additional Costs**

- **Failure to provide sufficient trained staff and support systems leads to project cost overruns, delays, and conflicts between owner and contractor (1)**
- **The poor flow of projects results from OP's failure to invest sufficiently upfront to avoid costs down the road (1)**

#### **Poor Transitioning of Systems**

- **Transitioning between various campus financial systems causes problems (1)**
  - Project management systems do not interact with the campus ledger system

#### **Insufficient Project Management Focus**

- **The time-consuming nature of client expectation management contributes to the inability to focus on other project management functions (1)**

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## PR3. Failure to provide effective project management and administration throughout the project

### ADDITIONAL CAMPUS ACTIVITIES

*Activities that could improve the management of this risk if implemented:*

- **Establish improved campus systems to update and support various management functions (3)**
  - Establish a new project accounting system that will allow for consistency in training and costs management
  - Continue the implementation of the PRISM campus system to expand its functions
  - Establish a single total management system, from start to finish (rather than maintaining many separate systems)
- **Establish and enforce more detailed construction guidelines (2)**
  - Provide additional training of design professionals in order to bring individuals up to speed regarding how to write specifications within the UC format
    - +Campus construction guidelines are minimal in detail, allowing considerable latitude in interpretation by the designer
    - +Inadequate building maintainability substantially costs campuses in the long term
  - Campuses need to institute training programs for all new personnel
- **Redefine appropriate roles and responsibilities for project personnel (2)**
  - Establish responsibilities which define when personnel need to become involved during projects
  - Operations and maintenance staff need to be involved with projects from the beginning of the design review process
- **Provide project managers with the appropriate support and management tools needed for success (2)**
  - Assign manageable workloads to PM's
  - Hire additional accounting staff
- **Campus project managers must improve the management of business systems (1)**
  - Ensure that project managers and others keep the systems up-to-date
    - +Business systems need to be updated on a continuous basis
    - +Reconciliation is not always done, and some data are missing at times
  - Utilize the Project Management Institute for project manager development
- **Ensure necessary activities are consistently in place during every project (1)**
  - Eliminate unnecessary problems which occur during construction inspections and commissioning
  - Some project phases are rushed due to promises made to users regarding move-in dates

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### **PR3. Failure to provide effective project management and administration throughout the project**

#### **Continued - Additional *CAMPUS* Activities**

*Activities that could improve the management of this risk if implemented:*

- **Establish separate study funds for renovation work to look into as-built opportunities prior to demolition (1)**
  - Create a study fund to ensure renovations are covered
  - +Inadequate time is spent performing field investigations
- **Hire design consultants to help justify and document the appropriate funding level of state projects (1)**
  - Due to the expensive nature of state projects, campuses need to have adequate documentation to explain the inherent elevation of costs (i.e. labor rates, etc.)
- **Ensure experienced and competent project managers are hired (1)**
  - Quality contractors and project success depend on good project managers and PM support
  - Evaluate and reward project managers for performance
- **Campuses and their project managers need to invest the time to appropriately manage the bidding process and protests (1)**
- **Develop more sophisticated project schedules (1)**
- **Establish utility drawings for all buildings to identify load capacities, what is available, etc. (1)**
- **Chancellors need to establish core funding for project management rather than relying solely on recharge (1)**

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### PR3. Failure to provide effective project management and administration throughout the project

#### ADDITIONAL EXTERNAL ACTIVITIES

*Activities that could improve the management of this risk if implemented:*

- **Secure additional funding for the preplanning phase of general project management (3)**
  - An increase in current overhead limits would provide the necessary resources to obtain adequate project management
  
- **Establish a system-wide business management system (2)**
  - Establish proper computer systems, website management systems, and related technologies to support project management
    - +An effective business management system should include such information as changes to contract forms, name of contractors and subcontractors, tracking of costs, funding of change orders, payments of invoices, tracking of stop notices, etc.
  - Establish a system-wide project data sharing tool for project managers and campuses to benchmark from
    - +Sharing includes information relating to contractor and consultant performance and to the success of the project in general
    - +A great deal of knowledge is available between campuses and projects within UC
  - OP needs to provide adequate support towards this mission
  
- **Bolster and improve the risk management department function (1)**
  - Current resources and support need to be improved
    - +The department does not respond to campus issues on a timely basis
    - +The department needs to become more proactive
      - Campuses are presently forced to identify issues and contact the risk management department on their own
  
- **Create clear guidelines on project manager responsibilities to ensure legal compliance (1)**
  
- **Integrate Fire Marshals and other regulatory officials earlier into the design review process (1)**
  
- **Establish annual meetings with plant accountants to exchange information and establish system-wide benchmarks for plant accountants (1)**

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# Risk PR4. Inadequate sharing of information about delivery processes and practices among campuses

## Identified Program Risks

- \*E1. Delays and costs associated with actions of the public and regulatory agencies*
- \*E2. Difficulty recruiting and retaining capable campus personnel*
- \*E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)*
- \*PR1. Inconsistent quality of construction documents produced by architects*
- \*PR2. Standard contract language and business processes lack sufficient flexibility to meet some project needs*
- \*PR3. Failure to provide effective project management and administration throughout the project*
- \*PR4. Inadequate sharing of information about delivery processes and practices among campuses***
- \*P2. Multiple disconnects and lack of coordination within the University at all levels*
- \*R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)*
- \*R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)*

### **Risk PR4. Inadequate sharing of information about delivery processes and practices among campuses**

#### **Contributing Factors:**

- 1. Campuses rarely analyze or report information at the end of projects to allow for comparisons (e.g. actual building costs vs. planned)*
- 2. Lack of a benchmark data sharing system*

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## PR4. Inadequate sharing of information about delivery processes and practices among campuses

### CONTRIBUTING FACTOR 1

*Campuses rarely analyze or report information at the end of projects to allow for comparisons (e.g. actual building costs vs. planned)*

- Campuses are unable to analyze the success of past projects (e.g. on-schedule, on-budget, etc.) in order to improve delivery of future projects
- Campuses are reluctant to place project information into a statistical database, since many projects are very complex and require a great deal of background to provide a clear understanding of data

#### Current Mitigating Business Practices: Contributing Factor 1

- **Overall communication between campuses and internal campus functions have improved (3)**
  - A strong informal network of communication with other campuses has been established in order to compare data, past projects, etc.
- **Various meetings are held to share and discuss the successes, failures, and information associated with projects (3)**
  - Post-project meetings and FD&C manager meetings are held to discuss the successes and failures of various aspects of projects (e.g., contracting issues, design issues, each person's perspective)
  - Design-build symposiums are held yearly with contractors to obtain critical contractor input. Success and failure stories are shared as well
  - After completion of each project, actual costs incurred (regarding A&E, contingencies, all categories, etc.) are reviewed and analyzed
- **Project managers maintain updated records containing past and present project budgets and contract agreements for comparison and to help estimate future project costs (2)**
  - Accountability is established among all personnel involved in projects
  - One campus is considering evaluations of project managers based upon keeping business systems up-to-date and establishing review information
  - Capital Improvement Budgets (CIBs) are updated with actual data
- **The OP Project Management Institute is strongly supported and utilized (1)**
- **The IBEX statistical database system has recently been implemented to provide real-time analysis of project scheduling, timeliness, budgets and other information (1)**

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## PR4. Inadequate sharing of information about delivery processes and practices among campuses

### CONTRIBUTING FACTOR 2

*Lack of a benchmark data sharing system*

-OP does not provide a central repository of project statistics that would facilitate a data research / comparison center for campuses

#### Current Mitigating Business Practices: Contributing Factor 2

- **Formal and informal benchmarking meetings are held to share project information (4)**
  - Shared information includes type of documents, document language, prequalification processes, and general project success
  - Some generalized information is shared with outside campuses and other state universities
  - Historical project data (from the past 10 years) is shared among project managers for realistic comparisons
  - When OP is not able to provide information, campus capital directors meet and exchange information (project costs per sq. foot, new calculations, etc.)
  - OP staff have been invited to these meetings to increase the exchange of information
- **OP is currently creating a system-wide database designed to share past project information (3)**
  - OP is working to establish a PPG database
    - +However, this database is not planned to compare actual costs to project completion
  - The OP Budget Office has established a capital project database that includes all state-funded projects and some non-state funded projects.
    - +However, this database would be better maintained and accurate if final CIBs were required to be included
- **OP is striving to serve more effectively as a clearinghouse of basic capital program information for the University (2)**
  - Efforts take time due to OP staff constraints
  - OP is in the process of establishing an information sharing process (relating specifically to building costs)
    - +Process is currently awaiting Regent review
- **A set of benchmarking materials have been developed through the Partnership for Performance Facilities Managers working group (1)**
  - Benchmarks provide campuses with a partial tool for self-assessment and reporting results

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## PR4. Inadequate sharing of information about delivery processes and practices among campuses

### CONSEQUENCES

*Significant consequences which currently exist or may surface in the future due to this risk:*

#### ***Limited access to valuable information***

- **When campuses develop contracts, they are not made available to other campuses (1)**
- **The sending of information without explanation occurs (1)**

#### ***Inadequate project analyses***

- **Staff constraints limit the ability to do a full-blown post project analysis that tracks and categorizes costs (1)**

#### ***Substantial Time Commitment***

- **Campuses take substantial time to research industry information in order to obtain benchmark data (1)**  
-A database to share such information across the university does not exist

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## PR4. Inadequate sharing of information about delivery processes and practices among campuses

### ADDITIONAL CAMPUS ACTIVITIES

*Activities that could improve the management of this risk if implemented:*

- **Create a campus-level database to share past and present project information (1)**
- **Perform robust campus reviews at the end of each project (1)**
  - However, staff constraints limit the ability to do a full blown analysis that tracks and categorizes costs
- **Campus project managers need to utilize all of the modules within the business system to produce a more extensive back-end project evaluation process (1)**

### ADDITIONAL EXTERNAL ACTIVITIES

*Activities that could improve the management of this risk if implemented:*

- **OP needs to develop a university-wide database sharing system (in process) (5)**
  - Database needs to utilize comparable data for maximum campus benefit
  - OP and campuses need to establish guidelines for sharing information (e.g., where will information go, who will look at information)
    - +Some campuses fear sharing too much information with OP, as it may create opportunities for OP to question campuses; database-sharing systems create concerns regarding confidentiality
  - Develop a systematic way to collect and catalog information that already exists
    - +OP currently obtains project milestone information for state-funded projects, but not non-state funded projects
  - A great deal of knowledge is available within the UC system
    - +Data to be shared includes both project data and contractor and consultant performance
    - +The establishment of a database would not be beneficial if data shared is not comparable from campus to campus; some projects will not be comparable by nature
  - The database should include actual costs to complete each project
- **On a selective basis, have the different OP functional units (e.g., Planning, Design and Construction and the Budget Office) work with the campuses to prepare post-project reports (1)**
  - Reports should be written for Chancellors to provide basic information on capital program activities

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## Risk P2. Multiple disconnect and lack of coordination within the University at all levels

### Identified Program Risks

- \*E1. Delays and costs associated with actions of the public and regulatory agencies*
- \*E2. Difficulty recruiting and retaining capable campus personnel*
- \*E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)*
- \*PR1. Inconsistent quality of construction documents produced by architects*
- \*PR2. Standard contract language and business processes lack sufficient flexibility to meet some project needs*
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- \*R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)*
- \*R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)*

### **Risk P2. Multiple disconnects and lack of coordination within the University at all levels**

#### **Contributing Factors:**

- 1. Many disconnects exist within OP functional areas*
- 2. Many disconnects exist within certain campus functional areas*
- 3. Many disconnects exist between certain campus and OP functional areas*

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## P2. Multiple disconnects and lack of coordination within the University at all levels

### CONTRIBUTING FACTOR 1

*Many disconnects exist within OP functional areas*

-The budget-planning and implementation (design and construction) functions of the capital program, at OP, do not communicate, because each functional area has separate roles during the project approval process

#### Current Mitigating Business Practices: Contributing Factor 1

- **Various forms of communication and meeting forums are utilized by campuses with each OP functional area to bring about functional collaboration (5)**
  - Each individual OP area is met with directly when necessary
    - +To force results on difficult issues, each OP functional area is challenged when disconnect issues arise
  - All OP functions are physically brought together many times by campuses to reduce the disconnects
    - +For example, one campus capital projects group invited both OP functional areas to attend value engineering sessions and design review sessions
  - Strong relationships are maintained by the campus with the OP functional areas that support campus project objectives
    - +The OP design and construction office is utilized as a campus advocate in efforts to obtain more money from OP's budget office
- **OP has improved communication between their functional areas (2)**
  - Different functional areas are brought together for formal meetings to examine capital delivery processes
  - Communication across functional areas is encouraged from the top-down
    - +Informal communications is relied upon (e-mail, frequent talking, etc.)
  - OP is able to work across organizational lines as a result of good personal relationships between personnel in different functional areas
    - +A majority of OP personnel have positive personalities
- **Campus-level communication has been improved to compensate for OP disconnects and to help bridge the gap between budget and implementation groups (1)**
  - However, these improvements do not entirely fix OP disconnect issues
- **Campuses are forced to second guess some OP actions / decisions / functions (1)**

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## P2. Multiple disconnects and lack of coordination within the University at all levels

### CONTRIBUTING FACTOR 2

*Many disconnects exist within certain campus functional areas*

-The budget-planning and implementation (design and construction) functions of the capital program, at the campus, do not communicate, because each functional area has separate roles during the project approval process

#### Current Mitigating Business Practices: Contributing Factor 2

- **Cross-functional communication has been established to encourage functional collaboration (7)**
  - Campus service units and areas of responsibility are well defined and communicated
  - Various preventative awareness meetings are held (providing understanding of operating and financial issues, etc.)
  - Weekly staff meetings facilitate good communication among staff and workgroups
  - Bi-monthly project manager meetings discuss current and planned projects
  - Bi-monthly project review meetings address the status of current projects, future projects and long range plans
    - +Various functions attend: facilities, transportation, capital programs, Vice Chancellor, etc.
  - Cross-discipline project work groups provide oversight during complex projects
  - Department heads meet regularly to deal with campus issues
  - Design and construction and budget areas meet on a monthly basis
  - Additional examples: planning coordination meetings, EVC planning meetings, design review teams, Chancellor Environmental Committee meetings, etc.
  - A good working relationship exists between the Budget Planning and Design & Construction functions
  - Campus culture emphasizes team effort
  - Very strong, informal communication has been established
  - Strong working relationships between service units are maintained via e-mail correspondence
- **Project schedules and estimates are clearly documented (2)**
  - Additions to project cost are identified (rather than hidden) and explicitly discussed (i.e., EIR costs)
  - Project information is published for functional area review

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**P2. Multiple disconnects and lack of coordination within the University at all levels**

**Continued - Current Mitigating Business Practices: Contributing Factor 2**

- **The campus hierarchical and reporting structure promotes cross-functional connectivity and collaboration (1)**
  - Budget and implementation groups both function under one organization and one Vice Chancellor

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## P2. Multiple disconnects and lack of coordination within the University at all levels

### CONTRIBUTING FACTOR 3

*Many disconnects exist between certain campus and OP functional areas*

- Budgets are not planned cooperatively with input from both functional areas
- OGC is not consistently responsive to campus needs

#### Current Mitigating Business Practices: Contributing Factor 3

- **OGC develops positive and close relationships with campuses (4)**
  - OGC is very responsive; offers legal advice when needed
  - + Historically, OGC's responsiveness was inadequate
- **Communication between Campuses and OP have improved (3)**
  - Communication during budget development is ongoing
  - Extensive communication minimizes disconnects and ensures OP functional areas are provided accurate information
  - Campus and OP budget groups communicate on some level and try to work together
  - +There is room for improvement
- **Campuses and OP are working together to reduce disconnects (2)**
  - OP provides clearer guidance, more standardization, and has established deadlines for campuses
  - OP participates in the early design investigations held by campus budget offices during complex projects
  - +OP helps manage budgets and make design decisions
- **The capital development group informs chancellors of disconnect problems and requests support (1)**
  - Chancellors have not historically understood the need for their intervention in the capital program delivery process
- **Campus budget development is performed as early as possible to compensate for potential delays associated with disconnect issues (1)**
- **Campus lawyers are retained during project planning to reduce reliance on OGC (1)**
- **OP functional areas that support campus project objectives are utilized in an advocacy role (1)**
  - Supportive departments help campuses work with / combat other departments, etc.

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## P2. Multiple disconnects and lack of coordination within the University at all levels

### CONSEQUENCES

*Significant consequences which currently exist or may surface in the future due to this risk:*

#### ***Inadequate Risk Management***

- **University and campus level issues are hard to manage due to the siloed structure of OP and campus administration (3)**

- UC personnel have difficulty problem-solving in general, as they do not recognize existing functional areas other than their own
- Staff tend to be reactive as opposed to proactive; less time is devoted to strategic planning
- University-wide issues are hard to manage due to siloed functional units within OP

#### ***Additional Campus Responsibility***

- **Campuses must assume responsibility for managing OP disconnects that have impacts at the campus level (3)**

- Campuses take on a referee role in interactions between OP functional areas
  - +Campuses are pulled between the separate goals of the OP budget and implementation functions
  - +Campuses separately contact the OP budget and implementation areas for proper coordination

#### ***Inadequate Information Transfer (and associated costs)***

- **Inadequate or inaccurate information is presented by different functional areas at OP (2)**

- For example: the facilities administration office and budget planning office have given different values on a recent campus inflation rate (5.5% vs. 3%)
- Much effort is expended to correct inconsistencies in data provided by budget and implementation functional areas at OP
  - +Extra time, money, and recharges have been incurred on projects
  - +Inaccurate information has been presented to Regents on occasion

#### ***Inadequate Knowledge of Functional Areas***

- **Some UC personnel lack an understanding of other functional areas (2)**

- Poor understanding is partially due to the historical reporting structure

#### ***Poorly Funded Projects***

- **Projects have been under-funded (1)**

- Inequitable allocations of resources to campuses have occurred due to poor or inconsistent campus and OP communications

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## P2. Multiple disconnects and lack of coordination within the University at all levels

### ADDITIONAL CAMPUS ACTIVITIES

*Activities that could improve the management of this risk if implemented:*

- **Establish educational opportunities to increase understanding of the roles of different functional areas (3)**
  - Create additional opportunities to bring cross-functional staff together
    - +Establish a design studio, an informal venue where concerns of different functional areas can be productively discussed and shared. A studio approach has been established and proven successful at some campuses
    - +Personnel at all levels need cross-training to better understand and recognize others' needs, improve communication, increase resourcefulness, etc. (e.g. architects need additional financial skills)
  
- **Further improve ongoing communication between all levels and functional areas (3)**
  - Personnel need to improve their communication of "political realities" to local stakeholders
  - The decision-making structure within the University is unclear
    - +The communication at various administrative levels can be improved (locally, and with OP)
  - Speak with OP through one voice and contact person
  - Clearly define and share key project and communication strategies
  
- **Establish some consensus with OP regarding required documents and output (1)**
  
- **Campus Chancellors need to clearly establish and share their leadership goals with all functional areas (1)**
  - Chancellor leadership goals are not, at times, known across functional areas; confusion causes problems
  
- **The campus budgeting and implementation functions need to ensure adequate funding and resources are in place at the front-end of projects for necessary preplanning and programming (1)**

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## P2. Multiple disconnects and lack of coordination within the University at all levels

### ADDITIONAL EXTERNAL ACTIVITIES

*Activities that could improve the management of this risk if implemented:*

- **Increase and improve OP guidance and education to campuses (3)**
  - Continue to provide better guidance and expand standardization of guidelines relating to project cost allowances for state-funded projects
    - +Campuses need additional guidance regarding how OP uses its discretion and judgment
  - Ensure all campuses consistently reply to OP requests
    - +OP should advise campuses when they are not responsive to information requests; and should explain what information is required
  - Provide more specific answers to campus questions not answered via routine correspondence
  - Better inform campuses regarding litigation arising from the architect hiring process and provide campuses with guidance on how best to avoid similar litigation
    - +Campuses do not receive information about litigation often or quickly enough
  - Educate campuses on the budgetary constraints they must work within
- **Improve communication between OP administrative levels (2)**
  - The decision-making structure within the University is unclear
  - Establish appropriate and effective feedback loops between the budget and implementation staff of a project, and between OGC and contract groups
    - +OP needs to feed information back down to campus levels
- **Increase the number of OP personnel to better higher volumes of work (2)**
  - Eliminate high turnover rates within the OP planning group
    - +OP turnover rates contribute to disconnects between campuses and OP
- **OGC needs to provide more timely advice (1)**
  - In the past it has taken seven months to receive counsel advice on a project
- **Establish some consensus with campuses regarding required documents and output (1)**

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## **P2. Multiple disconnects and lack of coordination within the University at all levels**

### **Continued - Additional *EXTERNAL* activities**

*Activities that could improve the management of this risk if implemented:*

- **Further clarify the functions and goals of each OP functional area in order to produce better projects and plans (1)**
- **Establish OP forums to discuss major upcoming projects (1)**
  - Provide an opportunity to analyze what needs to be thought through and planned for in advance
  - +OP needs to become more proactive and less reactive in general
- **Establish an OP design studio: an informal venue where concerns of different functional areas can be productively discussed and shared (1)**
  - A studio approach has proven successful at some campuses
- **Find additional informal ways for OP to bring personnel from different functional areas together (other than by scheduled meetings) (1)**
- **Change the OP building and office layout to foster frequent informal cross-functional interaction (1)**
  - The physical layout of the OP office building encourages compartmentalization

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# Risk R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)

## Identified Program Risks

- \*E1. Delays and costs associated with actions of the public and regulatory agencies*
- \*E2. Difficulty recruiting and retaining capable campus personnel*
- \*E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)*
- \*PR1. Inconsistent quality of construction documents produced by architects*
- \*PR2. Standard contract language and business processes lack sufficient flexibility to meet some project needs*
- \*PR3. Failure to provide effective project management and administration throughout the project*
- \*PR4. Inadequate sharing of information about delivery processes and practices among campuses*
- \*P2. Multiple disconnects and lack of coordination within the University at all levels*
- \*R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)*
- \*R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)*

*Risk R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)*

### *Contributing Factors:*

- 1. OP budgets appear to be political documents, rather than realistic projections of costs necessary to meet planned outcomes*
- 2. Budget funding is not always received at the right time during projects*
- 3. A disconnect exists between the budgeting and implementation areas of capital projects*
- 4. Difficulty addressing untimely building system and material approvals and cost allocations*
- 5. Insufficient funds are allocated for non-state funded projects*

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**R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)**

**CONTRIBUTING FACTOR 1**

*OP budgets appear to be political documents, rather than realistic projections of costs necessary to meet planned outcomes*

- Reimbursements for costs are sometimes distributed equally among campuses, even though costs vary by campus
- OP does not consider the effects of inflation when budgeting for future projects
- Some projects are purposefully under-funded, with campuses expected to fund the shortfall, realizing that the campus will be over budget
- Budget estimators do not adequately understand project costs that campuses need to have covered in order to achieve project objectives
- Some financial impacts are left out or not considered during budget planning – e.g. financial impacts of utility systems, bike paths, adjacent plazas, etc.
- OP's project objectives seem mutually incompatible: fast and cheap

**Current Mitigating Business Practices: Contributing Factor 1**

- **Strong campus internal and external communications has been established to manage budget issues (5)**
  - Campuses work aggressively with the OP budget office to secure adequate budgets and realistic escalation factors
  - Opportunities for budgetary solutions are discussed soon after issues are identified
    - +Information has been provided to OP by campuses to help quantify some of the problems with the current capital budgeting process (state escalations, actual inflation values, etc.)
  - Knowledgeable campus personnel help communicate project complexities to OP
  - The OP budget office interacts continuously with project managers to communicate the budgetary environment within which UC must work

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**R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)**

**Continued - Current Mitigating Business Practices: Contributing Factor 1**

- **Projects and allocated funding are better managed at the campus level to achieve maximum results per dollar (7)**
  - Information in the DPP is utilized to justify building costs
  - Agreements with OP are documented at the earliest possible phase of the project to ensure that criteria are understood, acceptable, and followed by everyone
  - Some building features are incrementally integrated into projects to ensure available funding *before* implementation begins
    - +However, this method is an inefficient way of managing this contributing factor
  - Local needs are prioritized and modified to meet the availability of state funds
    - +Project options and decisions are cost-driven
  - Detailed budget estimates are established to ensure appropriate funding support is defined
    - +In-house engineers review budget estimates
    - +Project implementation begins with an analysis of cultural / environmental constraints on the site to minimize later conflicts and costs
    - +Planning & Implementation units have developed a matrix to minimize estimation oversights
  - Bidding opportunities are researched to take advantage of the most current economically viable alternatives
    - +The design / construction group understands the current system, and works to research favorable bids
- **Adjustments are made by campuses to project budgets to make them more realistic if necessary (2)**
  - Working budgets are adjusted to correspond to state-funded project budgeting parameters
  - At times OP advice is ignored and more realistic project budgets are established
  - Campuses will do what is necessary to successfully complete projects
- **Campus funds are contributed to help complete projects (2)**
  - Faculty and administration are credited for their efforts and support
  - Recently created pre-study funds are paid by money outside of the established project funds
- **Building cost benchmarks from other private and public organizations are used by UC to help establish realistic budgets (1)**

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**R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)**

**CONTRIBUTING FACTOR 2**

*Budget funding is not always received at the right time during projects*

- Budget cycles do not correspond with the actual cash flow movement of project implementation (state funding is provided in random spurts)
- Campuses need an architect on board sooner in the project process to develop appropriate cost and program structures

**Current Mitigating Business Practices: Contributing Factor 2**

- **Project management activities focus on identifying problems up-front to mitigate budgetary impacts and prevent problems from occurring (5)**
  - The poor timing of fund allocations is planned for as much as possible
  - Many times campuses must wait for PWC (preliminary plans, working drawings, and construction) funds before moving projects forward
  - Campuses are more and more frequently bundling PWC phases for state-funded projects to provide a more continuous flow in the project delivery process
  - Site investigations are performed during planning of state-funded projects to establish cost plans and justify why certain costs are what they are
    - +Project expectations are aligned with available funding
  - Architect selection activities are conducted prior to the programming process to ensure accurate cost estimates are established
- **Campus funds are contributed to help complete projects (3)**
  - A proactive 'head-start' planning approach is utilized to help receive funding at appropriate times
    - +Specific funding is allocated for planning
  - Campus resources are utilized to fund projects with the idea that it *will be reimbursed*
- **"Creative alternatives" are utilized to solve various budgetary issues (2)**
  - Example: Latitude is maintained by campuses regarding how and when to use non-state dollars

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**R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)**

**Continued - Current Mitigating Business Practices: Contributing Factor 2**

- **OP is looking towards streamlined project delivery to help mitigate budgetary issues (2)**  
-OP is currently 'streamlining' some state funding allocations
- **Project schedules are adjusted to the availability of funding (1)**
- **OP and campuses have, at times, collaborated to provide early funding for some planning activities (1)**  
-Project funds are advanced at times to eliminate the waiting of state funds, etc.

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**R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)**

**CONTRIBUTING FACTOR 3**

*A disconnect exists between the budgeting and implementation areas of capital projects*

- Budgets are cut due to costs analyses that don't consider the impact of these cuts on the programmatic objectives of the building
- Deferred maintenance costs are not always incorporated into capital budgets

**Current Mitigating Business Practices – Contributing Factor 3**

- **Good internal communication and relationships have been established at the campus level (3)**
  - Strong lines of communication between budgeting and implementation groups help staff understand issues prior to budget cuts
    - +A&E communicates frequently with capital planning
    - +The Design and Construction group is very receptive to campus needs, and helps in achieving appropriate project savings
- **Project planning is conducted at various campus levels, and budgets are closely aligned with planning throughout the process (2)**
  - Planning is conducted at various campus levels - client department, capital planning, overall campus, etc.
  - Many campus staff are involved in project review activities early-on to minimize deferred maintenance costs
  - Effective planning achieves agreement with project priorities by campus constituents (Neighborhood Planning and long-range development plans, etc.)
- **Value engineering is performed at each stage of project design development to ensure that program requirements are not compromised in the effort to balance cost and budget (2)**
- **Good internal communication and relationships have been established within OP (1)**
  - OP functional areas are being brought together for a series of meetings to examine capital delivery processes
  - OP is able to work across organizational lines as a result of good personal relationships between personnel in different functional areas and communication across functional areas encouraged from the top-down
    - +A majority of OP personnel have positive / supportive personalities
    - +Informal communication exists within OP (e-mail, frequent talking, etc.)

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**R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)**

**Continued - Current Mitigating Business Practices: Contributing Factor 3**

- **Various tools are available to help monitor and track project schedules and costs (1)**
  - Each campus functional area utilizes tools to track cost and time savings and identify necessary additional costs
  - +Example tools: Tracking reports, PPG notifications, deferred maintenance lists
- **During complex projects, early design investigations have been held with campus budget offices. On these occasions, OP oftentimes participates to help develop budgets and make design decisions (1)**

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**R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)**

**CONTRIBUTING FACTOR 4**

*Difficulty addressing untimely building system and material approvals and cost allocations*

- Campuses are not prepared for costs issues that arise later in the project delivery process
- Many detailed building system and material cost allocations are performed too late in the project delivery process

**Current Mitigating Business Practices: Contributing Factor 4**

- **Cost estimation is performed early and at numerous times during the project development process (6)**
  - Extensive planning for individual projects a is performed
    - +Site planning is performed well in advance
      - Utility connections and central plant capacities are available when projects become part of the capital improvements program
      - "Neighborhood Planning" is part of the long range development activity
  - Budget estimators understand project cost constraints, and reasonable priorities are effectively set
  - Site investigations are performed during the planning of state-funded projects to establish cost estimates and justify certain expenditures
    - +Project expectations are aligned with available funding
  - Project managers prepare and refine draw-down schedules
  - Building system and material cost allocations are performed early during project planning
- **Input from utility building management groups is incorporated earlier in project processes to minimize difficulties before they occur (3)**
- **Funding strategies and sources of supplemental funds are researched by campuses (1)**
- **External support is utilized to minimize budget miscalculations (1)**
  - Consultants are involved in project design phases
  - External construction firms are hired to provide construction estimates
- **Value engineering is performed twice during project development (1)**
- **Campus budgeting and implementation groups maintain good communication so that issues are understood (1)**

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**R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)**

**CONTRIBUTING FACTOR 5**

*Insufficient funds are allocated for non-state funded projects*

**Current Mitigating Business Practices – Contributing Factor 5**

- **Alternative funding sources are identified and additional project funding is obtained as needed (1)**
- **Budgets are developed for non-state projects are budgeted using the same method used for state projects - from the point of view of the DPP (1)**
  - The same stringent budget allocation process required for state projects is utilized with non-state funded projects
- **Clear expectations are established during state and non-state projects (1)**
  - State project expectations are not imposed on non-state projects
- **The A&E and budget groups develop many projects together to help establish realistic funding levels (1)**

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## R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)

### CONSEQUENCES

*Significant consequences which currently exist or may surface in the future due to this risk:*

#### **Campus-absorbed Costs**

- **Funding does not consider inflation costs over time; campuses are forced to absorb costs (3)**
  - Budget estimates are sometimes outdated
  - Budgeting of future projects does not sufficiently consider the impact of inflation
  - The rigidity of state budget cycles creates costly inflation issues
  - Non-state funds do not fully compensate for the rise of construction costs
- **Budget cycles are often arbitrary and do not realistically support projects of all sizes (1)**
- **Project funding often arrives late, after changes in project scope occur (i.e., code changes, staff, visions, deans, etc.); the associated costs can be very high (1)**

#### **Political Maneuvering**

- **Campuses must employ political maneuvering in establishing what is to be included in state-funded project budgets (2)**
  - Chancellors are forced to make up for funding shortfalls caused by the inability of OP to effectively resolve budgetary issues with DOF

#### **Project Discontinuity and Delay**

- **The decline in the number of Regents' meetings creates significant project delays (1)**
- **Campuses would prefer to work with the same design team throughout a project, but are forced to wait between budget cycles (1)**

#### **Deferred Maintenance Issues**

- **Projects funded with state-funds tend to exclude sufficient funds for life-cycle costing, resulting in premature deferred maintenance issues, creating additional expenses down the road (2)**
  - Funding for deferred maintenance is insufficient due to budget constraints; funding for life-cycle costs is inadequate

#### **Poor Project Estimations**

- **The objectives of budget estimators are inconsistent and unclearly defined, causing confusion and budgeting issues (1)**

#### **Repeated Staff Training**

- **Stop-and-go budget allocations result in the periodic need to retrain staff, including project managers (1)**

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**R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)**

**ADDITIONAL CAMPUS ACTIVITIES**

*Activities that could improve the management of this risk if implemented:*

- **Improve communication between OP and campus functional areas (2)**
  - Campus A&E and budgeting groups need to minimize disconnects
  - Communication between OP and campus budget groups is poor
  - Additional lengthy discussions need to be held between implementation and budget personnel regarding costs, financing those costs, and maintaining adequate project reserves
- **Further scale back or better manage projects to improve the likelihood of staying within budgets (2)**
  - Ensure campus functional groups are utilizing available project management tools that identify cost and time savings and additional needed costs
    - +Campuses do not always utilize available tools (i.e., tracking reports, PPGs notifications, deferred maintenance lists, etc.)
- **Continue searching for additional funding sources (2)**
  - Focus on setting priorities within campus capital budgets
- **Bolster budget planning activities prior to project implementation (2)**
  - Plan realistic projects
    - +Choose the best funding options, given a realistic assessment of available support
      - Some cash flow problems are due to incorrect campus budgeting
      - Some project expectations are currently greater than what can be realistically delivered
    - +Establish the appropriate level of resources early-on in project development
  - Establish funding models and guidelines (note: resources are necessary)
- **Contingencies should be considered as individual line items on the budget and tracked at the campus level (1)**
- **The local budget office needs to develop and distribute project budgets earlier in project development (1)**
  - Many projects have tight timelines; at times there are only 2-3 months designated for project design and bid
  - At times, the budget office knows project budgets months prior to project implementation
- **Do field investigations to identify deficiencies regarding deferred maintenance prior to renovation work (1)**
  - Deferred maintenance is not addressed until after the demolition work is completed

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**R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)**

**ADDITIONAL EXTERNAL ACTIVITIES**

*Activities that could improve the management of this risk if implemented:*

- **Improve communications and relations between OP and campus functional areas (4)**
  - Hold additional discussions between implementation and budget personnel regarding costs, financing those costs, and maintaining adequate reserves
  - Improve OP coordination with campuses, particularly after problems are identified
  - OP staff could make an effort to physically visit campuses, rather than vice versa
  - OP priorities need to be consistent and better communicated to campuses
    - +OP needs consistent priorities regarding the types of projects to develop (infrastructure vs. space)
    - +OP needs to understand the project priorities of campuses
- **Provide campuses the opportunity for final review and sign-off on total budget and scope at the end of the planning phase of complicated projects (4)**
  - Allow campuses to determine local priorities within approved budgets
    - +If campuses are held responsible for the bottom line of budgets, OP latitude should be given
- **Establish a continuous-flowing funding process to eliminate unnecessary starts and stops during a project's life (3)**
  - Establish adequate and timely budgeting cycles
- **Consider special conditions at different campus locations when developing project budget allocations (3)**
  - Do not finalize budgets until schematic designs are completed
  - Allow higher overhead for buildings and renovations involving complex systems or those built next to existing buildings
  - Do not benchmark costs to a general university average
    - +Such numbers are unrealistic for many campus projects
- **Give campus locations additional time to respond to budgetary changes (1)**

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**R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)**

**Continued - Additional *EXTERNAL* activities**

*Activities that could improve the management of this risk if implemented:*

- **Allow campuses to keep funds which accrue from project savings (1)**
  - Campuses should be able to utilize project savings for future projects
  - This is currently allowed only on streamlined projects
- **Establish adequate OP budget contingencies throughout the project cycle (1)**
  - Contingencies should be considered individual line items on the budget and tracked at OP
- **Establish an OP spokesman to take budgetary issues to the legislature (1)**
- **OP, the State, and the Legislature need to work together to examine best practices in other jurisdictions for funding models (1)**

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## **Risk R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern / complex building requirements)**

### Identified Program Risks

- \*E1. Delays and costs associated with actions of the public and regulatory agencies*
- \*E2. Difficulty recruiting and retaining capable campus personnel*
- \*E3. Difficulty in consistently securing quality contractors (includes low bid procurement process)*
- \*PR1. Inconsistent quality of construction documents produced by architects*
- \*PR2. Standard contract language and business processes lack sufficient flexibility to meet some project needs*
- \*PR3. Failure to provide effective project management and administration throughout the project*
- \*PR4. Inadequate sharing of information about delivery processes and practices among campuses*
- \*P2. Multiple disconnects and lack of coordination within the University at all levels*
- \*R1. Outdated, ineffective, and disconnected budgeting process (resulting in inefficient budget and/or cash flow timing problems)*
- \*R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)*

### **Risk R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)**

#### **Contributing Factors:**

- 1. Soft costs needed to realistically support a project often surpass 18% by substantial amounts*
- 2. Documented OP funding guidelines are too standardized and do not realistically apply to the variety of projects that exist*
- 3. Inability to receive sufficient overhead funds for construction phase activities*
- 4. Insufficient funding available to perform adequate project review*
- 5. The definitions of established relief categories (i.e., special costs, etc.) are changed arbitrarily to preclude certain costs*

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**R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)**

**CONTRIBUTING FACTOR 1**

*Soft costs needed to realistically support a project often surpass 18% by substantial amounts*

*-Not all campuses receive relief allocations (19900 monies)*

**Current Mitigating Business Practices: Contributing Factor 1**

- **“Creative alternatives” have been devised by campuses to manage allocated money (5)**
  - Work-arounds are performed in order to build projects within budget
  - Funding categories are inflated to absorb soft costs and balance project costs
  - Discretionary funds are utilized for pre-planning to compensate for unrealistic overhead limit
  - As much of the excess overhead budget is moved into the construction budget as possible
    - +However, campuses are limited by various established budget categories
  - Money is taken from construction budgets and diverted into soft costs when necessary
  - Resources within larger capital programs are pulled together to mitigate the risk of running over 18%
  - Campuses budget various review expenditures in line eight of the budget
- **One campus provides core 19900 funds to cover functions that would continue to exist even if new projects were to cease (currently approximately \$160,000 per year) (1)**
- **A Design-build project requires additional in-house staff work and project reviews (1)**
- **In-house estimators compare the difference in building systems between the current and other realistic models (1)**
- **Established design standards and peer reviews reduce commissioning costs (1)**

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**R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)**

**CONTRIBUTING FACTOR 2**

*Documented OP funding guidelines are too standardized and do not realistically apply to the variety of projects that exist*  
-For example, architect and design costs vary tremendously by project and campus

**Current Mitigating Business Practices – Contributing Factor 2**

- **“Creative alternatives” have been devised by campuses to manage allocated money (5)**
- **Requests regarding variances and exceptions to UC’s policies are made to OP as needed (2)**
  - Cases can be made for variations from the “standard” fee structure, in order to receive necessary funding
  - Campus architects also request exceptions to design fee guidelines as needed
- **Basic services of architects are defined as ‘very basic’, and additional services and special items are added (1)**
- **Sliding scales are currently in place on some projects, depending on project complexity (1)**
- **In-house estimators compare the differences in building system costs on different projects (1)**
  - Projects completed over the planned budget are analyzed to see how problems could have been minimized

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**R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)**

**CONTRIBUTING FACTOR 3**

*Inability to receive sufficient overhead funds for construction phase activities*

-By the time projects reach the construction phase, overhead funds are largely exhausted

-80% of fee allocations are gone by this time, even though the construction phase deserves the majority of allocated overhead funds

-Budgets do not adequately allow for contingency needs

**Current Mitigating Business Practices: Contributing Factor 3**

- **“Creative alternatives” have been devised by campuses to manage allocated money (6)**
  - Budgets are ‘presented’ at project completion to ‘show’ that they met the required 18-20% rule
  - +Unfortunately this approach creates a relationship of mistrust
- **Project managers and contractors are held to high expectations to ensure good budgeting and project management (2)**
  - Managers must be good planners, financial wizards, architects, good in the field, etc.
  - Project managers are required to utilize a more sophisticated process of budgeting fees (e.g. spreadsheet and projection process)
  - Contractors are requested to provide a detailed breakdown of costs by category
    - +Re-budgeting and/or line item exclusions are used to stay within the budget ceiling
- **Projects are carefully budgeted and spending is closely monitored to help mitigate funding problems (1)**
- **Pre-construction budget development on one campus eliminates budget shortfall problems (1)**
- **Monthly forecasting meetings are held to understand the campus’ financial position (1)**
- **OP has confronted the State over particular project funding issues when necessary (1)**

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**R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)**

**CONTRIBUTING FACTOR 4**

*Insufficient funding available to perform adequate project review*

-By the time projects have reached the post-occupancy review, all of the allocated 18% soft costs have been used

**Current Mitigating Business Practices: Contributing Factor 4**

- **“Creative alternatives” are employed by campuses to manage allocated money (5)**
  - Funding is shifted to cover the warranty phase
  - Regarding state funded projects: If a change in scope is due to the user group, the user group has to pay for it. Otherwise, the change is taken to the Vice Chancellor for acceptance
- **Two Vice Chancellors have allocated funds for some post-occupancy reviews (2)**
- **Clients are involved in the planning and design phases in an effort to address potential post-occupancy issues in advance (1)**
- **The use of contingency funds is monitored (1)**
  - Results in varying degrees of success

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**R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)**

**CONTRIBUTING FACTOR 5**

*The definitions of established relief categories (i.e., special costs, etc.) are changed arbitrarily to preclude certain costs*

**Current Mitigating Business Practices: Contributing Factor 5**

- **Other 'relief' categories are utilized to provide a cushion to address budget shortfalls (2)**
- **Requests for re-budgeting or line-item exclusions are submitted as needed (1)**
- **One campus closely works with OP on each state-funded project (1)**
- **Standards regarding building costs have been developed for more realistic budget planning (1)**

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### R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)

#### CONSEQUENCES

*Significant consequences which currently exist or may surface in the future due to this risk:*

##### ***Inconsistent Budgeting Guidelines***

- **OP limits what can be placed into ‘specialty items’, and changes guidelines each year (2)**
  - OP drops many allocations from ‘Line 8’ for political reasons (as they relate to overall costs of project per sq. ft.)
- **Inconsistencies exist between the accounting manual and budget guidelines regarding what may be charged to line sub-8 (1)**

##### ***Campus-absorbed Costs***

- **Project costs run over budget, primarily because of the unrealistic 18% overhead limit (2)**
  - The limit is a particular problem for complex buildings and projects
  - Earthquake retrofits and other renovations require larger contingencies and 25% overhead may be more appropriate
- **When funding is inadequate, campuses are forced to pay for the additional costs with other funds (1)**
  - Campuses and their chancellors may be forced to support additive costs

##### ***Re-charge Dependencies***

- **19900 funds and extra funds are not available on some campuses (3)**
  - Design and Construction Services does not receive any 19900 funds; the group is a 100% re-charge operation
  - 19900 monies are not received to support the project management function; everything is fully re-charge supported

##### ***Lack of Adequate Manpower / Project Support***

- **The current budget does not adequately support projects (2)**
  - Project oversight and manpower is inadequate
  - Given the 18% limit, campuses are forced to hire inexperienced, poor outside consultants and personnel
  - Many campuses pay architects insufficient fees to keep project budgets under the 18% allocation limit
    - +As a result, the quality of architectural services suffers (documentation, personnel, etc.)

##### ***Inaccurate Data***

- **The 18% limit causes campuses to massage their reporting, resulting in inaccurate data throughout the entire University system (1)**

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**R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)**

**ADDITIONAL CAMPUS ACTIVITIES**

*Activities that could improve the management of this risk if implemented:*

- **Formally develop campus arguments to OP to support the need for additional project costs (2)**
- **Benchmark construction contingencies (errors, owner changes, etc.) at both campus and system-wide levels (1)**
  - Some campuses budget 5-7% for contingencies, other campuses budget higher amounts
  - Many times contingency funds are taken to cover consultant fees, etc.
- **Include necessary inspection activities within budget allocation requests (1)**
  - Many times architects consume 80% of funding, then assign junior architects to finish projects
- **Establish a more disciplined approach regarding soft cost allocations (1)**
  - Core-fund some project activities
  - +Operations and maintenance support for individual projects needs to be core funded. This will reduce the demand of soft cost funds
- **Improved UC processes are needed to accurately determine if the 18% rule is not adequate (1)**

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### R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)

#### **ADDITIONAL EXTERNAL ACTIVITIES**

*Activities that could improve the management of this risk if implemented:*

- **Address the unrealistic 18% overhead limit (5)**
  - Either allow soft cost budgets higher than 18%, or stop cutting campus access to special item funding options
  - Increase soft cost allocations to support the rise of project complexities
- **Establish sliding scales in the budget process based on construction costs and complexities (3)**
- **OP and the state need to consider realistic campus costs, and differentiate between the different needs of campus locations (3)**
  - Allow campuses to reflect accurate costs in their budgets
    - +Campuses experience costs unique to their environment (parking, community costs, etc.)
  - Provide sympathy regarding campus-specific issues and cost ramifications
    - +Campuses have been threatened that they will receive funds similar to other campuses
- **Establish an accurate system-wide benchmarking tool to share realistic campus costs (2)**
  - Sharing realistic costs will help bring the budgetary issue to the table
  - Construction contingencies (errors, owner changes, etc.) need to be benchmarked
    - +Some campuses budget 5-7% for contingencies, other campuses budget higher amounts
    - +Many times, contingency funds are taken to cover consultant fees, etc.
- **Create additional flexibility regarding 'Line 8' (2)**
  - Many activities are dropped from this allocation by OP for political reasons
- **Create a system where campuses are able to terminate poorly planned budgets during project development and start over, rather than battle funding issues throughout a project (1)**
  - It is uncertain such a system could be created
- **Change combined funding restrictions (1)**
  - Restrictions associated with state funding are currently applied to funding of all projects, regardless of fund source

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**R3. Difficulty managing projects under current overhead limits (limits that do not reflect modern/complex building requirements)**

**Continued - Additional *EXTERNAL* activities**

*Activities that could improve the management of this risk if implemented:*

- **Establish 'emergency funds' to manage occasional issues that arise (1)**  
-Emergency funds currently exist for environmental issues
- **Establish a formal policy that 'staff time' should not be solely covered by recharging to project budgets (1)**
- **The current bid climate requires extraordinary OP response (1)**
- **Update OP guidelines to reflect any benchmarking studies that have been completed by campuses (1)**

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## ***PARTIAL LIST OF ACRONYMS***

**A&E:** Architects and Engineers

**AIA:** American Institute of Architects

**CADD:** Computer Aided Drafting and Design

**CEQA:** California Environmental Quality Act

**CIB:** Capital Improvement Budget

**CMGC:** Construction Manager General Contractor

**ConDoc:** Construction Documents

**CPC:** Capital Planning Committee

**DFG:** Department of Fish and Game

**DOF:** Department of Finance

**DPP:** Detailed Project Plan

**DSA:** Department of State Architect

**E&O:** Errors and Omissions

**EH&S:** Environmental Health and Safety

**EIR:** Environmental Impact Report

**FD&C:** Facilities Design and Construction

**FEMA:** Federal Emergency Management Agency

**IBEX:** Information Business Exchange

**LRDP:** Long Range Development Plan

**NIH:** National Institute of Health

**OGC:** Office of General Counsel

**OSHPD:** Office of Statewide Health Planning and Development

**PM:** Project Manager

**PMI:** Project Management Institute

**PRISM:** Project Information Management System

**PPG:** Project Planning Guide

**PSA:** Professional Services Agreement

**PWC:** Preliminary plans, Working drawings and Construction

**SHPO:** State Historic Planning Office