



# AUDIT AND ADVISORY SERVICES

## Emergency Management/Preparedness Audit Project No. 12-586

September 25, 2012

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September 25, 2012

Ron Coley  
Associate Vice Chancellor  
Business and Administrative Services

Associate Vice Chancellor Coley:

We have completed our audit of emergency management/preparedness per our annual audit plan in accordance with the Institute of Internal Auditors' *Standards for the Professional Practice of Internal Auditing* and the University of California Internal Audit Charter.

Attached is our audit report including observations and management action plans. Thank you to the Office of Emergency Preparedness, the Office of Continuity Planning and other departmental staff for their cooperative efforts throughout our audit process.

Please destroy all copies of draft reports and related documents. Also, please do not hesitate to call on Audit and Advisory Services if we can be of further assistance in this or other matters.

Respectfully reported,

Wanda Lynn Riley  
Chief Audit Executive

cc: Vice Chancellor John Wilton  
Director Mark Freiberg  
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Senior Vice-President Sheryl Vacca  
Associate Chancellor Linda Morris Williams  
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**University of California, Berkeley**  
**Audit and Advisory Services**  
**Emergency Management/Preparedness**

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# OVERVIEW

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## Executive Summary

The purpose of the audit was to assess campus emergency preparedness/management programs and plans to assure that they are comprehensive, collaborative, and have the flexibility to effectively manage a crisis on campus ensuring that life can be protected and critical business processes and computer systems can be efficiently recovered during and after a disaster or emergency incident.

For detailed testing, we focused on elements from the National Fire Protection Association (NFPA) Standard 1600, “Standard on Disaster/Emergency Management and Business Continuity Programs”, specifically program management, planning, implementation, testing and exercises, and program improvement. We interviewed management of the Office of Emergency Preparedness (OEP) and the Office of Continuity Planning (OCP) to determine progress towards accomplishing the objectives for the selected NFPA standards and the extent to which plans and processes have been formally implemented. Additionally, interviews were held with selected Department Operations Center (DOC) management for purposes of gaining an understanding of the assessment and completeness of their current DOC plan.

Based on our examination of the campus’ current plans and interviews with OEP, OCP, and selected DOC management, we observed that the campus has developed an emergency management and continuity program that is generally consistent with NFPA Standard 1600. However, we identified seven observations related to the NFPA standards:

- **Business Impact Analysis:** The campus has not conducted an entity-level business impact analysis for key enterprise level functions, processes, and applications in over ten years.
- **Continuity Planning:** OCP does not have the authority or influence to assure that units complete action items on their continuity plans, which often depend on the availability of additional resources. In addition, there is no entity-level continuity plan. In the absence of an entity-level continuity plan, it is unclear how the risk of ensuring the recovery and restoration of infrastructure has been accounted for in campus continuity planning.
- **Program Testing and Exercises:** For the most recent campus exercise, Resilience 2011, OEP documented areas for improvement for individual DOCs and the Chancellor’s Emergency Policy Group but they were not consistently communicated to the responsible unit. As a result, corrective actions and program improvements have not been pursued. In addition, certain key DOCs declined participation in Resilience 2011 and make-up testing sessions were not conducted.

- **Mutual Aid and Assistance Agreements:** We were informed by OEP and selected DOCs that they believed that no such agreements have been executed. As a result, we are unable to determine whether there is a potential gap in resources and facilities that could be pledged by third-parties in the event of an emergency or, alternatively, if unrealistic commitments of campus resources have been pledged to another party. In addition, we were not able to identify processes and controls in place to ensure that OEP is aware of and potentially coordinates all such agreements once executed.
- **Emergency Operations Centers:** Neither Barrows Hall nor the Tang Center, the locations for the primary and secondary Emergency Operations Center (EOC) for the campus, are fully equipped and set-up as ready on a 24 hours per day, 7 days a week basis. In the potential event that neither Barrows Hall nor the Tang Center are immediately available in a catastrophic emergency, management may wish to consider planning for the use of temporary EOCs in remote locations, in mobile or temporary facilities (i.e., tents or portable trailers), or even virtual EOCs (assuming telecommunication service is available).
- **Program Committee – Roles and Responsibilities:** There is currently no cross-functional mechanism whereby senior management drives accountability both for OEP and OCP as well as to coordinate efforts of key stakeholders with responsibilities for ensuring preparing the campus for an emergency and a structured path to resuming normal business activity.
- **Hazard Risk Assessment:** The 2007 campus Multihazard Mitigation Plan states that it should be updated after five years but there are not currently efforts underway to update the plan. Sufficient time has passed to revisit and validate the 2007 findings for all potential hazards as well as to update documentation of any recurring or new programmatic gaps.

We have discussed these observations with management of the OEP, OCP, and relevant DOCs. We have obtained management action plans that we believe, if implemented, will address the observations we noted going forward.

## **Audit Objective**

The purpose of the audit was to assess campus emergency preparedness/management programs and plans to assure that they are comprehensive, collaborative, and have the flexibility to effectively manage a crisis on campus ensuring that life can be protected and critical business processes and computer systems can be efficiently recovered during and after a disaster or emergency incident.

## **Audit Scope**

Based on our risk assessment, the scope of the audit included an examination of documentation related to the current campus emergency preparedness/management program, including relevant campus policies, the campus Emergency Operations Center (EOC) plan, Department Operations Center (DOC) plans, annual training exercises, and interviews with management of the Office of Emergency Preparedness (OEP) and the Office of Continuity Planning (OCP).

We also considered external standards for emergency management programs, in particular the 2010 edition of the National Fire Protection Association (NFPA) Standard 1600, "Standard on Disaster/Emergency Management and Business Continuity Programs". We note that UCOP Risk Services utilizes elements of NFPA Standard 1600 to evaluate general conformance of emergency management plans across the UC campuses. Summaries of compliance with NFPA for each campus, by NFPA 1600 element, are documented in its *Systemwide Emergency Management Status Report*.

Our scope did not include extensive review and analysis of continuity plans created through the UC Ready tool by individual departments. Rather, our scope focused on units with key central roles in the campus Emergency Operations Plan (EOP), which includes OEP, OCP, and those units with responsibilities for DOC plans under the EOP.

## **Audit Methodology**

We reviewed the campus EOP and the accompanying Emergency Plan Implementation Procedure (EPIP) and DOC plans. We also conducted interviews with management of the OEP, OCP, and selected DOCs, such as University Health Services (UHS), Public Affairs, Physical Plant-Campus Services (PP-CS), Residential Student Service Programs (RSSP), and Information Services and Technology, in order to assess current roles, responsibilities and general awareness about the EOP, EPIP and DOC plans.

For detailed testing, we focused on selected NFPA standards related to program management, planning, implementation, testing and exercises, and program improvement. We interviewed staff in the OEP and OCP to determine progress towards accomplishing the objectives for the selected NFPA standards and the extent to which plans and processes have been formally implemented. Additionally, interviews were held with selected DOC management for purposes of gaining an understanding of the assessment and completeness of their current DOC plan.

## Background

The campus has two units that have principle responsibility for coordinating emergency management and business continuity efforts: the OEP and the OCP. Both of these offices report through Associate Vice Chancellor Ron Coley to Vice Chancellor John Wilton. We note that there were changes in administrative reporting for both offices beginning July 1, 2012 (see discussion under "Subsequent Events" below).

### *Office of Emergency Preparedness*

The OEP supports the campus "by implementing programs in emergency planning to build, sustain, and improve the capacity of the University to mitigate against, prepare for, respond to, and recover from emergency disasters."<sup>1</sup>

### *Office of Continuity Planning*

The Office of Continuity Planning assists the campus faculty, staff, and leadership to prepare for events that would threaten the continuity of the campus mission. The campus goal is to become sufficiently "event-ready" that the campus can continue its teaching, research and service mission with minimal interruption. To reach that goal, the OCP assists departments throughout the campus to create "continuity plans" that identify both strategies for coping with events when they occur and preparations that can be done in advance.<sup>2</sup>

The campus utilizes the continuity planning web-based tool, UC Ready. This tool was developed to assist academic departments, research units, public service units, and support units in preparing them to be disaster-ready.

*The Fifth Annual Report on Continuity Planning* (April 2012) cites that 75% of the campus (approximately 306 units) are engaged in some stage of continuity planning for their individual unit. 148 units have complete and current plans that have been reviewed within the last twelve months. Another 72 have completed plans but have not reviewed them within the last twelve months. Lastly, 86 have started plans but have not completed them.

## **Relevant Policies and Guidelines**

In addition to considering information provided by the OEP and OCP, we also obtained and reviewed the following additional relevant policies and guidelines:

*National Fire Protection Association (NFPA), Standard 1600, Standard on Disaster/Emergency Management and Business Continuity Programs (2010)*

The purpose of the NFPA Standard 1600 is to provide fundamental criteria for developing, implementing, assessing, and maintaining emergency management and business continuity

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<sup>1</sup> From OEP website ([http://oep.berkeley.edu/about\\_us/index.html](http://oep.berkeley.edu/about_us/index.html))

<sup>2</sup> From OCP website (<http://ocp.berkeley.edu>)

programs for prevention, mitigation, preparedness, response, continuity, and recovery. The NFPA standards apply to public, not-for profit, non-governmental organizations (NGO), and private entities on a local, regional, national, international, and global basis.

This collaboratively developed standard has been universally endorsed by the American National Standards Institute (ANSI), the 9-11 Commission, US Congress, and the Federal Department of Homeland Security. The standard represents a “total program approach” to the challenge of integrating disaster and emergency management with business continuity planning.

We note that UCOP Risk Services utilizes elements of NFPA Standard 1600 to evaluate general conformance of emergency management plans across the UC campuses. Summaries of compliance with NFPA for each campus, by NFPA 1600 element, are documented in its *Systemwide Emergency Management Status Report*.

*Berkeley Campus Crisis Communications Plan (2010)*

This crisis communication plan provides policies and procedures for the coordination of communication within the University, and between the University, the media and the public, in the event of an emergency or controversial issue. The goal of this crisis communication plan is to establish guidelines for addressing a range of situations, and to ensure that campus officials and communicators are familiar with those procedures and with their roles in the event of a crisis. The plan may be used in conjunction with the normal decision-making hierarchy of the University or during a state of campus emergency, when the campus EOP is activated.

*Berkeley Campus Emergency Operations Plan, Version 5.1 (2009)*

The purpose of the campus EOP is to establish policies, procedures, and an organizational structure for response to a major emergency. The EOP incorporates operating concepts from the Incident Command System (ICS) for handling emergencies resulting from fires, floods, storms, earthquakes, hazardous materials incidents, and other potential disasters. In addition, the *Emergency Plan Implementation Procedure (EPIP)*, “Activation and Operation of the University of California, Berkeley Emergency Operations Center” provides detailed information for members of the Emergency Response Organization to utilize during these emergencies.

*Berkeley Campus Multihazard Mitigation Plan (2007)*

The campus Multihazard Mitigation Plan provides for increasing the ability of the campus to withstand future disasters without harm to people, excessive losses to property, or interruptions to the University’s mission. The plan identifies actions that will contribute to the prevention of life loss and injury from structural, nonstructural, or utility failures in natural or human-caused disasters. It provides information about the campus population and physical conditions (land, building and infrastructure) and campus growth plans with respect to enrollment and demands on the campus buildings and infrastructure. A campus risk assessment is presented for identified hazards, including earthquake, wildland fire, flood and winter storm and human-caused disasters. The plan describes the campus’ mitigation strategies, funding scenarios, business resumption



planning initiatives, education and training needs and programs, and a strategy for assuring that the campus maintains a commitment to implementing and supporting the plan.

*University of California Policy on Safeguards, Security and Emergency Management (2006)*

This systemwide policy states that each campus and the Office of the President will maintain a comprehensive and effective program encompassing risk assessment, risk mitigation, emergency preparedness and response, and business recovery to strengthen crisis and consequence management capabilities across the University system. The scope and composition of such programs will be based on an assessment of the most probable risks, hazards, and losses that may occur at a particular location. Each Chancellor will designate one or more responsible officials with full authority to implement campus-wide safeguards and security and emergency management programs. Campuses will coordinate with local public safety agencies and will establish interagency mutual aid agreements.

*Berkeley Campus Business Resumption Plan (2001)*

The Business Operations Seismic Recovery Committee was charged with developing a plan to recover the business functions that support the university's teaching and research mission. The UC Berkeley Business Resumption Plan sets out the human resource and information system issues involved in planning for the continuity of high-criticality business functions, and outlines what each responsible unit or office must do to ensure that they have the capacity to carry on the "business" of the campus.

### **Subsequent Events**

During the course of the audit, Associate Vice Chancellor - Business and Administrative Services (AVC) Ron Coley announced the reorganization of units with central responsibility for the emergency management program and business continuity. OCP, previously reporting directly to AVC Coley, and OEP, previously reporting to UCPD Police Chief Mitchell Celaya, will report administratively through Director of Environment, Health & Safety Mark Freiberg beginning July 1, 2012. According to AVC Coley, the purpose of the reorganization is to have the functional areas within Business and Administrative Services, whose primary responsibility is providing broad-scope risk management to the entire campus, managed under the same reporting line. The name of this newly reorganized unit is the Office of Emergency Management (OEM).

### **Summary Conclusion**

Based on our examination of the campus' current plans and interviews with OEP, OCP, and selected DOC management, we observed that controls the campus has developed for its emergency management and continuity program, are generally consistent with NFPA Standard 1600. However, we identified seven observations related to the NFPA standards:

- **Business Impact Analysis:** The campus has not conducted an entity-level business impact analysis for key enterprise level functions, processes, and applications in over ten years. The campus Business Resumption Plan from 2001

contains limited elements of a business impact analysis for information technology and human resources, but does not cover other critical functions, processes, and applications.

- **Continuity Planning:** Although OCP has the ability to identify and centrally track action items from completed business unit continuity plans, it does not appear that they have authority or influence to assure that units complete their action items, which often depend on the availability of additional resources. In addition, although considerable effort has been expended to analyze, prioritize and track the 1,500 action items in the unit continuity plans, we noted that there is no entity-level continuity plan. We understand that departmental continuity plans often assume the availability of key infrastructure in an emergency (network, telecommunication, power, water, heat, etc.). In the absence of an entity-level continuity plan, it is unclear how the risk of ensuring the recovery and restoration of infrastructure has been accounted for in campus continuity planning.
- **Program Testing and Exercises:** For the most recent campus exercise, Resilience 2011, OEP documented areas for improvement for individual DOCs and the Chancellor's Emergency Policy Group. However, these observations were not consistently communicated to the responsible unit by OEP and, as a result, corrective actions and program improvements have not been pursued. In addition, certain key DOCs declined participation in Resilience 2011 and, as a result, their response was not evaluated and make-up testing sessions were not conducted.
- **Mutual Aid and Assistance Agreements:** We inquired of OEP and a selection of DOCS such as PP-CS, UHS, and RSSP as to whether formal agreements have been executed for mutual aid with third-parties and we were informed that they believed that no such agreements have been executed. As a result, we are unable to determine whether there is a potential gap in resources and facilities that could be pledged by third-parties (such as local hospitals, public utilities, or other charitable organizations) in the event of an emergency or, alternatively, if unrealistic commitments of campus resources have been pledged to another party. In addition, we were not able to identify processes and controls in place to ensure that OEP is aware of and potentially coordinates all such agreements once executed.
- **Emergency Operations Centers:** Neither Barrows Hall nor the Tang Center, the location for the primary and secondary EOC for the campus, are fully equipped and set-up as ready on a 24 hours per day, 7 days a week basis and, therefore, any delay or difficulty in setting up the EOC after an incident would likely impede timely coordination and response. In the potential event that neither Barrows Hall nor the Tang Center are immediately available in a catastrophic emergency, management may wish to consider planning for the use of temporary EOCs in remote locations, in mobile or temporary facilities (i.e., tents or portable trailers), or even virtual EOCs (assuming telecommunication service is available).

- **Program Committee – Roles and Responsibilities:** There is currently no cross-functional mechanism whereby senior management drives accountability both for OEP and OCP as well as to coordinate efforts of key stakeholders with responsibilities for ensuring preparing the campus for an emergency and a structured path to resuming normal business activity.
- **Hazard Risk Assessment:** The 2007 campus Multihazard Mitigation Plan appears to satisfy most of the basic requirements of a hazard risk assessment. However, the plan states that it should be updated after five years but there are not currently efforts underway to update the plan. Although it is unlikely that the risk of a catastrophic earthquake will be displaced as the top hazard the campus potentially faces in terms of likelihood and impact, we observed that sufficient time has passed to revisit and validate the 2007 findings for all potential hazards as well as to update documentation of any recurring or new programmatic gaps.

Detailed discussion of these observations is presented in the following section.

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## SUMMARY OF OBSERVATIONS & MANAGEMENT RESPONSE AND ACTION PLAN

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### Business Impact Analysis

#### *Observation*

A business impact analysis is an important part of emergency management and continuity planning because it evaluates the potential impact resulting from interruption or disruption of individual functions, processes and information technology (IT) applications that are deemed critical to the enterprise.<sup>3</sup> It provides management with an objective assessment of how serious an impact would likely be expected in the event of various types of emergencies and helps management decide at what point an interruption or disruption becomes unacceptable and additional risk mitigation measures should be taken to reduce potential impact. Such analysis also typically evaluates the potential loss of information between the last backup of information and the time of the interruption or disruption.

For example, a catastrophic earthquake may result in critical IT systems – general ledger and sub-ledgers, human resources, procurement, etc. – being down for several weeks due to hardware failures or power outages. If these applications are critical to recovery and eventual resumption of normal business activities, management may wish to explore alternatives to have these systems up and running in a shorter timeframe by relying on mutual aid agreements with other institutions, employing remote hot or cold sites, further prioritizing the order of system recovery, or diverting other campus resources to expedite restoring critical systems.

Based upon our review of current emergency management documentation for the campus and inquiry with OEP and OCP, we observed that the campus has not conducted an entity-level business impact analysis for key enterprise level functions, processes, and applications in over ten years. The campus Business Resumption Plan from 2001 contains limited elements of a business impact analysis for IT and human resources, but does not cover other critical functions, processes, and applications.

#### *Management Response and Action Plan*

Management agrees with the observation. OEM is coordinating with UCOP to identify a potential vendor for this purpose. A business impact analysis is a priority item identified in the Emergency Management Strategic Plan and has a target date completion of July 1, 2013.

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<sup>3</sup> NFPA Standard 1600, Section 5.5

## Continuity Planning

### *Observation*

Continuity planning is another key element of emergency preparedness programs. Such planning typically includes identification of the following elements:<sup>4</sup>

- Stakeholders that need to be notified;
- Critical and time-sensitive applications;
- Alternative work sites;
- Vital records, contact lists, and processes and functions that must be maintained; and
- Personnel, procedures, and resources that are needed while the entity is recovering.

Such recovery plans also provide a roadmap for restoration of functions, services, resources, facilities, programs, and infrastructure that the unit has responsibility for.

We note that the campus has historically made a significant investment in the UC Ready tool to assist departments and units with creating and maintaining their continuity plans. OCP continues to review and update existing continuity plans and is further developing a standardized process for conducting the annual plan review. *The Fifth Annual Report on Continuity Planning* (April 2012) cites that 75% of the campus (approximately 306 units) are engaged in some stage of continuity planning for their individual unit. 148 units have complete and current plans that have been reviewed within the last twelve months. Another 72 have completed plans but have not reviewed them within the last twelve months. Lastly 86 have started plans but have not completed them.

These plans contain action items identified by management that should be completed prior to a disruption to help mitigate potential impact, maintain operations, and facilitate recovery. There are currently approximately 1,500 action items classified into twelve principal categories and assigned a priority level (low, medium, and high). 26 items have been rated a high priority because they address health, safety, and security issues on campus. 84 are medium priority and 1,367 are rated as low priority.

We note that although OCP has the ability to identify and track these action items across all of the completed plans, it does not appear that they have authority or influence to assure that units complete their action items, which often depend on the availability of additional resources.

In addition, although considerable effort has been expended to analyze, prioritize and track the approximate 1,500 action items in the unit continuity plans, we noted that there is no entity-level continuity plan. We understand that departmental continuity plans often assume the availability of key infrastructure in an emergency (network, telecommunication, power, water, heat, etc.). In

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<sup>4</sup> NFPA Section 1600, Section 6.7.

the absence of an entity-level continuity plan, it is unclear how the risk of ensuring the recovery and restoration of infrastructure has been accounted for in campus continuity planning.

### *Management Response and Action Plan*

Management agrees with the observation. OEM is moving forward on developing a campuswide continuity plan that will focus on maintaining, resuming, and recovering the campus activities following a disruption. One component of the plan will be a decision-making tool for senior leadership to help prioritize resources to minimize the effects of disruptions in service and help sustain the campus mission of teaching, research, and public service.

Given that a business impact analysis (BIA) is an essential foundational item to the development of a comprehensive continuity plan, the finalization of the continuity plan is contingent on the BIA completion. The expected completion date for the campuswide continuity plan is July 1, 2014.

OEM will continue to work with departments on their continuity planning efforts to protect the campus mission against disruption. With 75% of the campus currently engaged in continuity planning, the campus is on track to meet the UCOP goal of 100% plan completion by 2014. Going forward, the continuity program will be enhanced to include ongoing testing, evaluation, and corrective actions.

The campuswide continuity plan is prioritized over departmental testing of continuity plans. Therefore, OEM expects to complete testing of continuity plans by the end of FY14-15.

## **Program Testing and Exercises**

### *Observation*

Although emergency response and business resumption plans can be designed to address all key elements of external standards such as NFPA 1600, in the absence of periodic testing and exercises, their operating effectiveness cannot be assured. Such testing also allows for continuous program improvement through management review of post-incident analyses, lessons learned, and evaluating operational performance against management expectations or external benchmarks.

To this end, the campus Emergency Response Organization (ERO) participates in an annual training exercise to demonstrate campus readiness and the effectiveness of the EOP. The objective of the exercise is to evaluate the campus response to a hypothetical major emergency scenario, including tests of emergency communication channels, tools, and equipment. Areas for improvement identified during the exercise are documented as part of a post-exercise report.

We examined documentation related to the most recent campus exercise, Resilience 2011, and noted that OEP documented areas for improvement for individual DOCs and the Chancellor's Emergency Policy Group (CEPG). However, these observations were not consistently

communicated to the responsible unit by OEP and, as a result, corrective actions and program improvements have not been pursued.

In addition, certain key DOCs declined participation in Resilience 2011 and as a result their response was not evaluated and make-up testing sessions were not conducted.

If the lessons learned from annual testing exercises are not communicated back to the relevant party so that corrections or improvements can be made, or if the units fail to participate without having another opportunity to participate, timely identification and remediation of issues related to the implementation of the plan will remain a risk.

### *Management Response and Action Plan*

Management agrees with the observation. OEM will develop a comprehensive training and exercise program as part of the Emergency Management Strategic Plan. It is a key foundational initiative and has a target date completion of July 1, 2013. The OEM exercise program will include a variety of drills and exercises including tabletop exercises, as well as functional and full scale drills. This gives campus units an opportunity to participate in different tests several times throughout the year.

An important aspect of the comprehensive program will be a clear and detailed after action process, where corrective measures are identified, documented, communicated, and remedied with future planning efforts. This process will help OEM identify best practices, lessons learned, and propose measures to address documented planning gaps.

## **Mutual Aid and Assistance Agreements**

### *Observation*

Mutual aid or assistance agreements can be an effective means to secure access to critical resources in an emergency that may be impractical or are prohibitive from a cost or space perspective to procure, store or provide for in advance of an emergency.<sup>5</sup> Ideally such agreements should be in writing, be reviewed by legal counsel, approved by the appropriate level of management, define and limit potential liability, and detail funding and cost agreements.

The current campus EOP states that its purpose is to adhere to the California Disaster and Civil Defense Mutual Aid Agreement under which:

“the resources and facilities of the State, its various departments and agencies, and all its political subdivisions, municipal corporations, and other public agencies be made available voluntarily [to] aid and assist each other, including, but not limited to, fire, police, medical, and health, communication, and transportation and facilities.”

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<sup>5</sup> NFPA Standard 1600, Section 6.2.

That is, in the event of a large-scale emergency, such as a catastrophic earthquake, the campus would expect its local emergency response to be augmented by state resources.

We observed that the campus has not included in its hazard risk assessment specific consideration of particular situations where campus resources and facilities may not be sufficient but the emergency is not of a magnitude to invoke the state mutual aid agreement. We inquired of OEP and a selection of DOCS such as PP-CS, UHS, and RSSP as to whether formal agreements have been executed for mutual aid with third-parties and we were informed that they believed that no such agreements have been executed. As a result, we are unable to determine whether there is a potential gap in resources and facilities that could be pledged by third-parties (such as local hospitals, public utilities, or other charitable organizations) in the event of an emergency or, alternatively, if unrealistic commitments of campus resources have been pledged to another party. In addition, we were not able to identify processes and controls in place to ensure that OEP is aware of and potentially coordinates all such agreements once executed.

With respect to sister campuses, the EOP also contemplates that the campus seek mutual aid and assistance from other UC campuses. We understand from our inquiries that formal written mutual aid agreements are currently not in place and that this may be common practice at present across the UC system. However, we believe it would be beneficial to include consideration in a hazard risk assessment of what specific resources and facilities would likely be needed from another campus and which campuses might best be able to provide it depending on the type of emergency situation.

#### *Management Response and Action Plan*

Management agrees with the observation. OEM has identified two avenues for mutual aid agreements in the strategic plan: 1) Mutual aid within the UC system and 2) Mutual aid with external partners. Going forward, OEM will first focus on identifying needed MOUs within the UC system. OEM will coordinate with UCOP and other campuses to formalize assistance agreements with a focus on resources, facilities, services, and other required support during an incident. This will be a critical component of UCB's emergency response program as well as a key mechanism for reimbursement through the federal Stafford Act.

OEM has already begun the process of identifying potential mutual aid/assistance agreements and anticipates having key agreements regarding medical supplies and coordination with the local jurisdiction in place within this FY12-13. OEM will develop a comprehensive list of potential MOUs with both internal and external partners during FY13-14 and develop written agreements accordingly.

With 36 identified initiatives in the Emergency Management Strategic Plan, OEM has prioritized other more foundational initiatives over MOU development. As identifying mutual aid/assistance needs is an ongoing process, OEM expects to coordinate MOU development into the fifth year of strategic plan implementation.



## Emergency Operations Centers

### *Observation*

An EOC is the physical location at which the coordination and support of incident management activities take place.<sup>6</sup> These facilities should be capable of accommodating any combination of essential representatives who are identified in the entity's emergency management plan. They should have adequate work space, communications, and backup utilities and should meet other basic human needs for each representative. The physical size, staffing, and equipping of an EOC will depend on the size of the entity, resources available, and anticipated incident management support required.

The primary EOC for the campus is in the basement of Barrows Hall. Its location is within the central campus and convenient to the police department located in nearby Sproul Hall, but is also some distance from California Hall, where the CEPG would convene, and the Tang Center, which is the primary location for University Health Services.

In addition, although Barrows Hall has a campus seismic rating of "Good" and may be a suitable EOC location for most emergencies, in the event of a catastrophic earthquake portions of the building, including the basement area, may not be rated for short-term occupancy or continuous habitability in the event the EOC needs to run 24-hours a day over an extended period of time. In this event, the Tang Center has been designated as a secondary EOC. However, some members of management have expressed concerns as to the logistical suitability of Tang as an EOC in the event of an emergency where there are large numbers of injured or others needing to seek medical attention (such as in a pandemic) at that location.

Neither site is fully equipped and set-up as ready on a 24 hours per day, 7 days a week basis and, therefore, any delay or difficulty in setting up the EOC after an incident would likely impede timely coordination and response.

With either Barrows Hall or the Tang Center as EOCs, communication channels are critical to coordinate emergency efforts centrally with other key response units such as the CEPG and the individual DOCs. Any communication failures (land lines, handheld radios, internet, cell phones, etc.) would impede coordination and response. We noted areas of improvement with respect to communication between the EOC and CEPG in the post-event evaluation of Resilience 2011, the annual test procedures for the EOP.

Therefore, in the potential event that neither Barrows Hall nor the Tang Center are immediately available in a catastrophic emergency, management may wish to consider planning for the use of temporary EOCs in remote locations, in mobile or temporary facilities (i.e., tents or portable trailers), or even virtual EOCs (assuming telecommunication service is available).

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<sup>6</sup> NFPA Section 6.10

### *Management Response and Action Plan*

Management agrees with the observation. OEM agrees that 60 Barrows Hall is an acceptable EOC site during a non-earthquake emergency and will retain that space as a potential operations center during this type of emergency.

OEM is currently coordinating with other campus units to identify a suitable location for a “disaster ready” EOC which would function as the primary EOC for the campus. OEM defines “disaster ready” as an operations center that can be operational within 1 hour of activation.

The target date completion for identifying a suitable location is July 1, 2013.

### **Program Committee – Roles and Responsibilities**

#### *Observation*

There are typically benefits from having a program committee in place to provide management or executive oversight for an emergency preparedness program.<sup>7</sup> Such a committee can provide input on program design, oversight of management of emergency preparedness and continuity planning units, assist in securing financial or physical resources, and advocate policy changes. Members of these committees typically represent key partners in emergency management and business resumption plans and can drive actions and accountability in their own units. The committee can exist as a standalone entity or may have multiple governance responsibilities which would include among them emergency management and business continuity.

Historically, the Business Resumption Coordination Group (BRCG) has functioned as a standalone oversight group for campus’ business continuity efforts led by OCP. The BRCG has also played a limited role in providing input and oversight for the campus emergency management program. However, the committee has not met in past twelve months and its role with respect to emergency management and OEP has not been formally defined.

We observed that a number of committees on campus already exist for senior management oversight of internal and external risks, such as the Committee on Compliance, Accountability, Risk & Ethics (CARE) and the Chancellor’s Cabinet. Although we do not necessarily believe that a standalone program committee would be required to achieve effective management oversight, at present we observe that there is no cross-functional mechanism whereby senior management drives accountability both for OEP and OCP as well as to coordinate efforts of key stakeholders with responsibilities for ensuring preparing the campus for an emergency and a structured path to resuming normal business activity.

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<sup>7</sup> NFPA Standard 1600, Section 4.3

### *Management Response and Action Plan*

Management agrees with the observation. OEM has identified an emergency management advisory committee as a foundational item and will be completed within the first year of implementing the strategic plan. This advisory committee would provide input and assist with the preparation, development, implementation, evaluation, and management of the program. The target date completion for an emergency management advisory committee in place is July 1, 2013.

## **Hazard Risk Assessment**

### *Observation*

Through structured analysis of potential hazards, a hazard risk assessment assists in the development of strategies for prevention and mitigation as well as to gather information to develop plans for response, continuity, and recovery.<sup>8</sup> Typically a risk assessment would include identification of hazards and estimation of their likelihood of occurrence and their impact, both directly and indirectly through the cascading effect of local, regional, national, or international incidents. In addition, consideration would be given to the vulnerability of people, property, and the campus environment and how to potentially allocate limited campus resources depending on the risk scenario.

We inspected a copy of the campus Multihazard Mitigation Plan dated April 20, 2007 which we understand is the most recent enterprise-wide hazard assessment. This plan was jointly prepared by Facilities Services, the Office of Business Resumption (now called the Office of Emergency Management), Office of Emergency Preparedness, and the Office of the Vice Provost – Academic Planning & Facilities. This plan also incorporates the Hazard Vulnerability Assessment from September 2005 performed under the direction of the UCOP Safety, Security and Anti-Terrorism (SSAT) Committee.

The assessment identifies, based on guidelines established by UCOP, the greatest physical threats to the campus. It also provided an overview of mitigation strategies and programs that apply to various types of physical hazards.

We observed that the plan appears to satisfy most of the basic requirements of a hazard risk assessment. However, the plan states that it should be updated after five years but, based upon our discussion with OEP and OCP, we understand that there are not currently efforts underway to update the plan. Although it is unlikely that the risk of a catastrophic earthquake will be displaced as the top hazard the campus potentially faces in terms of likelihood and impact, we observed that sufficient time has passed to revisit and validate the 2007 findings for all potential hazards as well as to update documentation of any recurring or new programmatic gaps.

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<sup>8</sup> NFPA Standard 1600, Section 5.4

*Management Response and Action Plan*

Management agrees with the observation. OEM will update the Multi-Hazard Mitigation Plan (2007) or become part of a multi-jurisdictional, FEMA-approved, hazard mitigation plan with regional partners by January 1, 2015.