



AUDIT AND ADVISORY SERVICES

Capital Renewal
Audit
Project No. 15-644

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November 20, 2015

Robert Lalanne
Vice Chancellor
Real Estate

Vice Chancellor Lalanne:

We have completed our audit of capital renewal (including deferred maintenance) as per our annual service 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.

Our observations with management action plans are presented in the accompanying report. Please destroy all copies of draft reports and related documents. Thank you to the staff of Asset Management and the office of the Vice Chancellor for Real Estate for their cooperative efforts throughout the audit process. 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
Chief Operating Officer Grace Crvarich
Director Sally McGarrah
Senior Vice President and Chief Compliance and Audit Officer Sheryl Vacca
Associate Chancellor Nils Gilman
Assistant Vice Chancellor and Controller Delphine Regalia

**University of California, Berkeley
Audit and Advisory Services
Capital Renewal**

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OVERVIEW

Executive Summary

The purpose of the audit was to evaluate the current campus approach to managing deferred maintenance and capital renewal. The review focused on the current end-to-end process to develop, approve, and administer the annual Capital Renewal Plan as of spring 2015.

Based on the results of our review, we concluded that the Capital Renewal Program appears to incorporate an appropriate level of governance structure in support of the program. We observed that while progress on the Capital Renewal Plan is occurring, additional capital renewal conditions continue to be identified. The campus' ability to manage both identified and emerging renewal conditions continues to depend on accurate and complete supporting information and reliable and consistent sources of future funding.

We identified certain process improvement opportunities in the administration of the program:

- Include all existing buildings in the Primavera Unifier (Unifier) system. Some buildings were not reviewed during the 90/90 Project since conditions were known and, in some cases, work had been planned or was in progress.
- Develop and implement standard data capture forms with specific attention to the individual inputs. This will promote the capture of all relevant and needed information related to current conditions and estimates of work required to promote the identification and reporting of emerging capital renewal conditions by the larger campus community.
- Add capital renewal conditions and projects associated with the Campus Utilities Master Plan, the annual budget, individual input, etc. to Unifier in order to have all known conditions tracked in one location, with the ability to centrally monitor and report on them. This will also facilitate transition to the system selected for capital renewal.
- Investigate additional funding sources that may be available to supplement limited campus and state funds. The director of Asset Management asserts that programs with funding opportunities may exist (possibly safety grants, water programs, etc.), that could partner with the campus toward achieving its capital renewal goals.
- The use of a computer system that can effectively accommodate all known capital renewal conditions and projects and can track information associated with the Capital Renewal Plans would be prudent in the long term. Currently the development of Capital Renewal Plans involve manually accessing disparate data sources and introduces the possibility of replication or transcription errors.

Management agrees with our assessment and has provided responses that address our suggested process improvement opportunities for the administration of the program.

Source and Purpose of the Audit

The purpose of the audit was to evaluate the current campus approach to managing deferred maintenance and capital renewal.¹ In particular, we considered the following key components of a deferred maintenance and capital renewal program:

- funding maintenance and repairs at adequate levels to avoid accumulation of backlogs;
- conducting facilities audits and assessments of conditions;
- prioritizing critical deferred maintenance needs;
- developing multiple funding sources for capital renewal, and
- adjusting operating and capital budgeting practices to emphasize maintenance and capital renewal.

Scope of the Audit

The review focused on the current end-to-end process to develop, approve, and administer the annual Capital Renewal Plan as of spring 2015. We completed a process walkthrough with relevant operating and IT staff. We interviewed members of the Capital Renewal Committee and reviewed the governance structure and associated documentation. We also examined the fiscal year 2014 Capital Renewal Plan, data from the input channels supporting the plan, including results of the 90/90 Project, reports and other systems information.

Background Information

The Capital Renewal Program is relatively new to the campus, with the first Capital Renewal Plan developed for the 2012-13 fiscal year. Since the creation of the program, the focus has been on establishing the governance and operating structures for the program, identifying conditions suitable for inclusion in the Capital Renewal Plan, and putting in place an operating process. The stated goals of the program relate to “issues of accessibility, investment plans for infrastructure, resource efficiency, and renewing or repairing the historic UC Berkeley campus.”²

The Capital Renewal Program focuses on projects driven primarily by the age and condition of core building and infrastructure systems, and by code and safety deficiencies. It includes such items as strategic whole building renewal, ongoing and urgent renewal and repair, utility renewal, roofing replacement, fire alarm upgrades, and the renewal of classrooms throughout campus facilities. Renewal projects eligible for funding must be renewal and repair projects and not program improvements, unless the project represents a shared opportunity with a specific

¹ Deferred maintenance and capital renewal are defined in the systemwide *UC Facilities Manual*, “Volume 6: Plant Operations and Maintenance” as follows: “Deferred maintenance is maintenance that was not performed when it should have been or was scheduled to be and which, therefore is put off or delayed for a future period. The University inspects, tracks, and estimates the cost of deferred maintenance. Capital renewal is based upon the fact that, over time buildings and infrastructure typically use up their intended design life and through that deterioration lose a portion of their functionality to the University’s Mission. Normally these are larger projects and involve whole system replacement or renewal.”

² <http://capital-renewal.berkeley.edu/Home>

program-related improvement. Items covered by the Capital Renewal Plan are not considered to be either normal maintenance or preventive maintenance.

A Capital Renewal Committee was formed as a working group of the Capital Projects Committee (CPC). The mission of the Capital Renewal Committee is to ensure the long-term viability and function of campus physical assets. It advises the CPC on a facility investment program to enhance and enable the campus' core missions of teaching, research, and public service. The Capital Renewal Committee is moving toward achieving several long-term goals, three of which include the following:

- to create and maintain a multi-year investment plan for campus infrastructure in order to ensure the ongoing renewal of critical campus systems and, over time, reduce the campus' renewal backlog to within 15% of the campus' operating budget;
- to provide an investment plan that ensures that buildings and structures constructed and occupied after January 2007 are renewed on or before the end of their useful lives; and
- to ensure the campus general assignment teaching spaces are renewed physically and technologically every 5-7 years.

The committee is composed of twelve members from various campus departments. Two members are also members of the CPC. The director of Asset Management heads the Capital Renewal Committee and is responsible for development and administration of the annual Capital Renewal Plan.

The Capital Renewal Program has been funded for approximately \$30 million dollars per year for the first two years, and \$35.7 million and \$37.5 million for fiscal years 2015 and 2016 (pending approval), respectively. Funding has been primarily through debt financing.

The Capital Renewal Plan is formed from several sources of information, including the results of the 90/90 Project, the previous deferred maintenance system, the Campus Utilities Master Plan, capital renewal projects identified as part of the annual budget process, the Classroom Renewal Plan, and other group or individual inputs. The 90/90 Project was originally performed during 2014 and identified conditions that mostly resulted from previous deferral of maintenance. Over one hundred buildings on or near campus were inspected in under eighty days. The project produced an inventory of conditions that now serves as a key basis for developing the Capital Renewal Plan (about 30% of conditions identified overall, but not necessarily of those included in the plan, were generated from the 90/90 Project).

Consideration is being given to using one of two systems to house capital renewal conditions and projects and to support development of the Capital Renewal Plan: IBM's Maximo system and Cisco System's Primavera Unifier system. Consideration is also being given to using the Maximo system for Facilities Services work, including work order management. Unifier currently houses conditions identified in the 90/90 Project and consideration is being given to expanding usage to include all conditions, projects, and plans identified as part of capital renewal. Construction and Design currently uses Unifier to manage the campus' construction projects.

Summary Conclusion

The Capital Renewal Program continues to develop as resources and systems become available. Based on the results of our review, we conclude that the Capital Renewal Program appears to incorporate an appropriate level of governance and controls in support of the program. We observe that while progress on the Capital Renewal Plan is being made, additional capital renewal needs continue to be identified. The campus' ability to manage both identified and emerging renewal needs depends on accurate and complete supporting information and reliable and consistent sources of future funding.

We identified certain process improvement opportunities for administration of the program that are summarized in the following section.

SUMMARY OF OBSERVATIONS & MANAGEMENT RESPONSE AND ACTION PLAN

Process Improvement Opportunities

Observation

We identified certain process improvement opportunities related to the administration of the Capital Renewal Program.

Existing Buildings. Include all existing buildings in the Unifier system. Some buildings were not reviewed during the 90/90 Project since conditions were known and, in some cases, work had been planned or was in progress. However, including and tracking all buildings in Unifier lays the ground work so that buildings are fully considered and are not overlooked.

Capital Renewal Conditions and Projects. Add capital renewal conditions and projects associated with the Campus Utilities Master Plan, the annual budget, individual input, etc. to Unifier while awaiting a decision on and potential implementation of a new system. It is preferable to have all known conditions tracked in one location with the ability to centrally monitor and report on them. Placing conditions in Unifier would also facilitate transition to the new system selected for capital renewal.

Standard Data Capture Forms. Develop and implement standard data capture forms with specific attention to the category of individual inputs. This will promote the capture of all relevant and needed information related to current conditions and estimates of work required. Making these forms available on the Capital Renewal website, along with directions and the means of input, can promote the identification and reporting of emerging capital renewal conditions by the larger campus community.

Additional Funding Sources. Investigate additional funding sources that may be available to supplement limited campus and state funds. The director of Asset Management believes that programs may exist (possibly safety grants, water programs, etc.), that could partner with the campus toward achieving its capital renewal goals. Actively exploring these and other possibilities may produce valid additional sources of funding for the campus' renewal efforts.

Future Computer System. Regardless of the system that management selects for its future needs, the use of a computer system that can effectively accommodate all known capital renewal conditions and projects and can track information associated with the Capital Renewal Plans would be prudent in the long term. Without a system to house all conditions and projects, development of Capital Renewal Plans may continue to involve manually accessing disparate data sources for the compilation of the annual Capital Renewal Plan, likely involving additional effort and introducing the possibility of replication or transcription errors.

Management Response and Action Plan

Management agrees with the audit observation and provides the response below.

<i>Process Improvement Opportunity Identified</i>	<i>Management Response</i>
<p>Include all existing buildings in the Primavera Unifier system. Some buildings were not reviewed during the 90/90 Project since conditions were known and in some cases, work had been planned or was in progress.</p>	<p>All buildings will be in Unifier and will be entered into the system to correspond to their regions. The regional managers, when assigned, will update the condition information for all buildings.</p>
<p>Add capital renewal conditions and projects associated with the Campus Utilities Master Plan, the annual budget, individual input, etc. to Unifier while awaiting a decision on and potential implementation of a new system. It is preferable to have all known conditions tracked in one location with the ability to centrally monitor and report on them. Placing conditions in Unifier would also facilitate transition to the new system selected for capital renewal.</p>	<p>The Regional Managers will be tasked with tracking projects and condition issues in Unifier.</p>
<p>Develop and implement standard data capture forms with specific attention to the individual inputs. This will promote the capture of all relevant and needed information related to current conditions and estimates of work required to promote the identification and reporting of emerging capital renewal conditions by the larger campus community.</p>	<p>Will coordinate efforts by regional managers and Facilities Services staff so that entry format is the same. A template is being developed within the Unifier system for data entry.</p>
<p>Investigate additional funding sources that may be available to supplement limited campus and state funds. The director of Asset Management believes that programs may exist (possibly safety grants, water programs, etc.) that could partner with the campus toward achieving its capital renewal goals.</p>	<p>The director of Asset Management has researched grants and, while some capital renewal projects might qualify for grants, the available funding will not be a significant amount. Given this, it is important that the campus still recognize that it must continue to invest in capital renewal in order to provide a functional environment to support the academic mission.</p>