FACILITIES MANAGEMENT

PREVENTIVE AND DEFERRED MAINTENANCE

AUDIT REPORT #18-2004

Audit & Advisory Services

August 2018

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Background

In accordance with the UCLA Administration fiscal year 2017-18 audit plan, Audit & Advisory Services (A&AS) conducted an audit of the Preventive Maintenance and Deferred Maintenance programs within the Facilities Management department.

The Preventive Maintenance program works to improve the overall appearance of campus facilities and produce cost savings by:

* Reducing downtime of critical systems and equipment;
* Extending the life of facilities and equipment;
* Improving equipment reliability; and
* Ensuring proper equipment operation.

The Preventive Maintenance program follows an organized plan to minimize administrative costs and maintain a consistent level of preventive maintenance workflow. Preventive Maintenance is that portion of the overall maintenance program that provides periodic inspection, adjustment, minor repair, lubrication, reporting, and data collection necessary to minimize building equipment and utility system breakdown, and maximize system and equipment efficiency at minimum cost. The Preventive Maintenance program anticipates wear and tear, so continuous corrective action are taken to minimize deterioration. Inclusive in the program’s goals is meeting compliance requirements and maintaining a healthy, safe and environmentally-acceptable atmosphere for students, faculty, and staff. Preventive maintenance is performed on scheduled intervals in accordance with written maintenance work plans and budgets.

The purpose of the Deferred Maintenance program is to carry out maintenance tasks that were not performed when originally scheduled or due, and therefore were delayed to a future date. Conversely, capital renewal is based on the principle that buildings and infrastructure gradually use up their intended design life over time. Through normal deterioration, the infrastructure and buildings lose a portion of their functionality to support the University’s mission. Capital renewal projects are usually larger projects that involve whole system replacement or renewal.

According to the University of California (UC) Budget for Current Operations Summary 2016-17, Deferred Maintenance is the unaddressed backlog of renewal projects stemming from chronic underfunding and regular and predictable investments in capital renewal. Much of the University’s funding cuts have resulted in “negative austerity measures” such as reductions in building maintenance, scaled-back or eliminated Preventive Maintenance programs, etc. The more recent budget cuts have compounded prior years of inadequate funding. Prolonged underfunding of basic maintenance activities shortens the useful life of building systems, exacerbating the maintenance needs of the University’s aging facilities and equipment.

Preventive Maintenance funding for UCLA’s State funded buildings is included in the budget for operation of maintenance and plant (OMP). The OMP for fiscal year 2016-17 amounted to approximately $57.1 million. Preventive Maintenance for self-supporting departments is recharged to those departments. Deferred Maintenance funding for State funded buildings for fiscal year 2016-17 was approximately $11.5 million, including $3.5 million for general assignment classrooms and auditoriums.

The UC’s annual shortfall is estimated at $200 million for basic maintenance and $250 million for Deferred Maintenance and capital renewal. Available funds are predominantly focused on building systems such as heating, ventilation air-conditioning (HVAC), plumbing, elevators, roofing and general assignment classrooms, with minimal investments on finishes such as floors, walls, interior and exterior paint, ceilings, etc. Because of funding concerns, Facilities Management continues to be in a reactive mode and is addressing building systems that are either no longer operational or that have become maintenance intensive due to their age and condition.

Currently, estimates of funding needs for Deferred Maintenance and/or capital renewal are based on the Facilities Infrastructure Renewal Model (FIRM) developed by the University in 1998. FIRM utilizes an inventory of only State-maintained facilities at each campus, detailing infrastructure and building systems that need to be renewed on a predictable basis between 15 and 50 years. Due to the need for a “data-driven” capital renewal model, the University is implementing a new comprehensive Integrated Capital Asset Management Program (iCAMP) to replace the FIRM program. iCAMP will perform real-time condition-based assessments of all University related buildings, provide detailed tracking of all infrastructure assets, and identify and estimate facility-related Deferred Maintenance needs.

Purpose and Scope

The primary purpose of the review was to ensure that Facilities Management’s organizational structure and controls related to the administration of the Preventive Maintenance and Deferred Maintenance programs are conducive to accomplishing its business objectives. Where applicable, compliance with campus and University policies and procedures was also evaluated.

The scope of the audit focused on the following areas:

Preventive Maintenance

* Task Identification
* Prioritization
* Work Plans
* Performance and Work Force Utilization
* Backlog
* Work Order Completion – Maximo System

Deferred Maintenance

* Project Identification
* Prioritization
* Scope
* Budgeting
* Funding Allocation and Monitoring

The review was conducted in conformance with the *International Standards for the Professional Practice of Internal Auditing* and included interviews, tests, and other procedures considered necessary to achieve the objective.

Summary Opinion

Based on the results of the work performed within the scope of the audit, Facilities Management’s overall organizational structure and controls are generally conducive to accomplishing its business objectives related to the Preventive Maintenance and Deferred Maintenance programs. However, controls and business practices could be further strengthened by implementing the following:

*Preventive Maintenance*

* Develop and implement written procedures for timely notification to Maintenance & Alterations (M&A) from campus owners and other Facilities Management staff for any changes in building systems and equipment.
* Personnel with subject matter knowledge and experience should assess Preventive Maintenance work orders to determine the adequacy and reasonableness of each work plan and estimated hours to complete the work. Adjustments should be made to estimated work hours where necessary.
* Significant variances between budgeted and actual work time for Preventive Maintenance work orders should be verified and supported by written explanations.
* Develop and establish a Preventive Maintenance work order labor variance report in the Maximo system that compares budgeted Preventive Maintenance task time to the actual task time.
* Complete Preventive Maintenance work orders within the expected time frames in which they are scheduled and assigned.
* Develop written procedures and implement a formal standardized process for completing and closing Preventive Maintenance work orders in Maximo.

*Deferred Maintenance*

* Ensure each project on its Deferred Maintenance project list includes the required prioritization category as indicated in the UC Facilities Manual.
* Develop and implement written guidelines for preparing Deferred Maintenance project budgets. The guidelines should include a requirement for creating and maintaining supporting documentation for each element of the project’s total budgeted amount, such as labor hours and rates, materials, vendor services, soft costs, and contingency amounts.

The audit results and corresponding recommendations are detailed in the following sections of the report.

Audit Results and Recommendations

Preventive Maintenance

Task Identification

Interviews were conducted with M&A and Utilities personnel to determine management’s existing controls for identifying and documenting building system and equipment Preventive Maintenance tasks related to new construction and renovations, newly acquired buildings, system or equipment renewals, replacement or upgrades, and compliance requirements. Interviews and questionnaires were also utilized to determine how Preventive Maintenance tasks are identified and removed from Preventive Maintenance schedules when a building is razed, or a system or equipment is retired.

Preventive Maintenance tasks for new construction, renovations, or newly acquired buildings are identified via discussions with Capital Programs or Campus Space Inventory staff, or information is obtained from the issuance of a Certificate of Occupancy. Preventive Maintenance tasks for building system or equipment renewal, and replacement or upgrades are identified via information received from M&A staff that are assigned to the building system or where equipment is located. Preventive Maintenance tasks related to compliance requirements are identified through a similar method as with building system or equipment renewal, replacements, or upgrades.

At the start of a capital improvement project, the Capital Programs project manager obtains input and comments from Utilities staff for the engineering and design of new construction HVAC systems. Electronic notes and comments from Utilities engineers are captured in the Capital Programs Blue Beam system. For all other HVAC system or equipment activity, Utilities has a dedicated project manager that identifies and tracks all campus projects and activity involving HVAC equipment to ensure University standards and external compliance requirements are followed and maintained. Utilities engineers review the construction documents and identify Preventive Maintenance tasks for each piece of equipment. Preventive Maintenance tasks for building HVAC systems, equipment renewals, replacements, or upgrades are identified via information received from the Utilities project manager or engineer that is assigned to the building HAVC system or equipment location. Once identified, a “field survey” is performed by the engineers to obtain relevant information for the Preventive Maintenance task and related work plan, including any compliance requirements.

Changes in Building Systems and Equipment

Facilities Management’s M&A has no formal process for receiving timely notification from other Facilities Management staff or campus departments when there are changes in building systems or equipment. Interviews with the M&A Preventive Maintenance Coordinator indicated that obtaining such information is usually on an informal basis from general conversation or vigilant Facilities Management staff. Changes in building systems or equipment occur during new construction and renovations, property acquisitions, and building system (equipment) renewal, replacement, or upgrade. Timely notifications facilitate the identification, revision and scheduling of related Preventive Maintenance tasks. By not having a formal notification process for receiving such information, the Preventive Maintenance activities necessary to minimize building system and equipment breakdown, and maximize system and equipment efficiency is at risk.

Recommendation: Management should develop and implement written procedures for receiving timely notification to M&A from campus owners or other Facilities Management staff for any changes in building systems or equipment information. The process should be documented and identify each owner’s role within the workflow, and include relevant information that should be provided to the M&A Preventive Maintenance Coordinator. The purpose of formalizing the process is to facilitate and organize the actions surrounding changes in building systems or equipment for Preventive Maintenance scheduling purposes. By doing so, management will be working collaboratively to promote and maximize system and equipment efficiency via the timely scheduling of Preventive Maintenance tasks and data collection.

Response: This recommendation is under consideration as to how best to achieve the desired results. The process is complicated, and involves more than just FM (i.e., Capital Programs). We will meet and discuss this and provide a more solid status at the next update.

Prioritization

Discussions were held with Facilities Management personnel including the Electrical Systems Manager, Plumbing Manager, Hardware Shop Supervisor, Carpenter Shop/Sheet Metal Shop Senior Superintendent, and Preventive Maintenance Coordinator to obtain an understanding of Preventive Maintenance prioritization practices. The prioritization methodology was assessed to determine whether it is risk based and considers safety and security, compliance requirements, and best practices as recommended by the manufacturer. A sample of Preventive Maintenance work order “procedure templates” for plumbing, fire sprinklers, extinguishers, and emergency generators were reviewed for adequacy. These procedure templates describe the purpose of the Preventive Maintenance tasks relative to compliance requirements imposed by state, local, and National Fire Protection Association (NFPA) agencies. A template is provided with each Preventive Maintenance work order distributed to M&A shop management.

There were no significant weaknesses noted in this area.

Work Plans

The Preventive Maintenance coordinator provided an overview of M&A and Utilities Preventive Maintenance work orders processes utilized for monthly allocation and assignment of Preventive Maintenance work orders, maintenance instructions, and budgeted work hours. Preventive Maintenance work order data from the Maximo system was obtained in electronic format for October, November, and December 2017. A sample of 40 Preventive Maintenance work orders was selected from the Maximo system data based on cost center, assigned lead, and Preventive Maintenance description to ensure adequate coverage for both Utilities and M&A. The selected Preventive Maintenance work orders were reviewed for adequacy and reasonableness of written maintenance instructions and methodology utilized to calculate estimated budget work hours to complete the task.

Based on test work performed, ten of forty (25%) Preventive Maintenance work orders did not have work plans. The work plans provide information necessary to properly perform the scheduled maintenance efficiently and effectively. Work plans also support an orderly process on a recurring basis for the upkeep of University property, machinery, systems and facilities, including buildings, utility infrastructure, roads, and grounds. The UC Facilities Manual, Volume 6, Chapter 1, section 1.4.2, “Preventive Maintenance” provides that the Preventive Maintenance program should be performed in accordance with written maintenance instructions.

Recommendation: Management should review and evaluate all Preventive Maintenance work orders to ensure inclusion of proper work plans and estimated work hours. Personnel with subject matter knowledge and experience should perform assessments of Preventive Maintenance work orders to determine the adequacy and reasonableness of each work plan and its estimated hours to complete the work. The assessment process should be documented for consistent performance throughout Facilities Management and support the goals and objectives of the Preventive Maintenance program. Revisions to the work plans and estimated work hours should be appropriately captured and documented electronically in the Maximo system. By doing so, management will be strengthening its control environment and promoting effectiveness and efficiency of the Preventive Maintenance program.

Response: This is in progress. We are converting paper job tasks to electronic files which will allow us to prescribe what the technician needs to do, what tools and materials are required for the PM, and how long it should take (so that it can be scheduled). We expect completion of this effort by the end of the calendar year.

Performance and Work Force Utilization

From Utilities and M&A management and staff, A&AS obtained an understanding of how Preventive Maintenance tasks are inspected for quality assurance during and after completion, availability of supporting documentation or data for the inspections, and the determination of variances between estimated budgeted task hours and actual task hours. Electronic data from the Maximo system was obtained from July 2017 to February 2018 and data analytics was used to assess the sufficiency of Preventive Maintenance work order labor variance information for each work order for control purposes. In addition to the Preventive Maintenance work orders judgmentally selected for testing, screen shots of Maximo system dashboard were utilized to perform labor variance analysis. The following were noted:

A. Budgeted Preventive Maintenance Hours

There are no budgeted hours for 47% of the Preventive Maintenance tasks tested. Of the 12,637 items tested using data analytics, 5,877 do not have estimated task hours in the Maximo system. Management indicated that most of the existing budgeted Preventive Maintenance task hours have remained unchanged for years and might not be representative of the current effort necessary to complete each task. Performing variance analysis on the actual hours of a preventive maintenance task provides a quantifiable measurement of exceptions between estimated and actual hours to complete the work. Additionally, variances can be used to identify the reasonableness of the existing budgets, and detect changes in the conditions and procedures encountered in appropriately completing the preventive maintenance task.

Recommendation: As new Preventive Maintenance projects are being conducted, management should reevaluate all existing task hours and, where necessary, update tasks with attainable budgets to ensure reasonableness. Due to the volume of preventive maintenance tasks, the budget updates could be performed incrementally on a go-forward basis. Budgeted hours should be calculated and evaluated utilizing subject matter expertise within each shop’s team. Maintaining completeness of each Preventive Maintenance task’s budgeted hours will provide data necessary for effective scheduling, management of work force utilization, and performance control.

Response: We are in the process of implementing this utilizing Maximo. As Preventative Maintenance is scheduled, management will determine the duration. Maximo will calculate the cost of labor and material that will ultimately determine the cost for the PM, which will assist management in determining the optimum frequency based on cost and risk. We expect completion of this effort by the end of the calendar year.

B. Work Order Labor Variances

Thirteen of forty (33%) Preventive Maintenance work orders tested have “estimated work hours” to perform the preventive maintenance task. Of those thirteen items with estimated work hours, three (23%) have an unexplained labor variance where actual time reported to perform the preventive maintenance task significantly exceeded the budgeted time by at least 100%.

Unexplained significant variances do not provide qualitative information to management, which supports the circumstances, and context that contributed to the variance. Qualitative information would include attributes such as unknown conditions, limited access to the building system or equipment, challenges with deterioration or obsolescence, etc. Such information could function as a resource to assist management in achieving optimal efficiency of its workforce.

In addition, A&AS noted that there is no Maximo variance report to compare budgeted to actual labor hours for Preventive Maintenance work order tasks. When the budgeted time is compared to the actual time, the variance serves as an indicator of efficiency. Significant variances should prompt management to validate and document the conditions that contributed to the additional time in performing the preventive maintenance task. By doing so, management’s ability to assess work force utilization is enhanced.

Recommendation: Management should ensure that significant variances between budgeted and actual work time for Preventive Maintenance work orders are adequately verified and supported by written explanation. The verification and explanation will promote efficiency, support accountability, and provide a method for monitoring and evaluating work order effectiveness. Additionally, management should consider establishing a labor variance report in Maximo that calculates the variance between the budgeted and actual Preventive Maintenance task time. The variance information will provide a means to identify selected jobs to validate the factors and conditions that led to the labor hours incurred. By utilizing job time variance analysis, work force utilization can be measured as reasonable and necessary to accomplish the task, and resource accountability will be strengthened.

Response: This will be addressed when the recommendations from the Hickling Report are implemented, estimated for Spring 2019.

Backlog

A&AS conducted interviews with Facilities Management staff, including the Preventive Maintenance Coordinator, to obtain an understanding of backlogged Preventive Maintenance work orders, and how they are monitored until completed. Detailed electronic data from the Maximo system, including Preventive Maintenance work order assignment dates, assigned staff, start date, work complete date, and close date, was requested from Facilities Management staff to assess the tracking adequacy of backlogged Preventive Maintenance work orders. In addition, A&AS sought to evaluate whether there were critical preventive maintenance tasks related to fire/life/safety/security and compliance requirements that are backlogged, and if they are fulfilled within a reasonable amount of time. However, because Facilities Management staff was unable to provide the specific data requested, the Preventive Maintenance backlog analysis utilized Maximo data that was more convenient for the staff to provide, such as Maximo report queries.

Selected Maximo M&A and Utilities Preventive Maintenance work order data was provided for November and December 2017, and January 2018. Preventive Maintenance work orders remain within the assigned month, and any incomplete preventive maintenance tasks do not carry forward to the subsequent month for performance monitoring purposes. The monitoring process occurs throughout the month and is performed by M&A and Utilities management. For M&A, the Preventive Maintenance data provided summarizes work orders assigned, completed, incomplete, and percent completed/incomplete, but no reference dates. For Utilities, the Preventive Maintenance data provided reflects monthly Utilities work order detail including work order number, status, brief description, building location, and the assigned Utilities Engineer.

Backlogged Preventive Maintenance Tasks

As of March 1, 2018, there were 1,241 backlogged Preventive Maintenance work orders (tasks) from November and December 2017, and January 2018. The Preventive Maintenance Coordinator provided Maximo system data that lists 1,187 and 54 backlogged Preventive Maintenance tasks for M&A and Utilities, respectively. Preventive Maintenance provides planned services, including inspections, adjustments, and replacements designed to ensure maximum utilization of building systems and equipment at minimal cost. The Preventive Maintenance tasks are performed on scheduled frequencies and are designed to fulfill the needs of the facility. By not performing preventive maintenance tasks on a timely basis per the plan and approved schedule, building systems and equipment are at increased risk of downtime, accelerated deterioration, and decreased reliability. Facilities Management personnel indicated that a lack of adequate staffing and funding over the years has contributed to the backlog. In addition, unanticipated work arises via trouble calls that must be addressed which further impacts the backlog of Preventive Maintenance work orders to be completed.

Recommendation: Management should ensure that Preventive Maintenance tasks are completed within the expected time frames in which they are scheduled and assigned. As Facilities Management staff work through and complete backlogged Preventive Maintenance tasks, staff should sign and date reports detailing the work performed. Having thorough documentation of Preventive Maintenance task work will help to strengthen the tracking and monitoring of the Preventive Maintenance program.

Response: This will be addressed when the recommendations from the Hickling Report are implemented in Spring 2019. When PMs are generated, we will have a report that shows what PMs are expired or incomplete. Under the new process, we will close out the old one and the report will indicate the percentage of PMs the workforce was unable to complete.

Work Order Completion – Maximo System

A&AS met with the Preventive Maintenance Coordinator, and the Senior Administrative Assistant to obtain an understanding of the processes and controls for “completing” Preventive Maintenance work orders in the Maximo system. A demonstration was provided on how Preventive Maintenance work orders are processed as complete in the Maximo system by the Senior Administrative Assistant. Maximo data for Preventive Maintenance work orders were reviewed to verify they were processed as complete on a timely basis within the monthly reporting period. The Preventive Maintenance work orders that have been performed but not yet completed in Maximo, are forwarded to administrative assistants sporadically throughout the month. Preventive Maintenance work order status on these items is updated to completed and then “closed.” Completed means that the work has been performed, the work order documentation has been submitted, and the completed button in Maximo has been clicked. Closed means that there can be no more charges posted against the work order (i.e., Facilities Management staff cannot post additional time to the work order). The Maximo system automatically closes the work order 60 days after it has been “completed.”

Preventive Maintenance Work Order Processing Procedures

Management has not developed and implemented a formal, standardized process that all trade shops should use when administratively completing and closing a Preventive Maintenance work order in Maximo. Generally, a completed work order has its work performed, documentation submitted, and its status manually updated in Maximo. A closed work order is based on its completion and a subsequent status update either in Maximo, which is performed manually, or by system default after 60 days. The Preventive Maintenance work order completion and close process is distinct from the completion and close process for trouble calls and routine maintenance. Additionally, the completion and closure process between the Utilities division and M&A are different as well. Facilities Management’s administrative assistants are key elements in the completion and closure process. Due to the variations within these processes, Facilities Management staff indicated that not all Preventive Maintenance work orders that are physically complete are processed as completed by the administrative assistants by month end. As a result, these Preventive Maintenance work orders are reported as outstanding in management’s Preventive Maintenance month-end metrics. Without a formal, standardized completion and closure process for Preventive Maintenance work orders, staff responsible for the final steps in the work order processing, might not have the necessary guidance to carry out the prescribed procedures in a manner that is uniform among all trade shops.

UCLA Policy 360, Internal Control Guidelines for Campus Departments (UCLA Policy 360) requires periodic review of department operating procedures to ensure internal controls are being followed and improving on those controls when weaknesses are detected. UCLA Policy 360 also requires control activities, including but not limited to operating procedures, be identified and captured such that it enables management and staff to carry out their responsibilities efficiently and effectively. Without adequate written procedures for key operational processes, the efficiency and effectiveness of staff assigned Preventive Maintenance work order responsibilities, will be affected. Additionally, essential institutional and organizational knowledge could be at risk of loss in the event of staff attrition and/or unexpected separation from the Facilities Management department.

Recommendation: Management should develop written procedures and implement a formal standardized process for administratively completing and closing Preventive Maintenance work orders in Maximo. The procedures should be disseminated to all staff involved with the process and define each role within the workflow. The procedures should include all necessary elements of controlling the Preventive Maintenance work orders such as identification for each trade, Maximo system navigation, processing differences among the trades, Preventive Maintenance task monitoring, timeliness, and tracking of communications when questions arise. Information within the workflow should be vetted by stakeholders to ensure completeness. By establishing written procedures, management will be strengthening its current control environment over Preventive Maintenance work order processing.

Response: This will be addressed when the recommendations from the Hickling Report are implemented in Spring 2019. The Standard Operating Procedure is currently being developed.

Deferred Maintenance

Project Identification

A&AS held discussions with managing personnel within Facilities Management and staff to obtain an understanding of processes and controls used to identify and assess Deferred Maintenance projects. The relevant sections of the UC Facilities Manual were reviewed to determine the definition, components, and goal of Deferred Maintenance projects. The 2016-17 UC Budget for Current Operations Summary was also reviewed to gain a general understanding of the current Deferred Maintenance monitoring model and overall assessment of University facilities and infrastructure.

Facilities Management is proactive in identifying and assessing Deferred Management projects. Deferred Maintenance projects are identified by Facilities Management’s M&A and Utilities managers, senior superintendents, supervisors, and their crews during preventive and routine maintenance, including trouble calls. When assessing equipment or a building system such as a Deferred Maintenance project, a Deferred Maintenance fact form is completed and submitted for consideration and inclusion on Facilities Management Deferred Maintenance project list. The project fact form includes a description of the equipment or building system, estimated cost of performing the Deferred Maintenance, and images of the affected items. Assessments are performed by qualified M&A and Utilities personnel with the technical expertise for that particular trade.

There were no significant weaknesses noted in this area.

Prioritization

Management and staff provided A&AS personnel with an understanding of the Deferred Maintenance project prioritization methodology, including how such prioritization considers risk to the University’s mission. The current Deferred Maintenance project list was reviewed for adequacy and compliance with the UC Facilities Manual. During preliminary planning discussions, management indicated that project prioritizationincorporates routine maintenance and trouble call history, system performance, and remaining service life. When there is a change in condition to the Deferred Maintenance project subject matter, an assessment is performed by qualified M&A and/or Utilities personnel. This information is then communicated to M&A and Design & Project Management (DPM) directors, and ultimately to the Assistant Vice Chancellor of Facilities Management.The Assistant Vice Chancellor of Facilities Management then reorders the Deferred Maintenance projects with input from division directors.This process results in the most critical projects being prioritized first.Sometimes, before approved projects are initiated,some other building system will fail, which creates a constant need for reexamining Deferred Maintenance project priorities.

Relevant sections of the UC Facilities Manual were reviewed to determine the definition, components, and purpose of Deferred Maintenance projects. The 2016-17 UC Budget for Current Operations Summary was also reviewed to gain a general understanding of the established Deferred Maintenance monitoring model.

Deferred Maintenance Project Prioritization

The current Deferred Maintenance project list does not prioritize projects utilizing attributes required by the UC Facilities Manual. Volume 6, Chapter 2, section 2.1.2, “Construction Services, and Deferred Maintenance Program” provides that each identified Deferred Maintenance project is to be prioritized according to the following criteria:

Priority 1: Currently Critical – These are needs and/or projects which significantly impact the mission of the University and require immediate action to return a facility to normal operation, stop accelerated deterioration, or correct a cited safety hazard, especially those conditions which potentially impact an entire Campus or pose a significant risk to health and safety.

Priority 2: Potentially Critical – These needs and/or projects will become critical within a year if not corrected expeditiously. Situations in this category include intermittent interruptions, rapid deterioration, and potential safety hazards. The significance of these conditions to the mission of the University should be a factor.

Priority 3: Necessary, Not Yet Critical – These needs and/or projects include conditions requiring reasonably prompt attention to preclude predictable deterioration or potential downtime and the associated damage or higher costs if deferred further. Conditions which do not significantly impact the mission of the University should be placed in this category.

Per review of the current five-year Deferred Maintenance project list, A&AS found 28 projects with “Impact on Campus” statements describing (in part) such conditions as the following:

* Failure to replace the obsolete system will compromise the fire life safety system of the building
* Bring building up to fire life safety codes
* Provide a safe environment
* Avoid potentially harmful fumes
* Eliminates health concerns
* Prevent sanitary sewer overflows

By not prioritizing each project on the Deferred Maintenance project list using the attributes set forth in the UC Facilities Manual, management may not properly identify the significant risk to health and safety to the Campus community and/or impact to the University’s mission.

Recommendation: Management should ensure that each project on its Deferred Maintenance project list includes the required priority notation as indicated in the UC Facilities Manual. Utilizing the prioritization categories will provide management and other stakeholders with an efficient tool to recognize and distinguish between catastrophic failure of a mission critical system and the potential of a future failure. Enhancing the current methodology by using the required priority attributes will provide a clearer representation of known condition assessments of existing building systems and infrastructure assets.

Response: We will add a column to our current DM list to indicate priority in line with the UC Facilities Manual. Expect completion by September 15, 2018.

Scope

Maintenance & Alterations personnel and Utilities unit staff briefed A&AS about the processes and procedures established to determine Deferred Maintenance project scopes in their respective areas. The Utilities unit is serviced by DPM project managers for this activity. The five-year Deferred Maintenance project list dated July 13, 2017, was obtained and reviewed. The project list combines both M&A and Utilities projects. Fifteen sample Deferred Maintenance projects were selected from the list for fiscal years 2017-18 and 2018-19, and included projects from various Facilities Management cost centers, estimated project costs, and descriptions.

The cost centers selected for Deferred Maintenance project testing included electrical infrastructure high voltage, security systems/fire alarm, swing shift electrical systems, masons/roofers, steam plant engineers/campus infrastructure, north and south zone engineers, elevator mechanics, plumbers, and utilities. Supporting documentation for the selected sample was obtained and reviewed for adequacy. Each selected Deferred Maintenance project has a fact sheet which is prepared as part of the Deferred Maintenance project submission process for the five year plan. Each fact sheet includes images and description of the infrastructure item, observed Deferred Maintenance conditions, project justification, etc. A Deferred Maintenance project can be straightforward and a singular task in scope, or more complex depending on the infrastructure system being addressed.

There were no significant weaknesses noted in this area.

Budgeting

Management provided an understanding of processes and procedures utilized, and data required to prepare and document Deferred Maintenance project budgets. Since Utilities Deferred Maintenance projects are administered by DPM project managers, they are supported in the same methodology and controls as currently established by DPM for non-Deferred Maintenance projects. For these Utilities Deferred Maintenance projects, the assigned project manager initially prepares a rough budget. The senior DPM project manager subsequently reviews and provides additional budget preparation support to strengthen the project’s budgetary components, including appropriate supporting documentation. For M&A, the assigned Deferred Maintenance project manager prepares the rough budget together with the project fact sheet which are then submitted for consideration to the shop’s manager. The manager reviews the information and the proposed budget for reasonableness. The submitted Deferred Maintenance project budgets for both Utilities and M&A are re-evaluated annually to account for any changes in labor costs, commodity prices, etc.

Deferred Maintenance Project Budget Process

Facilities Management M&A has no formal Deferred Maintenance project budget process. Interviews with division management indicate that M&A project budgets are based on the respective shop’s lead engineers or supervisor’s experience and knowledge. There is no requirement to submit and maintain supporting budget documentation for future reference, and the methodology for preparing a Deferred Maintenance project budget varies with each shop. Additionally, where budgeted amounts are submitted, there are no estimates for labor hours and rates, materials, vendor services, soft costs, contingency, etc. A Deferred Maintenance project budget is a spending plan that provides budgetary control for resources, and may provide support for developing a strategy to secure adequate future funding.

Recommendation: Management should develop and implement written guidelines for preparing Deferred Maintenance project budgets. The guidelines should include a requirement for creating and maintaining supporting documentation for each element of the project’s total budgeted amount, such as labor hours and rates, materials, vendor services, soft costs, and contingency amounts. The budget should be realistic and reasonable, and have supportable estimates. Budgetary supporting documentation should be packaged with other project documentation when being submitted for consideration as a Deferred Maintenance project. Since Deferred Maintenance projects are part of an overall, ever changing five-year Deferred Maintenance plan, the guidelines should allow for periodic reevaluation to ensure they reflect current financial conditions. The Deferred Maintenance project budget guidelines should also enable management and staff to carry out their responsibilities efficiently and effectively, and ensure compliance with UCLA Policy 360.

Response: Concur. Expect completion by the end of the calendar year.

Funding Allocation and Monitoring

The fiscal year 2016-17 and 2017-18 Deferred Maintenance project funding list was reviewed to verify timely allocation of funds to Deferred Maintenance projects. The list provides the assigned Deferred Maintenance project number, current project status, and allocated funding date and amount. The allocated funding amount is based on the project fact sheets and budgets submitted by the assigned Utilities and M&A Deferred Maintenance project managers. As Deferred Maintenance projects are completed, the project list is reevaluated to account for any crucial condition changes to the projects already on the list and for any newly-identified critical projects. Deferred Maintenance project information from the Maximo system’s dashboard was reviewed for adequacy and completeness. During the life of a Deferred Maintenance project, project-specific funding variances are identified and monitored utilizing the Maximo system’s dashboard project budget information. This information includes project funding balances and expenditures, and any charges by vendors such contractors and internal Facilities Management costs centers.

There were no significant weaknesses noted in this area.

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