

**UNIVERSITY OF CALIFORNIA, DAVIS
AUDIT AND MANAGEMENT ADVISORY SERVICES**

**Minor Maintenance and Renovation Management
Audit and Management Advisory Services Project #14-05**

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**Finance, Administration and Operations
Facilities Management
Minor Maintenance and Renovation Management
Audit and Management Advisory Services Project #14-05**

MANAGEMENT SUMMARY

As part of the Audit and Management Advisory Services (AMAS) audit plan for fiscal year (FY) 2013-14, AMAS conducted an audit of Minor Maintenance and Renovation Management. The objective of our audit was to evaluate the adequacy and effectiveness of the internal controls over Minor Maintenance and Renovation Management.

Procedures Performed and Scope of Review

The scope of our review entailed minor maintenance and renovation projects less than \$35,000. We met with personnel from Facilities Management (Facilities) and Design and Construction Management to understand the administrative and oversight processes they use to manage and monitor minor maintenance and renovation projects. A financial analysis of FY 2013 recharge data revealed that Facilities performed 96% of the minor maintenance and renovation projects less than \$35,000; therefore, we focused our review on Facilities.

Conclusion

Facilities does not have a formal process in place to monitor and evaluate project performance; as such, the risks involved with managing the time and cost to complete a minor maintenance or renovation project are difficult to control. Facilities' current work order system is Maximo, which has inherent limitations that have impacted Facilities' ability to design and implement an effective monitoring program. For instance, Maximo can no longer be upgraded or supported, rendering its continued use unsustainable.

Facilities has recognized the limitations of Maximo and is in the process of replacing it with a new software system. In early 2014 a contract was signed with a consultant to implement the software which includes configuration, integration, installation, training, technical support, and software maintenance. The initial go-live date was projected for October 2014; however, due to a series of complications, as of June 2015 the software was not yet implemented.

Facilities has committed to developing monitoring tools based in large part from the data and reporting available in the new asset management system. To monitor the overall resource risks of time and cost exceeding budgeted or expected amounts, Facilities plans on using the out-of-the-box tools of the new software. These tools are expected to provide them with the information and tracking capabilities necessary in order to know how they are performing on projects both on a time and cost basis. Client transparency will be improved with the new software, as Facilities' clients will have access to their project information.

All these actions taken together and once fully established, should facilitate monitoring resources and help address and reduce the actual or perceived risks associated with minor maintenance and renovation projects.

Finally, we recommend that AMAS conduct an audit to evaluate the adequacy and effectiveness of the internal controls over monitoring Minor Maintenance and Renovation Management projects after FY17 when the asset management software has been fully functional for some time.

OBSERVATIONS**A. Facilities does not have a formal process in place to monitor and evaluate project performance.**

The general risks associated with minor maintenance and renovation projects are the time to completion and total cost. Without a formal business process for monitoring resources, the actual or perceived risks associated with the time and cost of completing a minor maintenance or renovation project are difficult to control. Currently, Facilities manages projects on an intuitive and ad-hoc basis rather than through a formalized process. We identified several key elements of a good monitoring program that are missing:

- No formal monitoring processes are established to compare expected time and cost of a project to the actual amount of resources used. There are no reconciliations or reasonableness tests performed between what goes into Facilities' current work order system (Maximo) and what ultimately shows up as revenues (billings) and expenditures (labor and supplies) in the Quali Financial System (KFS). Additionally, there is no process in place to ensure expenses are fully recorded in Maximo.
- No performance measurements, benchmarks, or other indices of operating efficiency or effectiveness are routinely employed to monitor resources used in completing tasks.
- Facilities currently does not meet the data management goals as described in the University of California Office of the President (UCOP) Facilities Manual. Per Volume 6 Chapter 4.3 Data Management - "Effective data management is important to the success of a Facility's OMP¹ program." There are three suggested OMP data management goals:
 - a. Establish data collection systems.
 - b. Institute systems for reporting historical data and operating statistics.
 - c. Maintain trend lines and indices of operating effectiveness.
- Work order process is not transparent to clients, which may negatively affect customer satisfaction.

Recommendation

No recommendations are warranted, as the acquisition and implementation of the new asset management system discussed in Observation C below will satisfactorily address the issues noted.

B. Many of Facilities' operational processes are intrinsically linked to Maximo, which has inherent limitations.

Facilities' work order system is Maximo, which is used to track work orders, capture time/costs of projects, and accumulate data to bill clients. Limitations of Maximo impact Facilities' ability to design and implement a monitoring program. For instance, Maximo can no longer be upgraded or supported, rendering its continued use unsustainable. Additionally, Maximo does not sufficiently meet the data management goals as suggested in the UCOP Facilities Manual, nor does it provide useful reports to assist in the management of projects.

¹ Operation and Maintenance of Plant.

Recommendation

No recommendations are warranted, as the acquisition and implementation of the new asset management system discussed in Observation C below will satisfactorily address the issues noted.

C. Facilities recognized the limitations of Maximo and is in the process of replacing it with a new software system.

Facilities recognized the limitations of Maximo and embarked on a joint project between Student Housing and Finance, Administration and Operations to acquire and implement a software solution that will facilitate the transition from a work-based approach to an enterprise asset management system (AMS) approach for managing UC Davis' physical assets with the goal of maximizing value through whole life optimal management. In early 2014 a contract was signed with a consultant to implement the software which includes configuration, integration, installation, training, technical support, and software maintenance.² The initial go-live date was projected for October 2014. However, due to a series of complications, as of June 2015 the software was not yet implemented.

Implementation of the new AMS presents the opportunity to redesign Facilities' processes, including those associated with minor maintenance and renovation projects, and develop appropriate monitoring tools, such as customer satisfaction surveys. While there will be a vast amount of data and information available in the AMS software, data alone will not address the risks and observations identified above unless goals, measurements and benchmarks are identified and specific monitoring processes created for minor maintenance and renovation projects.

Recommendation

Facilities needs to identify how they will use the data and information generated by the new system to address the risks regarding managing and monitoring project cost and time to completion.

Management Corrective Actions

1. By 4/30/2016, Facilities will identify/develop meaningful performance measurements, benchmarks, and other indices of operating efficiency and effectiveness to monitor resources used in completing projects.
2. By 4/30/2016, Facilities will establish a formal process to monitor and evaluate minor maintenance and renovation projects using key data indicators/reports, including regular comparisons of the expected time and cost of a project to the actual resources used.
3. By 4/30/2016, Facilities will comply with the UCOP Facilities Manual data management goals by maintaining trend lines and indices of operating effectiveness.

² After we identified the observations in this report, in lieu of conducting detailed audit testing of Facilities projects, AMAS agreed to participate on the asset management solution implementation work group in an advisory capacity.