

**OPERATION AND MAINTENANCE OF PLANT**

**CALIFORNIA STATE UNIVERSITY,  
STANISLAUS**

**Report Number 99-41  
December 13, 1999**

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## **ABBREVIATIONS**

CPDC	Capital Planning, Design & Construction (previously PPD)
CSU	California State University
FAMIS	Facilities Management Information System
MMS	Maintenance Management System
OMP	Operation and Maintenance of Plant
PM	Preventive Maintenance
PPS	Physical Plant Services
SAM	State Administrative Manual
SUAM	State University Administrative Manual

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## INTRODUCTION

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### PURPOSE

Our overall audit objective was to ascertain the effectiveness of policies and procedures related to the administration of the Operation and Maintenance of Plant (OMP) and to ensure that controls addressing current and future facility requirements are in place.

Within the overall audit objective, specific goals included determining whether:

- ▶ the administration and management of the OMP program and facilities planning functions provide clear lines of organizational authority and responsibility;
- ▶ budgeting procedures adequately address OMP funding, ensure that one-time funding allocations are used for their designated purpose, and include procedures to monitor budget versus actual expenses;
- ▶ a comprehensive program is in place that identifies all maintenance/repair requirements including preventive maintenance, facility repairs, deferred maintenance, custodial services, and grounds keeping;
- ▶ the maintenance/repair program includes productivity/performance standards, quality control, and employee training to ensure that quality work is performed effectively and efficiently;
- ▶ administrative controls over the maintenance/repair program are adequate, and the maintenance management system includes work order scheduling, costing and control; backlog reports; and productivity tools;
- ▶ non-maintenance work is adequately controlled and fully charged back to the customer in accordance with CSU directives;
- ▶ all non-general fund operations and chargeable costs have been identified in accordance with CSU directives and are fully charged back to the operations;
- ▶ chargebacks are adequately controlled and properly valued;
- ▶ maintenance materials, supplies, and equipment are adequately controlled and properly accounted for;
- ▶ a utilities management program has been established in accordance with CSU policy; and
- ▶ the campus physical master plan is maintained in accordance with CSU policy.

## SCOPE AND METHODOLOGY

This review emphasized but was not limited to compliance with state laws, Board of Trustee policies, and Office of the Chancellor and campus policies, letters and directives. June 1998 to date was the primary period of review.

Our primary focus involved the internal administrative and accounting controls over the operation and maintenance of plant functions. Specifically, we reviewed and tested:

- ▶ budget allocation and monitoring procedures;
- ▶ identification of maintenance/repair requirements;
- ▶ work order processing and completion of preventive maintenance tasks;
- ▶ procedures for controlling custodial services and grounds keeping;
- ▶ procedures for controlling and processing chargebacks for non-maintenance work and costs associated with non-general fund operations;
- ▶ procedures for controlling and accounting for maintenance materials, supplies and equipment;
- ▶ implementation of a utilities management program; and
- ▶ maintenance of the campus physical master plan.

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## BACKGROUND

In response to the systemwide risk assessment conducted during 1996, which included input from officers representing the chancellor's office and each CSU campus, the Board of Trustees directed this review of Operation and Maintenance of Plant at its January 1999 meeting.

The Legislative Analyst's Report on the 1979/80 budget addressed the need to protect the substantial public investment represented by CSU facilities, and the Legislature subsequently directed the CSU to implement a preventive maintenance program on each campus. In December 1979, a CSU Task Force on Plant Maintenance was appointed to explore preventive maintenance needs for the system and concluded that the concept of preventive maintenance was too narrow in scope to accommodate the total maintenance needs of the CSU. Consequently, a concept of "Planned/Programmed Maintenance" was proposed, incorporating preventive maintenance as well as systematic planning and programming. The CSU Executive Council reviewed the task force report and approved the concept in March 1981.

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## INTRODUCTION

In April 1981, Executive Order No. 343, *Establishment of Planned/Programmed Maintenance*, was issued. It stated that “effective immediately, each campus shall initiate a Planned/Programmed Maintenance Management system that will provide systematic maintenance of State owned campus facilities, program future special maintenance and repair project requirements, identify deferred maintenance needs, and schedule replacement of Group I equipment.”

In 1983, the Office of the University Auditor reviewed *Plant Operations* at eight campuses and issued a systemwide report. The Board of Trustees subsequently accepted the systemwide report and addressed nine implementing actions in Trustees’ resolution RA 9-83-057. These actions were adopted in CSU directive BA 84-25, *Implementation of Trustees’ Resolution RA 9-83-057 (Plant Operations)*, dated July 25, 1984.

Throughout this report, we will refer to the program as operation and maintenance of plant (OMP). The titles of the departments assigned responsibility for managing CSU campus operation and maintenance of plant include, among others, physical plant and plant operations. At California State University, Stanislaus, Physical Plant Services (PPS) manages the OMP program.

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## OPINION

We visited the California State University, Stanislaus campus from July 12, 1999, through August 20, 1999, and audited the procedures in effect at that time.

In our opinion, the administration and management of the OMP program provided clear lines of organizational responsibility, and budget-monitoring procedures were effective. Areas needing improvement are referenced in the executive summary below.

## **EXECUTIVE SUMMARY**

The purpose of this section is to provide management with an overview of conditions requiring their attention. Areas of review not mentioned in this section were found to be satisfactory. Numbers in brackets [ ] refer to page numbers in the report.

### **MAINTENANCE MANAGEMENT PROGRAM [6]**

#### **PREVENTATIVE MAINTENANCE [6]**

The Facilities Management Information System (FAMIS) preventive maintenance (PM) program was not fully operational and did not provide adequate PM administrative reporting. A fully operational PM program, which produces complete administrative reports, decreases the risk of system breakdowns and helps to ensure that maintenance and repairs are performed on a timely basis.

#### **PROGRAM ADMINISTRATION [7]**

Oversight of the work order program, preventive maintenance and productivity management was not adequate. Improving oversight over these areas decreases the risk of system breakdowns and helps to ensure that maintenance and repairs are performed on a timely basis.

#### **QUALITY CONTROL [8]**

A comprehensive quality control program had not been fully developed. Implementation of such a program decreases the risk of system breakdowns and deterioration of facilities and grounds and helps to ensure that work is performed in accordance with established procedures.

### **CHARGEBACKS AND NON-MAINTENANCE WORK [9]**

#### **CHARGEBACK CONTROLS [9]**

Campus policy governing reimbursement (chargebacks) to Physical Plant Services (PPS) for services rendered were not adequate. Using current and complete chargeback rates increases funds available for campus maintenance and repairs and ensures that all costs are fully reimbursed to PPS.

#### **NON-GENERAL FUND OPERATIONS [10]**

Contracted custodial services were not charged back to non-general fund operations. Strengthening the campus chargeback policy to include all services provided to non-general fund operations increases the amount of funds available for campus maintenance and repairs.

## **MAINTENANCE MATERIALS AND EQUIPMENT [11]**

Maintenance materials and supplies inventory controls and procedures were not adequate. Strengthening inventory controls decreases the risk of lost or stolen assets and could lower overall inventory costs.

## **UTILITIES MANAGEMENT [13]**

The campus utilities management program was in need of improvement. Improving this program will ensure that the general fund is fully compensated for utilities provided to self-supporting and external organizations and may result in increased energy efficiency.

## **PHYSICAL MASTER PLAN [14]**

A thorough reevaluation of the campus physical master plan had not occurred since March 1984. Timely reviews of the campus physical master plan will ensure that facilities meet current and future needs.

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## OBSERVATIONS, RECOMMENDATIONS, AND CAMPUS RESPONSES

### MAINTENANCE MANAGEMENT PROGRAM

#### PREVENTIVE MAINTENANCE

The Facilities Management Information System (FAMIS) preventive maintenance (PM) program was not fully operational and did not provide adequate PM administrative reporting. We noted that:

- ▶ PM work schedules and detailed work tasks had not been entered into the FAMIS or verified for all crafts. Physical Plant Services (PPS) was manually converting the PM program from the previous maintenance management system (MMS) to the FAMIS, and PPS management stated that the new PM system implementation was only 15% complete. In addition, the work control coordinator, the only person who knew how to operate the FAMIS PM program, resigned effective July 23, 1999.
- ▶ The FAMIS did not provide adequate preventative maintenance administrative reporting such as PM scheduling work order backlog.

Executive Order #343, *Establishment of Planned/Programmed Maintenance*, dated April 29, 1988, states that each management system shall incorporate a current, comprehensive schedule for all maintenance work to be accomplished in a timely manner.

CSU directive BA 84-25, *Implementation of Trustees' Resolution RA 9-83-057*, dated July 25, 1984, states that a work order system that reasonably accounts for all resources within plant operations will be implemented on each campus.

SAM §20003 states that a satisfactory system of internal administrative control shall include an established system of practices to be followed in performance of duties and functions as well as an effective system of internal review.

The PPS director stated that the PM data conversion from the previous MMS to the FAMIS was not complete or accurate, and therefore, administrative reporting is not currently available.

A PM system that is not fully operational increases the risk of ineffective and inefficient PM scheduling and coverage for campus equipment and facilities.

#### **Recommendation 1**

We recommend that the campus complete the development and implementation of the FAMIS preventive maintenance program, including PM scheduling and administrative reporting.

### **Campus Response**

We concur. The FAMIS is operational and the preventive maintenance segment is currently in progress. As noted in the auditor's findings the implementation of the system was impacted by the system administrator's departure from the campus. The task of implementing the system has been assigned to the Manager of Administrative Services. The departure of the system administrator has also enabled the restructuring of Physical Plant Services to include an information technology position to be hired for the operations, training, and maintenance of the FAMIS. The implementation of the FAMIS preventative maintenance software is to be completed by May 30, 2000 and we plan to have supervisors and staff trained and the FAMIS system in full operation by October 1, 2000.

### **PROGRAM ADMINISTRATION**

Oversight of the work order program, preventive maintenance and productivity management was not adequate. We noted that:

- ▶ As of July 15, 1999, 10.7% (98/926) of open work orders were greater than 120 days old, with a third of those (34/98) being at least six months old. Further investigation showed that 75 of the 926 work orders should have been closed because the work was completed (74) or cancelled (4).
- ▶ Physical Plant Services (PPS) was using a makeshift preventive maintenance (PM) system to identify equipment in need of PM due to the ongoing implementation of the new PM system. As a result, there was no assurance that all PM requirements were being met.
- ▶ Performance standards had not been documented and productivity reports were not available from the Facilities Management Information System (FAMIS).

Executive Order #343, *Establishment of Planned/Programmed Maintenance*, dated April 29, 1988, states that each management system shall incorporate a current, comprehensive schedule for all maintenance work to be accomplished in a timely manner.

SAM §20003 states that a satisfactory system of internal administrative control shall include an established system of practices to be followed in the performance of duties and functions as well as an effective system of internal review.

The PPS director and the resource analyst stated that due to the implementation of the new maintenance management system they had only recently begun training supervisors to achieve the full benefit of the system.

Less than adequate oversight over the work order program, preventive maintenance, and productivity management increases the risk that maintenance and repairs will not be performed on a timely basis and system breakdowns will occur.

## **Recommendation 2**

We recommend that the campus:

- a. establish procedures to monitor the status and age of open work orders to expedite completion of the work and ensure that completed work orders are promptly closed;
- b. strengthen procedures to ensure that all preventive maintenance tasks are completed in a timely manner; and
- c. establish procedures to measure productivity.

## **Campus Response**

- a. We concur. Until Physical Plant supervisors are fully trained and the new MMS system implementation is completed a procedure has been established whereby the Manager of Administrative Services is responsible for running bi-monthly work order status reports. The reports will be separated by department supervisor to review and to update current work order status to ensure completed work orders are closed in a timely manner. Once the supervisors have completed training on the new system, they will be responsible for monitoring their division work order status. Monthly status reports will be developed for review by the Director of Physical Plant Services. On February 1, 2000 we will begin generating bimonthly work order status reports and plan to complete supervisor training by June 1, 2000.
- b. We concur. Data entry regarding building preventative maintenance tasks and equipment preventative maintenance tasks are currently being reviewed and entered into the system. We estimate having all PM tasks entered into the new system by May 30, 2000.
- c. We concur. Formal procedures will be developed and implemented by November 1 2000.

## **QUALITY CONTROL**

A comprehensive quality control program had not been fully developed. We noted that:

- ▶ Routine documented quality control checks of preventive maintenance and service work orders were performed on a limited basis. Work was reviewed on an informal basis as time permitted.
- ▶ Documented quality control checks of grounds keeping were not performed.

SAM §20003 states that a satisfactory system of internal administrative control shall include an established system of practices to be followed in performance of duties and functions as well as an effective system of internal review.

The physical plant services director stated that many informal reviews are performed but not always documented.

A lack of fully implemented quality control procedures increases the risk that work will not be performed in accordance with established procedures and could result in system breakdowns and deterioration of facilities and grounds.

### **Recommendation 3**

We recommend that the campus establish and implement a comprehensive formalized quality control program to ensure compliance with facilities management work standards.

### **Campus Response**

We concur. Physical Plant Services will update and formalize current quality control programs by July 1, 2000.

## **CHARGEBACKS AND NON-MAINTENANCE WORK**

### **CHARGEBACK CONTROLS**

Campus policy governing reimbursement (chargebacks) to Physical Plant Services (PPS) for services rendered were not adequate. We noted that:

- ▶ Supporting documentation could not be provided by the campus to substantiate the 15% and 20% overhead rates applied to labor charges for state and non-state chargebacks, respectively, or the 22% markup applied to material costs. In addition, these rates had not been reviewed in over 10 years.
- ▶ Supporting documentation could not be provided by the campus to substantiate the 30% benefit rate used for non-state chargebacks.

Code Memo BA 84-25, dated July 25, 1984, states, in part, that each campus will develop a chargeback system for Plant maintenance responsibilities, which must ensure return of all direct labor and material costs, and costs for contracted services, to the plant operations budget. Additionally, the policy should include reimbursement for overhead or indirect costs. These latter costs include reimbursements for administrative processing, estimating, supervision, equipment, vehicles, etc., and would normally be calculated and added as a percentage of total costs.

CSU systemwide directive BP 86-69, *Staff Benefits – Billing Rates for Services of General Fund Employees*, dated September 29, 1986, states that campuses will be responsible for the derivation of benefit rates applicable to the campus and compliance with SAM §8740.

SAM §8740 establishes the formula for determining hourly rates including staff benefits for the billing of services of employees paid on a monthly basis.

SAM §20003 states that a satisfactory system of internal accounting and administrative control shall include a system of record keeping procedures adequate to provide effective accounting control over assets, liabilities, revenues, and expenditures.

The PPS director stated that the various chargeback rates, policies, and practices have not been reviewed for several years.

Using outdated and incomplete chargeback rates reduces the likelihood for complete reimbursement to PPS for services rendered and reduces the amount of funds available for campus maintenance and repairs.

#### **Recommendation 4**

We recommend that the campus:

- a. substantiate the validity of the overhead rates and material markup;
- b. substantiate the benefit rate applied to non-state chargebacks in accordance with SAM §8740; and
- c. establish procedures to maintain overhead, material markup and benefit rates on a current basis.

#### **Campus Response**

We concur. The University will update its cost recovery program to fully represent the requirements of the State Administrative Manual and CSU system wide directives. The recovery policy will be revised and implemented by July 1, 2000.

#### **NON-GENERAL FUND OPERATIONS**

Contracted custodial services were not charged back to non-general fund operations.

Code Memo BA 84-25, dated July 25, 1984, states, in part, that each campus will develop a chargeback system for Plant maintenance responsibilities, which must ensure return of all direct labor and material costs, and costs for contracted services, to the plant operations budget.

CSU directive BA 83-30, *Policy on Chargeable Services to Self-Supporting Operations*, dated December 28, 1983, states that funds provided from the general fund may be used to provide support for ancillary operations that are not funded through the general fund if there is recovery of the cost of such support.

SAM §8752 states that state policy is for departments to recover full costs whenever goods or services are provided to others.

The physical plant services director stated that the various chargeback rates, policies, and practices have not been reviewed for several years.

Failure to chargeback all services provided to non-general fund operations reduces the amount of funds available for campus maintenance and repairs.

### **Recommendation 5**

We recommend that the campus establish procedures to ensure that services rendered to all non-general fund operations are charged back.

### **Campus Response**

We concur. The University will update its current cost recovery program for non-general fund operations that represents the requirements of the State Administrative Manual and CSU system wide directives. The cost recovery policy will be revised and implemented by July 1, 2000.

## **MAINTENANCE MATERIALS AND EQUIPMENT**

Maintenance materials and supplies inventory controls and procedures were not adequate. We noted that:

- ▶ A proper segregation of duties was not maintained over maintenance materials. The warehouse stock clerk was responsible for ordering, receiving, inventory custody, issuing materials, and the physical inventory reconciliation process.
- ▶ Documentation to support the reconciliation of physical inventory counts to perpetual records was not always available. In addition, inventory procedures performed by the stock clerk included adjustments to inventory records, rather than performing reconciliations between inventory “on hand” and perpetual records to identify inventory shortages/overages.

SAM §3535 states that agencies must maintain unit stock records and conduct physical inventories if they operate warehouses with gross floor space exceeding 4,000 sq. ft., average annual inventory investment in expendable goods exceeding \$50,000, annual issues of expendable goods exceeding \$100,000 or expendable goods inventory consisting of 400 or more stock items. In addition, each state agency must develop internal policies and procedures for effective materials management within each organizational unit that maintains continuing inventories of expendable goods.

CSU directive BA 84-25, *Implementation of Trustees' Resolution RA 9-83-057*, dated July 25, 1984, states that internal controls over the purchase, storage and use of plant operations department materials be developed and implemented at the campuses.

SAM §8080 requires an adequate separation of duties so that no one person orders and receives supplies, maintains control over the inventory and issues materials and equipment.

SAM §20003 states that a satisfactory system of internal accounting and administrative control shall include segregation of duties appropriate for proper safeguarding of state agency assets and a system of record keeping procedures adequate to provide effective accounting control over assets, liabilities, revenues, and expenditures.

The work control coordinator stated that the segregation of duties issue was unavoidable due to having only one employee to maintain the warehouse inventory. She further stated that the inventory procedures were considered appropriate at the time.

Lack of sufficient inventory controls increases the risk of lost or stolen assets and leads to higher overall inventory costs.

### **Recommendation 6**

We recommend that the campus:

- a. establish procedures to ensure proper segregation of duties over all items maintained in inventory; and
- b. develop formalized internal policies and procedures for effective materials management, including documented physical inventories with reconciliations to perpetual records.

### **Campus Response**

- a. We concur. The warehouse is a one-person operation and no funds are currently available to hire another position to segregate the warehouse functions. To improve the inventory control process the shipping and receiving clerk will be responsible for performing the physical inventory reconciliation. This change will begin when we perform our next annual inventory reconciliation ending on June 30, 2000.
- b. We concur. We are in the process of reviewing warehouse operation policies and procedures and will update and formalize policies and procedures by September 1, 2000.

## UTILITIES MANAGEMENT

The campus utilities management program was in need of improvement. We noted that:

- ▶ Utilities were not being adequately charged back for Parking and Food Services. Parking was not charged for utilities, and Marriott Food Service was paying an annual flat fee of \$6,000, which had not been reviewed since 1995. In addition, no documentation was available to support the \$6,000 flat fee.
- ▶ The campus did not have a formalized campus-wide five-year Energy Conservation and Utilities Management Plan. Instead, the campus had a list of upcoming projects.

Executive Order #538, *Policy Statement on Energy Conservation and Utilities Management for the CSU and Energy Consumption Reduction Goal*, dated February 1, 1989, states in part that all CSU campuses will implement a utilities chargeback system to recover the cost of utilities provided to self-supporting and external organizations; and each CSU campus will develop, implement and update a campus-wide five-year Energy Conservation and Utilities Management Plan.

The supervisor of energy and engineering services stated that within the past four years, energy efficiency and utility master plan studies have been conducted. He further stated that while the University has completed many of the recommendations from those studies, they would continue to focus on future energy management and utility projects. He also stated that in the past it had been difficult to meter actual use for the cafeteria given its complex arrangement; however, it may be time to reexamine the chargeback system to Marriott Food Service. In addition, Parking is also not charged due to campus policy.

A less than satisfactory campus utilities management program reduces the likelihood that the general fund will be fully compensated for utilities provided to self-supporting and external organizations and may result in decreased energy efficiency.

### **Recommendation 7**

We recommend that the campus:

- a. establish procedures to charge utilities back to all non-general fund activities (including Parking) and periodically review and update flat rate fees;
- b. review the flat rate being used for Marriott Food Service and update, if applicable; and
- c. formalize the campus-wide five-year Energy Conservation and Utilities Management Plan.

### **Campus Response**

- a. We concur. The University will review the current non-general fund operations utility costs and update our procedures by which non-general fund operations reimburse the campus for the full cost of utilities. To be completed by July 1, 2000.
- b. We concur. The University will review the current contract with Marriott Food Service as it relates to utility reimbursement to the campus and develop a plan by July 1, 2000 to recover the actual utility costs.
- c. We concur. The University has had a very proactive energy conservation and utilities management program for the past several years. We will formalize that program to be consistent with CSU requirements by May 1, 2000.

## **PHYSICAL MASTER PLAN**

A thorough reevaluation of the campus physical master plan had not occurred since March 1984.

PPD SUAM Section II §9009 states that periodically, but not less often than every three years, each campus shall accomplish a thorough reevaluation of all parts of the Physical Master Plan and shall submit a written summary report of the reevaluation to PPD (Capital Planning, Design and Construction).

The senior director of facilities, planning & operations and the supervisor of planning and construction services stated that the campus has never been requested to do this, and by practice, this has not been enforced. They further stated that changes have been implemented on an incremental basis.

Failure to review the campus physical master plan on a timely basis increases the risk that facilities will not meet current and future needs.

### **Recommendation 8**

We recommend that the campus obtain clarification from CPDC regarding the periodic physical master plan reevaluation requirement and comply as instructed.

### **Campus Response**

We concur. The University will obtain clarification from CPDC by March 1, 2000 and comply with requirements determined through the clarification.

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## **APPENDIX A: PERSONNEL CONTACTED**

<b><u>Name</u></b>	<b><u>Title</u></b>
Dr. Marvalene Hughes	President
Carl Coffey	Senior Director, Facilities Planning & Operations
Robert Gallegos	Director, Physical Plant
Gary Krietsch	Supervisor, Planning & Construction Services
Cindy Lindo	Clerical Assistant
David Loree	Stock Clerk
Shirley Mollard	University Budget Manager
Maggie Payne	Work Order Coordinator
Becka Paulsen	Controller Financial Services
Julia Reynoso	Resource Analyst
Mary Stephens	Vice President, Business & Finance
Victor Takahashi	Supervisor, Energy & Engineering Services