

**SAN MATEO COUNTY COMMUNITY
COLLEGE DISTRICT**

REVIEW OF MAINTENANCE SERVICES

March 2011



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INCORPORATED



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I N C O R P O R A T E D

March 15, 2011

Mr. José Nuñez
Vice Chancellor
Facilities, Planning, Maintenance and Operations
San Mateo County Community College District
3401 CSM Drive
San Mateo, CA 94402

Dear Mr. Nuñez:

Management Partners has conducted a review of the San Mateo County Community College District's plan to maintain the growing inventory of buildings and grounds. This report summarizes the results of our review and our assessment of the adequacy and soundness of the proposed personnel increases in the Maintenance and Operations Division.

The Maintenance and Operations Division is being impacted by additional facilities coming on line and a reduction in maintenance personnel. We have reviewed the amount and nature of new facilities that will be operational by July 2011. We interviewed the three campus facility managers and studied maintenance business practices in the District. We have reviewed the data from surveys you sent to Bay Area community college districts and compared the District's maintenance program with that of the responding districts.

As explained in our report, the Maintenance and Operations Divisions current maintenance program compares well to industry best practices and the practices of other Bay Area college districts. Our assessment is that the requested staffing changes are reasonable if the objective of the District is to sustain current maintenance standards. We make 21 recommendations that will improve the management and effectiveness of the District's maintenance function.

Thank you for the opportunity to support the District's effort to adequately maintain facilities using the best practices for efficiency, effectiveness and economy.

Sincerely,

Gerald E. Newfarmer
President and CEO

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EXECUTIVE SUMMARY

The San Mateo County Community College District has utilized two bond measures to renovate and build new facilities on its campuses. As these new and renovated facilities come on line, the maintenance function is being impacted. The Facilities Planning, Maintenance and Operations Department has proposed staffing changes for the Maintenance and Operations Division and has engaged Management Partners to review department operations and the proposed staffing changes.

Maintenance and Operations practices were reviewed and were compared with industry best practices. Surveys were distributed to 13 greater Bay Area community college districts to obtain comparable data on their maintenance operations. Although only five districts responded to the survey, some comparisons can still be valuable. Data drawn from our extensive experience with city and county government facility maintenance practices have been included to provide additional information.

A review of operational processes indicates that the Maintenance and Operations Division has implemented many best practices, including using a computerized maintenance management system (CMMS), called "Work Orders Leading to Facilities Excellence" (WOLFE) by the District, to manage work requests and implementing many energy efficiency measures and improvements. There is good teamwork across job functions. The division is also working on other best practices, including implementing a preventative maintenance module in the CMMS and entering facility and equipment data in the CMMS.

One area of improvement is to expand the use of life cycle budgeting. Maintenance staff has been using some of the concepts of life cycle budgeting and this needs to be established as a more formal and all-inclusive process.

There is a disconnect in the District between the maintenance functions and the end users. Personal feedback is sought but a formal survey of users is not done to determine expectations compared with accomplished levels of service. Likewise, there is no system for departmental users to be responsible for utility usage.

The use of internal service funds to collect maintenance and utility costs and charge departments for their usage (like charging rent) would establish this linkage. This allows departments to negotiate levels of custodial service and to be responsible for energy conservation.

With new and renovated buildings coming on line, the responsibilities of maintenance staff are changing. By July 2011, the square footage responsibilities of the engineering staff will have increased by approximately 19.5% from January 2008; square footage responsibilities of custodians will have increased by approximately 19.3% over the three and one-half year period.

The FY 2010/11 proposed staffing changes would add seven additional custodians, four additional grounds maintenance personnel; and one additional engineer. With the requested additions, the square footage per custodial staff will be approximately 8.7% greater than in January 2008 and square footage per engineering FTE will be approximately 11.2% greater. Although there has been a decrease in the total campus acreage not covered by buildings, the areas maintained by grounds staff have increased. Areas were taken off-line while buildings were being renovated or constructed and contractor staging areas were not maintained by staff. As facilities come back on-line, grounds maintenance areas are returned to the workload.

When maintenance costs are compared with other Bay Area college districts, the District is on the low end. One factor contributing to the District's low cost structure is the use of generalist maintenance job classifications compared with specific trade classifications.

The requested staffing increase of twelve FTEs is reasonable if the District wants to continue current maintenance conditions. With the new buildings coming on-line and without increasing staff, maintenance levels will be reduced with a noticeable deterioration in the appearances of the campuses. To return to the maintenance levels of 2008, an increase of 22 FTEs would be needed over the current 67 FTEs.

The District's budget allocation methodology was reviewed and found to be a fair process but it has a structural staffing deficit built in for the maintenance function. An alternative method that equates maintenance and operations budgets to levels needed to maintain the health, safety, and protection of the infrastructure, as well as matching the maintenance budget with service levels established as a formal District policy, would provide greater consistency and stability of maintenance.

This report contains additional recommendations that, when implemented, will improve maintenance operations. A list of recommendations is included as Attachment A.

BACKGROUND

In 2001 and 2005 voters of the San Mateo County Community College District approved bond measures to modernize and construct new facilities on the District's three campuses: Canada College, College of San Mateo and Skyline College. As a result of this construction the square footage of facilities to be maintained has increased significantly. Table 1 shows the changes in square footage by campus (including some square feet of buildings that have been off line during renovation) as reported in the Facilities, Planning, Maintenance and Operations Department's Facilities Update, April 20, 2010.

TABLE 1: FACILITY SQUARE FOOTAGE BY YEAR

	Canada	San Mateo	Skyline	Total
2009	345,301	550,869	462,985	1,359,155
2010	345,301	653,719	469,985	1,469,005
2011	345,301	734,761	542,984	1,623,046

The District has a well-developed facilities maintenance program executed by the Maintenance and Operations Division of the Facilities Planning, Maintenance and Operations Department. While the inventory of facilities has been increasing, staffing for the Maintenance and Operations Division has decreased. In FY 2008/09, the division's work force was reduced from 73 to 67 full-time equivalent employees (FTEs), where it remains today. The FY 2009/10 operating budget of the Maintenance and Operations Division is \$6,206,500.

With an additional 150,000 square feet of buildings (new and renovated space) coming on line in July 2011, the Vice Chancellor for Facilities Planning, Maintenance and Operations presented a request to the Chancellor in July 2010 for an additional 11 maintenance positions and a budget increase of \$480,419 (not including benefits or operational costs). This request was updated in January 2011 to add an engineer. The revised budget request totals \$1,388,727 and now includes benefits and operational costs. The revised request is for four fewer positions than the department thinks are necessary to meet the maintenance demands of the new facilities (as proposed in January 2009).

Given the unprecedented financial stress, the District wants to ensure that the proposed approach and cost of maintaining a growing facilities inventory is adequate to meet District standards and reflects best practices for economy and efficiency. Management Partners was engaged to conduct an independent review of the proposed additional

resource requirements for facility maintenance and identify if there are viable alternative approaches to facility maintenance that would meet District standards at a reduced cost.

PROJECT APPROACH

Management Partners began this project by creating a detailed work plan and project schedule. We met with the Vice Chancellor for Facilities Planning, Maintenance and Operations and the Executive Vice Chancellor to clarify expectations, review the work plan and create a final project schedule. We identified information and data required for analysis and the college districts to be included in a benchmark survey. The focus of the project is the maintenance function and does not include the facilities planning function in the department.

Management Partners reviewed relevant information to develop an understanding of the District's current maintenance program and interviewed the three campus facility managers. We assessed current facility maintenance policies, standards, delivery methods, work load and budgets; the nature and schedule of new facilities coming on line (size, use, technology, maintenance standards); and the proposed resource requirement for maintenance of new facilities.

Surveys were sent to 13 community college districts to compare standard measures such as cost of maintenance per square foot and cost per acre as well as number of employees per square foot and per acre. We reviewed current research on best practices for college facility maintenance and compared District maintenance costs and approaches with analyses completed during previous studies of cities and counties.

The three campus facility managers were interviewed to review best practices related to their operations as well as identify differences in procedures between the campuses. Budget and staffing level data were discussed with the administrative analyst of the department. Also, the administrative analyst for the CMMS system was interviewed to obtain an understanding of the current system and planned improvements, such as implementing the preventive maintenance module. Staff members who were interviewed are listed in Attachment B.

We have analyzed alternatives to the current facility maintenance delivery approach that could provide the opportunity to achieve District standards at a lower cost than the current proposal. Delivery approaches that make greater use of technology employ different equipment or change the mix between in-house and service contract work may warrant consideration. Alternatives have been evaluated at a high level for review with District administration to determine if more detailed operational, service, and cost analyses are desired.

Since the proposed staffing increases fall outside the District's budget projections for the Maintenance and Operations Division, the budget funding process was reviewed. The District utilizes an allocation model to adjust annual budgets for all departments based on changes in several factors: revenues; full time equivalent students (FTES); and, square footage of facilities. We have analyzed the allocation concept and have recommended an alternative methodology to account for fixed maintenance costs and match funding levels with service level expectations.

FACILITY MAINTENANCE OPERATIONS

Organization and Staffing Levels

The Facilities, Planning, Maintenance and Operations Department is comprised of three functions: Maintenance and Operations, Construction Management, and Public Safety and an administrative unit. This report focuses on the Maintenance and Operations function. Table 2 shows the staffing levels for custodians, grounds and engineering functions at the three campuses.

TABLE 2: CAMPUS MAINTENANCE STAFFING FOR 2009/10

	Canada	San Mateo	Skyline	Total
Custodian	8	16	14	38
Engineering*	4	7	6	17*
Grounds	3	6	3	12
Total	18	32	22	67*

*Plus an engineer with District-wide responsibilities (total 18 Engineering FTEs).

Custodians perform normal custodial duties. Grounds staff is responsible for landscaping, paved areas (including parking lots), and sidewalk maintenance. Grounds staff makes minor repairs to paved areas; major work (e.g., repaving) is contracted. Engineering staff is responsible for maintaining buildings and associated equipment. Specialized maintenance (e.g., elevator servicing) and major engineering work (e.g., exterior painting) are contracted. Table 3 shows maintenance staffing levels for FY 2008/09, proposed and approved staffing for FY 2009/10 and the proposed level for 2010/11 (as revised in January 2011).

TABLE 3: TOTAL MAINTENANCE STAFFING CHANGES

	FY 2008/09	FY 2009/10 Proposed	FY2009/10 Actual	FY 10/11 Proposed
Custodian	44	51	38	45
Engineering	16	17	17	18
Grounds	13	15	12	16
Total	73	83	67	79

Technology

The District's Maintenance and Operations Division has been upgrading and implementing new systems that will enhance effectiveness and improve efficiency. One system is the recently implemented CMMS system and the other is the Facilities Utilization, Space Inventory Options Net (FUSION) system of the State Chancellor's Office. Both systems are described below.

Computerized Maintenance Management System

A CMMS is a software package designed to track maintenance on major physical assets of an organization. Software packages range in complexity from very simple and inexpensive to very complex and expensive. In general, a CMMS contains capital asset inventory modules, maintenance records to provide historical maintenance information, work order management, and materials and labor tracking components to manage the costs of maintenance operations.

Typically, a CMMS also has components for scheduling preventive maintenance and recurring work, tracking replacement schedules, and a variety of other functions in support of maintenance operations. The CMMS is the primary application used by most medium-to-large maintenance organizations in both the public and private sectors.

When a CMMS is configured and used properly it can manage workload and maintenance programs, as well as provide management information of significant value to the organization. This includes:

- Asset history with parts and labor costs,
- Outstanding work orders,
- Contractor performance,
- Workload forecast,
- Materials and parts cost,
- Actual costs compared with budget,
- Cost summary by account,
- Maintenance due summary,
- Staff hour reports,
- Past due preventive maintenance,
- Warranty expiration tracking,
- Vendor performance,
- Trade summary,
- Employee productivity comparison, and
- Equipment downtime report.

The District upgraded their CMMS in May 2009 with Maintenance Connection software that the District has named "Work Orders Leading to Facilities Excellence" (WOLFE). Facility managers stated that this system is a great improvement over the previous system. The work order module was implemented first and staff is now working on a preventive maintenance module. It is due to become operational in January 2011.

Fusion

The Chancellor's Office of the California Community Colleges (CCC) has implemented the Facilities Utilization, Space Inventory Options Net (FUSION) Project to provide an integrated database of facility information. FUSION is designed to promote enhanced and timely communication between the college districts and the CCCs Division of College Finance and Facilities Planning. The FUSION system automates data collection, analysis and management in a web-based environment. Data from many separate projects can be rolled up to various levels (e.g., building, campus, district, system-wide), thereby facilitating the gathering and summarizing of information for periodic state and local reporting. It includes:

- Facility Assessment for viewing facility deficiencies and other facility data.
- Facility Space Inventory for adjusting space inventory data.
- Planning for creating and editing five year plans and forecasts.
- Project management for accessing data for each on-going project.
- Project Task Contract Management to manage contract tasks.

In addition to fulfilling the Chancellor's Office requirements, FUSION provides a data repository of facility assessment and inventory that is beneficial to the District. However, much of the data need to be duplicated in the District's CMMS system. Without an automatic data link, extra work is required to maintain data in both systems.

FACILITIES MAINTENANCE BUSINESS PROCESSES ASSESSMENT

The following seven sections list best practice indicators for facility maintenance along with the District’s current status for each indicator. These best practices have been collected by Management Partners from a variety of sources and have been refined in our work with various facility maintenance organizations.

Annual Assessments/Inspections

Buildings and components should be inspected annually and an assessment should be made of their condition. This assists in making long-term capital improvement plans and identifying potential maintenance problems.

Table 4 provides best practices for annual inspections and facility assessments.

TABLE 4: ANNUAL ASSESSMENTS/INSPECTIONS OF BUILDING COMPONENTS AND CONDITIONS

Practice	Status	Comments
Are the conditions of building components periodically inspected?	Partial	Equipment and components on a preventive maintenance schedule are inspected routinely. Checklists are used to inspect facilities. Also, staff is trained to identify problems as they work throughout the campuses; however a regular formal inspection program is not in place.
Is a comprehensive list of building systems and equipment kept with information such as location, model type, warranty information, age and replacement parts?	Partial	Data are recorded for new buildings and recent renovations. Some data for older buildings are recorded but other data (e.g. warranty data) are not available.
Are condition ratings assigned to building components?	No	Building conditions are generally known and ratings are not assigned.
Are facility inventories regularly updated to reflect changes in square footage, condition, value, and maintenance practices?	Yes	The new CMMS system and the FUSION system track this data.
Do technicians and managers receive training to conduct the condition assessments?	Partial	Not specifically. Staff uses checklists and are generally trained to observe building conditions.
Do trained technicians and managers use written guidelines, standardized checklists or automated systems to conduct the assessments?	Partial	Checklists are used for preventive maintenance. Regularly scheduled assessments are not conducted but building conditions are observed as staff works and goes through buildings.

The use of custodians, landscape and maintenance staff to observe and report facility conditions is such that a formal process is not essential.

Long-Term Capital improvement Planning

A multi-year capital improvement plan (CIP) that is updated annually provides a system for identifying future capital funding and the annual updating allows for a process to reprioritize projects based on changing needs. Five-year capital improvement plans are tracked in FUSION and are updated annually. Table 5 lists practices for long-term capital improvement planning.

TABLE 5: LONG-TERM CAPITAL IMPROVEMENT PLANNING

Practice	Status	Comments
Is there any system in place that evaluates the relative importance of different projects taking into consideration building usage?	Yes	Projects are identified and prioritized in the five year CIP.
Is there a cost/benefit or life cycle costing approach in place?	Partial	Partial consideration is given to the cost/benefit in the life cycle of new and renovations, however, formal Life Cycle costing analyses are not being done.
Do capital investment decisions include an estimate of operating and maintenance costs?	Partial	General operating and maintenance cost impacts for capital investments are made when plans are being developed; however, estimates that include all costs are not prepared.
Is there a written long-range building maintenance plan?	Partial	Maintenance staffing and budget requirements are done on an annual basis, but there is no long range plan for future needs.
Does the plan include an estimate of useful life for major components?	No	
Are designated reserve funds in place for building replacement?	No	The CIP identifies future funding needs; however, there is no reserve fund for future improvements.

While there is a long-term capital improvement plan that is updated annually, life cycle budgeting is only partially used to identify future costs. The CIP estimates future program staffing and student enrollment but maintenance costs are not fully estimated and replacement reserves have not been established.

Life Cycle Budgeting

When new facilities are added organizations frequently overlook maintenance costs. The budgeting method for capital improvements that includes all future costs is called life cycle budgeting. This is a process for identifying the cost of owning, operating and maintaining a building or building system over a period of time.

Life cycle budgeting is done during the development stage in a project and can affect whether or not to fund a project. For example, the life cycle cost of a new building would include the following costs:

- Construction (land, building and related systems such as HVAC).
- Equipping the facility with tables, chairs, furniture and other program needs.
- Annual program staffing of the facility.
- Annual maintenance costs (materials, staffing, and contracts):
 - Preventive maintenance on systems (parts and labor), e.g., HVAC
 - Routine maintenance
 - Custodial maintenance
 - Landscape maintenance
 - Utility costs
 - Special contracts, such as regular elevator servicing
- Annual amortized costs of future major maintenance, e.g., painting, roof replacement, etc.

Life cycle budgeting for some projects would also be net of any predicted savings from the project, such as reduced energy or maintenance costs. Life cycle budgeting is done on the macro level by estimating costs over the life of the facility.

On the micro level it helps make decisions about individual items in planning a facility. For example, the type, material and color of a floor covering will vary the life cycle costs in terms of:

- Cost of installation
- How many years before replacement is needed due to physical wear or appearance
- How much maintenance is required
- Cost of maintenance supplies and labor
- Energy costs

Currently, the District does not engage in formal life cycle budgeting in the planning of capital projects. Partial budget planning had been done on staffing needs, but not on other needs such as increases in maintenance contracts or consideration of the life of the components. Maintenance management does participate in reviewing plans and is aware of the importance of life cycle budgeting, and this has assisted in some of the decision making.

Recommendation 1: Perform life cycle budgeting for all new and replacement facilities and equipment to identify all the District/campus costs and to budget appropriately. Life cycle budgeting will identify energy, maintenance, and replacement cost savings and will allow for the projects to be more appropriately prioritized. Staff is familiar with the concept and uses it for some components of new development.

Capital Improvement Reserve Funding

The current bond funds have improvement projects scheduled and there is a long-term capital improvement plan that is updated on an annual basis. The bond funds have some funds identified for unlisted capital repairs/replacements; however, there is no funding mechanism for a reserve account to pay for future capital improvement requirements.

Cost accounting procedures include methods to assign all facility costs to the users of those facilities. These costs include maintenance costs (supplies and labor), utilities and replacement costs (amortized over the life of the facility). This is similar to paying rent and it provides several benefits:

- The full cost of programs is identified.
- Users can negotiate with the facility maintenance department for levels of service.
- Users are held responsible for utility usage and conservation.
- Replacement funding is saved in reserve accounts.

Most cities and counties use this cost accounting process and fund facility maintenance through internal service funds (ISFs). This type of cost accounting may not be available for community college districts and may require a significant change in the budgeting and accounting processes and information systems. Further investigation of the use of internal service funds is recommended; it is certainly something to consider when the next budgeting/accounting system upgrades are being planned.

Recommendation 2: Evaluate the potential of using an internal service fund (ISF) to establish a cost allocation plan to accumulate funds for a capital improvement reserve fund. Implementing a cost allocation plan will identify the full costs of providing District programs.

Maintenance Work and Priorities

Four basic types of maintenance activities are identified by the maintenance industry. Each is described below.

- Preventive
- Proactive
- Reactive
- Discretionary

Preventive Maintenance

Preventive maintenance is a program in which wear and tear is anticipated and regular corrective actions are taken to maximize efficiency and minimize deterioration. Preventive maintenance involves a planned program of inspection, adjustment, lubrication and replacement of components, including performance testing and analysis. A successful preventive maintenance program extends the

life of facilities and equipment, minimizes unscheduled downtime, and avoids more costly system failures.

Equipment preventive maintenance schedules are typically prescribed for each particular unit (e.g., manufacturer's recommendations on frequencies of lubrication, changing filters, or running tests). Warrantees may require that the recommended preventive maintenance actions are taken and properly documented or the warrantee may be voided.

When preventive maintenance is not required by a warrantee's schedule, its schedule is determined by analyzing the "mean-time-to-failure," which is the average length of time the part (e.g., an HVAC fan belt) will last before it fails. Maximizing the preventive maintenance schedule for this part is then determined by how often it is acceptable to have the part fail (if at all) before replacing it, including the failure's effect on other components and the acceptability of the downtime. Thus, inspecting an HVAC fan belt is more critical than inspecting faucets for leaks.

Proactive Maintenance

Proactive maintenance is regularly planned and scheduled maintenance. It includes such activities as replacing light bulbs on a schedule and painting on established schedules. Proactive light bulb replacement replaces all fluorescent tubes in a room on a set schedule (knowing the estimated life of the tubes), which is less labor intensive than replacing tubes only when they burn out. Proactive maintenance must be evaluated in terms of increased material costs versus labor savings and the ability to sell or reuse removed materials (e.g., good fluorescent tubes).

Reactive Maintenance

Reactive maintenance is making repairs and responding to malfunctions and emergencies, such as leaking faucets, broken windows, and replacing burned out light bulbs. Through the judicious application of preventive and proactive maintenance, the goal is to minimize reactive maintenance, but there will always be emergency repairs needed.

Discretionary Maintenance

Discretionary maintenance includes modifications, rearrangements and new construction. This includes work such as rearranging office furniture, customer-requested painting to change color schemes, moving file cabinets, hanging pictures and constructing a new storage shed.

Most maintenance work falls into the reactive and proactive categories, e.g., work requests are reactive and mowing schedules are proactive. Proactive and preventive maintenance are scheduled. Discretionary work often receives a higher priority than necessary and can distract staff from accomplishing other higher work priorities.

Some agencies minimize the impact on regular work by having discretionary work done only on overtime. Table 6 lists the best practices for maintenance work and priorities.

TABLE 6: MAINTENANCE WORK AND PRIORITIES

Practice	Status	Comments
Is there a designated department or employee to coordinate and assign maintenance projects?	Yes	Work orders are received centrally at each campus and are given to the appropriate supervisor for assignment. Discretionary work requests are given to the facility managers for processing.
Have standards and priorities for responding to work orders been developed? 1. Preventive 2. Proactive 3. Reactive 4. Discretionary	Yes	Yes. However, discretionary work may not be fully reimbursed by the requesting department to the Facilities Department budget. Also, a cost allocation plan is not used to collect all applicable costs. Some funds collected go to the General Fund instead of the Facilities Department.
Are performance measures in place? o Deferred maintenance backlog tracking o Building condition index o Ratio of deferred maintenance to replacement cost o Ratio of preventive maintenance expenditures to deferred maintenance backlog	Partial	Every three years each college is walked and the database is updated in FUSION. Note that these are not employee performance measures.
Is there a listing of deferred maintenance?	Yes	WOLFE tracks uncompleted work.
Are options routinely investigated for the delivery of maintenance services that would be potentially more cost effective?	Yes	Such discussions are routine at staff meetings.
Are building occupants surveyed about services?	Partial	Work orders have a survey included; however, no general survey of occupants is conducted.

The District identifies maintenance work in the four categories. Preventive maintenance is discussed in more detail in the next section. Proactive maintenance is regularly scheduled and reactive maintenance is processed through the CMMS work order system. Discretionary work requires a funding source and is sent to the Vice Chancellor for Facilities, Planning, Maintenance and Operations for approval.

Facility managers report that there is some misunderstanding by departments about what is and is not maintained by the Maintenance and Operations Division. The Maintenance and Operations Division maintains facility-related equipment but not program-related equipment. The misunderstanding usually involves “attached” program type equipment (e.g., autoclaves). This is usually resolved in communications with departments and most are now aware of the division of responsibilities; however, formal written guidelines are not provided. Discretionary work is charged at overtime rates plus materials, which may not include all applicable costs to the Maintenance and Operations Division.

Recommendation 3: Analyze the rates charged for discretionary work to assure full costs are being recovered and allocated to the Maintenance and Operations Division. Cost accounting principles would include all applicable costs, including overhead costs. Requiring departments to fully pay for discretionary work is likely to minimize discretionary work that impacts regular maintenance work.

Departments submitting work orders receive a survey form to report their satisfaction with the specific work requested. Maintenance staff reports that these are often not completed or do not provided useful feedback. Departments are not regularly surveyed about their satisfaction with the full range of maintenance work being performed, such as cleanliness levels. Periodic surveys will inform the Maintenance and Operations Division about how well they are doing and the changes over time.

Recommendation 4: Develop and conduct regular user surveys to measure satisfaction with maintenance that is performed. In addition to providing feedback to the Maintenance and Operations unit at each campus, it also reminds employees about the levels of service being provided. Results may reveal that users would accept lower levels of service, e.g., less frequent custodial work.

Preventive Maintenance Program

The District has a preventive maintenance program that is being managed manually until the CMMS preventive maintenance module can be implemented. (The previous CMMS system produced numerous, extraneous work orders for preventive maintenance work.) Spreadsheet checklists are used to assure all steps are completed. Table 7 lists the best practices for a preventive maintenance program.

TABLE 7: PREVENTIVE MAINTENANCE PROGRAM

Practice	Status	Comments
Is there a preventive maintenance checklist and inspection program?	Partial	Staff are using manual checklists (e.g., Excel spreadsheet). The preventive maintenance module of the CMMS system should provide maintenance checklists and scheduling.
Are monthly and weekly preventive maintenance schedules in place?	Partial	Manual systems are in place; however, staff cannot complete all work on schedule.
Are hours devoted to preventive maintenance tracked?	No	Although included as a best practice, it is not essential for the District.
Are preventive maintenance expenditures per square foot tracked and evaluated against peer jurisdictions?	No	Although included as a best practice, it is not essential for the District.

The District's new CMMS system has a preventive maintenance module that has an estimated implementation in January 2011. It will have schedules and checklists that will assist staff in doing preventive maintenance.

Recommendation 5: Continue work on implementing the CMMS preventive maintenance module so that all preventive maintenance work can be scheduled and tracked. Assure that the facility managers are involved with the implementation process to avoid problems associated with the previous CMMS system.

Currently, staff is unable to complete all preventive maintenance work on schedule because they are too busy with other work. Manufacturers will recommend schedules and they can be adjusted based on experience. However, this requires analysis of mean-time-to-failure for each item and the impacts of down time. The preventive maintenance module in WOLFE may provide the mean-time-to-failure data for analysis, depending on how it is implemented. Meanwhile, preventive maintenance schedules should be adjusted by lengthening the schedule to assure the work is done instead of skipping until the next cycle. Preventive maintenance for new equipment within the warranty period should be kept on the manufacturers' recommended schedule to avoid voiding the warranty.

Recommendation 6: Review preventive maintenance schedules for all equipment and adjust them as necessary to assure that schedules are kept, especially on new equipment still under warranty. Without mean-time-to-failure data, staff can rely on their personal experience to estimate how schedules can be adjusted.

Technology and Tools

Technological solutions and management tools are available that can improve efficiency and effectiveness of facility maintenance. Table 8: Technology and Tools summarizes the District's status with respect to these business processes.

TABLE 8: TECHNOLOGY AND TOOLS

Practice	Status	Comments
Are historical records on maintenance, utilities and emergency repairs maintained?	Yes	The new CMMS system (WOLFE) tracks this data. Historical data prior to implementation of the new system may not be available.
Is a preventive maintenance software system used?	Partial	The preventive maintenance module is scheduled to be brought on line in January 2011.
Are procedural manuals in place?	Partial	Some procedural documents and manuals exist; however, there is no comprehensive procedural manual for all types of work.
Is a work order system in place and is it utilized?	Yes	
Are work orders being tracked, evaluated and added to a database?	Yes	

The District has been implementing the new CMMS system and is in the process of adding the preventive maintenance module. Further analysis of the capabilities of the software is needed to identify additional features and modules that could help the District manage the maintenance work. Some features may be overkill for the scope of the District's maintenance program, but others could be of great use.

Tracking costs and frequency of repairs on specific facilities can be used to identify when it would be cheaper to replace an item rather than continually repair it. Currently, this is being done by staff mentally noting repair frequencies. A tracking system will provide data for a cost/benefit analysis of repairing versus replacing specific items. The system can also be used to track mean-time-to-failure to evaluate whether preventive maintenance schedules should be changed.

Recommendation 7: Track cost and frequency of repairs to be able to analyze the cost/benefit of repair versus replacement of specific items. In addition, this data can be used in the design of new facilities to avoid high maintenance cost items.

Staff Training and Development

Staff training is an important element necessary to improving efficiency. Staff development is key to providing job enrichment and minimizing staff turn-over. .

**Table 9: Staff Training and Development
status for training and development.**

TABLE 9: STAFF TRAINING AND DEVELOPMENT

Practice	Status	Comments
Are maintenance workers trained to recognize and diagnose maintenance problems in assigned buildings?	Yes	All staff report problems in all areas, not just their type of work.
Is training provided on energy conservation, technology and cost/benefit or lifecycle costing?	Partial	Training is provided on energy conservation and technological components. Cost/benefit or lifecycle costing is generally considered but not part of a training program.
Is there a management track for building maintenance staff?	Partial	A formal promotional track is available for positions covered by union MOU's. There is no formal process for advancement to management positions.

Training is provided for current procedures, although as noted above there are no comprehensive procedure manuals. Also, some processes have yet to be implemented such as the CMMS module for preventive maintenance. As a part of implementing the preventive maintenance module, written instructions should be developed and included as part of an online and physical manual. Separate manuals could be created for the three maintenance areas of landscaping, custodial and engineering. Standardized sections can be used for the three campuses, with addenda for campus-specific procedures.

Recommendation 8: Develop a comprehensive procedures manual for each maintenance specialty with addenda for campus specific procedures. Preventive maintenance procedures should be developed first.

Energy Efficiency and Conservation

With increasing energy costs and awareness of the importance of conservation, organizations should be actively reducing energy use and costs. The District has made considerable progress improving energy efficiencies and has recently used a consultant to monitor energy use and make recommendations on system improvements.

Chevron Energy Solutions Company assessed the electrical infrastructure in 2006 and produced a "Power System Evaluation Final Report" for the District. One result of the report was to prioritize electrical improvement projects and the District began implementing the recommendations. As part of the project, Chevron also installed usage meters on selected facilities.

Table 10 shows the District's progress toward energy efficiency and conservation.

TABLE 10: ENERGY EFFICIENCY AND CONSERVATION

Practice	Status	Comments
Are major buildings audited to quantify energy use and identify opportunities for energy savings?	Partial	Some buildings have monitoring systems as part of the recent consultant contract.
Are retro-commissioning studies of HVAC and lighting systems conducted?	Yes	Many systems have been updated to improve energy efficiency
Is energy use of major buildings benchmarked?	Partial	About 25% of the buildings at each college are monitored. Utility consumption meters are being tied into the building management systems.
Is there an implementation schedule for no-cost/low cost opportunities?	Partial	No or low cost improvements are done without creating a schedule.
Are building utility systems electronically monitored and optimized?	Yes	Yes, however, there are no incentives or consequences for facility users to conserve utilities.
Is there an implementation plan for capital intensive energy retrofits?	Yes	The recent energy study identified improvements and some remain to be done when funding can be identified.
Are T-8 or T-5 lights used?	Yes	
Are timers used for lights, heating etc.?	Yes	Campus functions make it difficult to use motion detectors to control lights, but they are used where appropriate.

Aside from the energy monitoring by the consultant, the District does not associate energy costs with the users. Energy use and costs are tracked by campus instead of by building or program. Departments are not held responsible for energy use and conservation and there are no incentives for departments to conserve energy usage.

As discussed above, by using a cost allocation system, department users would be paying their energy costs and they would have an incentive to conserve and reduce their costs. Since it is not likely that individual buildings would be metered nor would such an accounting system be implemented soon, another methodology should be used to help users conserve energy.

Facility managers are periodically informing campus departments about energy usage; however a more formal, regular process should be used to encourage energy conservation. Other factors influence energy use, such as campus enrollment and number of classes.

Recommendation 9: Create energy conservation goals for each campus and report energy usage on a regular basis. Monthly reports comparing usage to prior years will give targets for departments to think about and remind them of conservation efforts.

Recommendation 10: Create water conservation goals by developing and changing landscaping and other water-intensive facilities. This includes the water used in cleaning paved and hard-scaped areas.

Benchmarking energy usage and costs with other community college districts would normally be recommended; however, it may be difficult to find comparable campuses. Instead the District can use internal comparisons to show trends from year to year for each campus, as suggested in Recommendation 9 above.

BENCHMARKING AND PEER COMPARISONS

Benchmarking

Benchmarking is the search for industry best practices that leads to superior performance. There are three major components:

- A comparison of key metrics (e.g., cost per square foot or square feet per FTE) between comparable agencies.
- A type of professional development. By understanding your own metrics and those of other organizations, you will become more knowledgeable about the details of your own processes.
- An advanced learning process. Identifying best practices in other organizations that can be applied to improve your organization.

The comparison of metrics identifies organizations that may be more efficient and effective than your own and leads to further study to find best practices that can be applied to your organization. However, in some cases it is difficult to find comparable facilities to make sure there is an "apples-to-apples" comparison and benchmark metrics should not be used to draw definitive conclusions.

Benchmarking is best conducted by identifying a set of peer organizations with similar facilities and establishing a set of metrics to measure. This assures that the data collected is comparable. Data are then updated annually and the relative changes in the comparisons lead to further analysis of practices that may account for the differences.

Association of Physical Plant Administrators

The Association of Physical Plant Administrators (APPA) of Universities and Colleges is a professional organization that provides a variety of services applicable to the District. The Vice Chancellor is a member of APPA as well as some staff. In addition to normal professional support, APPA has a Facilities Performance Indicators (FPI) survey that collects the metrics. While this does not identify the comparable peers as described above, the aim is to collect data from enough organizations that the data can be selected based on comparable facilities and situations.

Once survey data have been entered from various agencies, users can select agencies to compare using criteria such as square footage of facilities. A different set of agencies may be selected for grounds maintenance based on acreage maintained. When the selected organizations appear to have better metrics, further analysis can determine whether there are best

practices in use that can be adopted or whether the organization is not that comparable.

Recommendation 11: Join the Association of Physical Plant Administrators' Facilities Performance Indicators (FPI) survey to compare facility metrics and identify improvements in effectiveness and efficiencies. Although it is an extensive survey and will require staff time, it should provide valuable data for future comparisons.

Peer Comparisons

The District's Vice Chancellor for Facilities, Planning, Maintenance and Operations sent surveys to 13 greater Bay Area community college districts to compare standard measures such as cost per square foot and cost per acre as well as number of employees per square foot and per acre. A sample survey form is shown in Attachment C and the results are shown in Attachment D. Of the 13 surveys sent, five districts responded:

- Hartnell College District
- Monterey Peninsula College District
- Ohlone College
- San Francisco Community College District
- West Valley-Mission Community College District

While the small response somewhat limits the value, the information gathered does provide some insight into the relative comparison of the districts. San Mateo County Community College District is shown twice in the tables and shows the January 2009 proposed staffing levels compared with the July 2010 revised proposed staffing levels. The January 2009 proposal and the July 2010 proposals are shown to compare original estimated staffing needs with revised estimates based on budget limitations that reduced staffing in 2009/10.

Custodial Comparisons

Custodial ratios can vary greatly depending on whether total building square footage or total cleanable square footage is being reported. For example, whether garage areas are included in the square footage is important.

Table 11 shows guidelines for levels of cleanliness developed by the APPA (detailed descriptions are listed in Attachment E). While an organization may strive for a specific level of cleanliness, budget constraints may produce lower levels. In the absence of a consistent evaluation between districts, these ratings include some subjectivity.

TABLE 11: APPA CLEANLINESS GUIDELINES

Cleanliness Level	Description
1	Orderly spotlessness
2	Ordinary tidiness
3	Casual inattention
4	Moderate dinginess
5	Unkempt neglect

Table 2 compares the square footage per custodial FTE and lists the APPA cleanliness levels achieved with current budget levels from the survey sent for this project. Cleanliness levels are designated by the agencies. Each was asked for an overall rating, taking into consideration all elements of custodial maintenance. San Mateo District maintenance management's assessment is that basic cleanliness of facilities is at a level 3, but that deficiency in preventive maintenance result in an overall rating of 4. Please note that both the San Francisco and West Valley Districts supplement staff with some contract custodial services.

TABLE 12: CUSTODIAL SQUARE FEET MAINTAINED PER FTE

District	Square Footage per FTE	APPA Cleanliness
Hartnell College District	52,120	2
Ohlone College	35,402	4
San Mateo County Community College District (July 2011 – no additional staff)	35,034	4
West Valley - Mission Community College District	32,658	2
San Mateo County Community College District (July 2010)	31,237	4
San Francisco Community College District	18,179	2

Table 12 shows that the District's square feet per FTE is comparable with the Ohlone and West Valley districts. The limited survey shows that there is little correlation with the square footage coverage per FTE and the APPA cleanliness level the districts stated they achieve. Further analysis would be required to determine the reasons for this, especially in the Hartnell College District.

Another measure of comparison is the cost per square foot of custodial services. The costs in Table13 include the contract custodial costs for San Francisco and West Valley-Mission districts.

TABLE 13: DISTRICT CUSTODIAL COSTS PER SQUARE FOOT

District*	Cost per Square Foot
San Francisco Community College District	\$2.87
West Valley - Mission Community College District	\$2.48
Ohlone College	\$2.18
San Mateo County Community College District (current)	\$1.58

* Hartnell and Monterey Peninsula College districts did not provide cost data

The District is very competitive in terms of custodial costs per square foot, being significantly lower than the three reporting districts.

In our work with cities, Management Partners has found that custodial contract costs are usually significantly lower than staff costs. Table 4 shows several agencies' contract costs per square foot as well as some private industry standards.

TABLE 14: COMPARISON OF CUSTODIAL COSTS PER SQUARE FOOT

Cities	Cost per Square Foot
Building Owners Management Association (BOMA)*	\$2.29
Belmont Library contract	\$1.77
San Mateo County Community College District (current)	\$1.58
Hayward contract (2008/09)	\$1.49
FMLINK**	\$1.33
International City/County Management Association (ICMA)*** contract (2005 average adjusted to 2010)	\$1.08
Sunnyvale contract (2008/09)	\$0.88
Fremont contract (2008/09)	\$0.88

* BOMA is a private sector association. Cost per square foot is a national average.

**FMLINK is an international facility maintenance on-line service for private and public institutions. . Cost per sq. ft. is a U.S. national average.

***ICMA is a national average of surveyed cities that contract for custodial work.

The FMLINK and ICMA costs are national averages and include areas of the country with much lower labor costs. Sunnyvale and Fremont contracts are in the area, but the cleaning schedules may not be as comprehensive as needed on a college campus. The Belmont Library contract may be more applicable as it is in the local market for the District and cleaning levels are similar to those on a campus.

The District's cost per square foot may not be lowered much by contracting for custodial services. One method of assuring custodial costs are minimized is to conduct a managed competition, a bidding process that includes a staff proposal. In addition to comparing staff costs with private sector contract bids, it encourages staff to propose changes that reduce staffing costs.

Recommendation 12: Conduct a managed competition for custodial services that includes a staff proposal to provide the service. Part of the preparation for the bidding process is to list specific services and frequencies that should be done regardless of whether a managed competition is conducted.

Grounds Maintenance Comparisons

The survey asked for the number of landscaped acres maintained. In some cases it appears that the total campus acreage may have been recorded, including open space and paved areas. Grounds maintenance requirements vary greatly based on the type of landscaping and the ground crews’ responsibilities for maintaining hard-scaped and paved areas. Table 15 compares acres maintained per FTE for the surveyed districts (highlighted) and several cities where data was available from a recent Management Partners study.

TABLE 15: COMPARISON OF ACRES MAINTAINED PER FTE

District/City	Acres per FTE
Ohlone College	60.0
San Mateo County Community College District (current)	33.0
West Valley-Mission Community College District	27.2
San Mateo County Community College District (proposed)	24.8
Turlock	18.0
Los Banos	16.6
Merced	13.8
Hartnell College District	13.8
Ceres	13.1
Gilroy	12.2
Hollister	11.6
Madera	10.2
San Francisco Community College District	6.4

With such a wide range of survey results from the college districts, firm conclusions cannot be drawn about the District’s situation compared with the other districts. Removing the outliers of Ohlone and SFCCD, the District’s number of acres maintained per FTE is the highest of the reporting districts. College campuses have more walkways and pedestrian paved areas than those maintained by cities (which require more grounds maintenance). Thus, city landscaping maintenance is different than that of college campuses but is included for information purposes to show that their range is much narrower than the few districts responding to the survey. It also shows how the types of landscaping impact the number of FTEs required, and thus grounds maintenance costs. Cities have numerous landscaped locations and maintenance includes travel and set up time between locations.

The National Recreation and Park Association (NRPA) has developed standards for landscape maintenance. Sample standards are listed in Table 16.

TABLE 86: NATIONAL RECREATION AND PARK ASSOCIATION LABOR RATIOS FOR SELECTED GROUNDS MAINTENANCE TASKS

Task	Time to Accomplish
Mowing, 1 acre 20" walking	2.80 hours per acre
Mowing, 1 acre 24" walking	2.20 hours per acre
Mowing, 1 acre 30" walking	2.00 hours per acre
Mowing, 1 acre 72" riding	0.35 hours per acre
Brush hog	1.25 hours per acre
Trim – gas weed-eater	1.00 hours per 1,000 linear feet.
Hand rake leaves	0.42 hours per 1,000 square feet
Prune deciduous shrubs	0.50 hours per shrub
Prune evergreen shrubs	1.00 hours per shrub
Spring flowerbed preparation	3.30 hours per 1,000 feet
Fall bed cleanup/preparation	6.60 hours per 1,000 square feet
Ball fields – drag infield	0.75 hours per field

Table 16 shows that using a 20" walking mower requires eight times more labor than mowing with a 72" riding mower. Thus, it is important to consider the labor costs when designing or renovating landscaped areas as part of life cycle budgeting as discussed above in Recommendation 1. The District could gain additional insight into the efficiency of its grounds maintenance operation by comparing current operations with the NRPA labor ratios.

Recommendation 13: Compare current District maintenance practices with the labor ratios established by the National Recreation and Park Association.

APPA has grounds/landscaping service levels similar to the custodial service levels and turf maintenance examples are described in Attachment E:

- Level 1: State-of-the-Art Maintenance
- Level 2: High-level Maintenance
- Level 3: Moderate Level Maintenance
- Level 4: Moderately Low-level Maintenance
- Level 5: Minimum Level Maintenance

Overall, the District staff rates current maintenance at Level 4. In terms of turf maintenance alone, staff's assessment is that they are able to attain a Level 3 service level.

Facility Maintenance Comparisons

The District staffing proposal (July 2010 revised) adds one engineer over the current level. Table 17 shows the square foot maintained per engineering FTE.

TABLE 97: FACILITY MAINTENANCE SQUARE FEET PER FTE FOR COLLEGE DISTRICTS

District	Square Feet per Engineering FTE
Hartnell College District	128,296
West Valley-Mission Community College District	89,068
San Mateo County Community College District (as of July 2010)*	86,412
Ohlone College	75,230
San Francisco Community College District	56,417

*Includes district-wide engineer

Table 108 lists the facility maintenance square feet per FTE for cities compared with the District. As with grounds maintenance, cities generally have more, but smaller buildings than college campuses and coverage includes travel and set up time for maintenance. For example, cities may have many smaller air conditioning units that require preventive maintenance while college campuses have fewer units that are larger and more complex.

TABLE 108: FACILITY MAINTENANCE SQUARE FEET PER FTE FOR CITIES

District	Square Feet per FTE
San Mateo County Community College District (proposed for July 2011)	89,604
Tracy	70,500
Gilroy	54,880
Ceres	47,332
Porterville	39,250
Hanford	36,337
Building Owners Management Association (BOMA)	28,000

Table 119 shows the survey results for the maintenance costs per square foot (excluding utility costs). The job class types are: Trade (e.g., carpenters, plumbers, etc.); General (e.g., maintenance engineer); and Mixed (some trade positions and some general positions). Maintenance costs are the operations budgets, including personnel costs and excluding capital costs.

TABLE 119: DISTRICT MAINTENANCE COSTS PER SQUARE FOOT

District	Cost per Square Foot	Job Class Type
Ohlone College	\$2.09	Trade
San Francisco Community College District	\$2.00	Mixed
West Valley-Mission Community College District	\$1.90	Mixed
San Mateo County Community College District (current)	\$1.23	General

The District has a very low cost per square foot and although the data are limited, there is a correlation that demonstrates that general maintenance job classifications are more cost effective. The low cost is also related to the higher square footage per FTE for the District.

Cities include utility costs in their maintenance budgets. Table 20 shows the District's maintenance costs, which include utilities.

TABLE 20: CITY MAINTENANCE COSTS PER SQUARE FOOT (INCLUDES UTILITIES)

District	Cost per Square Foot
Sunnyvale	\$7.72
Hayward	\$6.82
Mountain View	\$5.71
Fremont	\$4.68
San Mateo	\$4.27
San Mateo County Community College District (current)	\$3.40

In all of the metrics reviewed, the District appears to getting very good value for the resources devoted to facility maintenance.

The APPA Building Maintenance Service Levels are described in Attachment E and are summarized as:

- Level 1: Showpiece Facility
- Level 2: Comprehensive Stewardship
- Level 3: Managed Care
- Level 4: Reactive Management
- Level 5: Crisis Response

Staff is attaining Level 3 services in most task areas except for preventative maintenance which reduces the overall rating to Level 4. All three functional areas (custodial, grounds, and building maintenance) should be attaining a Level 2 service level as a best practice to assure that the infrastructure is kept in good condition and appearance. The APPA service levels can be used to establish District policies regarding

the levels to be attained by the Facilities Planning, Maintenance and Operations Department.

Recommendation 14: Establish District policies for maintenance service levels by adapting the APPA service level descriptions to describe the levels to be attained by the District. Utilize the policies to guide facility planning, construction, and maintenance budgeting. Matching the policies to the maintenance staffing levels will assist in construction planning and budgeting the maintenance function.

REVIEW OF STAFFING PROPOSAL

Proposed Staffing Increases

In FY 2008/09 the Facilities Planning, Operations and Maintenance Department had a total of 73 approved facility maintenance positions. The department made a presentation to the Executive Staff in January 2009 that requested an additional ten custodial, grounds and engineering staff FTEs for FY 2009/10.

Due to the 2009/10 budget situation, the Maintenance and Operations Division lost eight FTEs, which reduced staffing from 73 FTEs to 67 FTEs. Table summarizes the Maintenance and Operations Division's proposal presented in January 2009 and the approved staffing for the fiscal year. (One additional engineering position has district-wide responsibilities and is not shown in these tables but has been included in the FTE to square footage ratios compared elsewhere in this report.)

TABLE 21: JANUARY 2009 PROPOSED STAFFING INCREASE

	FY 2008/09 Staffing				Proposed Staffing (at January 2009 Meeting)				FY 2009/10 Staffing *			
	CAN	CSM	SKY	Total	CAN	CSM	SKY	Total	CAN	CSM	SKY	Total
Custodial	11	19	14	44	11	23	17	51	8	16	14	38
Engineering	4	7	5	16	4	8	5	17	4	7	6	17
Grounds	3	7	3	13	3	8	4	15	3	6	3	12
Total				73				83				67

*Includes two engineers in the managed hiring budget

In July 2010, the Facilities Planning, Operations and Maintenance Department presented an updated proposal for FY 2010/11 to increase staffing by 12 FTEs over the 2009/10 reduced staffing levels, from 67 to 79 FTEs, as shown in

Table below. This is four FTEs less than the January 2009 proposal of 83 FTEs. These proposed staffing increases are only for operations staff; there were no proposed changes to supervisory, administrative, or management staffing.

TABLE 22: JULY 2010 REVISED PROPOSED STAFFING INCREASE

	FY 2009/10 Staffing*				FY2010/11 Proposed Staffing				FY2010/11 Proposed Staffing Changes			
	CAN	CSM	SKY	Total	CAN	CSM	SKY	Total	CAN	CSM	SKY	Total
Custodial	8	17	13	38	9	20	16	45	1	4	2	7
Engineering	4	7	6	17	4	8	6	18	0	1	0	1
Grounds	3	6	3	12	3	8	5	16	0	2	2	4
Total				67				79				12

* Includes 2 utility engineers in the managed hiring budget

The staffing increases were based on increases in the square footage of facilities being maintained. During the past several years, buildings were taken off-line while improvements were made and new buildings have been constructed. Now facilities are coming on-line and maintenance warranty periods (e.g., where landscape contractors are responsible for maintaining the grounds to assure plantings survive) are ending.

Custodial Services

Since July 2008, the square footage per custodial FTE has steadily increased as shown in Table 23.

TABLE 23: CHANGES IN SQUARE FOOTAGE PER CUSTODIAL FTE SINCE JULY 2008

	Cleanable Sq. Ft.	FTEs	Sq. Ft./ FTE
Jan-08	1,116,306	41	27,227
Jul-08	1,080,620	41	26,357
Jan-09	1,077,805	40	26,945
Jul-09	1,072,466	39	27,499
Jan-10	1,165,201	38	30,663
Jul-10	1,187,024	38	31,237
Jan-11	1,247,814	38	32,837
Jul-11	1,331,280	38	35,034*

*Assuming no change in staff

The lowest square footage per FTE over the past three years was 26,357 in July 2008. Table 23 shows that if the proposed addition of seven FTEs is not made, the square footage coming on-line by July 2011 will increase the square footage per FTE to 35,034. This will place the District at the high end of the range with those districts that responded to the survey.

Figure 1 presents the square feet per custodian FTE three ways: budgeted staffing levels (38), the proposed staffing increase of seven

FTEs (45), and the best case level historically (51 FTEs based on the July 2008 square footage per FTE).

FIGURE 1: CUSTODIAN MAINTENANCE SQUARE FOOTAGE PER FTE: BUDGETED, PROPOSED, AND BEST CASE

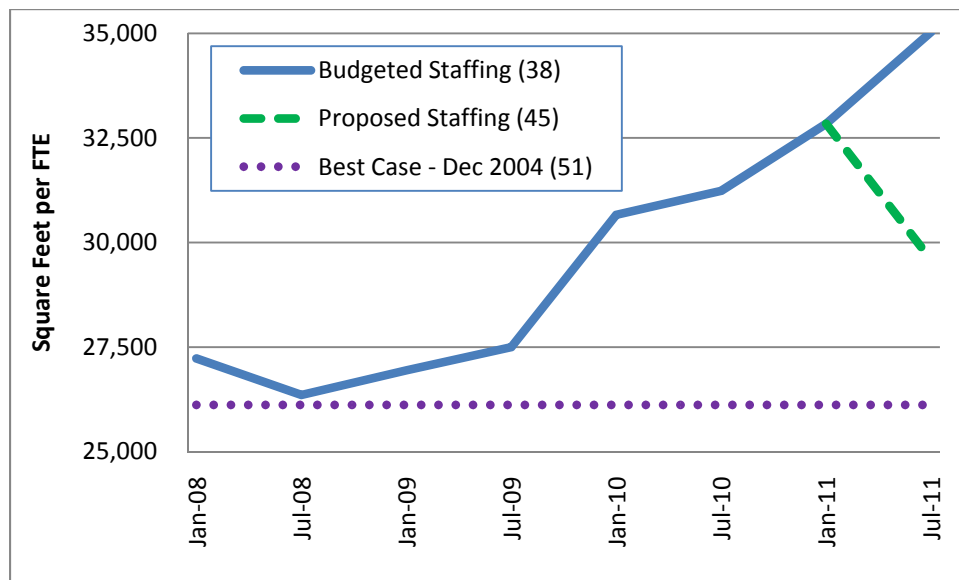


Figure 1 displays graphically how the budgeted trend of square footage per custodial FTE has been steadily increasing since July 2008. It shows that the proposed increase of seven FTEs changes the trend but does not return to the July 2008 level of 26,357 square feet per FTE. With the additional square footage coming on line by July 2011, maintaining the current staffing level results in 35,034 square feet per FTE; an increase of 33% over the July 2008 level. The proposed staffing increase of seven FTEs results in 29,584 square feet per FTE, an increase of 12% over the 2008 level. To achieve the 26,357 square feet per FTE with the added square footage by July 2011, 51 FTEs would be needed.

Staff reports currently achieving an APPA cleanliness Level 4 (Moderate Dinginess) with 38 FTEs (31,237 square feet per FTE in July 2010). With the additional square footage coming on-line by July 2011 and with no staffing increase, the square footage per FTE increases to 35,034. According to staff, while the overall maintenance level is estimated to remain at Level 4, when considering only the cleanliness of facilities, levels could fall to APPA Level 5 (Minimum Level Maintenance). Level 5 is marked by dull and dirty floors, accumulations of dust and dirt, and overflowing trash containers.

Returning to the 26,357 square feet per FTE level, it is reasonable to project the ability of staff to attain an APPA Level 3 (Casual Inattention, where floors are clean with some spots/stains, some dust and build up of dirt, and trash containers hold only daily waste).

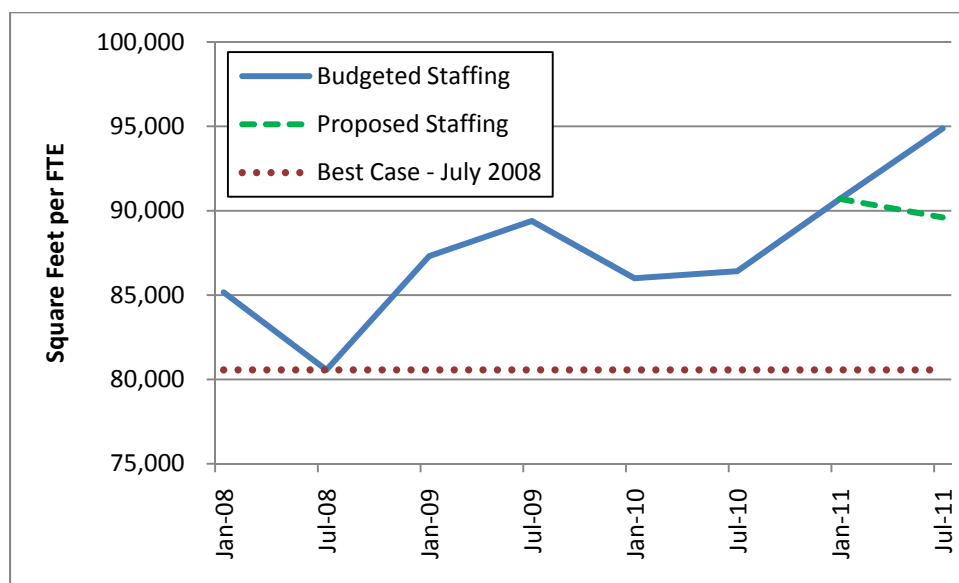
There is significant subjectivity in the assignment of APPA ratings. What is clear is that without the requested increase in staffing, the District can expect a decrease in the overall cleanliness of buildings from current levels. With the additional seven custodial positions, maintenance levels should be consistent with the District experienced between January and July 2010.

Facility Maintenance (Engineering)

One additional position is proposed for engineering. The District has a high ratio of square footage to FTE as shown in the benchmarking section above, however a more telling indicator is the inability to perform all preventive maintenance tasks as scheduled. This may be due in part to a lack of preventive maintenance scheduling software, which will be implemented in the next few months. Once this module is implemented, preventive maintenance tasks should be tracked to determine the extent that they are not being completed on schedule.

Figure 2 presents the square feet per engineer FTE three ways: budgeted staffing level (17), the proposed staffing increase of one FTE (18), and the best case level historically based on the July 2008 square footage per FTE.

FIGURE 2: FACILITY MAINTENANCE SQUARE FEET PER ENGINEER FTE



The additional square footage coming on-line by July 2011 represents an 18% increase in square footage per FTE over July 2008 levels. This steadily increasing square footage per FTE plus more complex facility equipment may result in more costly equipment repairs or replacement. It is clear that additional engineering staff is required, but the question is how many are needed.

Recommendation 15: Track preventive maintenance task completion when the preventive maintenance module of the CMMS has been implemented and analyze uncompleted tasks to determine if and how many additional engineering positions are needed.

Grounds Maintenance

Four additional grounds maintenance positions are requested by staff. Quantifying the impact at different grounds maintenance staffing levels is more difficult than for custodial staffing levels. Cleanable square footage for custodian work was tracked as buildings were taken off-line and new ones built. Maintainable acreage for grounds maintenance was not tracked to show acreage taken off-line or added back on-line with new landscaping as buildings were completed. During construction and demolition, the areas surrounding the buildings plus construction crew staging areas are taken off-line and off the grounds crews' schedule.

Overall grounds acreage of the campuses has decreased in the past several years as building square footage has increased. Between 2004/05 and July 2011 the area of grounds requiring maintenance will have decreased by approximately 390,000 square feet, as new buildings have taken up previous grounds. The maintenance demands will not necessarily reduce as, typically, more labor-intensive maintenance is required around buildings (e.g., walkways and planting beds) versus open areas (e.g., wooded hillsides).

Many grounds maintenance tasks are required to avoid more significant problems, such as cleaning storm drains, sweeping parking lots (to avoid trash in the storm drains), mowing, and maintaining athletic fields. Without adequate staff, critical areas will be maintained, but areas that are likely to suffer will be tasks such as:

- Litter control,
- Blowing leaves and pine needles,
- Color planting rotations,
- Shrub care,
- Tree trimming,
- Emptying trash cans, and
- Weed abatement.

Using industry standards to project staffing requirements is more difficult for grounds maintenance, as it is dependent on the types of areas maintained. The benchmarking mentioned previously in this report notes acres per FTE ranged from 6.4 to 60 acres in the other districts surveyed. At 30 acres per FTE, the District is at the high end of the survey range. The Maintenance and Operations Division (in a report on their website) has applied the APPA standards to estimate staffing needs to maintain the levels of APPA standards; these estimates were prorated based on current District staffing at level 4. This is shown in Table 24 below.

TABLE 24: ESTIMATED STAFFING LEVELS FOR GROUNDS MAINTENANCE*

FTEs	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
APPA	49	37	24	15	8
District Projection	39	30	19	12**	6

*These estimates were made by the Maintenance and Operations Division. According to a report on their website, they were prorated using the District’s staffing level and based on APPA Standards.

** Current District staffing

The proposed staffing increase of four FTEs would bring staffing to 16 FTEs, which would provide overall maintenance standards between Levels 3 and 4.

As with the custodial proposal, periodic surveys will help identify the levels of landscaping maintenance expectations. Grounds maintenance staffing needs can be reduced by changing landscape and hard-scape policies; examples include not changing planting beds every spring and fall, and not using white sidewalk paving. Also, including ground maintenance costs in the life cycle budgeting of new projects will help minimize maintenance costs in the future.

Summary of Staffing Maintenance Service Levels

The proposed staffing increases of seven custodial FTEs and four grounds FTEs will enable the Maintenance and Operations Division to maintain facility and grounds service levels similar to those in 2008. The engineering staff is currently unable to maintain preventive maintenance schedules; while increased square footage will aggravate this situation, the impact may be offset by new preventive maintenance scheduling software.

The fundamental policy decision for the District is to determine the level of maintenance desired for facilities; the higher the desired level of maintenance, the greater the number of staff needed to maintain the standard. Table 25 estimates the impact of maintenance levels for the District based on different staffing scenarios.

TABLE 25: CURRENT, PROPOSED AND BEST CASE STAFFING LEVELS

	No Changes FY2011/12 Staffing for APPA Level 4/5	Proposed FY2011/12 Staffing for APPA Level 4	Best Case FY2011/12 Staffing for APPA Level 3
Custodial	38	45	51
Engineering	17	18	19
Grounds	12	16	19
Total	67	79	89

To attain an across-the-board APPA service Level 3 (a best case scenario), an additional 22 FTEs would be needed over the current staffing (adding 1 engineer for preventative maintenance). With the staffing increases requested by the Maintenance and Operations Division, the District can reasonably expect maintenance standards to remain at an overall Level 4 (with some activities attaining a Level 3). Not increasing staffing will lead to some deterioration of maintenance standards; this will be more acute and noticeable in building conditions. Thus, until policies are adopted to match staffing levels with maintenance service levels as recommended above (Recommendation 14), the proposed staffing increase is reasonable if the District seeks to maintain the current level of maintenance and cleanliness at its facilities.

Other Issues

Management Partners identified four other issues that impact the Maintenance and Operations Division’s ability to be more efficient.

Budgeting

The staffing proposal being reviewed is only one piece of the puzzle. The Maintenance and Operation’s Division indicates that there are additional operations and maintenance costs, including increases to service contracts for equipment. To understand the full impact of adding the new and renovated facilities, all costs should be identified, including employee benefits, service contracts and utilities. More emphasis should be placed on life cycle budgeting in the design of new facilities and renovation projects. These improvements are included in recommendations above.

Recommendation 16: Include all maintenance and operations costs when budgeting for increases due to changes in facilities square footage. Some costs, like utilities, are budgeted separately but should be included to show the full cost of operating a new facility. Life cycle budgeting in the design stage is finalized in the budgeting of a facility when it’s due to come on-line.

Discretionary Work

One of the biggest impacts on a maintenance department's ability to accomplish regular tasks is dealing with discretionary work requests. As discussed briefly earlier in this report, some preventive maintenance is not being completed on schedule, which indicates that discretionary work may be detracting from regular responsibilities.

One way to reduce the impact is to have user departments pay for discretionary work from their budgets. If there is a general pool of money for discretionary work, there are no reasons or incentives for having departments limit their requests. Discretionary work can also be done after regular work hours so that normal tasks are not impacted. Users must then pay at the overtime rate and the charges should include fully burdened rates (e.g., fringe benefits).

Recommendation 17: Revise the budgeting process so that departments allocate funds for discretionary work with the understanding that this type of work will be completed outside of regular work hours and that users will be charged fully burdened overtime rates.

Requiring users to pay for discretionary work will encourage them to prioritize and limit their requests.

Special Events and Fees

Special events should be budgeted at fully burdened cost rates to assure that the real costs of the events are known. The cost per participant can be calculated and, while not a defining factor, can help set priorities in determining the extent to which special events are supported.

Facility rent (including sports fields) is a similar situation. Charging the fully burdened costs of supporting the rental would not impact the ongoing regular maintenance budget. Subsidizing rentals and special events by charging less than the full cost is a policy decision but it should be covered by a separate funding allocation instead of being lost within the maintenance budget.

Recommendation 18: Establish policies about the level of subsidies to be provided for special events and facility rentals and budget for the subsidies separately.

Identifying the full cost of special events and facility rentals is the first step. Then policies can be set and budgets can be allocated. By not separately identifying subsidies, the maintenance budget ratios will be overstated in terms of costs per square foot.

Use of Contractors

The District currently contracts for some specialized maintenance. Research on the topic and Management Partners' experience reflects that contracting for custodial and grounds maintenance generally reduces costs. Given the District's current and projected financial condition a

reconsideration of the mix between in-house and contract maintenance may be warranted.

The District's Memorandums of Understanding (MOUs) with labor groups limits the use of contract workers. In the absence of changes in MOUs, the use of managed competition (Recommendation 12) for custodial services is a process that provides staff with the opportunity to make improvements, increase efficiency and compete with the private sector.

Extending existing warranties on buildings and grounds and requiring longer warranty periods for newly constructed landscaped areas for the next few years may be a good strategy to hold down maintenance costs increases given the projected on-going financial constraints. Using contractors at remote locations where travel time would be a cost factor is also likely to be beneficial.

Recommendation 19: Extend warranty maintenance periods on new construction as well as new landscaping. The warranty should assure that plantings survive two to three years. Extending the warranty periods will assure that different workloads (due to number of students using the facility) or changing weather conditions from year to year are experienced to test the completed work.

REVIEW OF BUDGET ALLOCATION METHODOLOGY

The District uses detailed calculations to adjust budgets for the campuses and central departments based on changes in several factors: revenues; full time equivalent students (FTES); and, for the Facilities Department, changes in square footage. Although this is a fair process across all departments it does not account for fixed maintenance operating costs that are independent of the number of FTES.

The decrease of six maintenance FTEs from 2008/09 (73 FTEs) to 2009/10 (67 FTEs) is a staffing deficit that does not get restored before annual adjustments are calculated with the model. Thus the use of the allocation model over many years will maintain a systemic staffing deficit that is unrelated to the ongoing maintenance requirements of the infrastructure or to service level standards established as a formal District policy.

Within each of the maintenance areas (grounds, custodial and engineering) there are certain operations that are required to preserve the infrastructure and maintain health and safety provisions regardless of changes in the budget allocation factors. Some examples are:

- Engineering preventative maintenance avoids equipment failure and major replacement costs.
- Regular vacuuming extends the life of carpeting.
- Regular cleaning of the floor of the patient treatment room is a health issue.
- Regular mowing and weeding preserves lawn and landscaped areas.
- Maintaining paved areas prolongs life and avoids repaving costs.
- Storm drain cleaning avoids flooding.

There are also maintenance activities that can be reduced without impacting health, safety, or the infrastructure's longevity. Some examples are:

- Dusting,
- Moving furniture,
- Replanting annuals (color rotations),
- Sweeping interior and exterior areas on a less frequent basis,
- Cleaning offices and other low traffic areas on a less frequent basis,
- Straightening classroom furniture, and
- Power cleaning walkways.

The District's budget allocation methodology does not relate maintenance requirements to the funding levels needed to attain specific levels of service. Instead, in the current method, service levels are determined by the changes in revenues, adjusted by changes in FTES and square footage.

Alternative Methodology

An alternative methodology would recognize a basic level of service necessary to maintain health and safety protocols and protect the investment in infrastructure. This would establish a baseline budget for the Maintenance and Operations Division to cover basic health, safety and infrastructure protection expenses. Portions of this baseline could be adjusted as changes in square footage occurred. Establishing a baseline budget will require implementing the Preventive Maintenance module of the District's CMMS to determine the minimum amount of staff time required to meet the maintenance schedule.

The remaining budget requirements for the Maintenance and Operations Division would be adjusted based on maintenance service levels, which would be based on setting a policy for the level of service (e.g., APPA service level) to be maintained. In times of revenue reductions, budget reductions for the Maintenance and Operations Division would be defined and discussed in terms of reduced service levels. Conversely, in times of revenue increases, budget increases for the division would be tied to approvals of changes in the maintenance service levels to be achieved.

Recommendation 20: Revise the District's funding allocation methodology to establish a baseline budget for the Maintenance and Operations Division based on maintaining health, safety, and infrastructure levels of service. This change will take time to develop the baseline budget and include the preventative maintenance functions.

Recommendation 21: Establish maintenance service level policies on which to base the rest of the Maintenance and Operations Division budget.

The alternative methodology in Recommendation 20 and 21 will identify a baseline maintenance budget plus the budget needed to achieve the level of maintenance established by policy. Impacts of the differences between budget needs compared with available revenues can then be determined. Budget decisions about whether to fund at that level of maintenance or accept a lower level of maintenance can then be determined based on the funds available. Conversely, in times of ample revenues, the maintenance budget would not be increased automatically (as under the current allocation methodology) if it would exceed the maintenance levels established by policy.

CONCLUSION

The Maintenance and Operations Department has been making improvements by implementing many best practices. There are still more to be implemented and the department is on track to do so. The proposed staffing increase is for the District to maintain current standards of maintenance. Implementing the preventive maintenance module of the CMMS will provide data for analyzing need for additional staffing. More can be done by utilizing life cycle budgeting and user surveys to match maintenance expectations with staffing and budget realities.

The custodial staffing proposal is reasonable and District costs are below the peers responding to the benchmarking survey. User surveys may show that reducing cleaning frequencies is possible to minimize further staffing increases.

The grounds maintenance increase is also reasonable although changing to less labor intensive landscaping and hardscapes is likely to result in further improvement. An increase of one engineering staff was proposed, but additional staff will most likely be needed to assure all preventive maintenance tasks are completed on schedule.

Overall, the proposed staffing increases will maintain services at current standards levels, which is about an APPA standards' Level 4. Not adding the proposed staff will make it difficult for the Division to maintain an APPA Level 4.

The District's budget allocation methodology has a built in structural staffing deficit for the maintenance function. It needs to be revised to create a baseline budget for the Maintenance and Operations Division at staffing levels necessary to maintain health, safety, and infrastructure protections. District policies need to be established to formalize the maintenance levels to be maintained and the budget adjusted accordingly to meet those levels or define the level to be achieved.

Other areas of improvement recommended in this report (and summarized in Attachment A) can be made over time as none are as critical as implementing the preventive maintenance module.

ATTACHMENT A: RECOMMENDATIONS

Recommendation 1: Perform life cycle budgeting for all new and replacement facilities and equipment to identify all the District/campus costs and to budget appropriately.

Recommendation 2: Evaluate the potential of using an internal service fund (ISF) to establish a cost allocation plan to accumulate funds for a capital improvement reserve fund.

Recommendation 3: Analyze the rates charged for discretionary work to assure full costs are being recovered and allocated to the Maintenance and Operations Division.

Recommendation 4: Develop and conduct regular user surveys to measure satisfaction with maintenance that is performed.

Recommendation 5: Continue work on implementing the CMMS preventive maintenance module so that all preventive maintenance work can be scheduled and tracked.

Recommendation 6: Review preventive maintenance schedules for all equipment and adjust them as necessary to assure that schedules are kept, especially on new equipment still under warranty.

Recommendation 7: Track cost and frequency of repairs to be able to analyze the cost/benefit of repair versus replacement of specific items.

Recommendation 8: Develop a comprehensive procedures manual for each maintenance specialty with addenda for campus specific procedures.

Recommendation 9: Create energy conservation goals for each campus and report energy usage on a regular basis.

Recommendation 10: Create water conservation goals by developing and changing landscaping and other water-intensive facilities.

Recommendation 11: Join the Association of Physical Plant Administrators' Facilities Performance Indicators (FPI) survey to compare facility metrics and identify improvements in effectiveness and efficiencies.

Recommendation 12: Conduct a managed competition for custodial services that includes a staff proposal to provide the service.

Recommendation 13: Compare current District maintenance practices with the labor ratios established by the National Recreation and Park Association.

Recommendation 14: Establish District policies for maintenance service levels by adapting the APPA service level descriptions to describe the levels to be attained by the District.

Recommendation 15: Track preventive maintenance task completion when the preventive maintenance module of the CMMS has been implemented and analyze uncompleted tasks to determine if and how many additional engineering positions are needed.

Recommendation 16: Include all maintenance and operations costs when budgeting for increases due to changes in facilities square footage.

Recommendation 17: Revise the budgeting process so that departments allocate funds for discretionary work with the understanding that this type of work will be completed outside of regular work hours and that users will be charged fully burdened overtime rates.

Recommendation 18: Establish policies about the level of subsidies to be provided for special events and facility rentals and budget for the subsidies separately.

Recommendation 19: Extend warranty maintenance periods on new construction as well as new landscaping.

Recommendation 20: Revise the District's funding allocation methodology to establish a baseline budget for the Maintenance and Operations Division based on maintaining health, safety, and infrastructure levels of service.

Recommendation 21: Establish maintenance service level policies on which to base the rest of the Maintenance and Operations Division budget.

ATTACHMENT B: STAFF INTERVIEWED

The following District staff were interviewed:

Jose D. Nunez, Vice Chancellor, Facilities, Planning, Maintenance and Operations

Arlene Calibo, Administrative Analyst

Alan Miller, Administrative Analyst

Danny Glass, Facility Manager, Canada College

Richard Inokuchi, Facilities Manager, Skyline College

Diane Martinez, Facilities Manager, College of San Mateo

Kathryn Blackwood, Chief Financial Officer

ATTACHMENT C: SURVEY FORM SENT TO THIRTEEN COMMUNITY COLLEGE DISTRICTS

San Mateo County Community College District Community College Maintenance Survey

INTRODUCTION

The San Mateo County Community College District has retained Management Partners to conduct a review of their facility maintenance program. A survey of the facility maintenance program in peer districts is an important component for this review. This survey is similar to the APPA Facility Performance Indicators Survey and will ask for some similar information. Data used for the APPA Facility Performance Indicators Survey may be used for this survey.

If you have any questions regarding the survey, Please contact Mike Bridges, Senior Management Advisor, with Management Partners. Mike can be reached at mbridges@managementpartners.com and 510- 332-1895. We appreciate your participation in this survey.

DIRECTIONS

- Please complete a separate survey for each campus if available.
- If data is not available indicate why: e.g. not done, included in x, data not kept

Community College District Information

District name	
Number of campuses maintained	
Campus name	

General Maintenance Information

Total building gross square feet maintained by the facilities department at this campus	
Total landscaped acres maintained at this campus	
Hours in a work week	
Does the facilities department include fleet maintenance (Yes/No)	
Is building maintenance staff classified in general job classifications (e.g., engineers or technicians, etc.) or in trade classifications (e.g., plumbers, carpenters, etc.)	

Facilities Maintenance Expenditures (2009/10)

- a. Custodial maintenance by in-house staff \$ _____
- b. Custodial maintenance by contractor \$ _____
- c. Landscaping maintenance by in-house staff \$ _____
- d. Landscaping maintenance by contractor \$ _____
- e. Building maintenance by in-house staff \$ _____
- f. Building maintenance by contract staff \$ _____
- g. Utility expenditures \$ _____
- h. Facilities Administration \$ _____
- i. Total Expenditures \$ _____

District Facilities Maintenance FTEs (2009/10)

- a. Custodial maintenance FTE _____
- b. Landscaping maintenance FTE _____
- c. Building maintenance FTE _____
- d. Facilities Administration FTE _____
- e. Total FTEs _____

Custodial Service level that your budget achieves (e.g., APPA guidelines) – Please check one.

- a. Level 1: Orderly Spotlessness _____
- b. Level 2: Ordinary Tidiness _____
- c. Level 3: Casual Inattention _____
- d. Level 4: Moderate Dinginess _____
- e. Level 5: Unkempt Neglect _____

Thank you for completing this survey.

Please return the survey to Suzanne Harrington: sharrington@managementpartners.com

ATTACHMENT D: SURVEY RESPONSE DATA

DISTRICT	Hartnell College District	Monterey Peninsula College District	Ohlone College	San Francisco Community College District	San Mateo County Community College District (current)	San Mateo County Community College District (proposed)	West Valley-Mission Community College District
Number of Campuses	3	3	1	10	3	3	2
Total Gross Square Feet Maintained	833,922	486,238	601,839	1,636,081	1,450,000	1,612,871	979,748
Total Landscaped Acres Maintained	55.0	114.5	240.0	45.0	396.0	396	245.0
Hours in Work Week	40.0	40.0	40.0	40.0	37.5	37.5	37.5
Fleet Maintenance?	No	Yes	Yes	Yes	Yes	Yes	Yes
Custodial Level	2	na	4	2	4	4	2
Are Positions General or Trade Job Classifications?	Mixed	General	Trade	Mixed	General	General	Mixed
Custodial in-house			\$1,311,398	\$4,583,553	\$2,296,345		\$2,308,238
Custodial contract				\$117,260			\$120,000
Landscape in-house			\$276,919	\$471,748	\$606,080		\$731,952
Landscape contract				\$473,890			\$44,500
Building Maintenance In-house			\$1,258,135	\$2,475,687	\$1,789,478		\$1,239,110
Building Maintenance Contract				\$796,961			\$625,910
Utilities			\$1,250,841	\$1,883,950	\$3,142,286		\$2,254,973
Administrative			\$296,000	\$457,049	\$1,318,174		\$630,832
Total	\$0	\$0	\$4,393,293	\$11,260,098	\$9,152,363	\$0	\$7,955,515
Custodial FTEs	16.00		17.00	90.00	38.00	45.00	30.00
Landscape	4.00		4.00	7.00	12.00	16.00	9.00
Maintenance	6.50		8.00	29.00	17.00	18.00	11.00
Administration	2.00		2.00	6.50	13.00	13.00	6.00
Total	28.50		31.00	132.50	80.00	92.00	56.00

ATTACHMENT E: DETAILED LISTING OF ASSOCIATION OF PHYSICAL PLANT ADMINISTRATORS (APPA) SERVICE LEVELS

Custodial Service Levels

Level 1 Orderly Spotlessness

- Floors and base moldings shine and/or are bright and clean; colors are fresh. There is no build-up in corners or along walls.
- All vertical and horizontal surfaces have a freshly cleaned or polished appearance and have no accumulation of dust, dirt, marks, streaks, smudges, or fingerprints. Lights all work and fixtures are clean.
- Washroom and shower fixtures and tile gleam and are odor-free. Supplies are adequate.
- Trash containers and pencil sharpeners hold only daily waste, are clean and odor-free.

Level 2 Ordinary Tidiness

- Floors and base moldings shine and/or are bright and clean. There is no build-up in corners or along walls, but there can be up to two days worth of dust, dirt, stains, or streaks.
- All vertical and horizontal surfaces are clean, but marks, dust, smudges, and fingerprints are noticeable upon close observation. Lights all work and fixtures are clean.
- Washroom and shower fixtures and tile gleam and are odor-free. Supplies are adequate.
- Trash containers and pencil sharpeners hold only daily waste, are clean and odor-free.

Level 3 Casual Inattention

- Floors are swept or vacuumed clean, but upon close observation there can be stains. A build-up of dirt and/or floor finish in corners and along walls can be seen.
- There are dull spots and/or matted carpet in walking lanes. There are streaks or splashes on base molding.
- All vertical and horizontal surfaces have obvious dust, dirt, marks, smudges, and fingerprints. Lamps all work and fixtures are clean.
- Trash containers and pencil sharpeners hold only daily waste, are clean and odor-free.

Level 4 Moderate Dinginess

- Floors are swept or vacuumed clean, but are dull, dingy, and stained. There is a noticeable build-up of dirt and/or floor finish in corners and along walls.
- There is a dull path and/or obviously matted carpet in the walking lanes. Base molding is dull and dingy with streaks or splashes.
- All vertical and horizontal surfaces have conspicuous dust, dirt, smudges, fingerprints, and marks. Lamp fixtures are dirty and some lamps (up to 5 percent) are burned out.
- Trash containers and pencil sharpeners have old trash and shavings. They are stained and marked. Trash containers smell sour.

Level 5 Unkempt Neglect

- Floors and carpets are dull, dirty, dingy, scuffed, and/or matted. There is a conspicuous build-up of old dirt and/or floor finish in corners and along walls. Base molding is dirty, stained, and streaked. Gum, stains, dirt, dust balls, and trash are broadcast.
- All vertical and horizontal surfaces have major accumulations of dust, dirt, smudges, and fingerprints, all of which will be difficult to remove. Lack of attention is obvious.
- Light fixtures are dirty with dust balls and flies. Many lamps (more than 5 percent) are burned out.
- Trash containers and pencil sharpeners overflow. They are stained and marked. Trash containers smell sour.

Grounds/Landscaping Maintenance Service Levels (Turf examples)

Level 1: State-of-the-Art Maintenance

- Grass height maintained according to species and variety of grasses. Mowed at least once every five days.
- Aeration as required but not less than four times per year.
- Reseeding or resodding as needed.
- Weed control to be practiced so that no more than 1 percent of the surface has weeds present.

Level 2: High-Level Maintenance

- Grass cut once every five working days.
- Aeration as required but not less than two times per year.
- Reseeding or resodding when bare spots are present.
- Weed control practiced when weeds present a visible problem or when weeds represent 5 percent of the turf surface. Some pre-emergent products may be used at this level.

Level 3: Moderate-Level Maintenance

- Grass cut once every ten working days.
- Normally not aerated unless turf quality indicates a need or in anticipation of an application of fertilizers.
- Reseeding or resodding done only when major bare spots appear.
- Weed control measures normally used when 50 percent of small areas are weed infested or when 15 percent of the general turf is infested with weeds.

Level 4: Moderately Low-Level Maintenance

- Low frequency mowing scheduled based on species. Low growing grasses may not be mowed. High grasses may receive periodic mowing.
- Weed control limited to legal requirements for noxious weeds.

Level 5: Minimum-Level Maintenance

- Low frequency mowing scheduled based on species. Low growing grasses may not be mowed. High grasses may receive periodic mowing.
- Weed control limited to legal requirements for noxious weeds.

Building Maintenance Service Levels

Level 1: Showpiece Facility

- Maintenance activities appear highly focused.
- Typically, equipment and building components are fully functional and in excellent operating condition.
- Service and maintenance calls are responded to immediately.
- Buildings and equipment are regularly upgraded, keeping them current with modern standards and usage.

Level 2: Comprehensive Stewardship

- Maintenance activities appear organized with direction.
- Equipment and building components are usually functional and in operating condition.
- Service and maintenance calls are responded to in a timely manner.
- Buildings and equipment are regularly upgraded, keeping them current with modern standards and usage.

Level 3: Managed Care

- Maintenance activities appear to be somewhat organized, but they remain people-dependent.
- Equipment and building components are mostly functional, but they suffer occasional breakdowns.
- Service and maintenance call response times are variable and sporadic without apparent cause.
- Buildings and equipment are periodically upgraded to current standards and usage, but not enough to control the effects of normal usage and deterioration.

Level 4: Reactive Management

- Maintenance activities appear to be somewhat chaotic and are people-dependent.
- Equipment and building components are frequently broken and inoperative.
- Service and maintenance calls are typically not responded to in a timely manner.
- Normal usage and deterioration continues unabated, making buildings and equipment inadequate to meet present usage needs.

Level 5: Crisis Response

- Maintenance activities appear chaotic and without direction.
- Equipment and building components are routinely broken and inoperative.
- Service and maintenance calls are never responded to in a timely manner.
- Normal usage and deterioration continues unabated, making buildings and equipment inadequate to meet present usage needs.