



Effective & Innovative Practices Award Application

**San Diego Community College District:
Lean Enterprise Processes in Facilities Management**

Statement of Program

As California’s second largest community college district, the San Diego Community College District serves more than 142,000 students at three main colleges and six Continuing Education campuses. The District will complete a \$1.555 billion build-out by 2016 that will increase its facilities from two million square feet to approximately four million square feet.

With the state’s ongoing fiscal crisis, it was clear there would be no means to double the custodial and maintenance budget, prompting the District to pursue strategies to reduce operating costs associated with the build-out while continuing to deliver value.

By applying lean principles to custodial and maintenance functions, the SDCCD eliminated the need to add 20 positions, shaving off \$813,000 in the first year of a seven year process. Additional efficiencies implemented over the next six years will increase projected savings to \$20 million. At the time of the lean practices assessment, more than 85 percent of maintenance work was reactive – responding to requests for service as they came in. With the use of three key lean tools – a priority matrix, work flow processes, and a Computerized Maintenance Management System (CMMS), more than 87 percent of maintenance work can now be planned and scheduled.

Institutional Benefits

In the midst of an extensive district-wide facilities build-out, the San Diego Community College District has been challenged to lower its operational costs while maintaining its delivery of services. In a cost-conscious budget environment, the District sought to identify methods and practices that could enhance the level of service delivery while at the same time lowering the district's square foot maintenance costs. The SDCCD is using lean principles and practices to reduce its cumulative forecasted budget of \$110 million through fiscal year 2016 by more than \$20 million. By utilizing lean principles to identify causes of waste and improve processes, the SDCCD has:

- Benchmarked custodial square footage cleaned and targeted goals to increase square footage per custodian over a three-year period
- Reduced reactive work flow and leveraged a new centralized work flow process in conjunction with a Computerized Maintenance Management System (CMMS) to reduce the volume and aging rate of open work orders
- Established lean custodial practices including custodial beat load leveling; implementation of uniform cleaning standards; and benchmarking and progress metrics via Management by Walking Around (MBWA) data collection
- Established clear Service Level Agreements (SLA) with all stakeholders served
- Improved practices to increase technicians' time on tools guiding material/supply management by implementing the delivery of work orders via handheld wireless devices
- Implemented a training program for all supervisors and leads, successfully engaged all team members and establishing expectations across the district and across shifts
- Increased the sense of pride with those who have ownership of the space or function.

In its quest to be "service oriented" the SDCCD previously had no formal work prioritization process. This led to 85% of the work being reactive, with the list of open work orders exceeding 1,600 and a higher per-square foot cost for cleaning compared to industry benchmarks (APPA Facilities Performance Indices).

In the first year of the new program, the cleanable area per custodian has increased from 13,000 square feet to 17,000 square feet at the same time that cleanliness has improved. Under the previous system, work orders were open for more than 75 days on average. Under the new program, and despite a fourfold increase in volume, work orders are now closed out within 20 days.

Innovation and Creativity

The need to perform a thorough analysis of custodial practices created an unprecedented opportunity for the custodial team members to really study how they were spending their time. Senior supervisors found that over time, they had performed services for faculty and staff that were not in keeping with their core mission and welcomed the chance to get services back on track. As an example, the study showed the custodial crew spent an inordinate amount of time responding to faculty and staff that needed doors opened. Concurrent with the development of the new Priority Matrix, the team developed a new Door Opening Policy that helped reduce door-opening tasks from 17 FTE days per month to fewer than two. Using APPA's "Five Levels of Cleanliness," new Cleaning Standards were adopted which led to renewed value for cleanliness and higher levels of customer service.

A maintenance priority matrix was developed based on the work requested and its impact on the district's core mission. Work flow processes were then developed to "map" the progression of a work order, assuring accountability for each step from initiation to closing-out. A Computerized Maintenance Management System (CMMS) was implemented that replaced piles of work orders with no clear organization or priority assignment with a clear automated system that enabled team members to meaningfully plan and schedule and maximize efficiencies. Open work orders and aging work orders dropped dramatically. With the capability of the CMMS to cluster work orders together by priority, campus or project, maintenance trades found that their 'windshield time' was reduced dramatically as well, enabling them to improve delivery of services while improving time management.

A new Management by Walking Around (MBWA) program was implemented that allowed Supervisors to perform focused and strategic inspections. The inspections focused on areas requiring attention within a space. Supervisors quickly found the inspections were a way to leverage the new Cleaning Standards to raise performance. The walk-around inspections also helped reveal that some problems were maintenance issues rather than custodial, such as a wall which may have required repainting rather than extensive cleaning. By inspecting all buildings consistently, teams are able to track and trend cleaning discrepancies.

How This Practice Can Be Used By Others

Since the inception of the Lean Facilities Enterprise initiative, the SDCCD has proactively shared information about the program and its implementation with other educational facilities operations teams, recently presenting at the Tradeline Lean Processes for Facilities Management & Capital Projects Conference in St. Petersburg, Florida in March 2010 and at the Community College Facilities Coalition in Sacramento, California in November 2010. The program can be easily replicated. Key steps include:

Development of key custodial and maintenance goals

For example, at the beginning of the SDCCD program, initial cleanable area was set at 13,900 square feet per custodian, increasing to 25,000 square feet by fiscal year 2016. Beginning cost per square foot for maintenance began at \$3.93 and will reduce to \$2.25 over the eight-year plan.

Critical assessment of services

This review reveals the amount of time spent on activities outside of a custodial team's core mission, including the opening of doors, stock room duties, event set ups, temperature checks, and moving. For the SDCCD, the analysis also revealed that 85% of the work was reactive, with more than 1,600 open work orders.

Identify opportunities for improvement

By identifying areas for improvement, the facilities services team was able to focus on the core mission while proactively developing a response to out-of-scope issues. The implementation of the new Service Level Agreement now allows for the workload to be prioritized and performed more efficiently.

Standardize, standardize, standardize

With the clear identification of the types of spaces used on the campuses and the finishes used within the space, a base cleaning factor can be established, and standardized cleaning times can be assigned to each space. Accurate space information also provides a qualitative way to determine the proper head count requirements for custodial teams and shift balances. Standardizing the process for requests for service is also critical. By re-instructing staff across the SDCCD to direct work orders and requests for service through the district's central call center, service prioritization value improved.

Maximize technology

The Computerized Maintenance Management System (CMMS) and the integration of wireless handheld devices revolutionized how technicians were able to receive and respond to work order requests.

Demonstration of Management Involvement/Employee Commitment

Securing the buy-in of the District's leadership team, including the governing Board of Trustees, Chancellor and Chancellor's Cabinet, was an essential step to gaining the greater buy-in of the facilities services team. While initially met with some resistance, the culture change required to implement the program effectively has taken place.

The Management by Walking Around (MBWA) program was an essential component for engaging supervisors, as it offered a focused opportunity to really examine the facilities closely and on a regular schedule. The indicator of success for this phase was the percentage of MBWA inspections completed over time.

Now that the team has been trained on performing inspections, and that the inspections are occurring regularly, a secondary program will be implemented to recognize and instill a sense of pride in those who had ownership for the space and function. The Pride Program will provide recognition of custodians who have the best scoring buildings.

Using the custodial load leveling, many custodians found themselves reassigned from first and second shift to third, where the allocation of resources was in greatest demand. For some employees, this was a difficult change. If the District had maintained its previous approach to custodial delivery, the custodial ranks would have grown from 104 to 187 by 2016, far exceeding available funding resources. With the lean processes in place, the custodial ranks will still increase (to 127 by 2016), a powerful motivator for the current custodians who know their part in practicing lean facilities management is a key to the District's saving \$20 million over the eight-year plan.

Documentation of Results, Analysis, Customer Feedback and Resulting Benchmarks

Upon the completion of its \$1.555 billion capital improvement program, the SDCCD Facilities Services Department will be responsible for 3,679,451 gross square feet of building space; 1,365,001 gross square feet of parking areas; more than 149 acres of landscape; and with projected utilities cost of nearly \$8.8 million. Staff is charged to maintain these campus assets in a manner that minimizes the disruption of the academic and career training missions of the district.

The detailed information obtained in the initial services and space assessment was critical to creating standards for base cleaning factors, cleaning times, appropriate custodial head count requirements and the eventual SDCCD Cleaning Standards. At the start of its program and using APPA-defined standards, the SDCCD determined its typical levels of cleanliness were at Level 3 (Casual Inattention) or Level 4 (Moderate Dinginess). As a result of the assessment, and with the implementation of the new Cleaning Standards, the SDCCD has determined its acceptable level of cleanliness to be Level 2 (Ordinary Tidiness).

By tracking and trending cleaning discrepancies, such as dusting of both vertical and horizontal services or ensuring that glass windows and channels are cleaned, the district was able to track actual data with actual inspections. Building scores, created by taking the number of discrepancies and subtracting them from 100, were then normalized based on building size, with a 20,000 assignable square foot assumed as normal.

Data used from these tools/processes is used to:

- Drive continuous improvement
- Charter performance goals for a campus, department or individual
- Implement the Pride in Ownership recognition program
- Drive performance management

Feedback from staff utilizing the system has been positive. The Regional Facilities Officers overseeing each campus' custodial and maintenance operations are particularly pleased with the CMMS, citing the enhanced ability to track workers' workloads. Additionally, with faculty and staff now required to submit event set-up requests in advance, the RFOs are able to schedule employees as needed without adversely impacting other planned activities.