Continuous Improvement

2015 Annual Report
Knowledgeable, professional, dedicated, committed, willing, are all words I heard and witnessed first hand describing the team and the effort carried out.

—Facility Manager
Fiscal Year 2015 was a year of learning, refining and innovation for Plant Operations. We received new directives and initiatives from our new leadership, President Mark Schlissel and Executive Vice President and Chief Financial Officer, Kevin Hegarty. We also implemented continuous improvement techniques to analyze our new processes. We continued to update our strategic plan, Vision 2018, to keep it current with changes. It was an exciting year, and as expected, the Plant Operations team rose to the challenge.

One of the most important tools we introduced this year was Continuous Improvement (CI) as part of Plant's guiding principles. CI started as a discussion at the Plant lead team level. Introduced by the Work Management and Plant Academy to the lead team, we agreed to provide CI training to a limited number of trainers. The result has been an explosion of innovation within each department to improve processes all across Plant.

Coupling this surge with the more proactive management practices, CI has the potential to dramatically increase the efficiency and performance of Plant Operations. These programs are detailed herein and are reflected in the performance metrics that we track.

The programs for increased performance have matured and are delivering the expected results. We continue to refine the processes to remove unintended deficiencies, and have seen overall increases in customer satisfaction and employee satisfaction in our surveys. We also continue to receive recognition both internal and external to the University. From the University's Distinguished Diversity award to the APPA Award for Excellence in Facilities Management, Plant Operations continues to demonstrate leadership in the facilities management industry in a wide variety of business environments.

Thank you for taking the time to review our year.

Rich Robben, Executive Director For Plant Operations
Our Mission

Plant Operations, a member of the University Community, provides and sustains the physical environment for the University to achieve its goals of excellence in education, research, and public service.


Our Vision

To be:

- an organization where continuous and measurable improvement in services is the standard
- recognized by the University community for excellence in service, as a partner in solving our customers’ problems, and as the provider of choice
- an innovative leader in facilities management
- an organization where all employees are treated equitably and honestly
- an effective, diverse work community
- a learning organization, where all staff members are empowered and supported in reaching their full potential
- a workplace where the atmosphere of trust encourages creativity and innovation
Guiding principles

Our vision can only become reality through the efforts of all members of the Plant Operations team. This requires that everyone identify processes that need to be improved and the milestones that must be achieved as we seek to be the provider of choice for those we serve. We will be guided by these principles:

FOCUS:
We exist to serve the needs of the University through partnerships and mutual understanding.

RESPECT FOR PEOPLE:
Respect for people and their intrinsic worth is the cornerstone of our relationships with one another, our customers, and our suppliers. We appreciate the diversity of the human family and recognize our differences as sources of collective strength and wisdom.

ENVIRONMENTALLY RESPONSIBLE:
We will respect the physical environment that we share. We will wisely use and preserve the resources at our disposal by reducing waste, recycling, and whenever feasible, using recycled materials.

EMPOWERMENT:
We are a Plant Operations team. Team members are stakeholders in the success of the enterprise and must be involved in the decisions that affect their work lives. “Empowerment,” with its freedoms, responsibilities and boundaries, describes the intended work culture. Empowerment requires competence, sharing of information, and ongoing learning. We are dedicated to becoming the best workforce in our industry. A person seeking to improve service to a customer will not be blamed for taking reasonable risks.

INNOVATION:
We are a learning organization. We recognize that improvement of ourselves, our work processes, and our methods is essential to our success. We must be creative. We must challenge our own thinking. We must seek to learn from our mistakes.

INTEGRITY:
How we do our work and how we relate to each other are of paramount importance. Our conduct must conform to the highest, uncompromising standards of trustworthiness and character. We will never knowingly make decisions that harm people or that are not in the best interest of the Division or the University.
Plant Operations is utilizing the Continuous Improvement management tool to achieve the overall strategic goal of Operational Excellence. Units, teams, and groups across Plant Operations are involved projects to continuously evaluate the work processes, solve problems and implement solutions.

Work Management via the Continuous improvement Coordinator began to introduce operational excellence tools for Plant Operations in FY15. Operational excellence tools are patterned after lean methodologies but also incorporate an organization’s strategic planning efforts so it presents a holistic approach of lean adoption. The operational excellence tools will be used to assist in completing Plant Operations strategic planning initiatives. In FY15, Plant Operations’ associate directors and direct reports attended Lean Leadership training. The Lean Leadership training, organized by Plant Academy, was a week-long immersion in lean tools and philosophy. Plant leadership began to work on developing leader standard work, introducing visual management in their departments and start the practice of engaged coaching. In addition, the A3 problem solving technique was started in multiple departments as an effective way to define problems and implement targeted solutions.
Successful CI projects

Request additional pay form and workflow

Supervisors of “bargained for staff” are now able to submit requests for additional pay via an electronic form that expedites the routing and approval process. Completion can occur within hours whereas the former paper process could take several days. Plant Business Office (PBO) receives notification upon initiation of a form, which allows for follow up with approvers, if necessary, to prevent delay. This allows for greater efficiency and timely pay. We now can benchmark and track requests - before, no metrics were available.

Data management and compliance form and workflow

This electronic form allows the ISC to gather information on business practices for data systems that are not centrally managed by Plant IT and are not a part of the FMS suite. This allows the data owners to easily update and certify information annually, thus meeting audit requirements for data management.

Timeclock deployment

Plant Operations timeclocks were deployed to most of Plant’s biweekly paid staff in FY15. The use of this system dramatically improved efficiency and accuracy of the time reporting process, and now provide Plant Operations with the capability to track employee attendance in the event of an emergency. It has also significantly aided in streamlining the overall payroll process by reducing the amount of auditing time required by the Plant Business Office. To date, 82.28% of eligible staff are now utilizing the time clocks.

[ Visual Management Tools used for Continuous Improvement projects ]
Automated material error process

Provides automated assignment for units to make online corrections to inaccurate transactions received from M-Pathways. Upon correction, the transactions load directly into FMS to the appropriate work order for accurate and timely billing. Transitioning from a manual paper routing process to electronic has reduced the turnaround time for error resolution from three weeks or longer to 2-3 business days.

Automated email to stakeholders

Work Management initiated an improvement to the work order creation process that increased stakeholder communication. With the support of the Plant IT department stakeholders now receive an automated email upon the creation of a work order under all requesting conditions; online, email, phone call, or fax. The next step of this initiative will be to include an automated email for work order completion.

Dispatched work orders

The Plant Operations Call Center began placing dispatched work orders onto the craft’s daily assignment. This innovation has saved considerable time and paper work processing for Facility Maintenance Asset Supervisors and the Facility Maintenance Schedulers.

Material recovery optimization

In FY15, a Financial Analysis representative worked with the FM department to implement inventory assessment recommendations from a third party consulting firm. The goal was to right size maintenance repair operations (MRO) inventories through consolidation and then employ technology to determine location, auto-replacement and stocking parameters. Existing inventory was reviewed, obsolete materials were disposed of and the remaining inventory catalogued. Warehouses with active inventory management activities/support staff were set up in Health Sciences and Central Campus East Regions. Work is progressing in Central Campus West and North Campus Regions and the warehouse systems are targeted for completion by March 2016. The South Campus Region will be completed in early FY17.
"I’m sure the accolades will continue, even in the form of silence, as most returning to work at the Hospital on Monday will do so with minimal knowledge of the magnitude of the activity completed. Lights, computers, networks, diagnostic equipment, pumps, air conditioning, are available and ready for business as any normal day."

—FM Director

1492
Total Employees including part-time employees
Handheld devices

Central Campus West Region (CCWR) is piloting employee use of handheld devices to provide employees with real time information in the field. Employees will be able to access Daily Assignments, all work order notes, prints, floor plans and other work order information. Will provide more field intelligence to employees and make them less dependent on Asset Supervisors for detailed information often required in the field.

This effort will be expanded in the coming year and Region Manager is working with Plant IT to see if FMS edit rights for employees can be provided so that real time work order updates can also be made in the future.

UPE Shops Process Improvement

The Utilities & Plant Engineering (UPE) Shops Process Improvement Initiative has become a major focus for the department. A team charter was developed and the UPE Shops Process Improvement Team (SPIT) was formed. The purpose is to define and implement new processes to improve the efficiency of the delivery of services by the UPE shops. The team includes Managers, Foremen and Skilled Trades from all shop areas.

OS1 Implementation

The custodial restructuring effort (OS1) completed their five year long implementation in the first quarter of FY15. The program has realized a 10% improvement in services while absorbing approximately $2.6M in general fund budget reductions since FY10.

Silver Arrow Nomination Form

Plant IT developed a web-based system, designed in Sharepoint now provides easy access to CARE data by CARE members via the web. Nominators are also notified, via email, when the forms are reviewed and approved.

Minor Work Orders

In Construction Services, the Minors Group has completed over 7,600 work orders since the team was created two years ago. The total value of the work orders are $4.25 million.
“Your employee just completed stripping, cleaning and polishing our floor here in ITS Data Center Operations in the ASB basement. Everyone is looking down at the floor in amazement. I have been here 8 years and would never expected that this floor could look like this. He is meticulous and obviously takes great pride in his work.”

—Facility Manager

| Kudos for Plant |

8.0% reduction in energy consumption
Aligning with B&F Goals

Provider of Choice

There are currently 157 active Servie Level Agreements (SLAs) throughout campus serving customers such as Athletics, Housing, Parking & Transportation Services, Information Technology Services and the Ford Library. The total estimated annual value of our active campus focused SLAs is $4.99 million. The Plant Hospital Maintenance SLA was approximately $13 million in FY15.

Customer pay labor charged to special event work orders was slightly less than 2014, yet 45% higher than 2013. President Mark Schlissel’s Inauguration and Community Celebration (September 2014) was an example of a large university-wide event supported by all Plant Operations departments.

In Construction Services, the Minors Group had a 96.9% satisfaction rating amongst customers and the larger improvement projects had a satisfaction rating of 98.4%.
Employer of Choice

Work Management began a program of succession planning and personnel functional assignment optimization. Personnel in Work Management were provided the opportunity for growth and development by performing work management functions outside of their day to day responsibilities. This allowed growth in the value created by the individual and for the department in service to the operational departments. Some of these functions included shutdown coordination, estimate processing, process audits, scheduling and PM generation.

Facilities Maintenance recruited and selected five Plant Building and Grounds Services custodians to serve as Employees Working Out of Classification maintenance mechanics from October 2014 through April 2015. As testimony to the success of this program, three of the five staff members were subsequently selected for permanent maintenance mechanic positions. The program has been so successful that we will continue with a new set of five custodians in FY2016.

Employee satisfaction scores for Plant Operations continue to rise in many areas. Over 950 individual Training Competency Assessments (DACUM) were completed online and reveal that our bargained for workforce is 80% or better “fully trained” in the core competencies for the jobs; whereas 90% or better of our supervisory workforce is “fully trained” across core competencies.

Engagement

CCWR now provides personalized queries for a number of craft employees that give direct access in FMS to easily review Daily Schedule Assignments ahead of time, as well as a work queue of jobs that they have previously been assigned. This is being done to so that they may have more influence in scheduling and more control over which jobs are completed in addition to those scheduled when possible. This effort is in pilot mode, but is working well and will likely be expanded in the coming year.

Every CCWR employee now has a FMS desktop query that lists all eMRFs they have submitted in the system. Employees are able to see the status of material orders and when the material has arrived, are able to clone (copy) repeat orders efficiently as well as influence scheduling of work (when material is on-hand).

Best in Class

The Commercial Building Maintenance Certification program continues to grow in importance as a “best in class” employee skills development program. This innovative program is designed to provide a practical, structured and accredited course of study for U-M maintenance staff. This program clearly helps staff acquire new skills and organizational knowledge, and promotes peer relationships with others throughout Plant Operations.
Energy Management

Energy Management has continued to save 8.1% in energy consumption in general fund buildings. In FY 2015, Planet Blue Energy Management handled several successful projects such as the Sustainability Block Party, Green Lights Vision 2.0 and the Lab Hibernation program. Energy Management along with Office of Campus Sustainability and Graham Sustainability Institute- Planet Blue Ambassadors hosted a Sustainability “Block Party” at UMMA in mid June 2015. The focus of this event was to raise awareness of sustainability activities among students, faculty and staff in the buildings around UMMA. The intention was to affect results on the next round of Sustainability Cultural Indicators Program survey.

The Green Lights Vision 2.0 program is aimed at replacing inefficient 32 watt fixture lamps with new 25 watt fixture lamps that have extended life in buildings throughout campus. The program reviews each facility to ensure compatibility, minimum lighting requirements are met and to calculate the cost and savings of that building. The lamps that are removed are properly disposed of through waste management.

Lab facilities have long been a focus of Energy Management due to their high energy use per square foot. Labs are energy intensive because the air provided to lab space is “once-through” meaning no air is reused. Fume hoods frequently go unused for long periods of time due to many different factors. Energy Management saw this as
an opportunity and created the lab hibernation program, which safely and quickly puts unused lab space and fume hoods into a hibernation state. The program was able to hibernate 58 hoods so far, which has saved $15,000 over the past few months and the savings continues to grow with each passing day.

Energy Management continues to build off the strong foundation in which it stems from while leverage new technology in an effort to reduce energy and our carbon footprint in alignment with the University’s 2025 sustainability goals.

The Facilities Electrical Maintenance (FEM) electrical group partners with Energy Management and the Utilities and Plant engineering (UPE) group by constructing the energy savings projects these groups design. Many of these projects install Variable Speed Drives (VSD) and occupancy sensors. The occupancy sensors command the VSDs to reduce the speed of the Heating Ventilation and Air Conditioning system motors when building occupancy diminishes, thereby saving energy.

The Power and Lighting (P&L) group continues to investigate alternative solutions to more energy efficient and longer lasting outdoor fixtures. LED technology is being tested in several locations to replace compact fluorescent (CFL) pin style lamps and Metal Halide wall packs. To date, the P&L shop has converted over 1200 lamps/fixtures to LED.

\( \$3.5 \text{ million} \) in annual avoided energy costs
Recycling

The recycling rate for FY15 remained steady at 32.17%. Food waste diverted to composting rose by 65% in FY15; 275 tons were sent to WeCare Organics, up from 167 tons in FY14. It is anticipated that this number will continue to rise in FY 16 given Michigan Dining’s commitment to organics diversion.

Fiscal Year 2015 was U-M’s 10th year participating in the national RecycleMania competition. The campus building competition has been rebranded to RecycleMania: Battle of the Buildings. Sixty-four buildings competed in 3 categories: recycling rate, most improved recycling rate and waste reduction. Buildings could also compete by building type.

Recycling is active on social media channels. Along with Facebook, Recycling also expanded its outreach to Instagram and Twitter. The team held a “NoThrowber” waste reduction competition over the social media outlets in October and had an increase in response and participation from students, especially with the new Instagram account.
“The entire cleaning Industry will always be grateful to the University of Michigan Plant Building Service for their leadership in becoming the very first organization to be CIMS Certified. June 7, 2007 was not the end of a dream for them but rather just the beginning as they continue to this day trying to get better each and every day striving to deliver the most efficient and effective cleaning services to the University of Michigan.”
Plant Operations General Fund Operating Budget Trend (Excludes Utilities Services)

- Plant Operations Operating Budget has increased from $46 million to $56 million since fiscal year 2003-04
- That increase includes base adjustments of $13.2 million for new space and increased services
- F&O maintained annual salary programs
- If we had received inflationary increases (Detroit CPI), our base budget would be approx. $67 million in 2014-15
- Operating Budget does not include PPI, IMF, or Utilities

In Fiscal Year 2015, Plant Operations Maintenance General Fund base Budget was reduced by $1.02 million. The base budget within the division has been reduced by approximately $16 million over the past eleven years. Over this same time period, Plant Operations has benefited from a significant growth on the Ann Arbor campus; which has resulted in $13.7 million in new space funding. In addition, Plant Operations gained another $14 million in funding for salaries and other strategic initiatives. Therefore, the General Fund budget has increased by $12.1 million between FY 2004 and FY 2015. This is $1 million less than the total new space funding over the period.

Fiscal Year 2004, 2010, 2011 and 2012 had the biggest reductions, budgets were reduced by over two million dollars in each year. As depicted by the chart above, Plant Operations base General Fund appropriation decreased from $47 million in FY 2004 to $44 million in FY 2015, a decrease of 6.8%. By contrast, cumulative inflation over this same period was 29.88%. If the Appropriation of Plant Operations had grown by the rate of inflation, the Appropriation at the beginning of FY 2015 would have been $77 million.
As depicted by the graph above, the Plant Operations General Fund Dollar per square foot (in nominal Dollars) gas steadily increased over the past eleven years. There were a few years when the average declined (FY FY04, FY05, FY11 and FY 14), but in general there has been some upward pressure on the average. However, examining this average in real terms provides a different picture. When the figure is adjusted for inflation, the chart illustrates that the average has steadily decline over the period from $3.44 to $2.71.
Customer satisfaction is an important measure of success for Plant Operations and Business & Finance. One of the strategic goals for B&F is provider of choice. Having high or rising customer satisfaction scores ensures that internal service providers are valued by the campus community. Satisfied customers also mean employees are more satisfied in their work environment.

Plant Operations has seen significant changes in the past 5 years. With the mandate to reduce costs, Plant Operations departments have restructured to meet increased demand and while lowering costs. Customers will continue to receive a high level of service from Plant Operations as our employees manage the changes in their work environment.
This fiscal year, Standards Michigan has given priority to ICC and ASHRAE suite of standards because an update of the 2005 Energy Policy Act legislation — which incorporated by reference ICC and ASHRAE concepts — will most likely be enacted ahead of the next federal election. We have successfully persuaded technical committees to roll back excessive “green” regulation representing over $3 million of avoided first and running cost for the University of Michigan alone — which does not include reduced risk and complexity cost; nor does it include increased quality of service that is a collateral benefit. These advocacy achievements will convey total cost of ownership reduction opportunities of over $3 billion to the education facilities industry as a whole. We have expanded our collaborations to other like-minded user/owner facility organizations such as BOMA and IFMA and NAHB where we are seeing advocacy results far faster than by collaborating with familiar education industry trade associations.

Our technical papers continue to be recognized in academic circles — nearly 300 downloads of the IEEE transformer kVA reduction paper and nearly 100 downloads of the SCUP district energy power reliability paper since they were uploaded on Researchgate in 2014. The transformer “rightsizing” paper will be a feature story in the July/August 2016 Industrial Applications Society Magazine. The Standards team wrote a paper for ISO Focus Magazine in January/February 2015— “Education Enterprise” encouraging support of subject matter experts in business and technical standards development. That paper was the inspiration for an invitation for the director of Plant Operations to speak at the Society for Standards Professionals in Baltimore in August. The presentation was well-received; and has been the basis for further discussion with the US Department of Commerce International Trade Administration about conveying our education industry advocacy model at greater scale into international markets where the US is a stakeholder. In September the President and CEO of the American National Standards Institute delivered a second speech to the education industry: Building Academic Engagement in Standardization: Research, Facilities Management and Standards in the Classroom. ANSI has chosen the University of Michigan as a location for its annual Company Member Forum (CMF) in May 2016. Many government relations professionals and regulatory advocates for the world’s largest corporations convene to coordinate US regulatory policy during this Forum. The CMF will recognize the 20th anniversary of the National Technology Transfer and Advancement Act which grants freedom of self-determination and leading practice discovery to all US industries, including ours.
Awards

2012
- Tree Campus USA
- OS1 Simon Institute Award for Environmental Programs
- Honorable Mention Higher Education Green Cleaning Award for Schools and Universities

2013
- Tree Campus USA
- ISSA Cleaning Industry Management Standard (CIMS) Green Building criteria with Honors
- Silver Award for Higher Education Green Cleaning Award for Schools and Universities
- OS1 Simon Institute Mark Reimers Cleaning for Health Award
- DTE Energy - Education Energy Efficiency Award
- Achievement Award for Facilities Professional Certificate Program.

2014
- APPA Award for Excellence in Facilities Management
- Tree Campus USA
- First Place in Higher Education Green Cleaning Award for Schools and Universities
- Combined Heat and Power Award for Central Power Plant
- OS1 Simon Institute award for Innovation

2015
- Gold Leaf Award for Outstanding Landscaping Beautification
- ISSA Cleaning Industry Management Standard (CIMS) Green Building criteria with Honors
- Combined Heat and Power Award for Central Power Plant
- OS1 Simon Institute award for Peer Influence
Plant & Moving Services supported the U-M Solar Car Team during the American Solar Car Challenge.