

# Changing For Excellence

## Business Case Goal Completion Report

### Facilities Maintenance & Upkeep

#### Report Date

August 2016

#### Context

- The Lawrence campus is operating three different custodial and maintenance groups on campus resulting in additional labor costs compared to peer institutions.
- KU FO has an average staff to supervisory ratio of 4:1, significantly lower than best practice.
- FO front-line staff are disenfranchised and suffer from low morale, which also affects efficiency and productivity.
- Strong interest exists for saving utilities costs on campus; however, few behavioral changes initiatives have been launched.

#### Goals

*For each goal answer the following: What percent is this goal complete? If the goal has been met, please describe how it was met. If the goal has not been met, how will you be completing this goal or why will it not be complete?*

- Consolidate the Lawrence campus' individual custodial and maintenance operations, and develop service level agreements among clients.
- Increase maintenance worker productivity.
- Improve FO's internal operations and procedures to provide better service to customers and increase work quality.
- Institute a comprehensive utility reduction plan and incentivize faculty and staff to decrease utility usage.
- Fully implement the Maximo facilities management system, and provide the adequate tools and training necessary to allow staff real-time access to work orders, preventative maintenance, and asset information.

*Overall, how did goals change during Changing For Excellence and what goals were added or removed:*

#### **Consolidate custodial and maintenance operations and develop service level agreements among clients**

*Consolidate and create a six zone maintenance system*

In July 2012 Facilities Operations and Housing Maintenance combined to create Facilities Services. A number of staff were transferred to DCM, forming KU Construction.

In May, 2014 proposed changes in custodial service to several buildings better aligned Zone responsibility and improve custodial support to customers in buildings. A quarterly conference call started in June, 2014 with the Edwards campus facilities manager, providing information on submission of work orders in Maximo, with the goal of working toward Edwards becoming a more independent "Zone" with program support from KU Facilities Services.

*Develop service level agreements and customer surveys*

*Changing for Excellence* recommendations included the development of Service Level Agreements (SLA) to enhance customer relationships. Housing was selected as the first organization to work with to develop an

SLA. Facilities Services and Housing worked from the summer of 2012 until spring 2013 to develop an SLA that met Housing's needs. Bi-weekly meetings with housing were established to ensure good communication and service provision per the SLA. In October, 2013 the Housing SLA was updated.

Facilities Services is now working on establishing university-wide service level standards. An updated custodial policy is currently under review. Customer surveys are now generated by Maximo. Results are compiled and reported in the FS KPI Report.

### **Increase maintenance worker productivity**

#### *Increase employee training*

Training is a key area of emphasis for Facilities Services. Over the last two years, training has ranged from the October, 2012 roll out of the EZMax mobile Maximo pilot project, to November, 2013 safety training for 3rd shift custodial crews, to July, 2014 IPOD and Excel classes. FS provided approximately 2,000 total training hours on safety issues in FY14 year (4.5 hours per employee) Topics included:

- Ergonomics
- Lock Out-Tag Out (LOTO) program
- New employee safety orientation
- Safety triangle
- Eye and head protection
- Hearing conservation
- Arc flash and Electrical safety
- Fume hoods
- Strobic exhaust fans
- Working in animal care facilities
- Forklift safety and proper operation - 100 employees certified

#### *Improve employee morale*

In August, 2012 two town hall meetings were held with Facilities Services maintenance and custodial staff to communicate final organization changes, address employee concerns, and answer questions. Since then, a number of initiatives have been implemented to improve departmental staff morale. These changes can be grouped into the following categories: improved communication, employee feedback, and employee recognition.

#### *Improve communication and employee feedback*

Communication was immediately addressed within Facilities Services. In September, 2012 FS leadership met with staff members from the zones and central shops, and custodial staff from the new night shift, to discuss post-merger progress and identify challenges and issues that needed to be resolved moving forward. Leadership also met with central shop supervisors and zone managers to review new work order management process and discuss workflow between zones and central shops after the Maximo re-implementation and with zone managers and shop supervisors to discuss the first two months of the new FS organization and identify challenges and issues that needed to be resolved moving forward.

During October, 2012 FS leadership met jointly with zone managers and central shop supervisors to address operational challenges and resolve process issues with communications and work flow management between zones and central shops. In March, 2013 the union was notified of the formation of an FS Employee Advisory Council (EAC). The first meeting was held on April 15, 2013 with Facilities Services,

USS Senate, and HR representatives. In May, 2013 the first meeting notes were distributed to all FS employees.

This was followed in July by the first publication of the FS Foghorn, a quarterly newsletter with newsworthy updates and information for staff with an emphasis on FS employees and the distribution of the Facilities Services Climate Survey.

Since then, quarterly FS Employee Advisory Council meetings have been held, focusing on receiving feedback from employees and sharing information. Several initiatives suggested by employees and the council have been implemented or are planned for the future.

#### *Recognize employees*

In December, 2012 FS scheduled recognition events for both day and night shifts with an early morning reception scheduled for Thursday, January 31 for custodial night shift employees and an afternoon reception scheduled Wednesday, February 6 for all day shift employees. Employees were recognized and FS progress was reviewed with a new emphasis on communications and solicited employee input. Employee recognition has continued since then with the most recently awarded FS Employee Advisory Council Employee of Month recipient, Buddy Taylor in Zone 2.

#### *Develop KPIs*

Development of Excel-based work order metrics/KPIs was completed in November, 2012 using data from Maximo. Current KPIs include work order type, work order prioritization, work order completion productivity, failure codes, and the average number of days work orders are open.

### **Improve internal operations and procedures**

#### *Customer surveys*

Facilities Services has developed an automated customer survey process. Surveys are sent to each customer at the completion of the project. Results are tabulated and reported on a monthly basis.

#### *Employee reviews*

All Facilities Services receive annual evaluations. USS employees receive feedback on the standard USS review form. Form #2 is used for UPS employee evaluations.

### **Institute a comprehensive utility reduction plan**

Progress has been made to develop a comprehensive utility reduction plan. In August, 2012 a draft KU Energy Policy was reviewed, which included enhanced energy conservation and sustainability measures. October, 2012 saw the completed roll-out and go-live of the Fraser Hall energy conservation and sustainability pilot site. The Fraser Hall energy conservation team performed a facilities audit of Fraser Hall to create a baseline for measuring the progress of the energy conservation pilot.

In the months following many projects have been initiated:

- July 8, 2013 George Werth joined Facilities Services as Energy Manager. Meetings were held to review strategies for procurement of natural gas by either locking in fixed pricing for periods of time, or riding the market index for cost.
- August, 2013 FS pursued a maintenance contract for specialty HVAC sensing and control equipment for Malott and Haworth labs to continue energy savings efforts after the ESP contract support no longer provides this service for KU.

- September 2013 evaluated LED lighting options for parking garages for energy savings and finalized proposals to assume service contract for Phoenix controls and Aircurity sensor systems in Haworth and Malott Halls.
- November 2013 worked on automating electrical meter reading to improve accuracy and reduce manual reading of meters. Worked with contractor to replace non-functioning steam meter in M2SEC building. Energy efficient LED lighting project at Mississippi and AFH parking garages on track for expedited completion for energy savings tax credit. Fixtures ordered and PO entered for contractor installation beginning in early December.
- January 2014 coordinated with Center for Sustainability to populate Strategy Table goals and objectives in energy related areas of Sustainability Plan. Completed project for LED lighting installation in Mississippi and AFH garages enabling submission of tax credit for parking funded project.
- February 2014 identified short list of potential locations for submission of grant request for solar power panel installation. Project for 10-30KW solar power panel installation would be completely funded by Westar. Worked on automating meters and server upgrades for metering to better gather building energy use data.
- May 2014 attended annual update meeting with Westar energy. Worked with Sustainability office on waste diversion and recycling initiatives to reduce overall waste on campus and facilitate reporting of waste streams. Westar chose KU to continue on as a potential site for installation of a 10kW solar array.
- June 2014 met on proposed energy dashboard to enable real time display of building energy usage.
- August 2014 successfully completed power outage on west campus to install electrical meter systems on numerous buildings. Developed position description for energy office technician to handle building monitoring and scheduling of HVAC systems to pick up functions from terminated ESP contract employees.
- September 2014 worked within FS to discuss better ways to do boiler monitoring. Performed outage for Spencer museum to improve metering capability. Developed strategy for natural gas procurement and worked with state to renew contract, increasing variety of approved suppliers. Adopted 3 tier lock-in program at set price points.
- October 2014 conducted interviews and selected candidate for Energy Technician position to assist in managing building temperature controls systems for schedules and setbacks, and identify energy savings opportunities in buildings. FS is also working with the Office of Sustainability to fill a position to work on energy behavioral management and broader sustainability areas to benefit KU with measurable energy savings from building audits and other behavioral outreach programs. These two positions replace functions that were provided under the former ESP contract, and will help KU achieve measurable reductions in energy consumption on campus.

### **Fully implement Maximo**

Maximo provides tremendous value to Facilities Services and is significantly more widely utilized in 2014 than in 2012. Some of the activities that took place in the last two years include:

- September 2012 training on the new Maximo work order module to Work Management, Accounting, Zone Managers, and Central Shop supervisors.
- October 2012 training on the Maximo estimate module and revised the estimate process and roll out of EZMax mobile Maximo pilot.
- November 2012 completion of upload process of asset data information into Maximo Preventive Maintenance (PM) module.

- July 2013 expansion of EZ Max mobile licensing to enterprise level with ability for 200 staff members to use application in the field.
- August 2013 meeting with IT to discuss Maximo Reset project and establish scope and priority of this in light of bigger picture IT needs.
- January 2014 contract with CFI to help define scope of work for Maximo and integration projects with KU representatives from FS, Accounting, and IT. EZ Max Mobile and handheld devices rolled out to about 70% of maintenance employees and custodial supervisory staff.
- April 2014 KU received CFI report.
- May 2014 all intended maintenance shops fully deployed and trained (192 current users) with mobile devices and EZMax for electronic work order management. Mobile devices also equipped with Email and Lync.
- August 2014 Maximo reset project plan approved. IT provided draft project charter for review and comments.
- September 2014 Maximo Integrations and Reset project kicked off with CFI consultants. Project will revamp Maximo to “out of the box” functionality and evaluate potential integrations with other key systems.

### **Challenges**

- Change management risk presents the most significant challenge to the implementation of changes with KU FO.
- To be effective in achieving cost savings, zone maintenance must be implemented with the fewest number of zones possible and reduce the number of supervisors; this will be a significant change to the way in which work is currently done on campus.
- Leadership of Housing and KU FO must be vested in the proposed changes to achieve results
  - FO leadership is implementing several efficiency solutions based on recommendations; however, there is skepticism that morale is a problem and concern that zone maintenance will reduce flexibility.
  - Housing leadership is skeptical that the proposed merger will continue to provide the current level of service at a reduced cost.
- There is a prevalent lack of trust and fear of change within KU FO and Housing; staff feel threatened by the change and fear job reductions.
- The combined KU FO and Housing maintenance and custodial operations must provide a work environment that is focuses on providing the resources and support employees needs to do their jobs efficiently and effectively; failing to do so is a risk to morale and retention.

*Describe if these challenges were encountered during Changing for Excellence and what unanticipated challenges occurred during the process:*

The challenges described were encountered during the implementation of Changing for Excellence goals. They were managed effectively by improving communication and feedback with employees, increasing training, developing a departmental newsletter, and an advisory council.

Minor organizational adjustments have been made in the past two years. A small number of staff transferred to DCM were moved back to Facilities Services. In September 2013, two welders were moved from the plumbing shop to the steam-fitting shop and three HVAC workers from the central shop were moved to Zones 3 and 4. Original recommendations included limiting the number of supervisors to ten. It has not been possible to staff six maintenance and custodial zones with ten supervisors.

### **Opportunities**

- Annual savings goals can be met by addressing opportunities in three areas: Implementation of zone maintenance, consolidation of Facilities Operations (FO) and Housing maintenance and custodial staff, and more aggressive energy--saving behavior.
- Implementing contemporary zone maintenance will reduce management and layers, enabling cost savings through reduction of 12--14 directors and supervisors.
- Consolidating KU FO and KU Housing maintenance and custodial staff is an opportunity for achieving cost savings through reduced management needs and in--sourcing of contacts.
- There is strong interest in saving utilities on campus, but few behavioral change initiatives have been launched. Influencing energy--saving behavior through marketing and incentives is an untapped cost savings opportunity to reduce KU general utilities spending by 2--4%.

*Describe if these opportunities occurred during Changing for Excellence and what unanticipated opportunities were realized during the process:*

Facilities Services has reduced the number of directors to four. Due to the merger of Housing and FO staff and the change in what types of work are billed, it is difficult to compare past and current costs.

### **Changing For Excellence Summary**

*Summarize the process to date and lessons learned. Provide specific future direction, next steps, and strategy for this business case. Indicated what metrics will be used to measure success:*

Facilities Services has seen more change as a result of CFE recommendations than any other Campus Operations group, most significantly the combination of Facilities Operations and Housing Maintenance. Facilities Services is continuing to transform into a performance-based culture. Human resources staff will be working this year to develop core competencies for staff members. With the transition to a new director, the department will develop a vision statement to guide the department's future.

### **Post-Changing For Excellence Updates (Completed Projects Only)**

*The CFE business cases, while complete for routine reporting purposes, are never considered done as they are constantly being monitored and grown. With this in mind, please provide your detailed strategies on the continued growth and development of these business cases. Information about how units continue to improve and innovate from these business cases should be addressed. Details could include information about refining processes, new projects, measuring success, metrics being reviewed, and other methods for understanding improvements.*

Goal: Consolidate the Lawrence campus' individual custodial and maintenance operations, and develop service level agreements among clients.

- In 2015, the majority of the skilled trade shops were merged into the zones, increasing the overall scope of the zones and made them more responsible for nearly all of the system in their zones.
- In July 2016 the KU Construction team was merged into the zones. This was done to support the FS zone structure and increase efficiencies.

Goal: Increase maintenance worker productivity.

- Facilities Services is now cross training among crafts to capitalize on efficiencies and improve staff opportunities for advancement to higher level positions.
- Preventive Maintenance is being emphasized to maximize asset reliability.
- Zone managers are focusing on having the right people at the right place to improve efficiency and effectiveness.

Goal: Improve FS's internal operations and procedures to provide better service to customers and increase work quality.

- Facilities Services has started a new initiative, concentrating on Preventive Maintenance (PM). Equipment assets have collected and entered into a PM database. Automated work assignments are generated at a predetermined schedule. This new initiative is expected to save between four to 20 times the costs of reactive/corrective maintenance.
- Zone managers have monthly visits with building contacts and discuss building issues and how they will be corrected. The customer is now able to evaluate each work order after completion and provide feedback.
- This summer, FS and campus operations made an important change to the evening and overnight response process. Previously, calls for emergency maintenance issues were routed through Public Safety or the 2nd shift maintenance crew depending on the time. . All calls are now routed through the 24/7 Power Plant staff for direct routing. This change has resulted in reduced stress on supervisors, improved response time and improved customer service.

Goal: Institute a comprehensive utility reduction plan and incentivize faculty and staff to decrease utility usage.

- The comprehensive plan is to continuously monitor energy use in buildings by looking at the building's energy use index (EUI) in KBtu/sqft of energy use.
- In buildings with increasing or unusually high EUI, staff investigate the cause to see and take appropriate measures to reduce.
- Additionally, proven energy conservation measures (ECM), i.e. retrofitting lighting to LED, are being applied in buildings on a maintenance basis or when identified as a major energy use contributor.
- On new construction, designs are being followed to make sure proper energy conservation designs are being followed.
- To incentivize faculty and we have made personal contacts and worked to fix major comfort problems in the building and made seasonal adjustments to better facilitate needs. This has increased willingness to try new ECMs.
- In February 2015 a concerted effort was made to make contact with building departments and iron out building scheduling needs. This led to reduced hours of operations in a number of buildings.
- Josh Wheeler was hired in March 2015 as an Energy Technician with a strong focus on retro commissioning HVAC system by making repairs that fixed energy waste in buildings.
- In March 2015 a program was started to start replacing halogen and compact fluorescent lamps with LEDs.
- Cassi Reimer was hired in May 2015 as a Behavioral Specialist to continue work on improving scheduling, meeting with departments get buy in on additional conservation measures and start the process of auditing existing buildings for energy reduction opportunities
- In May 2015, a new report was created to analyze building energy consumption on a monthly basis. Information from this report has been going through a monthly analysis to verify energy use improvement and problems. This has helped to improve focus on problem buildings.
- During FY2016 continuous analysis of energy use and investigation has led to the lowest campus energy use in the last four fiscal years. Some of this reduction was due to milder weather, however a great deal was also due to the improvements listed above.

Goal: Fully implement the Maximo facilities management system, and provide the adequate tools and training necessary to allow staff real-time access to work orders, preventative maintenance, and asset information.

After Maximo was rolled out to all Facilities Services staff, a project was undertaken to upgrade Maximo to the most recent software version. The Maximo reimplemention project for campus operations has been a significant challenge over the past year. While all activities appeared to be on track for the December 14<sup>th</sup> go live, it was quickly found that the contracted vendor had omitted a significant number of functions, features, workflows and critical historical data in the changeover to the production environment. KU continued to suffer the effects of this vendor's shortcomings as they were purchased by another company and experienced significant turnover over the entire course of the project.

Goal: Fully implement the Maximo facilities management system, and provide the adequate tools and training necessary to allow staff real-time access to work orders, preventative maintenance, and asset information. There are many positive outcomes from this project:

- Workflow – This implementation utilizes the previously unused workflow option in Maximo. This results in greater control and visibility of the overall process from initial request through work order completion. Some of the ‘visibility’ features are still forthcoming, but the options are now available in this new system to significantly enhance communication between Campus Operations staff and affected campus customers.
- Preventive Maintenance – While preventive maintenance on assets and locations were available in the prior system, new and previously unused features, tools and configurations are available to create a more robust preventive maintenance program for campus operations units. Use goals include on-time delivery of PM materials and enhance scheduling to include target start and target completion of PM work orders.
- Data Standardizations
  - UNSPSC - Materials and services are now all combined into one unified classification structure to better understand what efforts our
  - Space - Maximo now utilizes data from the space management database. This gives greater visibility to our workers by showing them the use type of the room as well as square footage and other data. This also helps us to perform maintenance cost comparisons based on room types.
  - Work Type – We are now classifying work as RM – Reactive, CM – Corrective, PM – Preventive, SUP – support, and CAP – Capital Project to give us a clear alignment against APPA standards for benchmarking against peer institutions.
- Integrations – Our system directly integrates with three systems.
  - Energycap – This results in monthly visibility of energy use as well as important billing functions.
  - Gasboy – This results in ‘real time’ fuel transactions into Maximo from the garage pump.
  - Purchasing – Purchases made in our procurement system (KUPPS) now write directly over into Maximo to reduce previously duplicated efforts in KUPPS and Maximo.