Facilities Management Department
A Division of Business and Finance
Annual Report 2017
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Another year has passed and the WMU built environment continues to improve. The many positive changes to our campus over the past year don’t just happen on their own. It takes leadership in every FM area, alignment with Business and Finance and University goals, support and collaboration from the campus community, and most importantly, a culture of customer service and professionalism from all that represent Facilities Management. Spinning all of these plates at the same time and providing measurable outcomes that benefit student success is a very challenging job for FM. I hope those who read this annual report can appreciate FM’s accomplishments this past year as we continue on our facility stewardship journey for Western Michigan University.

Our Business Operations area tracked 404 projects with a budget of $270M. The 351 people in our operating units kept the physical assets safe and functioning with a base budget of $49M. The FM business unit had a change of the guard with Michele Cole moving to central business services and Sarah Larson coming from central accounting. We thank Michele for her time with FM and welcome Sarah as she supports all of FM for budgeting, accounting, and best business practice support. My office also had a change. Joyce Parsons retired and we are all pleased to have Kim Hunt at the front door to FM. Kim has may experiences from assistant to a community college president to assistant to the dean in WMU’s largest college. Our FM IT area also had some changes with a new data base administrator coming from central IT. The FM IT area has and continues to be critical to our success as we need to maintain and deploy new technology to improve efficiencies in all of our processes. Of particular note is significant upgrades in GIS, servers, BlueBeam in the construction area, and the quick support for everyone’s daily computing needs. Our labor relations area made good progress with building consistency in contract administration and launching a “Managing Your Workload Program” for all professional staff. The organizational performance and effectiveness area created improved processes for subcontracting notification and supporting process improvement with project management. They also launched a personal profile initiative, Color Code, for the management team.

The planning division was very active with the annual five-year capital outlay plan. Planning for the College of Aviation, BTR 2.0 project, signage and parking for Grand Rapids sites, Industrial Design Program, Physician Assistant Program, and a campus-wide Wayfaring Signage project. The architecture and design division provided design support for all projects and managed the annual building interior condition assessment. They were instrumental with moving custodial services and designing a new space for landscape services. They were recognized by the College of Education with the 2017 Friends of FCS Award for their engagement with interior design students. The construction division is under new leadership. We appreciate all of the good work that Conn Macomber contributed to WMU for many years. John Koestner is now leading the project managers and the remodeling shop. He brings many years of construction experience and we look forward to deploying professional project management tools to improve construction processes. They manage the lion’s share of funded projects across campus. The engineering division had a long term engineer, Ray Kezenius, retire and our GIS manager leave the University. They both were involved in many projects and growing the GIS area and will be missed. This past year engineering supported all projects and was directly involved in major utility infrastructure replacement, steam meters, substation replacement, chiller plant renewals, and many energy management initiatives.
The operating units experienced many people retire and new employees filling big shoes. This trend with a lot of facility staff retiring continues. We need to recognize the many dedicated staff that gave so much of their time to our facility stewardship mission and we need to attract the best people to continue and support the University’s goals. The custodial unit was proud to be re-certified by Green Seal for their focus on sustainable custodial practices. The custodial leadership moved into the Physical Plant Building and we now have the major operating units and service center in one area so they can better collaborate and support each. They also have focused on professionalism by having their leadership team ISSA I.C.E. re-certified. They earned the Grand Award for Green Cleaning from the American School and University Magazine.

The landscape services unit, under the new leadership of Mark Frever, continues to be recognized for their Michigan Turfgrass Environmental Stewardship Program, earning the highest level of Accreditation by the Professional Grounds Management Society, 10th consecutive year for Tree Campus USA. They worked with students to plant over 100 trees and shrubs for the Arbor day event. They implemented new professional development programs for their staff by launching Landscape University with a motto of “Grow with Us” and “Greenius” as their official training program. This unit also saw improvements with weather monitoring systems and data collection using GIS technology.

The maintenance services unit was very active with process improvements in housing turn-over, remote wireless steam trap monitoring, LED lighting projects, and revamped the preventative maintenance schedule based on operational effectiveness. This unit is now managing the maintenance of all campus fire extinguishers. New videos were created to help students better understand their services. For the skilled trades, they initiated tool box talks to improve safety awareness. Their role with the service center has resulted in a collaboration with central IT and other FM units for service requests. The service center created 22,144 work orders, received over 8,000 calls, received 18,016 web requests, 272 event requests, and created 16,386 preventative maintenance work orders.

The power plant unit launched a pro-active IT security audit and made appropriate changes to make our central utility plant safe from cybersecurity threats. All reports required for Michigan air emissions and Federal Energy Information Agency were filed. This past year, the power plant and others in FM/purchasing changed the gas purchasing program and anticipate improvements in this area. They were proud to generate 580 million pounds of steam and 69 million kilowatt-hours of electricity in a very cost effective manner. They were engaged with others to improve the billing rates, experience staff changes, and continue with a model training and development program that supports safety, skill development, and employee morale. They have launched a comprehensive analysis to review all options regarding the aging gas combustion turbines. The goal is to make the plant more resilient, reliable, and cost effective for the next generation.

The transportation unit manages 276 vehicles and a multiple of other pieces of equipment that range from backhoes to golf carts to ice resurfacing machines. This unit does a very good job with managing the fleet with replacing vehicles at the proper time. They replaced 27 vehicles and managed 64 recalls from manufacturers. They also managed to meet and exceed the federal EPA requirements for a University Fleet.

The dedication from these facility professionals over the past year and the results they achieved are commendable. The entire team continues to focus on customer service, student success, and improving performance. They are very proud of what they do and they do it very well.

Pete Strazdas
Associate Vice President
Our Vision

Our vision is to be an exemplary higher education facilities management organization. We will be known for:

- Excellent service to the University community
- Excellence in stewardship of the campus environment
- Professional and effective communication
- High standards for professional and personal accountability
- Practicing sustainable development and management of campus resources

Western Michigan University

Administration
It is our vision to lead and provide support services to FM Divisions and Units so they are successful.

Architecture and Design
It is our vision to create sustainable places and spaces that enrich the lives of those who use them, emphasizing the University culture.

Construction
It is our vision to develop, construct and deliver superior projects through excellence in problem solving, knowledge and effective project management.

Engineering
It is our vision to build facility excellence through innovation, state of the art technological support, expertise and collaboration.

Operations
It is our vision to exceed our customer’s expectations through responsive, caring, and fiscally responsible service.

Organizational Performance and Effectiveness
It is our vision to provide excellence in construction project management to the campus community through continuous staff engagement and implementation of the industry’s best practices.

Planning, Space Management and Capital Projects
It is our vision to be forward thinking partners in the future development of the physical campus, exploring bold solutions and dynamic approaches to implement the University’s mission and goals while balancing the interests of the various members of the University community.
<table>
<thead>
<tr>
<th>FM PROJECTS JULY 2016 - JUNE 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Active Projects</td>
</tr>
<tr>
<td>Total of Project Budgets</td>
</tr>
<tr>
<td>Total Billed</td>
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</table>

<table>
<thead>
<tr>
<th>BUDGETS &amp; EMPLOYEE INFORMATION</th>
<th>Budget FY 2016-17</th>
<th>Benefit Eligible Employees</th>
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<tbody>
<tr>
<td>Planning</td>
<td>$578,871</td>
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<tr>
<td>Construction</td>
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<td>Power Plant</td>
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<td>Landscape</td>
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<td>Administration</td>
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<td>Business Operations &amp; Labor Relations</td>
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<tr>
<td></td>
<td>$54,286,080</td>
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</table>
Information Technology Unit

Accomplishments

- Consolidated legacy server operating system - WSUS, Tape Backup, SEP, MailStore, InfoRoof, WebHelpDesk
- Refreshed cascaded machine to all mechanical room with new configuration for BAS
- Moved custodial into Physical Plant
- New wireless access point and updated network infrastructure and IP phones, wiring closets, expand 1st floor closet
- Control center wall refresh
- Upgrade anti-virus from V12 to V14
- Moved IT support room
- Improve Autodesk license monitoring website
- Begin using Remind.com for outages
- Skillsets online training classes for FMIT
- Took building inventory spreadsheet and added it to database
- Support GIS Server install. Develop rights groups
- Power Plant network security audit and testing with CBI
- Design and Architecture laptop rollout
- Worked with central IT to get active directory groups with all our FM employees
- Moving outdate export from Res Life apartment management software into TMA
- Assist in software for Lutron lighting control in Valley Dining
- Virtual achine baremetal upgrades patching security issues
- Deployed JetPack wireless hotspot for Landscape
- CSB wireless upgrade
- Cleanup IP addresses in Physical Plant
- BlueBeam deployment
- Support KGS Clockworks continuous commissioning linkage info Niagara
- Aviation using TMA
- Conference Room technology refresh
- Firefox ESR 52 to support Java to use BAS
- Balance CPU Ready on venters
- InfoRoof to the cloud
- Workplace Tech on server in control center
- Bronco Fix-It assist in directing IT requests to central IT
- Battery backup hardware repaired
- Adjust/move printer deployments in Physical Plant to serve customers better
- Support Revit/TMA integration
- Support new project management model
- Participate in Power Plant security audit
- TMA update to 5.1.9
- Laptop deployments: 29
- Desktop Deployments: 33
- Tablet deployment: 6
- IT Tickets; opened: 214, closed: 173
Western Michigan University
Information Technology
Organizational Chart
August 2017

Director
Erik Dantes

Network Administrator Senior
Mark Scafaria

Database Specialist
Jonathan Orweller
Labor Relations Unit

Accomplishments

- Participated in interview panels for multiple positions with the goal of complying with university policies, employment laws and diversity standards.
- Received, heard and answered all Step Two AFSCME grievances. Attended all Step Three grievances.
- Participated in the monthly meetings of the Contract Administration Team which meets monthly to discuss administrative issues.
- Assisted with the continuation of the WEcare program by assisting with the annual employee appreciation picnic.
- Worked with the Power Plant training committee and kept Human Resources apprised of all activity.
- Continued meeting with the division directors to work on common threads and work towards consistency of contract administration and disciplinary actions.
- Worked with outside consultant to have SLT, Managers, Supervisors, Administrative Support Staff and Project Managers participate in Managing Your Workload seminar.
- Participated in ongoing professional development: Miller Canfield annual employment seminar, Michigan Labor Management Association one-day conferences, Kalamazoo Area Labor Management monthly speaker series.
Organizational Performance and Effectiveness

Accomplishments

- Collaborated with all FM Divisions and personnel in assessing current project processes for accuracy, continuity and emulation of industry defined standards and practices.
- Provided Project Process education through personal contact and presentations to various Facilities Management and client groups.
- Provided a monthly forum for subcontracting discussions with AFSCME representatives and other WMU departments as related to new project approvals and ongoing projects.
- Assessed and provided AFSCME notification for all Facilities Management subcontracted work.
- Assessed all new project requests and assigned project managers.
- Continuing Project Manager education and process oversight - Ongoing weekly meetings with Project Managers, FM Directors and Technical Specialists to identify and document challenges, successes and improvement strategies in all areas of construction planning and execution.
- Provided semi-monthly meeting opportunities for non-Facilities Management construction assets to address coordination, progress and process questions for past, present and future projects.
- Facilitated weekly discussions with Facilities Management Operations Administrators in areas of professional development and intra-organizational coordination.
- Determined future objectives including:
  - Overtime Process Improvement
  - Subcontracting Notification Process Improvement
  - Project Debriefing Protocol
  - Options and Assessment of Project Management Tracking Technology
  - APPA / MIAPPA Project Management
  - Professional Development for FM Administration
  - Construction Team and Client Surveys
Architecture and Design Division

Accomplishments

- Architectural and Interior Design professional service for design programming and project construction documentation and specification for all WMU small-large projects completed:
  - The EWB, CSB, and Physical Plant relocation and building expansion project.
  - Rood Hall Classroom improvements involving 3 large auditorium classrooms and various classroom improvements on the first, second and third floors.
  - Waldo Library furniture improvements totaling over $230K to incorporate collaborative space for students.
  - Various projects completed for office spaces, reception areas, classrooms, advising, classroom labs, and support spaces located in Trimpe, Faunce, Ellsworth, Floyd Hall, Seibert, Lawson, and various academic buildings.

- Developed and produced two conceptual design schematic presentations including cost estimation for donor requisition effort for the Rood Hall Schmaltz Geology Museum and CAS Advising.

- Provide technical consultation expertise troubleshooting efforts for campus community, including an expanded warranty issue in Sangren Hall. Warranty involved a classroom seating replacement for 825 units, completed at no cost to the University - a savings worth over $300K. Selected recycle unit standard.

- Annual building interior condition analysis audit for all General Fund portfolio of academic spaces including Classrooms, Public Spaces, and Toilet Rooms.

- Sign Shop improved upon website and ordering efficiencies.

- Administrative accomplishments in support of the FM process, including development of new template tools such as the RFI form, RFI log, team sign in, Division 9-12 design guidelines, and a LEED scorecard for small projects in first draft. Expanded the online chair procurement for campus clients to include additional options for Task Chairs, Office Side Chairs, Office Desks, Storage Furniture, Height Adjustable Work Tables, and Tables. This expanded furniture procurement line, 'Bronco Furniture', will be located on the Architecture & Design webpage and is currently in progress.

- Awards: 2017 Friends of FCS Award, Interior Design – College of Education
Construction Division

Accomplishments

- Rood Hall first floor lecture halls – new furniture, light fixtures, ceiling pads, LED handrails, carpet, ADA seating
- Wayfinding Signage—replace existing signage of wayfinding, building naming, parking, and gateway entrances
- Introduced professional project management tools-Gantt schedules, Requests for Information (RFIs), and submittal tracking

<table>
<thead>
<tr>
<th>ID</th>
<th>Task Name</th>
<th>Duration</th>
<th>Start</th>
<th>Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Artwork</td>
<td>97 days?</td>
<td>Mon 5/15/17</td>
<td>Tue 5/26/17</td>
</tr>
<tr>
<td>2</td>
<td>Provide drawings and</td>
<td>10 days?</td>
<td>Mon 5/15/17</td>
<td>Fri 5/26/17</td>
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<tr>
<td>3</td>
<td>Artist &amp; donor site visit</td>
<td>2 days</td>
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<td>Tue 5/30/17</td>
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<td>Artist proposal</td>
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<td>Tue 6/20/17</td>
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<tr>
<td>5</td>
<td>Milestone #1 - proposal</td>
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<td>Tue 6/20/17</td>
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<td>Tue 7/4/17</td>
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<td>Tue 7/4/17</td>
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<td>Thu 8/31/17</td>
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<td>Mon 9/4/17</td>
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<td>Shipping artwork</td>
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<td>Mon 9/4/17</td>
<td>Fri 9/15/17</td>
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<tr>
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<td>Site preparation</td>
<td>29 days</td>
<td>Tue 8/1/17</td>
<td>Fri 9/8/17</td>
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<td>Artwork installation</td>
<td>5 days</td>
<td>Mon 9/18/17</td>
<td>Fri 9/22/17</td>
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<tr>
<td>13</td>
<td>Punch out</td>
<td>2 days</td>
<td>Tue 9/25/17</td>
<td>Tue 9/26/17</td>
</tr>
</tbody>
</table>
• The Oaklands Remodel – first floor bathroom and kitchen improvements
• Schneider Hall, Interactive Sales Lab – renovation included new glass entry, flooring technology and lights. Demolition of some existing walls to reduce size of classroom 1140 and increase size of sales lab 1150.
• Waldo Library Discovery Center – created a collaborative learning space with Waldo Library
• Human Resources remodel – provided a basic security to 1300 suite, simple security to reception area and some rearrangement of the space
• Paper Power Plant, TAPPI mold abatement – removed existing drywall containing mold and installed new wall consisting of new metal studs and tracks, 3.5” mineral wool insulation, DensGlass sheathing and moisture resistant gypsum board
• West Hills Athletic Club – resurfaced parking lot
• Floyd Hall – study lounge improvements – new flooring
• Burnham Dining freezer replacement – replaced 40-year-old walk-in freezer unit with a new model
• Floyd Hall – converted room C219 to a computer lab – renovated ~900 square feet of storage room to computer classroom including paint, carpet, furniture, data and AV
• GV2 Substation replacement – replaced old PCB filled substation equipment with new primary and secondary equipment including switchgear in Eicher high voltage room
• Everett Tower – patched and painted walls, installed new carpet tile and new furniture in 5190 and 5114, & new gender neutral bathrooms
• UCC – reconfigured existing office cubicles
• Ellsworth Hall – painted walls in both the office and adjoining conference room, installed new conference room table and chairs. Furnished and installed new office furniture
• French Hall—replace domestic water laterals to achieve better than acceptable lead levels in water at point of use
• Faunce Student Services – removed existing reception desk, modular panels system and installed new system furniture
• Ellsworth – Hall – relocated reception area for greater efficiency
• Trimpe – installed new furniture for the executive director’s office. Removed double door going into conference room. Installed new conference room table. Painted office and conference room
• Demolition of McCracken – steam and condensate line replacement, abatement of old and new McCracken, landscape and site improvements
• Arcadia Avenue steam and condensate replacement – steam and condensate line replacements to include deferred maintenance storm and sanitary replacement work was installed. Steam and condensate from vault 40 to 38, vault 40 to 42, 42 to 82, and site restoration
• Rood Hall—install chiller lines to tie into Schneider Chiller Plant. Phase II removes existing cooler tower from Rood Hall and replaces chillers at Schneider
• Read Arena basketball location room update – built out men’s locker room, new mechanical/electrical/plumbing with added furnishings and graphics
• Bill Brown graphics renovation – removed and installed new custom graphics to all three floors
• GV#2 South lobby roof – the 29-year-old ballasted roof was removed to the deck and a new EPDM single play, fully adhered, membrane system with tapered insulation was installed
• Paper Pilot Plant – the original caulk has been replaced with 20-year silicone caulk on the entire exterior of the building
• Waldo Library – replaced all the caulk and repaired the mortar in the glazed tile areas. Installed white metal sill caps at all glazed tile sills
• Lawson Gable Pool Roof – the 28-year old ballasted roof was removed to the deck and a new EPDM single play, fully adhered membrane system with new tapered insulation was installed.
Engineering Division

Accomplishments

- **Paving Program**: Reconstruction and paving of 3 parking lots and an access road to two of the parking lots. The condition of the lots had deteriorated to a point where vehicular and pedestrian traffic hindered. The project included not only the paving but curb and gutter replacement, minor storm sewer repairs, and the installation of handicap access ramps in sidewalks for those areas without them.

- **Mc Cracken Steam and Condensate Replacement**: This project is the placement of new steam and condensate lines form Arcadia avenue to the Administration building. In addition, substandard storm and sanitary sewers were replaced. Considerable coordination with the campus community was required to keep inconveniences to residents, motorists and pedestrians to a minimum.

- **Steam Meters**: Installed 11 steam flow meters to improve the accuracy and reliability of utility metering on campus. The majority of the work was completed by in house trades.

- **Goldsworth Valley 2 Substation Replacement**: Replacement of existing transformers primary and secondary infrastructure that had reached the end of its useful life.
• Steam Distribution Steameye: Installed phase 2 of the Steameye wireless steam trap transmitters on the main campus distribution system. These high pressure steam traps can fail and blow through and allow a very large amount of steam to vent to the atmosphere instead of being delivered to the end use. They can also fail closed and allow condensate to back up into the steam line and cause potentially dangerous waterhammer conditions. The wireless transmitters talk to the steam trap management software through a wireless mesh network and provide instant notification of a problem.

• Campus Wide VFD Upgrades: Installed variable frequency drives and modified controls across campus on 18 pumps and air handlers to reduce the speed of the motors when full water and airflow was not necessary. Due to the fan and pump affinity laws even a modest decrease in speed can result in a major reduction in power consumption. The variable frequency drives will also help improve occupant comfort by reducing noise associated with high water and airflow in the building.

• Parking Ramp Maintenance, Miller Deck: Painting of the concrete surfaces of the Miller parking deck, minor storm water piping and the replacement of a damaged sign.

• Rood/Schneider Chiller Plant Enhancements: The project is in several phases, the first being the tie in of the Rood and Schneider buildings into a single chiller plant and the removal of (2) chillers that were beyond their useful life. Subsequent phases, to be done at the end of cooling season, include the replacement of the (2) chillers removed with high efficiency chillers.

• University Arena LED lighting: Conversion of the existing athletic floor lighting to LED. Conversion to LED will save extensive amounts of money over the life of the fixtures. In addition, the LED conversion allowed for event lighting to enhance the spectators experience. The event lighting is controlled by a computer that was a part of this project.
WESTERN MICHIGAN UNIVERSITY
ENGINEERING DIVISION
ORGANIZATIONAL CHART
November 2017

Director
John Seelman

Engineer
Brad Morse

Engineer
Dan Brimmer

Engineer
Vacant

Energy Systems Specialist
Kirk Dillery

GIS Specialist Senior
Vacant

Building Commissioning Specialist
DeVon Miller

Project Manager Electrical
Dale Sheppard

Energy Administration Specialist
Chris Caprara
Planning, Space Management and Capital Projects Division

Accomplishments

- Updated the Five-Year Capital Outlay Plan
- Approval of signage for the downtown Grand Rapids facility
- Completion of the College of Aviation Project Schematic Design
- The development of a due care plan so that the BTR 2.0 project could move forward
- Analysis and completion of a great number of feasibility studies
- Wayfaring Signage Plan
Western Michigan University
Planning, Space Management and Capital Projects
Organizational Chart
August 2017

Director
David Dakin

Administrative Assistant I
Monique Haley

Project Manager Architecture
Chris Pyzik

Project Manager Architecture
Barb Vader

Project Manager Architecture
Katie Jacobs
Operations Division

Custodial Services Unit

Accomplishments

- Project work throughout campus included interior and exterior window washing, pressure washing of sidewalks and building facades
- Recertification of Green Seal- including review and updating of processes and procedure development for: administrative manual, cleaning SOPs, departmental training for all
- Departmental move out of EWB: (four components)
  - Custodian decentralization- keys, radios, processes and procedures
  - Supervisor office relocation
  - Administrative and upper management relocation
  - Appliance repair shop relocation
- ISSA I.C.E re-certification of supervisors, managers and directors
- Department was the Grand Award winner for Green cleaning from the American School and University Magazine

Key performance indicators
- Annual building coordinator survey
- Annual employee survey
- Supervisor quality control:
  - Building condition audits
  - Building coordinator interaction
  - Employee skill checks
  - Closet and equipment audits
Landscape Services Unit

Accomplishments

- 5th consecutive year of certification in the Michigan Turfgrass Environmental Stewardship Program
- 3rd consecutive year of 4-star Landscape Management Accreditation awarded by the Professional Grounds Management Society (PGMS)
- Implemented Landscape University, based on the model from Mississippi State and established a motto from our staff, “Grow with Us”
- Launched Greenius as our official training program
- Hosted a Professional Ground Management Society field day
- Completed all landscape, quarterly staff meetings
- Consolidated weather monitoring systems
- Developed ArcGIS Collector for data collection using the sidewalks as the asset
- Tracking budgets and spending and communicate with supervisors and director over reports and balances
- Created charts and coordinate communication with Greenius, Supervisors and staff on completion of Modules and progress tracking
- Collaboration with supervisors and HR in hiring processes
- Revision and publishing of 2016-17 Snow Book and paperless distribution to our customers / building coordinators across campus’
- Creation and weekly maintenance of a cohesive weekend snow removal calendar
• Increased presence on TMA system by creating and tracking work orders and participating in Project Budget meetings
• The Landscape Services leaders participated in peer learning, land stewardship, leadership education and strategic information programs at the Edward Lowe Foundation

Natural Areas and Preserves
• Managed two sites on WMU Campus for rare plant species Stiff Coreopsis (Coreopsis palmata, State Threatened) and Dwarf Hackberry (Celtis tenuifolia, state special concern) with the help of Students, staff, faculty and volunteer labor
• Developed and taught a college level BIOS 4970 Class on "Conservation and Management of Natural Features" that enrolled 16 WMU students
• Managed a state Threatened Species Rosinweed (Silphium integrifolium) in cooperation with MDOT, under Michigan DNR endangered species permit on Remnant 1800 prairie adjacent to WMU main Campus
• Facilitated over 3000 hours of student volunteer and education hours
• Assisted Landscape Staff with management of Parkview Campus Prairies, Main Campus woodlots and storm water features
• Supported 4 WMU professors and academic classes by providing lectures, leading tours and facilitating service learning opportunities
• Managed native Plant propagation program in cooperation with the Biology Departments Finch Greenhouse, that provided thousands of native plants to over 12 local schools and environmental organizations
• 10th Consecutive year to achieve the distinction of Tree Campus USA awarded through the Arbor Day Foundation

Special Projects
• Installed lighting protection in white oak tree next to Heritage Hall
• Implemented invasive vegetation management strategy with goats
• Planted a Permaculture Orchard near Rood Hall to remediate the soils which was a former parking lot
• Innovatively use an air compressor to remove soil around the root structure of three large autumn blaze maple trees to make room for new wayfinding signs
• Reconstructed the stairs and drainage between lot 94 and lot 1

Athletics
• Releveled the baseball and softball infield skins
• Cross trained the landscape athletic staff across all sport venues
• Modernized the Baker Soccer Complex Varsity Field by striping the layered organic matter, restoring the subsurface drainage, adding sport turf specific soil, and established updated varieties of Kentucky bluegrass suitable for low mowing heights
• Leveled the varsity soccer practice fields with cut soils from the game field and established the surface with updated grass
• Opened the renovated soccer fields under 90 days from the day of seeding
North Region
- Renovated the landscaping at the North entrance of lot 13
- Redone the landscaping around Western Heights dorms for name dedication ceremony and fixed the mulch, switching to stone mulch; less likely to erode
- Traditionally rotated the thousands of annual bulbs and mums in high traffic areas
- Moved hundreds of plants to new locations, making way for the new Wayfinding signs on campus
- Restored the entrance of Read Arena, lot 18, to decorative stone.
- Updated behind the Icon with yellow knock out roses

South Region
- Established a regenerative turf management model for Heritage which follows the LEED Platinum standards
- Designed and installed the new landscape at President Montgomery’s home
- Continued to develop low impact systems for managing the landscape in South Region
- Irrigation monitoring, use of compost over inorganic, encouraging bio-dynamic systems over high intensity systems, reduced overall pesticide use using low volume sprayers and mulching
- South Region was a leader for the department in leading programs regarding sustainability (Book Club)
- We received the “Sustainability Champion” award from the Office of Sustainability!
- Established a team building concept called “Aggressive Positivity” that encourages positive work attitudes and practices
- Improved efficiencies with less staff through a team based model
- Paul Gourley was given the Master Gardener designation which furthers our goal of becoming a sustainable well led management team at the College of Engineering

West Region
- Re-purposed river rock from Lawson Roof Project - Approximately 125 cu.yd. X $42/cu.yd. + $320(delivery) =$5,570.00 savings (used in various projects)
- Repurposed stone wall from McCracken demolition. Created retaining wall elevating the tail section of Floral Peacock at Miller Auditorium
- Lawn repair project associated with WMU Street Light Project (maintenance) around Goldsworth Valley Pond
- Arbor Day Event at Goldsworth Valley Pond in conjunction with Office of Sustainability Grant; planting over 100 trees and shrubs
- Tree Campus USA Re-certification, 9th consecutive year dating back to Tree Campus USA's conception
- Two significant hazardous trees taken down along heavily traveled university thoroughfares (Tree-of-Heaven in Lot 6, Silver Maple on Knollwood Ave. at HIS HOUSE)
Maintenance Services Unit

Accomplishments

- Summer room-to-room readiness – Approximately 3,000 rooms inspected and repairs made for fall semester
- Medieval Conference turnover
- Beautification of residence hall orientation route – lounges, rooms, hallways, exterior entrances
- Replaced smoke detectors in French, Zimmerman, and Draper Halls
- Installed corner guards – Bistro 3 and Western Heights
- Apartment turnover – 280 spaces were completed and available for leasing
- Bernhard Center front cafeteria – upgraded serving line lighting to LED
- Painted all student rooms in Western Heights East and West
- Painted exterior light poles, fire hydrants, exterior doors, kiosks, loading docks, handrails
- Replaced glazing on 550 windows
- Replaced 55 residential appliances in Student Affairs apartment complexes
- Completed emergency repairs to steam vault S1
- Replaced street lighting to LED along Gilkinson Avenue and Valley Drive, including upgrading two emergency call boxes
- Installed remote wireless steam trap devices in 13 vaults
- Completed steam trap testing cycle 28
- Completed repairs to monopole and replaced flag
- Replaced football stadium lighting (bulbs)
• Replaced all indoor air quality filtration media campus wide, two cycles
• Maintained grease trap and mechanical elements for new Valley Dining Center
• Updated airflow monitoring station calibration throughout campus
• Upgraded Gabel Natatorium – lighting, acoustical tiles, painting, pool cleaning
• Developed strategic general fund painting schedule for buildings across campus
• Painted Miller Fountain and addition to 1201 Short Road
• Revamped preventative maintenance schedule based on operational effectiveness
• Developed Valley Dining Center and Western Heights preventative maintenance plan
• Hydronic heat valves replaced in Siebert Administration Building stairwells
• Built new outdoor gate at Gilmore House
• Remodeled bathroom at Gilmore House
• Changed water heater from instantaneous to electric in Chemistry Building
• Added lights to flagpole at President’s residence
• Prep for transition of presidents at the President’s residence
• Reflashed Parapet walls at Waldo Library
• Prep work for Football season
• Painted floors in Shop 4
• Implemented new fire extinguisher testing and maintenance plan
• Increased number of elevator units being monitored by central monitoring system
• Upgraded Davis and Ellsworth fire alarm system
• Upgraded Student Recreation Center and Gilmore Theatre elevators
• Replaced exit signs – Walwood Hall and Seelye Athletic Center
• Collaboration between FM Service Center and OIT – added online request links enhancing customer service
• Service Center/FM participated in Bronco Bash 2017
• Improved online work order forms and provided training to reduce missing/incorrect information provided by various users, including DPS and resident advisors
• Developed a weekly report to resolve issues with incomplete work orders
• Created videos to embed into the Bronco Fix-It form to educate students on operation of blinds and room heating
• Consolidating the FM Service Center as the main point of contact for Landscape, Custodial and Maintenance Services
• Service Center now places service calls for Rose Pest Solutions, rather than the Custodial staff
• Service Center notifies the campus community regarding utility outages, if a project manager prefers
• Developed and implemented cross training of support staff – time keeping, budgeting and reporting
• Implemented common trades meeting program
• Assisted with the review and procurement of Bluebeam software
• Processed over 144 requests for record information for FM staff, consultants, campus departments and students
• Reviewed and archived electronic project folders for 185 closed projects that included roughly 40,000 files
• Scanned 1,367 physical project folders contained in 26 boxes from 1996-2008
• Revised the Professional Service Agreement and BIM Execution Plan
• Tagged roughly 6,136 assets in 59 building with QR tags
• Updated CAD simple floor plans and BIM for 28 floors in 12 existing building
• Created new simple floor plans for three new buildings – eight total plans and three exterior door plans
• Campus wide emergency shutoff maps, plans and narratives updated and posted to TechWeb, made available to FM iPads for 107 facilities
• Implemented safety awareness program – “Toolbox Talk”
• Developed user manual for Short Road
• Redesigned Bronco Fix-It logo
• Hired 11 staff positions
• Administered 18 training programs for staff
• Developed level of service standard
• Participated across campus - student of concern panel, diversity events, Lyceum lecture series, Everyone Counts
• Upgraded lighting on emergency call boxes to LED – 65 units
• Installed 19 hydrastations in residence halls
• Implemented self-managed 2nd shift – cost reduction
• Completed Helpnet Awareness Series with all staff to improve customer service
• Completed 360° professional development for nine staff members
• Developed Key Performance Indicators trending for work related injuries work order processing (assignment)
• Management team completed workflow management development series
• Bronco Fix-it Requests: 18,016
• Bronco Project Requests: 321
• Service Center created 22,144 work orders in total
• Service Center took 8000 calls
• Event Requests: 272
• Do-It-Now work orders addressed by Maintenance: 25,110
• PM work orders addressed by Maintenance: 16,386
Robert Beam Power Plant Unit

Accomplishments
Every year is special and unique at the Robert M. Beam Power Plant and this year was no exception with its own unique events and accomplishments highlighted follows:

OPERATIONS & ACCOMPLISHMENTS:
It was a challenging start to the year in July when the automatic load tap changers on both of the transformers at Consumers Energy substation serving the main campus at Western experienced major operational problems. In other words, the transformers were not able to provide the proper voltage levels necessary to keep major systems and equipment, such as the turbines, from tripping off. As a consequence, both turbines were shut down for a three-week period while Consumers made repairs and normal operation restored.
A major accomplishment this year was our joint efforts in working with the Office of Informational Technology (OIT) and their consultant CBI along with our IT support from Rockwell Automation to identify and address internet security concerns. Through this effort three old Windows XP server units were identified as a problem and subsequently replaced.

A particular highlight this year was to see the continued skill enhancement of plant staff in the science (and art) of pump rebuilding. Well maintained pumps are critical to any plants operation - if the pump isn’t getting water into the boiler, steam is not going to come out. A major success this year was the rebuilding of our large standby boiler feedwater pump that had been sitting out in the loader shed for years. The result was a professional, rebuilt pump that is now on line and operational and providing needed redundancy for boiler operation that all staff is proud of. Continuing to highlight the skills of our power plant staff was their efforts in installing a flash steam heat recovery steam line off of our boiler blowdown vessel. This project was identified by Consumers Energy as part of their steam optimization program and qualified for $10,700 in energy grant funds.

Building on the joint partnership with Rockwell Automation and power plant staff that was utilized last year in upgrading the hot lime system obsolete controls, work began this year on upgrading the ERC controls required due to the obsolescence of the existing JACE controls. This effort is on-going.

Annual required boiler internal inspections were performed and successfully completed for all units both here and at ERC. A different twist this year on this effort was a new requirement to complete the required CSD-1 (controls and safety devices) calibration under the direction of a licensed boiler installer. Dean Boiler supported us in this effort overseeing our plant staff in completing the forms for each boiler.

All required environmental emission reports for MAERS (Michigan Air Emissions Reporting System) and the Energy Information Agency (EIA) were successfully completed and submitted.

**GAS PURCHASING:**
A singular bright spot this past year having major long term benefits was totally changing our gas purchasing program for the power plant highlighted by changing over from our existing supplier and entering into an agreement to utilize the State of Michigan for all of our gas purchasing needs beginning in July 2018. This was further highlighted by our entering into a fixed long term purchase agreement with them to provide 70% of our total annual gas supply needs for four years beginning July 2018 and extending to June 2022 at a price of $2.98 per MMBtu (million British thermal units). This coupled with the gas transportation rates we pay Consumers, currently $.75/Mcf, gives us a “burner tip” gas price of just under $4 going forward to June 2022. This will provide needed budget certainty at a very attractive price going forward and afford us the opportunity to use the monies saved by this to invest in our energy infrastructure and projects to further reduce demand and consumption.

**POWER PLANT PRODUCTION & COSTS:**
Overall plant steam generation was virtually identical with the previous fiscal at 580.2 million pounds versus 579.4 million pounds last year. However, the makeup of this total was different with turbine steam production down and corresponding boiler production up. This was largely attributable to the turbine downtime resulting from Consumers equipment outage discussed above. We feel our most efficient operation is with the operation of the turbines and their heat recovery steam generators. Our goal every year is to achieve at least 60% of our total steam production to be heat recovered or “free” steam. Despite the challenges above, we still nearly hit
this mark coming in at 59.95%. With equipment repairs and rebuilds now behind us, we hope to be back above this next year.

Correspondingly, our turbine electric generation was lower this past year going from 69.3 million kWh’s (kilowatt-hours) last year to 64.6 million this year. Again, this was largely due to the lost hours of operation in July/August – some 600 in total. This lower generation was reflected in higher electric import amounts (9.1 million kWh’s this year vs 5.9 million last year) and corresponding lower export amounts going from 11.6 million last year to 8.7 million kWh’s this past year.

Power plant costs basically come down to the price of gas and operation of the turbines. Given the unexpected turbine downtime, it was no surprise that our electrical costs were up due to the higher import amounts coupled with a significant electric rate increase that went into effect in March. The combined effect of these two was a 40% increase in electric costs to $1.2 million. Helping to negate the impact from these higher electric costs were the natural gas costs which remained virtually the same on similar usage of 1.2 million cubic feet to keep the overall increase in purchased energy costs under 6% at $6.6 million.

The turbines are approaching twenty years of operation and maintaining on-going operation seems to becoming more of a challenge as perhaps exemplified by #8 this past year which incurred a high number of unscheduled trips of (8 in total compared to normally 1-2). These trips were certainly a contributing factor to the electrical costs being what they were. However, improvement is expected this coming year after this unit underwent scheduled overhaul and liner replacement this past year. Our service provider, Siemens, understands the need to improve these numbers and we continue to work closely with them to mitigate trips and their attendant costs going forward. As such we are projecting normal turbine operation and lower electric costs even with another scheduled rate increase of nearly 3% this coming year.

ERC COSTS & USE:
The Energy Resource Center provides steam and chilled water to the College of Engineering and the Paper Pilot Plant and is operated by the central power plant staff. The operation of this facility and the energy it supplies to the end users is typically steady and repeatable. Average annual electric and gas usage amount to 9.5 million kWh’s and 47,000 Mcf of gas. The plant itself generates on average about 40 million pounds of steam and 1 million tons of cooling. The College of Engineering used 6.8 million kWh’s of electricity this past year. The Paper Pilot Plant and the ERC itself used 1.35 and 1.55 million kWh’s respectively. Electric costs this past year were up almost 9% due to minor increased usage along with the rate increase.

BILLING:
We completed the first “full” year of billing under the new rate structure formally established in October, 2015, wherein the cost of the gas used in the operation of the gas combustion turbines is assigned to the electric produced and not the steam (i.e., hence the term “free steam”). Overall steam and electric rates ended up the year at $9.48/MLBS (1000 pounds) and $.0912/kWh (kilowatt-hour). These compared to $9.52/MLBS and $.0768/kWh the previous fiscal year. Had the previous billing procedure been in effect wherein the cost of the gas used in the operation of the gas turbines was split between the electric and steam produced, the overall rates would have been $14.52/MLBS and $.0566/kWh. The current rates remained consistent with our goal to have rates competitive with those in the outside world and to better incentivize electrical energy conservation projects and promote the utilization of our steam generation, particular the “free” or heat recovery steam produced.
Implemented in January this past year were changes to the water and sewer billing developed jointly with the City of Kalamazoo to address longstanding billing issues primarily concerning accounting for our sanitary use both here at the central plant and ERC. The result was a billing methodology involving self-reporting by us along with periodic calibration checks by the City of Kalamazoo meter consultant to maintain on-going accurate and accountable billing.

**STAFFING:**
We had one transition this year due to the resignation of Mr. Demetrius Appleton in August 2016. His position was subsequently filled by Mr. William Pedersen who began his power plant career in October 2016. Other than this, the power plant remained at full staff throughout the year.

Ms. Tara Tresh continued growing in her competence supporting both the power plant and Business Operations departments and taking on more responsibilities in each while splitting her time between these two departments. This unique relationship continues to pay benefits for all parties.

Both Mr. Walden and Mr. Long continue to advance and develop in the “professional development program” with each assuming more responsibility and demonstrated competence especially in the area of employee training and growth. Mr. Kevin Bridges will be assuming Mr. Long’s role this coming year with Bill’s resignation in July 2017.

We had no new inductees in the WMU 25 Year Club this year. Current active members are Mr. Randolph Bortolussi, Mr. Richard Boyd and Mr. Thomas Maida. The current scheduled next honoree will be Mr. Troy Leinaar in 2019.

**SHIFT & SCHEDULING:**
It’s almost hard to believe that the 12-hour shift schedule first implemented in September, 2014, has now been in effect for nearly three years. This has to be considered one of the greatest developments for employee morale and operation ever implemented here in the plant. The employees appreciate it more and more especially the greatly enhanced work-life balance it provides. We continue to work collaboratively on incremental tweaks to improve it. It goes without saying that we appreciate the support of management in this very positive workplace change. The “paperless” leave request/approval system has long been dispensed with and a “cloud based” system, developed by the employees, is now utilized for posting work schedules and calendars.

**TRAINING & DEVELOPMENT:**
The training and development program in the power plant continues to be a major focus yielding many benefits in terms of employee safety, skill level, morale and minimal outside contractor costs. Highlights from this past year include the advancement of Mr. Matthew Cronkhite to UTS level for the successful completion of 50% of his apprenticeship program requirements. Mr. Steve Durian is nearing completion on his advanced level (UJ1) program he is in. Mr. Kevin Bridges enrolled in the advance level 1 program this past year. Rounding out our current group of apprentices are Randy Bortolussi, Andrew Ferrari, and Brad Oswalt.

Other training highlights this past year include special time management and job skill trill training presented by Mr. Paul Knudstrup to all SLT staff as well as support staff including Mike Walden, William Long and Tara Tresh. This was well received by all and felt very worthwhile.
Also, Mr. Long had the opportunity to attend a special 501 turbine engine training class in Houston presented by Siemens this past year.

The “Boilerology” program developed by Mike Walden (also an adjunct instructor at RMTC) was expanded this past year and had evolved into a much needed addition to the overall training program. Mike is presently working with RMTC on having this program recognized by NIULPE (National Institute for the Uniform Licensing of Power Engineers) as acceptable qualifying instruction to be able to test for their steam plant operator licenses. Our total number of apprenticeship program graduates this year remained at 10 (9 active and 1 retired) since it was first registered and approved by the US Department of Labor on April 15, 2002.

LOOK AHEAD TO 2018:
Staffing: Starts off with the replacement of Mr. Long who resigned in July 2017. He will be replaced through the promotion of Mr. Kevin Bridges to the position of Assistant Chief Operating Engineer. This will also include the filling of the trailing open position created by the promotion of Mr. Bridges.

A major effort this coming year will be working with HDR and various system stakeholders in performing a comprehensive analysis and review of “all options” for how best to economically, reliably, and environmentally meet the energy needs of the university. The initial thrust of this study will be focusing on identifying the scope and cost of maintaining the long term service agreement with Siemens for the gas combustion turbines which expires in February, 2020. Celebrate 20 years of gas combustion turbine operation here in the power plant. The units first came on line in August, 1997.

Continue to build on efforts to make the power plant more resilient and reliable in all aspects ranging from cybersecurity to replacement and upgrade of obsolete controls. Continue improvements to data management and metrics in the day to day management and operation of the plant.

Complete controls upgrade at ERC replacing obsolete JACE controls through plant staff partnering with Rockwell Automation.

Complete testing of switchgear and startup of ATS (automatic transfer switch). Upgrade to controls of engine generator and implement recommended safety upgrades. Upgrade steam flow metering and accuracy within the power plant for billing and operational needs.

Monitor and respond to pending utility rate increases this coming year of $200,000 in natural gas transportation rates along with a 2.6% electric rate increase expected to be implemented mid-year.
Accomplishments

**Routine Services**
All of the routinely scheduled services were completed on the 276 university vehicles, off-road pieces of equipment, golf carts, utility vehicles, ice resurfacing machines, loaders, backhoes, tractors, trailers, etc.

Semi-annual generator services were completed in the spring and the fall, they were on time and within expectations.

Yearly dielectric testing for two aerial lift trucks were completed in April.

Yearly snow plow services were completed in October.

**EPA Requirements**
The 2016-2017 EPA requirements were met and exceeded. EPA regulations requirement 75% of all newly acquired vehicles to be alternative fuel capable. Twenty-seven vehicles were purchased during the 2017-2018 regulation period, of those vehicles, twenty vehicles were exempt from the regulations yet twenty-one of the twenty-seven vehicles were alternative fuel capable. EPA gives credit for exceeding the minimum requirements.

**Vehicle purchases this year**
4 - Sedans (DPS & Office of the President)
4 - Small SUV (DPS & Facilities Management)
1 - Large SUV (DPS Lock shop)
3 - Compact passenger vans (Residence Life & Extended University Programs)
1 - Full size 12 passenger van (Miller Auditorium)
11 - Full size cargo vans (Maintenance, Custodial & Construction Services)
1 - Full size paratransit van
2 – Delivery trucks (Logistical Services)

**Vehicle Recalls this Year**
64 recalls from G.M., Ford & Chrysler that were completed this year.
**Sustainability**
We continue to recycle all paper, cardboard and plastic.
62 - Batteries were recycled
30 - Gallons of antifreeze was recycled
1,745 - Gallons of used oil was recycled
2 - Barrels of crushed oil filters were recycled

**Continued educational training**
Each mechanic attended 21 hours of automotive training this year.