



FACILITIES SERVICES ANNUAL REPORT 2018



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EXECUTIVE SUMMARY

The Facilities Services Department strives to advance the University of Tennessee's overall mission by maintaining and optimizing the physical resources and environments of the Main and Agricultural campuses.

The number one priority of Facilities Services is to create and maintain a clean, safe environment for students to learn, faculty to teach and perform research, and staff to work. Our dedicated staff of 700 achieve this goal through their 5,500 years of combined service.

Facilities Services continually improves upon top industry practices in order to support the goal of providing the best possible services while also maintaining the best cost model, with our employees' vested loyalty and ownership in the work they provide to the state of Tennessee and to the UT Knoxville campus community.

As we look forward to the university's continued advancement, with the constant support of our department, we compiled a report of our achievements for the last year in this annual report as we strive to exceed our goals for the 2017-2018 academic year.

This report is presented to showcase the continuing initiatives of the University of Tennessee, Knoxville Facilities Services Department in our drive to become a Top 25 Facilities Department. We are committed to be in the forefront of achieving the university's goal to become a Top 25 Research Institution.

It takes a team of dedicated Facilities Services employees to provide the services worthy of the University of Tennessee. This is an introduction to our commitment to being that team.



FACILITIES SERVICES DEPARTMENT

The Facilities Services Department is the largest non-academic department on the University of Tennessee, Knoxville campus. Our department is responsible for the basic operation and continuous maintenance of most facilities on the Main and Agricultural campuses of the University of Tennessee.

Campus facilities include approximately 280 buildings, more than 15 million square feet of space, and roughly 910 acres of land.

In addition to these facilities we are also responsible for electrical substations that provide power to most of our campus buildings, and a central steam plant that provides heating and hot water in most campus spaces.

We currently have more than 660 employees distributed through several specialized units in our department. These units are Administration, Administrative & Support Services, Communication & Information Services, Construction Services, Design Services, Facilities Operations, Special Projects, Utilities Services, and Zone Maintenance.

Our specialized subunits include the STAR Team, Business Services, Central Supply, Plumbing & Heating Services, Electrical Services, Air Conditioning Services, Steam Plant, Landscape Services, Building Services, Building Finishes, Lock & Key Services, Sanitation Safety, Rapid Response Team, Communications & Public Relations, Employee Training & Development, IT Support & Maintenance, Project Coordination, Construction Team, Estimating Services, Stormwater Management, Landscape Response, Interior Design, GIS Projects, Archive & Space, Codes Enforcement, and Project Management.

Facilities Services staff members also oversee the university's environmental projects through the management of UT Recycling and the Office of Sustainability.

Key parts of our organization are operating continuously, 24 hours a day, 365 days a year, and we are always on call.

Anyone on campus can contact Facilities Services 24 hours a day using our "One Call" program at 946-7777. Someone is always available to provide customer service and support to the campus community.

Our goal is to always enhance and maintain campus environments that are highly conducive to learning and research.

FACILITIES VISION:

Our vision is to be recognized as a model facilities services organization by providing outstanding support and superior services to the university community.

This is accomplished by developing staff who are motivated, highly skilled and customer focused; by building diverse relationships based on mutual respect, effective communication, and shared goals; by creating innovated processes that will be effective, efficient and supported with the required resources and appropriate policies; and by becoming a trusted provider that promotes a clean, safe, and sustainable environment for UT.

FACILITIES MISSION:

Our mission is to provide, maintain, and optimize the physical resources and environments of the campus for the university community through the integration of people, technology, and innovative work practices in order to fully support and promote the University of Tennessee's VolVision, its long-range Master Plan, and its goal of becoming a Top 25 Research Institution.

FACILITIES VALUES:

We incorporate several important values into our daily operations. By embracing and enforcing these values, our department can better support the university's own standards in education, research and public service.

Quality – We strive to exceed the expectations of the community in the areas of our responsibility.

Reliability – We labor to retain customers who can count on us for an appropriate and consistent response (in a timely fashion) to their concerns, request, and problems.

Professionalism – We operate with the most highly skilled and knowledgeable staff, fostering teamwork, collaboration, and open communication – ultimately serving our customers with both integrity and respect.

Innovation – We continually seek our creative ways to improve our operations and the way we provide our services to meet our customers' ever changing needs.

Accountability – We perform in a manner at all times that makes us responsible and answerable to our customers, the university, the community, as well as to the people of the State of Tennessee.

Commitment – We are dedicated to an inclusive, safe, and sustainable work environment.

SELF-ASSESSMENT & BENCHMARKING

SIGHTLINES & FPI SURVEY

Improving self-assessment and benchmarking measures has been a key component of the Facilities Services reorganization.

The ability to monitor current campus facilities conditions and forecast future risks is crucial to maintaining a safe and enjoyable campus environment.

Engaging with Sightlines Facilities Asset Advisors, the University of Tennessee Facilities Services Department has embarked on rigorous benchmarking and analysis, ensuring that reorganization efforts address critical needs on campus.

See Appendix A for more detailed Sightlines information and Appendix B for detailed APPA FPI Report information.



ARCHIBUS SYSTEM



A primary component of Facilities Services increased accessibility, self-assessment, and benchmarking capabilities is the implementation of a custom Integrated Workplace Management System to replace the department's previous legacy system for requesting, tracking, and reviewing work orders. Archibus allows Facilities Services to better schedule, dispatch, manage, and report maintenance tasks efficiently using self-service capabilities to reduce operational costs and increase customer transparency and satisfaction.

The Archibus system gives our customers easier access to general work order information, broader access to more detailed reports, and real-time updates on work orders in our system. From there customers are also able to view or submit Project Requests, Key Requests, or Event Solicitations. Financial Officers are able to approve/reject work or provide substitute approvers when they know they will be out of the office.

DEPARTMENT ORGANIZATIONAL CHART



2018 ANNUAL REPORTS



THE UNIVERSITY OF
TENNESSEE
KNOXVILLE

FACILITIES SERVICES

FACILITIES SERVICES ANNUAL REPORTS

Work Requests

During FY 2018 the Business Services Office processed the following work requests:

Total Non Chargeable Work Requests: 28,398 at the amount of \$12,284,163.98

Total Chargeable Work Requests: 20,657 at the amount of \$20,216,806.47

Total Work Requests for FY 2018: 49,055 at the amount of \$32,500,970.45



Accounts Payable

Accounts Payable operates within the Business Services Office and is the area in which Facilities Services Expenses incurred are processed for payment for items purchased, received, services rendered, etc. These payments include invoices, transfer vouchers, procurement card payments, petty cash reimbursements, travel reimbursements, and requests for special payment and special remittance.

During FY 2018 the Accounts Payable office processed the following:

Total invoices processed: 14,118 with \$20,750,655.70 paid to vendors

Total PCard Transactions: 1,957 with \$427,603.50 paid to vendors

Total Goods & Services Procured Totals: 16,075 with \$21,178,259.20 paid to vendors



This subunit also acts as a liaison between Facilities Services units and vendors for payment questions or contracts related to the procurement of goods and services needed to maintain the University of Tennessee, Knoxville campus.

In addition, Accounts Payable is responsible for the following:

- Maintaining the Facilities Services Department vendor database, including vendor contracts and contract details.
- Creating vendor requests, updating vendors remit to addresses, and obtaining W-9s for applicable vendors.
- Overseeing the Facilities Services Department procurement card purchases, distributing all of the procurement card charges to the appropriate accounts and reconciling account charges per fiscal policies.
- Preparing travel documents such as Travel Requests, Travel Expense Statements, Conference and Seminar Registration Prepayment requests, Travel Advance Requests, and Direct Bill of Airfare and Car Rental applications.

Accounts Receivable

Accounts receivable represent debts owed to Facilities Services for maintenance, repairs, rentals and services provided to auxiliaries, departments, groups or individuals surrounding the University of Tennessee's Knoxville campus. These debts are considered short term and are normally expected to be paid to the university within 30 days after the Service Requests are completed. The Accounts Receivable subunit operates within the Business Services Office and is the area that invoices and collects Facilities Services maintenance, repairs and service receivables while following set UT policies and standards for the administration and support of any and all UT Facilities Services work requests. Accounts receivables for Facilities Services can be broken down into three main categories: Auxiliary Charges, interdepartmental charges and project charges.

During FY 2018 the Accounts Receivable subunit processed the following auxiliaries, interdepartmental, and project recoverable charges and non-recoverable WRs:

Total Work Requests Processed: 16,300 with \$20,216,806.47 billed to and recovered from campus entities

Utilities Receivable:

Another responsibility of the Facilities Services Accounts Receivable subunit is payment and processing of all utility charges on a monthly basis. Utility charges include the following activities: review and audit of utility bills from vendor(s), entering utility data into program for processing, review for accounting and metering accuracy, payment to vendor(s), interdepartmental and auxiliary billing.

Facilities Services Business Services Office audited, managed, and paid the following during FY 2018 (July 1, 2017 through June 30, 2018):

Total Number of Buildings Served: 289



Total Square Footage Served: 15.36 Million

Total Utility invoices per fiscal year: 2,400 (campus-wide)

Total Utility Recoveries (from Auxiliaries): \$16.4 Million

Total Utility payments during FY 2017 (UT campus-wide): \$33.1 Million

In addition, the Business Services Office maintains payments, charges, ledgers, and reports for all Utility Services including:

- Utility meter lists.
- Consumption and charges database and reports.
- Installation and tracking of all new campus construction needs and costs for utility applications.
- Processing of utility contracts, applications and agreements for wastewater capacity and grease control permits.

FACILITIES SERVICES ANNUAL REPORTS

- Title V compliance certification and emissions fees records and payments.
- Backflow testing requirements.
- Monthly and yearly budgets for all utilities.
- Reconciliation of utility account ledgers.

The Accounts Receivable subunit also maintains related fiscal records for the Facilities Service Department while providing detailed information and summaries, service and support to the university community.

During FY 2018 the Utilities Receivable office processed the following:

Utilities E&G Payments: \$17,660,977.50

Utilities Recoveries (Auxiliaries): \$18,043,094.49

Total KUB Invoices Paid: 3,000 at the amount of \$35,704,071.99

Personnel & Administrative Support Services

The Personnel & Administrative Support Services subunit is where comprehensive HR and payroll functions for the Facilities Services Department are centralized. This subunit is responsible for coordinating and managing the ongoing Human Resource and payroll functions on behalf of the Facilities Services Department and provides critical support to the eight unit directors and the associate vice chancellor in performing these functions.



The subunit accomplishes comprehensive HR duties coordinating, managing and overseeing the recruiting, interviewing, and hiring of new staff, and assisting supervisors and staff with personnel and payroll issues.

The subunit serves as a vital centralized link between the Facilities Services Department, UT Knoxville Finance and Administration, the UT Knoxville Office of Equity and Diversity, the UT Knoxville Human Resources Office, and the UT Treasurer's Office concerning personnel and payroll matters.

The group interprets, communicates, and advises unit directors and supervisory personnel on Human Resources and payroll policies and procedures and provides direction and guidance in accomplishing personnel or payroll functions.

The unit also coordinates and manages staffing services for more than 700 employees to include coordinating performance review evaluations, managing personnel or payroll changes, leave applications, promotions, and disciplinary procedures. The subunit prepares reports on staffing levels, career path progression and eligibility, employee certification requirements and eligibility, employee leave balances, and payroll expenditures for the unit directors' and employees' planning purposes.

During FY 2018 this subunit processed the following HR transactions:

Total New Hires: 186

Total Terminations: 179

Position Change Forms: 362

Personnel Change Forms: 203

Total Recurring Pay: Forms 54

Total Custodial Certification Increases: 34

Total Career Path Increases: 9

Total Payroll-Timesheets/Books Reviews: 6,136

Total Actions Processed: 7,163

In addition, this subunit edited, corrected and audited 26 bi-weekly payrolls for more than 570 nonexempt employees during FY 2018 and performed 12 monthly payroll edits, corrections and audits for 47 exempt employees during FY 2017.



186 New Hires

Central Supply Office

The Central Supply Office handles purchasing and warehousing functions for the Facilities Services Department. The Central Supply Warehouse is a consolidated, well-organized, state-of-the-art warehousing facility. Located in the Facilities Services Complex, it is the central receiving and issuing point for special order and stock replenishment purchases and maintains an inventory of commonly used stock items to support the Facilities Services units in providing maintenance and renovation services to the University of Tennessee, Knoxville campus.

Parts Warehousing



Around the year 2010, UT Knoxville campus administration recognized the need and importance of maintaining the campus assets (buildings, grounds, research labs and equipment, etc.). As part of the Top 25 goal-setting initiative, the Facilities Services administration began a department-wide overhaul and reorganization which included the push for an up-to-date, organized and maintained MRO Storeroom.

FACILITIES SERVICES ANNUAL REPORTS

As of July 2017, all warehousing locations are clearly marked and have undergone a comprehensive, hands-on physical inventory. The Central Supply Warehouse includes the following descriptives:

- Part Number
- Part Description(s)
- Part Type
- Part Location(s)
- Quantity on Hand
- Vendor(s)
- Cost Details
- Special Information

Facilities Services Maintenance Supply is consolidated into six main parts and SKU locations for ease of service to the UT Knoxville campus. The FY 2018 Central Supply Warehouse Activity and Office Buyer Activity is detailed below.

Central Supply Warehouse Activity Totals: 76,344 transactions issued, received and replenished with an inventory value of \$622,625.96

Parts Accuracy: 99.62%

Center Supply Office Buyers Purchase Document Total Orders: 6,203 orders placed with a purchase value of \$7,372,144



Central Supply Office Vehicle Operations

After the Facilities Services Department moved to the Sutherland Avenue Facilities Services Complex, the Central Supply Office implemented a transportation program to deliver parts, SKUs and personnel from the off-site Sutherland Avenue location to the UT Knoxville campus.



Central Supply Office Vehicle Operations has implemented a schedule that allows van operations from 6 a.m. to 6 p.m. on a daily basis to best serve the Facilities Services shops maintenance and support program, and campus community.

COMMUNICATIONS & INFORMATION SERVICES

Communications & Public Relations

Facilities Services Student Assistant Scholarship Fund

The Student Assistant Student Scholarship Fund was established in October 2017 by a committee that represents each Facilities unit. The communications coordinator assisted the committee chair in the creation and establishment of the scholarship.

Once created, the scholarship needed to be funded. Several fundraising efforts planned by Communications & PR and Special Projects, with assistance from committee members, resulted



in nearly \$22,000 raised for the scholarship in its first year. Bake sales, a flower sale and golf tournament were all developed by key members in the committee, including the communications coordinator. In its first year the scholarship was awarded to two students – exceeding committee expectations and time lines.

Office of Emergency Management

The communications coordinator is involved with the Facilities Services portion of emergency management in various levels. The coordinator acts as the Emergency Operations Center Coordinator for the department, as well as support for the call center.



The subunit is also responsible for the upkeep of the department's Emergency Response Plan that ties into campus-wide emergency response. The coordinator also acts as the campus-wide Public Information Officer for Facilities Services related emergencies.

Website Development & Maintenance

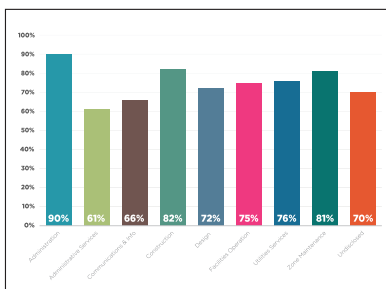
The communications coordinator is responsible for the content development, organization and maintenance of the Facilities Services Department website, as well as several other related campus or organization sites including the Cone Zone site, Master Plan site, and TNAPPA site.



FACILITIES SERVICES ANNUAL REPORTS

Satisfaction Surveys

In March 2018 the Communications & PR subunit conducted and tabulated the Facilities Services Employee Satisfaction Survey to evaluate the perspectives and opinions of the department's employees regarding their daily work experience. This year 208 employees participated in the survey, which is on par with the 214 who participated the year before in 2017. Communications & PR will conduct the survey again in 2019.



APPA FPI Survey



Each year, the communications coordinator is responsible for the completion of the 450-question APPA FPI Survey. The coordinator gathers all the necessary information from Facilities, as well as other campus units.

American School & University

During the course of the year the subunit organized, created, and submitted separate portfolios featuring campus buildings for American School & University publications. The portfolios consisted of architectural-style images, which the communications coordinator organized and shot with the assistance of UT Photography, project data, site plans, and manufacturer lists.

Department Events

The department's two annual large scale events are organized by the communications coordinator. The Fourth of July Picnic and Holiday Parties are planned and executed by the subunit. This includes space and event rentals, food orders, soliciting prizes, transportation, and hosting. An additional holiday party has been added to accommodate third shift employees and it takes place the same day as the first shift event. This year's attendance of both the Fourth of July Picnic and Holiday Party were slightly higher than previous years.



Communications & PR also hosted a "Torchbearer Tuesday" event in April 2018. During this event the department promoted its social media pages, One Call number, and large campus construction projects. The department Twitter and Instagram pages saw a significant increase in followers because of the event.



In March UT Knoxville hosted the APPA seminar, Supervisor's Toolkit: Nuts and Bolts of Facilities Supervision. More than 40 individuals from across the country participated in the toolkit at the Facilities Services Complex. The communications coordinator organized the logistics of the event, creating location information sheets for participants, ordering all meals, and assisting the APPA organizers with all other needed items during

the week long training.

In conjunction with the new FS Student Assistant Scholarship, Facilities Services hosted its first Student Assistant Appreciation Week in 2018. The communications coordinator teamed up with FS Special Projects to create gift bags for more than 40 student assistants working in the department. The also coordinator ordered meals and snacks that were available to students throughout the week. This event was used to promote the new scholarship and there are plans to continue celebrating the week each year.

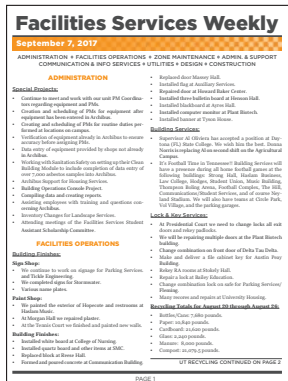
Facilities Services Annual Report

The Facilities Services Annual Report is one of the large-scale projects the Communications & Public Relations subunit completes on an annual basis. Last year's document details a department overview, unit summaries, and unit/subunit annual reports. The communications coordinator and student assistants worked with each Facilities Services subunit to update their summary and annual review information for the document. Each year the report is published on the department website.



FACILITIES SERVICES ANNUAL REPORTS

Newsletters



The Communications & PR subunit has continued to maintain and expand upon the content in both Facilities Services Weekly and the Facilitator. The bi-monthly newsletter has consistently been more than 10 pages, and Facilities Weekly has steady participation from all of the Facilities subunits. Distribution lists for both newsletters continue to grow.

Employee Recognition Programs

The communications coordinator organizes and promotes departmental recognition programs. These programs include Employee of the Month, Chuck Thompson Outstanding Employees Award, and Exceptional Team. Gift cards are given to Employee of the Month and Exceptional Team members each month and the coordinator organizing all details associated with the programs. The coordinator also organizes the annual Chuck Thompson Awards by chairing the selection committee, compiling all nominations, ordering awards and scheduling the event.



Social Media Outreach

The Communications & PR subunit is responsible for the management of the department's six different social media platforms – Twitter, Instagram, Facebook, YouTube, Pinterest, and Google+.



The reach of the department's existing social media accounts expanded during the past 12 months. The FS Twitter account now has 1,237 followers compared to 1,067 in August 2017, the Instagram account now has 589 followers compared to 436 in August 2017, and Facebook likes have increased to 548 from 432.

These platforms are used to promote department events, announcements, notices, and accomplishments. Each month the subunit produces analytics of each of the social media sites to track the department's progress and reach.

Building Representative List

The subunit continues to update the campus-wide Building Representative List three times annually. This affords Facilities Services the ability to keep a more accurate list for both maintenance and emergency preparedness.

The subunit also maintains an emergency contact list for the use of the Office of Emergency Management and UTPD. Once the list is updated it is posted to the Facilities Services website.

Cone Zone Website and Physical Signs



The Cone Zone website is now managed and maintained by the communications coordinator. The site was redesigned for increased usability and was launched in August 2016. Cone Zone is updated monthly with new content and project images.

The subunit has also taken on the task of keeping detailed records of physical Cone Zone signs on campus. An interactive map has been created that links to photos of the signs in the designated map areas. This map will be used to update signs in disrepair and to keep track of signs that may be out of date.

Big Orange Family Campaign

The communications coordinator serves on the executive committee for the UT Knoxville Big Orange Family Campaign. The coordinator organizes all team leads and materials, promotes the campaign, and provides assistance wherever necessary.

In 2018 the Facilities Services Department received the Most Improved Division Award from the Chancellor's office.



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Employee Training & Development

Partnerships

Environmental Health & Safety (UT System)

In fiscal year 2018 we continued our partnership with Environmental Health & Safety (EHS). We worked with EHS to deliver confined space training, alternative vehicle training, forklift training, and aerial work platform training. In addition to the training that we have worked jointly to offer, we have established quarterly meetings to ensure that the safety needs of Facilities Services are being addressed, and the initiatives for campus by EHS are being supported.



Employee and Organizational Development (UT System)

During fiscal year 2018, we continued our partnership with Employee and Organizational Development (EOD) by offering customized Customer Service Training to Zone Maintenance. We also partnered with EOD to successfully implement the new Learning Management System, K@TE.

Human Resources (UT System)

We partnered with Human Resources (HR) for training on properly filling out the new Position Description (PD) form. In addition to the PDs, we partnered with HR on the Job Family component of the Compensation Project to help clarify what each area of Facilities Services does in their work. This partnership has allowed for a more accurate representation of our department's work to be included in the Crafts and Facilities Job Family.

Risk Management (UT System)



We worked with Risk Management to conduct multiple training sessions for all supervisors, on all shifts, explaining the process to follow when an employee is injured at work. Angie Skeen, the Workers' Compensation Coordinator, conducted the

training sessions for Facilities Services' staff.

UT Police Department (UT Knoxville)

In fiscal year 2018 Facilities Services connected with the UT Police Department (UTPD) to offer three different training sessions. Introduction to Self-Defense and Rape Aggression Defense classes were offered to all female employees within the department. In addition to those classes, UTPD presented 'Law Enforcement and You' to employees that attended our first and second/third shift 2018 Fourth of July parties. This has been a fruitful partnership that will likely continue.

Office of Equity and Diversity (UT Knoxville)

We joined with the Office of Equity and Diversity in Fall 2017 to offer STRIDE for Staff training to all of the hiring managers within Facilities Services.

Office of Information Technology (UT Knoxville)

In the Fall of 2017, Facilities Services worked with the Office of Information Technology (OIT) to offer Microsoft Excel Training to the Construction Services Unit.

Pellissippi State Community College

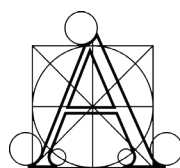
In the Spring of 2018 we began enrolling Facilities Services employees from the Zone Maintenance, Utilities Services, and Construction Services Units in an online training program to increase their base-level knowledge in 5 specific work areas. Those areas are Electrical, Mechanical, Plumbing, Refrigeration, and Reading Blueprints.

Collaborations

In addition to external partnerships in fiscal year 2018, Training & Development effectively collaborated with internal Facilities Services units to provide training and services to our employees. Highlights of this collaboration include:

Building Services – Developed a Unit-Level Orientation program, including a unit handbook and implementation of Clean Check training for all new Building Services employees.

Special Projects – Conducted both Archibus Preventative Maintenance module training and Performance Review training.



ARCHIBUS

STAR Team – Coordinated training on handicap door operators for Zone Maintenance employees.

Accomplishments



In addition to external partnerships in fiscal year 2018, Training & Development effectively collaborated with internal Facilities Services units to provide training and services to our employees. Highlights of this collaboration include:

Building Services – Developed a Unit-Level Orientation program.

FACILITIES SERVICES ANNUAL REPORTS

New Employee Orientation (NEO) – Facilities Services takes pride in its attentive process of welcoming and orienting new employees. As the largest non-academic department on campus, we hire a significant number of people every year. In fiscal year 2018, the Training & Development team conducted 25 NEO sessions for 142 new employees.



OSHA Compliance Training – We reported a compliance rate of 87% among full time employees for calendar year 2017.



Other accomplishments include the following:

- CMI Management Training was coordinated and offered to all Building Services Supervisors and Assistant Supervisors. We partnered with University Housing and offered their Supervisors the opportunity to participate in this training event, as well.
- Collaborated with the Communications Coordinator to host the APPA Leadership Toolkit to be held at the Facilities Services Complex.



Custodial Certification Program (CCP) – Training & Development saw 22 Building Service Aids graduate from the CCP program and become Certified Custodial Technicians. Ten graduates completed the program in August 2017, and 12 completed the program in June 2018.

2017 Respiratory Protection Program – Specific work tasks require 160 employees from Utilities Services, Zone Maintenance, Paint & Sign Services, and Sanitation Safety to use a respirator for protection from exposure to hazardous atmospheres. Training & Development schedules medical evaluations, provides fit testing, and PPE and respiratory protection training for affected employees. In 2017, we also offered powered air purifying respirator training as an alternate form of protection to employees who were unable to wear the tight-fitting face piece respirator. Fit testing was offered monthly to medically-approved employees. Data was collected from fit-tested employees on the frequency of respirator use and tasks performed while working.

Safety – Several initiatives aimed at reducing the risk of injury to Facilities Services personnel were undertaken in fiscal year 18, including:

CPR/AED/First Aid Training completed by 50 employees.

- Arc Flash Training offered bi-monthly; conducted by Cesar Penalba.
- Alternative Vehicle Trainings conducted by EHS for all employees that require the training.
- Development and implementation of aerial work platform training for all employees that may use aerial work platforms, and who had not yet received training.

Career Paths – Development of all unit career paths continues. In fiscal year 2018, draft career paths were created for Steam Plant, Building Services, Rapid Response Team, and Sanitation Safety.



Landscape Academy – We completed further development and reworking of Landscape Academy courses, including level 500 curriculum. At the end of FY18, all current Landscaping employees had received the level 200 training.

New Employees – Rebecca Alcorn joined the Training and Development team as the new Training Coordinator in July 2017. She worked to increase the number of partnerships between other departments on campus and Facilities Services. Ian Miller was promoted to Training Specialist in October, and we hired a new Training Specialist Assistant, Beth O'Neill, in November. Her focus has been to consistently deliver New Employee Orientation, as well as maintain the majority of the subunit's spreadsheets.

IT Support & Maintenance

Major Projects

Relocation of Berry Hall training lab to Neyland Drive Biology Annex and we are looking forward to new training lab and office space at Walters Life Sciences Building.



This year's Computer Upgrade Program provided 93 new computers and installation is in progress and 63% complete



Prepare for replacement of current NetReg device management system with integration to Active Directory.

This year's Adobe Creative Cloud license renewal increased our license count to 147 with addition of lab machines and new users.

FACILITIES SERVICES ANNUAL REPORTS

The subunit continues to assist Electrical Services with the upgrade of Building Access and Fire Alarm systems for University of Tennessee buildings. We also assisted with upgrades to Neyland Stadium Lighting System Controls computer replacement and setup of new SCADA server.



Archibus Related Projects include Collaborating with Facilities Planning to implement Capital Projects and Condition Assessment modules, work with Recycling to implement Waste Management Module, assessing integration of Sustainability Assessment module with Make Orange

Green program, collaboration with Design to implement BIM-Commissioning and 3-D modeling viewer modules, integrating Utility Billing into Energy Management module, assisting EHS with transition from Facilities maintained Chemical Inventory system to BioRAFT, entered most historical Asbestos samples into Clean Building module, added improved KPI data to Archibus profiles for benchmarking and historical analysis, created new contract with Sightlines for peer institution benchmarking, planning full legacy system elimination by the end of the calendar year (2018), working with OIT to create new v23 environment and plan for rollover to new version by end of 2018, establishing an Archibus committee to review enhancements and provide user support to upgrade project, work with OIT to hand over Archibus maintenance and support funding to a central fund account, create 13 Business Intelligence and Reporting Tools reports, create new Archibus query reports using reporting software.

Our internal call tracking system shows that along with these projects we answered 717 calls with an average of 11 minutes per call.

New projects in progress and completed include the purchase of Digital Signage software and installation of 2 large monitors at Facilities Services Complex entrance. We are ready to get onboard when OIT finalizes a Campus Digital Signage Standard. 3D printed test parts have been created and submitted to Air Conditioning Services for testing. Assist with Installation of new Morse Watchmans key distribution system at Facilities Services Complex. Relocation of Recycle Department staff to new desk location in upper level of Facilities Services Complex. Assist Electric Shop with setup and communication test of MultiLEN SCADA devices.



Office of Sustainability

Energy Projects



Peak Energy Use Campaign: A marketing campaign to inform the campus of higher energy rates during certain times of the day and seasons throughout the year.

POWER Challenge: A dorm energy, water and recycling competition held annually (13th annual) and this past FY we avoided over 72k in energy cost; First place was Massey Hall.

Greenhouse Gas Emission Reductions

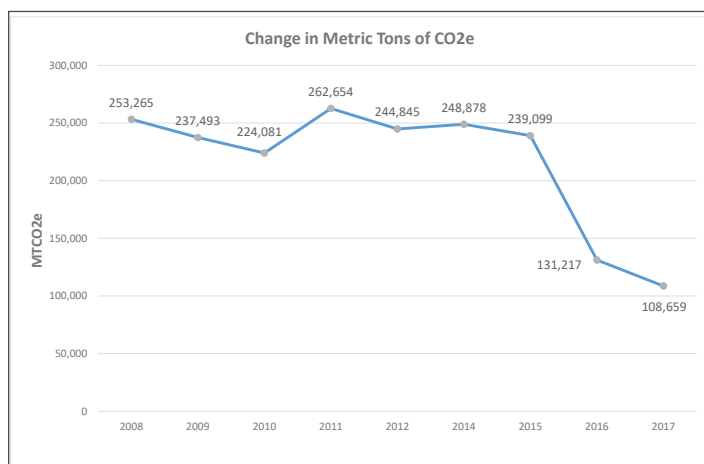
It takes nine months to collect all the data, so we report the previous FY and the below information is from FY 17 (net reductions).

FY 16 to FY 17 reductions: 22,558 metric tons CO₂e (Carbon Dioxide equivalent).

43% overall GHG reduction of metric tons CO₂e since FY baseline 2008.

Emission Targets as stated in the Climate Action Plan:

- By FY 20-21, reduce/offset GHG emissions to 20 % below FY 07-08 levels
- By FY 30-31, reduce/offset GHG emissions to 40 % below FY 07-08 levels
 - As of August 2018, we are 12 years ahead of schedule
- By FY 40-41, reduce/offset GHG emissions to 60 % below FY 07-08 levels
- By FY 50-51, reduce/offset GHG emissions to 80 % below FY 07-08 levels
- By FY 60-61, achieve climate neutrality (zero net GHG emissions)



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Awards

Tree Campus USA designation.



EPA Green Power Excellence National Award Winner. Only institution in the Southeast region and SEC to win award.

TVA Green Power Switch Leader.

Rankings



STARS Silver Rating (Sustainability Tracking, Assessment and Rating System).

#1 in the Nation for Green Power Purchasing (EPA Green Power Program).

#1 in the SEC for Green Power Purchasing (EPA Green Power Program).

Engagement

Student Volunteers: 1,550 students participated in Office of Sustainability led, funded, partnered volunteer service opportunities and events, with an average of 3.5 hours per student per opportunity.



Campus Sustainability Day, Earth Month Celebration and the Environmental Leadership Award events hosted over 2,000 students, faculty, staff and the public throughout the year, connecting various environmental centers and student groups to the campus population.

Partnered Events:

Fresh Plate Friday: a monthly event partnering with Aramark centered around specialty menu items that have a sustainable focus, in addition to tabling materials promoting a healthy lifestyle.

Black Out Bash: a UT Housing partnership, zero waste fall-themed event to raise awareness about sustainable living in a residence hall setting, in addition to celebrating the end of the POWER Challenge.

Infrastructure/Equipment

Wetland Boardwalk installed at UT Gardens.

25 Bottle Filling Stations installed throughout campus, 165 total as of August 2018. To date since 2014, 7.2 million water bottles have been avoided from entering the landfill.

PACE bike share program; 3 docking stations across campus, partnering with City of Knoxville.

300 plus hand dryers installed in throughout campus in high traffic use areas to reduce paper towel consumption, fuel cost and labor hours.

BESS Rain Garden installation.



Trackhoe equipment purchase for UT Composting operations to handle increasing feedstock contributions and back end disbursement to campus partners.

Development and installation of the Grow Lab, a facilities managed, academic and research supported, campus garden.

Experience Learning/Academic Partnerships

Our office partnered with 14 specific courses/programs, providing real world experiences for 80 undergraduate students, three graduate students and 14 doctoral students.

Courses partnered with to conduct sustainability research/projects/service learning:

Undergraduate:

EF 158 (Spring 2018): energy efficiency in residence hall study with 4 students.

ENG 295 (Spring 2018): food waste study with 6 students.

GEOG 311 (Fall 2017): bike rack, waste receptacles, water bottle refill stations GIS inventory with the entire class of 22 students.

ENG 298 (Spring 2018): living off the grid research with 1 student.

AFST 442 (Spring 2018): global sustainability issues and how they may relate to UTK, working with 6 students.

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COMM 201 (Fall 2017): Student interview related to sustainability careers, working with 3 students.

UNHO 101 (Fall 2017): global forest sustainability research working with entire class of 19 students.

College of Social Work (Fall 2017): a partnership to research food deserts in and around the Knoxville area. No students involved.



GEOG 493 (Fall 2017): Independent study project related to mapping data parameters for our office. 1 student.

P200 (Fall 2017): MUG Project surveys and spending habit study to better identify marketing and outreach efforts. 18 students.

Graduate:

MABE (Fall 2017 – Spring 2018): Research, model and present findings to Energy Task Force, pertaining to energy storage solutions for Hodges Library. A SEIC funded project, working with 1 student

Department of Sociology (Fall 2017 – Spring 2018): a partnership to create the first ever sustainability relationship of work matrix in all of academia. 2 graduate students, 1 doctoral.

Doctoral:



ORNL (Spring 2018): Develop a virtual tour of campus with a focus on energy building models; 2 students.

Bredesen Center (Fall 2017): PhD students researched three sustainability projects to present to the Committee

on the Campus Environment, coupled with a working model project with local renewable company, ARiES Energy. Total of 11 students.

Non-Categorical Facts

Drone Program Development for Facilities Services. Designed to avoid high cost from outside vendors, provide a faster response time to data request and begin offering service to campus partners.

Complete redesign of www.environment.utk.edu.

Climate Action Plan 2.0 development. A cross campus collaboration to update the current Climate Action Plan, to be presented in the fall of 2019.

CONSTRUCTION SERVICES

Building Security Projects

Completed FY2018



Glass breaks at the Facilities Services Complex; Mechanical locks at Alumni Memorial Building; Locks for doors at Humanities mechanical room; Card access to Hess Hall rooms K105 and 108; New mag lock at

Kingston Pike Building; Added panic buttons at Haslam; Greenhouse doors at Hesler.

Renovations

Completed FY2018

Thompson Boling Arena fall protection; Thompson Boling Arena coaches' offices; Tele-a Fund move; Fifth floor of Haslam; Signage mounting at Communications room 293; New door, blinds and paint at Communications Building room 447; Blinds in McClung room 605; Shelving in Nursing Building room 207; Electrical in Plant Biotechnology room 401; Renovations of the fourth floor restrooms and rooms 405, 405A, 426 and 427 at UT Conference Building; Removal of existing Ash Silo at Steam Plant; Removed cap stones over leaking windows at Neyland Thompson Sports Complex; Unearthed steel beam at East Skybox and Press Box; Masonry repairs at Morrill Hall; Carpet replacement at Glazer Building; Settling issues at College of Nursing; Created two rooms in Haslam room 450; Repairs to smoke evacuation system in Hodges Library; Turn Haslam Library room 632 into two rooms; Pave back lot at Facilities Services Complex; Renovate rooms 120 and 120A at Middlebook Pike Building; Install slip resistant coating to terrace at Neyland Stadium; Install gate at Perkins Hall at Middle Drive;



Add four study rooms at Haslam Business; Remove hoods and add electric at Plant Biotechnology; Paint Student Services Building room 413D; Paint room 210 at 1610 University Avenue; Paint and carpet in Communications room 467 and Student Services room 401B; Paint Ferris Hall room 401; Paint BESS room 108; Student Services Building room 401;



Communications Building room 422; Presidential Court dining and stairwells; Hesler Biology fourth floor; Jessie Harris; Neyland Stadium Offices.

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Roofing Projects

Completed FY2018

Parking Services; Several roof repairs.



Project Coordination

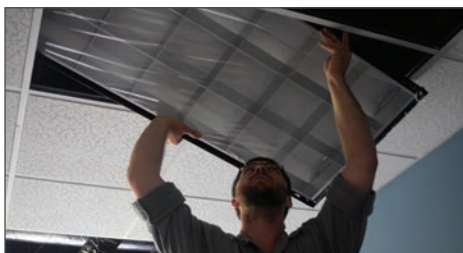
Completed FY2018

Yearly cleaning and restoration of five bronze statues: General Neyland, Pat Summitt, “Monty” the dinosaur, Europa and the Torchbearer; Numerous on-call events for campus; Yearly participants in Fire Watch at Thompson Boling Arena for Women’s and Men’s basketball games, concerts and special events; SEC Nation - SEC Network; Water damage repairs, paint and electrical at Vol Shop at Student Union; Engineering evaluation at Bailey Education room 401; Classroom renovation.

Fire Safety Upgrades

Completed FY2018

College of Nursing; Nielsen Physics; Austin Peay; Ferris Hall; Dabney Buehler Complex; Perkins Hall; Campus building security upgrade.



Installation of Voice Messaging Capability

Completed FY2018

Hesler Biology; Jane and David Bailey Complex; Strong Hall; Philander Claxton Building; McCord Hall; Dougherty Engineering Building; Natalie Haslam Music Building; Min Kao; Morgan Hall; Nielsen Physics Building; Perkins Hall; Science Engineering Building; Student Union.

Classroom Renovations

Completed and Ongoing

Alumni Memorial Building
Cox Auditorium Carpet;
Alumni Memorial Building room 27; Alumni Memorial Building room 33; Alumni Memorial Building room 32; Alumni Memorial Building room 210; Alumni Memorial Building room 204; Ayres Hall room B003; Ayres Hall room B004; Ayres Hall room

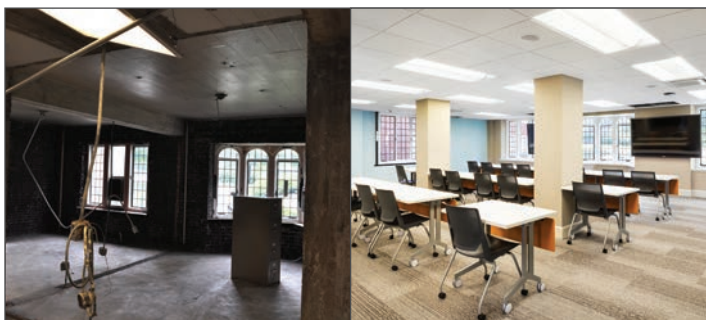


110; Ayres Hall room 111; Ayres Hall room 112; Ayres Hall room 113; Ayres Hall room 114; Ayres Hall room 120; Ayres Hall room 121; Ayres Hall room 122; Ayres Hall room 123; Ayres Hall room 124; Bailey Education Complex room A202; Bailey Education Complex room A242; Bailey Education Complex room A301; Bailey Education room Complex A327; Bailey Education Complex room A328; Bailey Education Complex room A425; Bailey Education room A501; Buehler



Hall room 300; Buehler Hall room 334; Buehler Hall room 472; Burchfiel Building room 301; Communications Building room 314; Dougherty Engineering room 429; Dougherty Engineering room 501; Dougherty Engineering room 517; Food Safety Building room 126;

Henson Hall room 318; Henson Hall room 322; Henson Hall room 418; Henson Hall room 423; HSS room 71B; HSS room 71C; HSS room 102; McClung Auditorium room 63; Mossman Building room 102; Mossman Building room 202; Mossman Building room 204; Mossman Building room 210; Mossman Building room 211; Mossman Building room 212; Physics room 304; Physics room 306; Plant Science Building room 123; Plant Science Building room 124; Plant Science Building room 125; SERF room 307; Tickle Engineering Building room 402; Tickle Engineering Building room 404.



BEFORE & AFTER

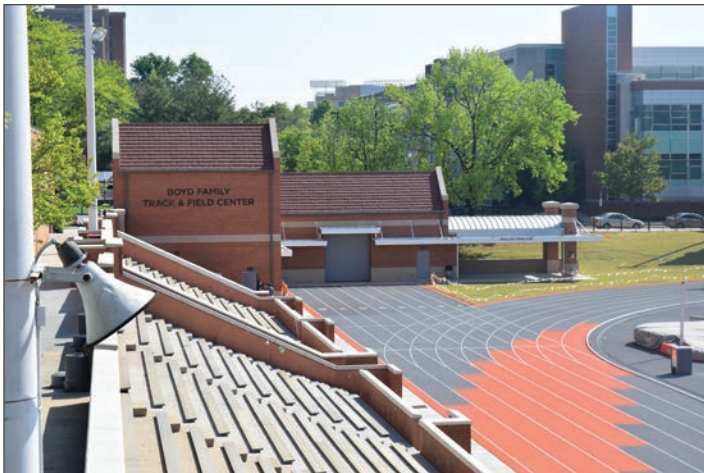
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DESIGN SERVICES

Capital Project Management

Completed FY2018

AGR Fraternity; UTIA Garden Pavilion; BEES Entry Renovation; Fire Upgrades for Perkins Hall, Dabney Hall, Buehler Hall, Nielsen Physics, Austin Peay; Facilities Services Complex; Basler Boathouse Improvements; Tom Black Track Renovations and LaPorte Stadium Improvements, Phase 2.



Ongoing FY2019

Haslam Fields Expansion Phase 3; Lake Avenue Parking Garage; Kefauver Wing Demolition; Science and Engineering Infrastructure Upgrades; Student Union; Clarence Brown Theatre ADA Improvements; Chiller Systems Improvements; UTK Steam Line Replacement Project; West Campus Phase 3; West Campus Dining; Fire Upgrades for College of Nursing, Hodges Library Improvements to 130, 146, 306, & 326; Facilities Services Complex Upgrades; Engineering Services Facility; Mossman Building; Thompson Boling Arena Renovations and Fall Protection Measures; UTSI Improvements; Neyland Stadium Improvements, Exterior Painting; Golf Team Facility; Concord Development; Andy Holt Mall Extension; Doug Dickey Hall of Fame Plaza; Strong Hall BOO1 Renovation; Student Services Renovations; Tickle Engineering 2; Window Replacement; Speech and Hearing Relocation Conference Center.



Campus Project Management

Completed FY2018

Andy Holt Tower Renovations; Strong Hall Move; Speech and Hearing ADA Access; Phi Sigma Kappa Site Drainage; wayfinding Signage Implementation; Lake Ave. Parking Lot Improvements; Ecology & Evolutionary Biology Bat House; Circle Park Parking Booth; Hodges Library Miles Reading Room; Hoskins Library Landscape upgrades; Roadway Assessments.

Ongoing FY2019

Student Enrollment, Student Services Building; Administration Parking Garage Replacement; Neyland Parking Garage Renovation; James D. Hoskins Renovation; Facilities Services Complex Landscape & Irrigation; RecSports Masterplan; Landscape Vision & Site Standards Update; Pi Kappa Alpha Renovation; Various Facilities Services Construction Projects.

Miscellaneous Project Management

Completed FY2018



Special estimates for Andy Holt Tower Garage Improvements, Andy Holt Tower Renovation, Bass Building Addition, New Radiation and Safety Building, Clarence Brown Theatre Addition, Carousel Theater heater replacement, Collaboratory, College of Business New Building, Concord Complex, Dabney Buehler Hall Renovation, McClung Tower Renovation, New Nursing Building, Panhellenic Renovation, Presidential Court Building Renovation, Student Aquatic Center Pool Enclosure, White Avenue Garage; Arena Dining Renovation; Claxton Courtyard; Dunford Hall Wayfinding; Thorton Athletic Center Study Rooms; Refueling Station; Fire Safety Upgrades for Jessie Harris, College of Nursing, Nielsen Physics, Austin Peay, Perkins Hall, Dabney-Buehler Hall.

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Ongoing FY2019

SE Stadium Improvements Surveys; monthly/quarterly/annual sprinkler inspections of campus buildings, and ongoing hood cleaning and inspections of all Aramark food facilities and of all Fraternity and Sorority houses; Prepare Annual Campus Survey FY19; Update Campus Data of Departments Space Categories; Building Audits Space Areas; Develop Small Scale Plans of New and Existing Buildings; Archiving and digitizing existing and new buildings; Renovation Estimates JIAM; DAS Antennas; Mossman Move; Development Campus Design Standards; Collaborate with City of Knoxville; Support College of Engineering and Arts-Sciences Liaison; Professional Development of UT Campus and System Round Table Meetings.

Beautification Project Management

Completed FY2018

Volunteer Boulevard Streetscape Improvements, Phase 1-B1; Clarence Brown Theatre Donor Shade Garden; POW. MIA Memorial; Paving Program and Roadway Assessment; ROTC Memorial; Green Wall; Rain Garden planting/maintenance.



Ongoing FY2019

Volunteer Blvd. Streetscape Improvements, Phase 1-B2; Melrose Avenue Pedestrian Connector; Tickle College of Engineering Feature Wall; Hoskins Library Landscape Upgrade; UT Statues.

Interior Design

Completed FY2018

Morgan Hall Renovation Phase 1; Communications 209 Finishes; South College Finishes and Signage; Nielsen Physics Building Signage; Blount Hall ADA Signage; Classrooms Color/Branding; Engineering & Science Annex; Neilson Physics; HPER Building; Haslam Business Building (30 rooms & corridors); Interior 1817 Melrose; Morgan Hall Phase 2; Andy Holt Signage; Hodges Library Study Areas; Communications Various Spaces; Student Services

Various Spaces; Humanities 207; Dunford Renovations; International House Renovation.



Ongoing FY2019

Melrose Pride Center; Andy Holt Tower 8th Floor; Jesse Harris 114, 243, 244, 413, 414, 424, 425; Austin Peay 203; Beuhler 555; Communications 208, 251, 314, 317; Earth & Planetary Sciences 223, 302, 400, 413; Min Kao 622; Nielsen 608; Nursing 315, 317; Morgan Hall Renovation Phase 2; SERF; Hesler; HPER; Melrose; Strong Hall Displays; FS Construction Projects.

Space & Archives

Completed FY2018

Annual Campus Survey; Recorded Survey Data of Departments Space Categories; 23 Small Scale Building Drawings; Scanned Building Plans and Specifications; Professional Development Training.

Ongoing FY2019

50 Buildings Audits; Prepare Annual Campus Survey; Update Survey Data of Department's Space Categories; Conduct Building Audits; Scan Building Specifications and Closeout Manuals; Adding new Small Scale Drawings of New and Existing Buildings; Professional Development Scheduling.



Stormwater Management

Completed FY2018

Stormwater Management Master Plan; BMP Manual titled University of Tennessee Best Management Practice Manual; A Stormwater Planning and Design Manual For Stormwater Management Practices (Updated); Hosted 6 Adopt-A-Stream and River Rescue Programs; Stormwater Student Assistant issued TDEC Level 1 Certification; Conducted

FACILITIES SERVICES ANNUAL REPORTS



over 105 Stormwater Compliance Inspections at active construction project sites; Installed 28 Outfall Markers at Campus Stormwater discharge points; updated the Stormwater Management Plan including UT Best Management Practices Manual, Runoff Reduction Policy and Created an Operation,

Maintenance and Inspection protocol for all Stormwater Control Measures; Submitted Annual Stormwater MS4 report to TDEC; Submitted Annual Stormwater TMSP report from the Steam Plant to EPA; Conducted 2 rounds of (Leaf of/left off) Dry Weather Screenings at UTK and 1 at UTSI; Issued 2 Notices of Violation to Campus Construction Projects; Reviewed and approved 15 Stormwater pollution prevention plans including Erosion and Sediment Control Plans; Developed a protocol for assessing the conditions of campus roadways for purposes of paving; Conducted Benthic Macro-Invertebrate Survey in 2nd Creek, 3rd Creek and East Fork 3rd Creek; Hosted 5K race for Stormwater Awareness; Hosted 2 River Rescue sites (2nd Creek, 3rd Creek) with county wide event; Conducted 2 invasive plant removal events on 2nd Creek in riparian zone; Concord Program.

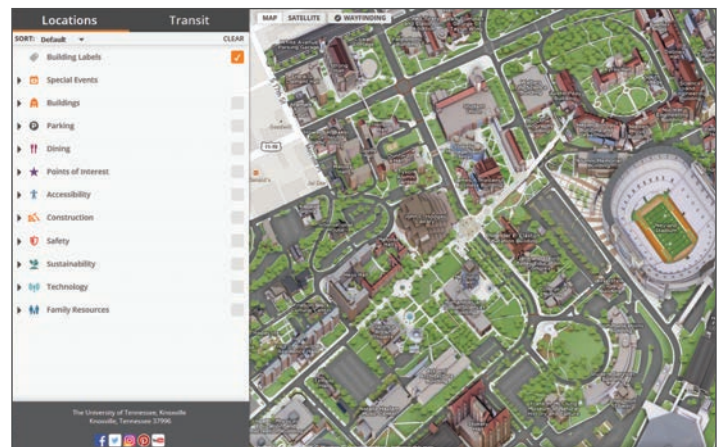


Ongoing FY2019

Review and approve Stormwater pollution prevention plans with erosion and sediment control plans; Review and revise Stormwater Planning and Design Manual for Stormwater Management Practices; Monitor Outfall Markers at Campus Stormwater discharge points; Continue Stormwater Compliance Inspections at construction sites; Monitor Stormwater TMSP for Steam Plant for EPA requirements; Have Weather Screenings at UTK and UTSI; Review and Recommend roadway assessments and paving scheduling; Update JMS4 Program per TDEC; Concord Planning and Scheduling; Evaluate Banking funding projects for optional Stormwater compliance.

GIS Mapping

Completed FY2018



BIM Implementation Plan; Developed web-map application to assist Office of Emergency Management; Developed mobile field collection tool to assist during bi-annual outfall inventory; Inventory of Parking Signs Phase 1 for Parking and Transit Services with Geography Department; Inventory new Wayfinding Signs by Facilities Services with Geography Department; GIS support for roadway paving study program; Collaborate with Geography Department and UT Libraries for open Data GIS data website for staff and students; Assist Office of Communications for Campus online web map application; Updated existing Campus GIS data; Support GIS services to Office of Emergency Management, UJT Police Department, Housing and Facilities Services; South College BIM setup; 4 BIM models developed for use.

Ongoing FY2019

23 BIM models started; Other BIM models in progress are SERF, Buehler Hall, Blount Hall, Plant Biotech Building, BEES Building Lab and Office, Panhellenic Building; GIS support to Office of Emergency Management, UT Police Department, Housing and Facilities Services; Update GIS of existing Campus data; Support GIS for new roadway paving program study; Update web-map application in assistance to Office of Emergency Management for situational awareness during an emergency situation on Campus; Upgrade BIM modeling system and support.



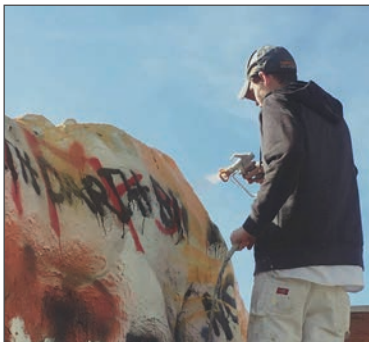
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FACILITIES OPERATIONS

Building Finishes

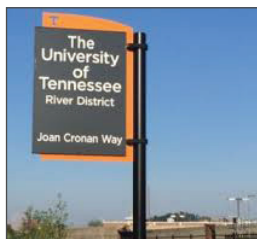
Paint Services

The Paint Services portion of the subunit has painted in numerous common areas and classrooms during the 2017-18 academic year. Major projects will include Science & Engineering Annex, Nelson Physics, HPER Building, Natalie Haslam Music Building, interior of 1817 Melrose, interior of Hopecote, Concord Storage Building, Senter Hall, 30 meeting rooms in Haslam Business Building and more than half the completion of the stain refurbishing at Aryes Hall. The Paint Shop has also completed numerous maintenance work request in the calendar year.



Sign Services

The Sign Services portion of the subunit has been working wayfinding and ADA signage throughout campus. The team also worked on signage for parking services and various work requests.



Building Finishes

The Building Finishes portion of the subunit has repaired the Thompson Boiling Arena entrance with precast and brick, repaired several pedestrian bridges on The Hill, repaired doors and blocked all windows at the Concord campus, replaced many doors and frames on campus, and installed blocked-in showers for housing.



Building Services

Accomplishments



The Building Services subunit maintains more than 16,000,000 square feet of academic and athletic space for the University of Tennessee, Knoxville and University of Tennessee facilities around or on the Knoxville campus. Building

Services provides 24 hour per day, 7 day a week service when and where it is needed. This includes all athletic events, concerts, and university functions.



Building Services holds a Cleaning Certification Program for employees which is a 22-week education program on professional custodial techniques. Employees who complete both sections of the program successfully are submitted for a 9% pay increase.

93% of Building Services chemicals are categorized as "Green" Cleaning Products. The 7% which are not considered "Green" are hospital grade disinfectants which Building Services uses for all restroom area type cleaning. The hand soap on campus was designed by the University of Tennessee School of Public Health's Clean Hands Graduate Committee. Building Services, also, uses Clorox T-360 hydro static disinfection system to routinely disinfect 100% of all areas of campus.



Building Services has added Mossman Building to its cleaning portfolio. In addition, Building Services provides set ups for our multi-use buildings.

The subunit has 13 supervisors and 260 employees.

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Building Services has successfully standardized cleaning products used by the subunit, resulting in reduced inventory levels.

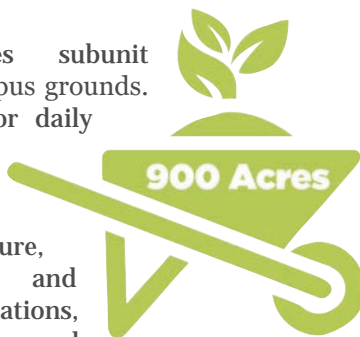


Building Services is committed to keeping the University safe from disease and viruses. We use hospital grade disinfectants and have begun proactively treating heavily occupied areas for germs.

Recycling is an important part of what Building Services employees participate in. During the past year, recycling numbers have grown and solid waste numbers have dropped in spite of the university's continued growth.

Landscape Services

The Landscape Services subunit maintains 900 acres of campus grounds. The team is responsible for daily and seasonal landscape bed maintenance, general property grooming, turf maintenance, arboriculture, irrigation maintenance and upgrades, landscape renovations, project design review and construction oversight, heavy equipment operations, inclement weather response, and equipment maintenance.



Landscape Services has developed Landscape Academy. This curriculum is a campus SOP training format for new member on-boarding and on-going horticultural training for a team of 50 members. One component of the upper level training curriculum requires earning a TN Pesticide Applicators Certification from the TN Dept. of Agriculture. Six team members earned the certification during FY17-18.

Accomplishments

Successfully completed requirements to become a Tree Campus USA member. Designation awarded by the TN Dept. of Forestry on Arbor Day.

Volunteer Blvd. Streetscape Phase I: Assume maintenance of new landscape improvements.



Thompson Boling Arena: Complete tree project to create a screen along the south building face.

Seasonal flowers: Installation of 20,000 seasonal flowers and 12,000 tulip bulbs.

Campus wide turf fertilization, weed control, aeration, and over-seeding program.

Install infrastructure for central control capabilities of campus irrigation systems.

Bee Campus USA: Continued develop of UTK requirements and general approach toward designation

Second Creek Reforestation: Maintained young trees planted in 2016/17 and controlled invasive species.

Campus wide snow/ice treatment and removal.

Circle Park: Turf renovation to bermuda grass for better resiliency to football tailgating and special events.

Humanities Event Lawn: Humanities Lawn (southeast corner): Complete event lawn renovation to include grading, irrigation and Bermuda sod installation

Facilities Services Complex: Install second phase of landscape and irrigation system.

JIAMS: Provide excavation support for renovations to the acid collection tank

Henson: Landscape improvements in north greenspace between building and Cumberland Ave.

2019 Terrace Avenue: Complete building demolition, haul-off and site remediation.

UT Grow Lab: Site grading and water line installation for community garden.

Plant tree for Chancellor Davenport's Investiture.

Campus wide fungicide treatments to turf areas for control of brown patch disease.



White Hall: Transplant existing landscape plants to other areas throughout campus prior to brick demolition. Coordinate with contractor for tree and irrigation protection during demolition.

Sorority Village: Assist with excavation and landscape repairs associated with geo-thermal system repairs.

Sorority Village: Prep and event support for sorority recruitment events.

Housing: Spruce-up landscape at dormitories prior to student move-in.

Provide excavation and site restoration for ongoing campus-wide underground utility repairs (high voltage, steam, water, telephone).

FACILITIES SERVICES ANNUAL REPORTS

Provide excavation and site restoration for ADA ramp installation on campus walks.

Cherokee Farm: Provided year-round landscape property maintenance to include the Knoxville city greenway expansion.

Ellington / Plant Biotech: Prep for Board of Trustees visit.

Strong Hall: Assume maintenance of new landscape improvements.

Assist contractor with tree limb removal for equipment clearance on Volunteer Blvd. steam system upgrades.

Emerald Ash borer: Treatment of ash trees throughout campus for protection against EAB.

Powdery mildew treatment to dogwoods and crape myrtle.

Sorority Village: Provided landscape maintenance to common areas and 13 sorority houses.

Hazardous tree removal across campus.

Tree pruning as needed throughout campus to provide clearance around security cameras, campus lighting, signage, and bus stops.

Destination Imagination: Prep and assistance for events May 18 through 27.

Art & Architecture Green Roof: Install landscape irrigation and renovate landscape plantings due to summer 2016 drought.



Prep and clean-up associated with Orange and White Game.

Pat Summitt Plaza: Renovate landscape and seasonal flower plantings.

Clement Hall: Install new irrigation and landscape improvements associated with the west entry plaza project.

Campus wide asphalt

pothole repair.

Bush hog mowing along non-UT properties adjacent to campus.

Bio-Systems Engineering Building: Assist the Agriculture Bio-Systems Engineering Department with rain garden installation.

Campus wide construction: Provided daily support to contractors and Facilities Services to ensure construction quality.

Pre/Post football game preparation and cleanup throughout campus.

Prep and Clean-up associated with Homecoming bonfire, parade, and events.

Campus-wide street sweeping.

Landscape Irrigation Systems: Monitor, repair, adjust, and winterize campus-wide. Install five new irrigation controllers and connect to central control management system

Leaf removal: 175 tons of leaves campus-wide taken to compost site.

Preparation for visits by UT Board of Trustees and ESPN Game Day.



Remove old building signs where new ones have been installed.

Inventory and develop a plan for street tree replacements during winter months.

Monitor rose population throughout campus to control Rose Rosette virus management.

Sod repairs throughout campus.

Emergency roadway repair campus wide caused by sinkhole activity.

Sutherland Intramural Fields: Install new trees along north perimeter and coordinate additional plantings by the City of Knoxville.

Campus wide: Plant and inventory new trees throughout campus.

Tree cleanup associated with storm events.

Systemic insecticide treatment of hackberry and river birch for aphids over parking/seating areas

Update tree inventory database.

Destination Imagination: Assist with preparation and clean-up.

FACILITIES SERVICES ANNUAL REPORTS

North Concord property: Cut grass around parking lot and spray weeds in pavement cracks.

Blueberry Falls: Replace irrigation and landscape plantings due to steam line and AT&T vault repairs.

Thompson Boling Arena: Assist with Monster Jam dirt clean-up at east and west service area.

New building construction: Transplant shrubs and trees from the site prior to site demolition.

Sutherland Intramural Complex: Excavate, fill, and asphalt sinkhole in roadway adjacent to storm water structure.

Gate 21 Amphitheater: Assist Plumbing with steam condensate line excavation and repair.

Campus Wide: Swap/installation of new outdoor trash/recycle units.

Thompson Boling Arena/Art & Architecture/Natalie Haslam Music: Installation of new outdoor furnishings.

Traditionalist Worker Party Event: Provide pedestrian barricades, road blocks, and support as needed for campus security on 2/17/2018

Fleming Warehouse: Assist with consolidation efforts in the warehouse to make room for UT Athletics indoor track practice facility.

Academic/Research Support



Assist Biosystems Engineering department with installation of stormwater rain garden project.

Dr. Bass Anthropology Facility: Provide removal of fallen trees, fence repair, service road

maintenance, and maintenance service to skid steer loader.

Dr. Bass Anthropology Facility: Install landscape and honorary tree project.

Assist Urban Forestry class with basic rope setup for climbing instruction.

Hosted Arbor Day celebration.

Continue treatment of Ash trees for Emerald Ash borer and demonstration for Dr. Lambden's Entomology class.

Coordinating talks with Urban Forestry and Facilities Services staff to develop tree inventory data collection tools, i.e. PDA, laptop, GPS, etc.

Bio-Systems Engineering: Assist with unloading wind turbine for research project.

Clarence Brown Theater: Assist with transport of production scenery storage trailer.

Training

Landscape Academy: Conduct sessions with new and existing staff and continue development of upper level curriculum.

Landscape staff holding a Tennessee Department of Agriculture Pesticide Certification attended the Ag Extension Turf and Ornamental Field Day and Knox County Extension Grounds Management Short Courses.

Heavy equipment staff attended OSHA training to include Trench Safety and Trench/Excavation Competent Person.

Conduct departmental snow removal training and SOP review.

Aerial lift training (Arboriculture).

Lock & Key Services

Major Moves and Projects

Two large scale keying projects for Lock & Key Services during this year are the new Ken & Blaire Mossman Building and University Housing Buildings 3 and 6.

Lock & Key does all the work from gathering the information from departments on how their area should be keyed to setting up each individual core and installing and issuing keys.



Large Scale Projects

Alumni Memorial Building: Install new security exit devices on all doors in main auditorium.

The Hill Project: Securing all Buildings for Special Event – (required removing all current keyed locks and replacing with secure cores on all doors accessing each building and then returning them after event).

Archibus Updates: Continual reconciliation of records.

Humanities: Classroom upgrade to security locks.



FACILITIES SERVICES ANNUAL REPORTS

Law College: Flooding in the Law College called for displacement and temporary offices for some staff with locks having to be installed and keyed.

Conference Center: Mold issue in basement of Conference Center called for all locks to be changed for no entry.

Rapid Response Team

Spring Cleanup

Spring Cleanup is a special event held for nine weeks annually as an effort to declutter academic buildings by moving items no longer needed. Staff from Rapid Response Team work building by building to help simplify the process. Computer and laboratory equipment, furniture, office supplies, paper files, and more can be recycled, discarded, or sent to UT Warehousing.

Special Events

RRT is responsible for setup and tear down of special events on campus. This includes delivery and setup of tables, chairs, stages, and containers for recycling and trash.

During the 2017-18 academic year more than 750 work requests were performed by RRT.

Surplus Moves

RRT performs moves of unwanted items to the Surplus Warehouse from offices and buildings on campus. The team also moves items requested from the Surplus Warehouse to offices and buildings.



Banners

Installation and maintenance of banners for the Main and Agricultural campuses is the responsibility of RRT.

Relocations

RRT performs whole building and office relocations. New building moves consist of complete move-in of equipment, furniture, supplies, and personnel into facilities.

Rapid Response Team handled the moves associated with the Mossman Building.

Classroom "Clean out"



When a classroom is scheduled for a construction project, RRT removes all furniture, desks, etc. from the space and take items to storage until construction project is complete. Once the project is finished, RRT returns items back to the classroom.

Sanitation Safety

Overview

Sanitation Safety is responsible for Pest Control and Asbestos, Lead, and Mold Abatement for each of the 250+ buildings on and off campus.



Each member of the subunit holds multiple State and/or Federal Licenses and Certifications, which requires personnel to complete multiple hours of refresher training every year.

Employees also take the opportunity to seek out additional training via workshops and seminars to better

their understanding of their own work and to learn how to communicate more effectively with customers.

The subunit is headed by a supervisor licensed by the State of Tennessee as a Commercial Pest Control Operator. Each of the technicians are Certified Basic Wildlife Control Operators and Certified Applicators. Services provided include insect, rodent, feral cats and dogs, termite, bird, odor, and biological control. Sanitation Safety has managed these services on and off campus for more than 40 years. The Archibus system enables prompt response to trouble calls. Each year employees process and complete scores of work requests, the large majority of which are self-generated, Preventative maintenance work requests.

2016-17 Academic Year

During the last fiscal year, the subunit processed approximately 2,500 work requests. Each building the team is responsible for has either a weekly, monthly, quarterly, or annual treatment, in addition to regular work requests submitted by our customers. While the Pest Control portion of the subunit's



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staffing numbers have stayed the same, the service level provided to our customers has not diminished, despite the fact that the square footage we manage has greatly increased.

Asbestos Abatement: Samples have been taken campus-wide to determine the type, location, and quantity of asbestos in our buildings. The Sanitation Safety subunit coordinates asbestos abatement when said materials are found during a renovation or maintenance project being conducted by the Facilities Services Department. Facilities Operations has three individuals on campus who are state licensed as asbestos abatement supervisors, inspectors, designers, and monitors.

UT Recycling

Basic Statistics

Cardboard recycling collection points on campus: 79.

Plastic/Cans recycling collection points on campus: 108.

Paper recycling collection points on campus: 61.

Compost collection points on campus: 34.

Total recycling/donations/composting collected: over 2900 tons.

Campus Garden

Conducted extensive research on other campus community gardens.

Wrote, reviewed, and edited comprehensive garden proposal, maintenance plan, plot user agreement, and SEC gardens comparison.

Established initial advisory committee to provide support and policies to oversee garden.

Involved stakeholders from across campus in the project, gaining buy-in from members of multiple offices, departments, and student groups. These include: Departments of Plant Sciences, Philosophy, Biosystems Engineering and Soil Science, Earth and Planetary Sciences, and Nutrition,



UT Extension, Hodges Library, College of Social Work, Office of Service-Learning, the UT Culinary Institute, International Programs at UTIA, pending Peace Corps prep program, Design Services within Facilities Services, the UT Gardens Kitchen Garden, SPEAK, and the International Association of Students in Agricultural and Related Sciences.

Solicited and received feedback on the proposed garden from Knoxville community members, including individuals from Beardsley Farms, Knoxville Office of Sustainability, Slow Food Tennessee Valley, and Pellissippi State Community College.

Visited the University of Georgia's UGarden, conducted interviews, and assessed their garden model.

Partnered with Holly Jones at the UT Kitchen Garden to start routine produce donations to Smokey's Pantry and hire student garden manager.

Built and filled 14 raised beds with soil and compost from campus.

Planted six raised beds, and multiple straw bales with vegetables and fruits.

Free Store and Donations

UT Recycling started a new initiative, the UT Free Store, and greatly expanded donations on campus. The UT Free Store helped provide 762 pounds of useful items to 488 students.

Other non-move out donations include clothing and other items to Goodwill (1,008 lbs.) and desks to Knox County Schools (27).

Placed donation bins and created routine donation collections from 2 sorority houses, 2 campus ministries, the public drop-off, and a residence hall.



Created a work study position, Donations Coordinator, to oversee donation collections, publicize free store pop-up, and recruit volunteers for the day.

Coordinated the donation of 193 lbs. of used uniform pants from Facilities Services.

Food Donations

UT Recycling helped facilitate the recovery and donation of

22,828 lbs. of food from football games, campus events, and multiple campus restaurants. Food was donated to several community partners, including KARM, Second Harvest, Fish Pantries, the Love Kitchen, and Smokey's Closet.

Established routine food donations from 9 campus restaurants/shops.

Managed 23 volunteers for a total of 99 volunteer hours collecting and preparing food for donation.



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Recycling Outreach

Gave Recycling presentations to 12 university classes about UT Recycling.

Tabled on campus to recruit hundreds of volunteers to work with UT Recycling during Game Days.

Move-out donations from the Residence Halls in Fall 2017 and Spring 2018 resulted in the donation of over 40,000 lbs of clothing, household items, and food.

Handed out flyers for Public Recycling Drop-Off at eight off-campus apartment complexes.

Emailed apartment complexes that do not provide recycling for them to send an email to their residences about Public Recycling Drop off day.



Gathered over 400 action pledges taken by students to change the way they live to be more sustainable after a minimum of a 10-minute presentation from

UT Recycling staff.

Hosted the second annual Public Recycling Drop-Off Day/America Recycles Day.

Managed a group of students from a leadership club on campus who promoted the Mug Project.

Planned and implemented a Fort Sanders clean up in December to help make the Knoxville area more beautiful and recycle as much litter as possible.

Partnered with HBO to teach students about recycling.

Tabled at multiple UT Job Fairs to advertise about our open student worker positions.

Audited every area of every athletic facility on campus for its number of recycling bins/labeling.

Mug Project

In 2017, the Mug Project saved participants \$47,020 and kept 1,600 lbs. of waste from entering landfills. There were 72,339 refills which is over a 600% improvement from the previous year (10,206 refills) due to comprehensive outreach efforts by AmeriCorps members and student employees.

Recycling Information and Operations

Recovered 11,500lbs of rock samples from Geology building.

Diverted over 4,800lbs of cinderblock from landfill.

Recovered 909lbs of rock and sand from Estabrook building. Collected and delivered 346lbs of donations to goodwill and SAE fraternity.

Collected and donated mattresses for Angelic Ministries.

Collected and recycled 4.64 tons of hard plastic for recycling.

Collected 3,940 lbs of plastic film and delivered to Food City to be recycled.

Collected over 149 tons of pallets from campus.

Collected tons of scrap metal and lead acid batteries, delivered to TN Metals for recycling.

Collected 1000-2500 lbs. of glass per week and delivered to Westrock Recycling, totaling 61 tons.

Collected and recycled over 4.52 tons of scrap wood. Delivered to Kellems to be turned into playground mulch.

Managed Universal Waste area and coordinated shipments with contractor of thousands of light bulbs, batteries, and ballasts, totaling 12.35 tons.

Managed E-waste collection, separating into Printer Cartridges, Wire, and Miscellaneous Scrap and coordinated shipments to 3rd party, totaling over 16 tons.

Added in-house recycling to 2 Fraternity Houses, BYX and SAE, and composting collection at SAE.

Managed FUTURE Program student in a paid position, approximately 20 hrs per week.

Hosted entire FUTURE Program (16 students) for Friday Fun Day of Service.

Completed 829 work requests, ranging from picking up a few pallets to setting up containers for events with 5000+ people.

Removed over 100 single exterior waste receptacles along walkways and near buildings to reduce unnecessary containers.

Added dozens of paired exterior recycling and waste receptacles along walkways and near buildings to provide equal access to recycling as to trash.

Weekly reports of materials recycled from buildings sent out to all Cleaning and Housekeeping Supervisors on campus.

Provided October reports to Office of Sustainability for the Power Challenge.

Billed auxiliaries for 38 buildings around campus for waste hauling and disposal charges.



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Developed spreadsheet to evaluate zero-waste ratios for individual buildings on campus.

Rescued three kittens from the Recycling Warehouse, all adopted through Young Williams Animal Center.

Composting and Zero Waste Efforts

Proposed and wrote business plan for Special Events Cleaning Unit.

Wrote Zero Waste Plan for Campus.

Coordinated numerous Zero Waste Events on campus.

Worked with Aramark to add Zero Waste option to their on-line ordering system.

Led four tours of the UT Composting Facility to classes of approximately 30 students.

Made major expansion to UT Composting Facility to make process more efficient.

Designed and printed new posters for raising awareness of composting in dining halls.

Helped plot out locations for new outdoor landfill and recycling bins across campus.

Coordinated waste audit at the Facilities Services Complex and used outcomes to inform changes implemented to increase diversion rate.



Implemented My Tiny Trash at Baker Center, Kingston Pike Building, Mossman Building, and assisted with implementation of such at the Haslam Business Building and Stokely Management Center.

Collected compost from 98 locations/week and dumped material at compost site.

Collected 390 tons of food, paper towels, plant materials, compostable serveware, and coffee grounds and delivered to compost site.

Composted 730 additional tons of manure, leaves, woodchips and brush at the UT Composting Facility.

Educated students at Southern Kitchen about proper composting and helped ensure low contamination of Southern Kitchen's composting.

Eight yard dumpsters replaced with four yard dumpsters: Golf Practice Facility, Racheff Research Greenhouse, 1610 University Ave, 1525 University Ave, Kingston Pike Bldg North, and Steam Plant.

Football 2017

This was the fourth year for Zero Waste efforts at major sporting events. Efforts to divert 90% of waste from the landfill include recycling, fan engagement, composting, and donation of leftover food.

UT Recycling diverted 146,695 pounds of material from home football games during the 2017 season. 32% of material was diverted from the landfill through recycling, composting, and donating. Although these numbers are lower than previous seasons, quality and cleanliness of recycling was significantly higher with no loads rejected due to contamination. The highest diversion rate of 48% was achieved during the last home game of the season. During the 2017 season, the average attendee recycled 0.33 pounds.

Volunteers

Individuals volunteered with UT Recycling 264 times for a total of 950.5 hours. Volunteers contributed to numerous events, including Zero Waste Game Day, the UT Free Store, America Recycles Day, and Litter Clean Ups.



RecycleMania

Recyclemania is a yearly inter-collegiate recycling competition held between 200+ colleges and universities. For total recycling, UT placed 48th out of 229 schools. Out of participating SEC schools, UT ranked second in total diversion, first in food organics, first in bottles and cans, and third in total recycling with a total of 385,266 pounds.

Awards

Zero Waste Coordinator, Austin Reynolds, won the CAC AmeriCorps Environmental Steward Award for his accomplishments at UT Recycling that include Zero Waste events, implementing My Tiny Trash and Project Clean Plate, and writing the university's first comprehensive Zero Waste Plan.



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Food Systems Coordinator, Michaela Barnett, won the Committee on the Campus Environment's Community Member Environmental Leadership Award for her work on the Grow Lab, the Free Store, and on increasing food donations on campus.



UTILITIES SERVICES

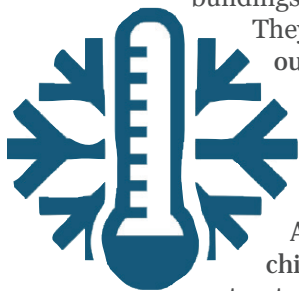
Air Conditioning Services

Overview

The Air Conditioning Services team have made many major improvements to the HVAC systems that serve all areas of campus and off-campus buildings. Major equipment repairs and replacement, preventative maintenance, requested maintenance, and emergency repairs are some of the things this team has accomplished this year. The team continues to support academics, research, athletics, student life and other areas of campus with service and repairs at any time.

All team members are EPA certified and registered to properly use and handle refrigerant gases. Many mechanics are factory trained to operate and repair many pieces of equipment we have on campus in essential areas. The controls team maintains, repairs, replaces, up-grades and programs all building automation control systems (BAC) on campus, including obsolete pneumatic control systems that we still have in many buildings.

The Air Conditioning Services Team also has on staff, certified air balance technicians that perform air balance in campus buildings to improve efficiency and comfort.



They also measure water flows in all of our pumping systems to make sure the systems are operating properly and at peak efficiency to help us save energy and prolong the life of the equipment.

All water systems, hydronic and chilled water, must have chemical treatment to help prevent any fouling

that may occur in the piping loops. This also helps maintain the equipment and provides for greater protection of the system components. The chemical team is trained in handling, measuring, and installing whatever chemicals are needed. They are also trained in maintaining all of the equipment needed for chemical distribution. They also have to comply with all rules and regulations concerning the use and handling of all chemicals.



The Air Conditioning Services Team always has personnel on campus from 6:00am until 12:00am Monday through Friday and has a mechanic on-call 24 hours a day, 7 days a week. We are capable of responding at any time we are needed for whatever problem may arise.

Major Projects

Replaced 6 obsolete rooftop package units with high efficiency Dual-Fuel gas package units at the 1610 University Ave building.



Replace an obsolete reciprocating control air compressor with a high efficiency multi-stage scroll compressor unit at Hodges Library.

Replaced four obsolete rooftop package units with high efficiency Dual-Fuel gas package units that serve suite 135 at the Kingston pike Building.

Replaced an obsolete R-22 air cooled chiller at the Jessie Harris Building with a high efficiency multi-stage scroll machine. The chiller was up-sized for additional future load.

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Replaced an obsolete air cooled chiller at the Auxiliary Services Building with a high efficiency multi-stage scroll machine. Due to reduction of load in the building the unit was down-sized to increase energy efficiency.

Replaced air handler unit # 10 in the basement of the Communications Building. Installed new unit with re-heat capability for humidity control and VFD controls.

Replaced obsolete and unrepairable air handling unit that served a Biometric Lab in room 36 in the lower level of the HPER Building. Installed new unit with re-heat capability for humidity control and VFD controls.



Replaced obsolete air handler #1 in the basement of McClung Museum. Installed new unit with re-heat capability for humidity control and VFD controls. Also re-balanced air flows into the auditorium.

Salvaged cooling towers from Clement Hall and used them to replace an old tower on the Music Chiller House

Replaced an obsolete and unrepairable Trane chiller in the Music Chiller House. Unit was replaced with a Diakin Mag-Lev chiller for more energy savings.

Replaced an obsolete R-22 split system in the dean's office at Jessie Harris Building.

Replaced 2 obsolete R-22 split systems in the front office area of the Auxiliary Services Building.

Replaced obsolete screw air compressor at Plant Biotech building with a multi-stage scroll unit for more energy efficiency.

Re-worked and re-sealed the fire tubes on the boiler for the Auxiliary Services Building. Installed new safeties and controls.

Performed emergency repairs to the water loop for the water source heat-pumps at Orange Hall.

Performed emergency repairs on the chilled water lines serving Morrill Hall on 2 separate occasions. The first repair was directly behind White Hall and was repaired in July 2017. The second repair occurred in February of 2018 and was located between the fire pump building and the back of Morrill Hall.

Replaced obsolete R-22 system serving the lobby area of Massey Hall with a new two-stage condensing unit and air handler coil with R-410a.

Replaced an obsolete R-22 split system serving suite 100 in Dunford Hall.

Replaced chilled water coil in air handling unit # 17 at Dabney- Buehler.

Replaced heating water coils in air handlers in the CRC Building.

Replaced heating water coils in the Landscape Laboratory Building.

Replaced the steam coil in air handler # 6 at Dabney Buehler.

Replaced the chilled water coil in air handler S1 at the Student Services Building.

Replaced the steam coil in roof top unit # 2 at Dougherty Engineering.

Replaced liquid chemical feed systems on water loops in buildings with limited access with dry chemical systems with brominators to improve efficiency and safety.

Replaced three obsolete R-22 split systems with new more efficient split systems with gas heat in the Basler Boathouse.

Modified controls for six new roof top units at 1610 University Ave.

Upgraded chiller and pump controls at the Kingston Pike Building.

Installed new controls on 4 new rooftop units serving room 135 at the Kingston Pike building.

Completed complete air balance on the building system at Johnson Animal Research Building (ETREC).

Completed complete air balance on the building system at Joint Institute of Advanced materials (JIAM).

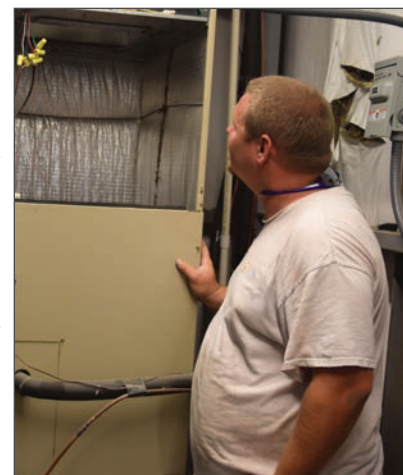
Upgraded control system on air handlers in the penthouse of Andy Holt Tower.

Upgraded VAV controllers in Dabney Hall.

Completed air balance on new split systems installed in the Basler Boathouse.

Installed new control system, including humidity control, in new air handler installed in suite 36 in the HPER Building.

Installed new control system, including humidity control, in new air handler installed in the basement mechanical room in McClung Museum.



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Electrical Services

Overview



Electrical Services is composed of three units: Electrical, Electronic Low Voltage, and High Voltage.

The Electrical Services unit maintains secondary voltage power distribution systems (<600V),

performing such utility functions as: Installation of new electrical circuits; Maintenance and repair of building switchboards; Repair of indoor and outdoor lighting systems; General troubleshooting and repair of electrical distribution systems. The Electrical Services unit installs and maintains permanent systems such as fire alarms, clocks, bell systems, electronic access controls and many other low voltage systems.

The High Voltage Unit operates and maintains extensive 13.2KV high voltage power distribution systems. This unit performs such functions as: Repair or replacement of underground or overhead distribution lines; Rerouting of power distribution to back-up circuits during emergencies.

Electrical Distribution System

Electrical Services is responsible for the maintenance and operation of all electrical distribution systems owned by the Knoxville Campus. This unit installs and maintains an underground distribution system containing more



than 60 miles of cable. This includes all primary and secondary systems located on the Main and Agricultural Campuses and the secondary systems of rental properties located off campus. Therefore, all power outages required in any university building for renovation or maintenance work being performed by outside contractors must be scheduled through the Utilities Services unit. The actual discontinuance and restoration of power will be performed by Facilities Services employees with the assistance of the Knoxville Utilities Board as necessary.

Current Projects

UT Main Substation – Gas Insulated Switchgear: Utilities Services is scheduled to replace the main 18th Street Substation outdoor infrastructure with Gas Insulated Switchgear (GIS) at the end of fall 2018. The new Gas Insulated Switchgear has been installed and it is feeding 4 out of 10 HV distribution circuits. This project was the concept of Facilities personnel and will greatly improve the appearance

and operational safety of the facility and will greatly enhance system reliability and operational safety. This

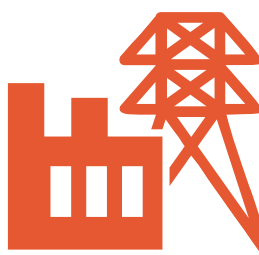
will also extend maintenance cycles from two to five years,

lowering frequency of scheduled outages due to maintenance.



Electrical System Design: Facilities personnel are always reviewing 13.2KV electrical distribution system design for efficient and reliable performance of normal and emergency operations. This leads to improvements as new pad mount switchgear standards and installations, implementation of DOE 2016 transformer standards, and other enhancements which greatly increases reliability and flexibility of present and future systems, allowing easy expansion for future projects and power demands. The Utilities unit could not make these improvements without the intimate historical knowledge, passion and vision of the personnel involved with the daily management and operation of the system.

UT Laurel Substation : The UT Laurel Substation has 8 13.2KV underground distribution circuits fed by Gas Insulated Switchgear (GIS) to accommodate power demand by new projects north of Cumberland Avenue. The Laurel Substation reduces power loading of existing distribution circuits and allows for redundancy of the electrical distribution system, increased overall reliability and reduces the



possibility of unscheduled outages for all campus properties. The Laurel Substation is part of the overall vision of the implementation of the Campus Master Plan.

Supervisory Control and Data Acquisition: The Supervisory Control and Data Acquisition (SCADA) system is currently being expanded to improve distribution system management, monitoring and control. The first step in expanding and implementing this technology is the installation of radio communication system and new metering for both electricity and water, which is currently underway. The ultimate goal of this system is to improve the acquisition of data for

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energy management and to greatly reduce or eliminate the possibility of unscheduled outages due to better monitoring and system redundancy.

New Building Access System: A new campus wide Building Access system was installed September 2017. The new system is Ethernet based, and provides field communication, security, and access management. The new system will allow campus personnel to quickly interface building access for faster security response.

Emergency replacement of 15KV switchgear at Science and Engineering Building in June 2018. Services included removal of damage 15KV switchgear lineup, installation of new S&C Gas insulated Vista, temporary installation of 6 HV 15KV 500MCM and 4/0 cables, 36 HV cable terminations.

UPS installation for the Steam Plant for electrical backup of the plant's boilers and 5MW turbine controls

Installation of 1.5miles of new 500MCM 15KV stand by circuit LA8 from Laurel Substation.

HV electrical Services support for new Haslam Football Practice facility (Installation of new Normal and Stand buy circuits). The project required a minimum downtime time and the reconnection of 480V service conductors for three buildings.



HV electrical Services support for the West Campus Redevelopment project , Buildings 3 and 6, (Installation of new Normal and Stand buy circuits).

Installation of SCADA wireless radio system at AG and Main Campus.

HV electrical Services support with electrical utilities for the new Engineering Services Building.

HV electrical Services support with electrical utilities for the renovation of the South side of Neyland Stadium.

Electrical Support for the HV installation of new HV services for Mossman (including new 15KV Vista switch, 15KV 500MCM and 4/0 cables, energization of 2 2500KVA pad mounted transformers.

Yearly Fire Alarm System testing for Academic, Student Life and Athletics facilities.



Electrical support for all outdoor campus events (Destination/Imagination, Campus events, Athletics events).

HVAC Electrical Support for new Chillers Campus Wide.

Plumbing Services

Overview

Plumbing & Heating Services performs routine, periodic **utility maintenance on domestic and non-potable water systems** (Including sewers and storm sewers), low pressure distribution systems within buildings, and high pressure steam distribution lines. It also provides special project services.

Services provided include: Responding to emergencies, such as burst or leaking pipes. Monthly rodding of main sewer lines at University Housing, stadiums and Food Services. Periodic cleaning and lubrication of blending valves. Periodic cleaning and annual testing of steam traps and water reducing stations. Periodic maintenance of backflow preventers. Periodic lubrication, bi-annual testing, and operation of fire hydrants. Periodic cleaning and maintenance of circulating, condensate return and sump pumps. Installation and replacement of restroom fixtures. Insulation or replacement of pipes within buildings and underground. Replacement of large hot water tanks with small instantaneous

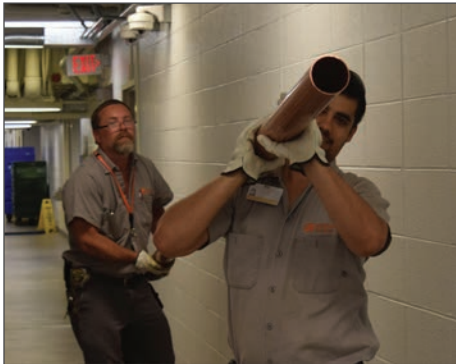


steam heaters. High pressure steam distribution system. Installation and maintenance of grease traps and coordination of grease trap design with Knoxville Utilities Board. Assisting Air Conditioning Services with pipe and equipment installation and repair. Installation and repair of geothermal system piping in Sorority Village. Maintenance, fabrication, and installation of hand rails on campus.

Miscellaneous welding projects on campus where needed. Installation, maintenance, and repair of gas lines up to 2" diameter. Water Fountains: Plumbing & Heating Services is responsible for the installation and replacement of water fountains and water bottle fillers. All water fountains are tested regularly.

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Current & Completed Projects



Replace 4" copper Tee at Plant Biotech.

Replace 4" return line on Heat exchange at Student Aquatics.

Replace lab sink and two outside Faucets at Jessie Harris.

Replace and plumb new sinks at Communications and Art & Architecture.

Replace valve at new 3" main feed at Sport Complex old locker room.

Tie in chilled water loop at Jessie Harris.

Upgraded fixtures to low flow fixtures at Art & Architecture.

Replace all fixtures with low flow fixtures Communications.

Replace all fixtures with low flow fixtures Art & Architecture.

Replace water fountain with bottle filler including new rough in Sport Complex Studio.

Replaced three bottle fillers in Hodges Library.

Install tee and valve on water main in machine room for new fire sprinkler Perkins Hall.

Replace 6" acid drain stack and collectors - glass pipe to poly pipe Buehler.

Install 5 - 6" valves at backflow water station at Steam Plant.

Replace valve in Penthouse Riser SERF.

Installation of low flow fixtures McClung Tower.

Install piping and valves for Internal Loop to connect all three buildings Sport Complex.

Install new 6" water feed for Processed Chilled Water SERF.

Repair sewer leak Carrick.

Replace sewer piping from Starbucks Hodges.

Replace Heat converter in Andy Holt Tower and SMC.



Replace domestic water main and Fire water main from road to building at Hoskins Library.

Repair piping in storm drain Steam Plant.

Replace Domestic water main to building Steam Plant.

Replaced Heat converters at Communications and Hodges Library.

Locate and repair Geo thermal system water leak at Sigma Kappa.

Repair Steam condensate leaks at Gate 21 area.

Clean out storm drains at baseball.

Install meter and connect backflow, pour pad and use copper to replace PVC that was previously installed by contractor outside of contract at UTFS.

Replace chilled water valve at McClung Museum.

Install new steam and condensate from Hodges to Blueberry Falls vault.

Repair steam leaks on main line steam.



Exploratory dig and repair as needed on steam line at Ellington Plant Science.

Install new 8" Domestic water feed to replace 10" line through lab.

Find and repair steam/condensate leak at back of SERF.

Repair steam leaks on main outside Melrose/Hodges.

Installed new grease trap at Baseball.

Replaced water valves on main water system.

Removed old hot water system and installed new high efficient PVI hot water heater at JARTU and Student Health.

Replaced hot water heater at Carrick Hall.

Replaced expansion joint on main line steam at vault under stadium.

Disconnect and cap utilities for Demo of Pasqua, Estabrook and Berry for construction of New Engineering building.

Provide and install new gas line at the Boat House for new air conditioning unit.

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Installed 5 new 6" water valves at steam plant on the water station.

Installed low flow fixtures at McClung Tower.

Installed new lines at JIAMS for Helium recovery system.

Steam Plant

Overview

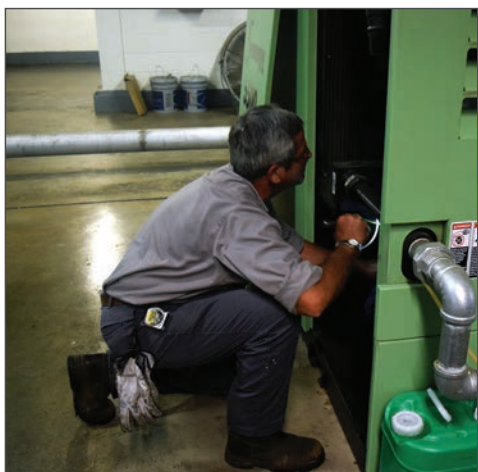
The Steam Plant is responsible for the maintenance and operation of the central steam plant which serves both the Main and Agricultural campuses. More than 153 buildings, containing more than 8,000,000 square feet of space, are served by the Steam Plant. Steam is used for heating and domestic hot water in these facilities, as well as to operate sterilizers, autoclaves, etc. More than eleven miles of underground steam pipe and return lines crisscross the main and agricultural campuses.

In the 2017-2018 reporting year, the Steam Plant produced 739,472,944 pounds of steam and generated more than 35,300 Megawatt hours of electricity

Major components of the Steam Plant include:

One converted coal boiler fired with a natural gas/diesel boiler rated at 100,000 pounds of steam per hour, three boilers that can burn natural gas or oil rated for 80,000 to

82,000 pounds of steam per hour. One natural gas fired turbine generator rated at 5MW with heat recovery boiler that can produce 20,000 pounds per hour and with auxiliary duct burner can boost capacity to 110,000 pounds of steam per hour.



Two natural gas compressors that boost fuel pressure to the turbine to 200 psig.

Water treatment and testing equipment. Water must be treated before being introduced into the boilers to prevent the build-up of scale corrosion. Water is tested and treated continuously, and the process also allows for the identification of problems with the steam distribution system.

Emergency generator: The Steam Plant has a 900 horsepower, 2 megawatt, 4,160 volt emergency generator which can power the plant during an electrical outage. The generator is powered by fuel oil. The 6,000 gallon tank ensures that the plant can operate for several days in the event of a severe electrical emergency.

ZONE MAINTENANCE

With the reorganization of Facilities Services in 2012, more resources have been provided to Zone Maintenance personnel empowering them to perform more tasks without being required to call on others. This has provided more efficient and effective service to the campus community.



One Call Shift

The Zone Maintenance One Call shift is in full operation. There is a minimum of two people on site at all times during the shift. Having two individuals on site enables the unit to better handle repairs requiring multiple workers. Personnel are also able to better handle repair requests during peak times. One person can stay with a problem while the other handles calls. "Droppable" tasks are assigned for slow periods.

This shift also provided enhanced off-hour coverage for the Zone Maintenance unit. Three people are assigned to each shift (first, second and third). These shifts rotate seven days on, two days off, eight on, four off, and repeat every fourth week.



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STAR Team

The STAR Team is a specialized team responsible for providing a more focused service function to the research community. This is accomplished by assisting new and existing researchers, with changes in programming requirements and with day-to-day problems that may arise.

This team also took over the responsibility for the TVA Energy Road Map which includes energy auditing of buildings, and is leading the way to predictive maintenance techniques with vibration analysis, shaft alignment, and thermal analysis.

STAR Team also takes the lead in developing projects for the Student Environmental Initiatives Revolving Fund. To date the team has identified several projects with expenditures nearing \$635,000 and savings of more than \$480,000 per year. These savings route back to the funding of additional utilities savings projects.

Emergency Management

Zone Maintenance personnel take an active daily role in emergency management, serving as emergency planning coordinators. In this role, the Maintenance Specialists take the lead in emergency response on a building-by-building basis, working with emergency responders to help assure the safety of building occupants.

In addition, some Zone Foremen are serving as Zone Coordinators and are tasked with a more overarching role in emergency response. As other individuals rotate out of Zone Coordinator appointments, more of these positions will be filled by Zone Maintenance.

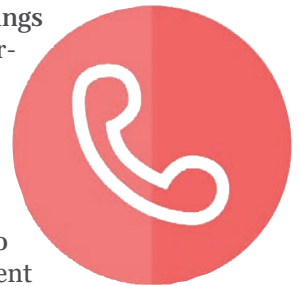
The unit has also purchased and provisioned meals ready to eat, water, safety equipment, heaters, emergency generators, and other equipment that might be necessary during an emergency. Zone Maintenance has a 1,000-gallon trailer-mounted fuel tank. This trailer will be used to deliver diesel fuel to emergency generators and other equipment on campus during an emergency.

Zone Maintenance personnel also serve on the Emergency Management Steering Committee, which writes the emergency management response plan and coordinates with other groups to prepare for disasters. Working relations have been established with university, city, and county police departments, fire departments, and rescue teams. On campus, these relationships extend to housing and student life personnel.



Zone Maintenance Inspections Initiative

Building inspections encompass several different levels. Three employees have primary duties of inspecting the condition of buildings and employee performance. Senior-level employees are used in this initiative in order to provide on-the-spot training should any deficiency arise. Having this responsibility at a senior level also provides the opportunity to rotate the responsibility to different employees even in the event of vacancies or searches. Currently have a schedule to inspect each building yearly.



Other inspections are completed using a peer network of Maintenance Specialists. This entails Maintenance Specialists in neighboring locations to inspect each other's buildings. This network can be increased so that foremen also inspect each other's buildings, etc. These inspections are used to combat situations in which a person in the same environment for a period of time may become accustomed to seeing certain issues, and may therefore cease to recognize problems.

Building Level Authority

A major initiative, in concert with the Archibus system, is that issues encountered by customers are routed directly to a building's Maintenance Specialist without the need to route through several levels of review. This results in quicker problem resolution and reduces the workload on several levels of review while decreasing the number of response required from central shops.



Providing Maintenance Specialists with more building level authority reduces the number of work requests generated by Zone Maintenance to the central shops.

Critical Parts Inventory

The unit will begin to keep deeper inventory parts on hand for equipment that has critical impact on the campus, especially if it is a piece of equipment where long lead times can hamper operations for a long period of time.

FACILITIES SERVICES ANNUAL REPORTS

Zone Maintenance Career Ladder

Revising the career ladder to allow movement to higher levels based on demonstrated skill coupled with test and/or certifications.

Customer Service Training

All throughout campus Zone Maintenance employees are complimented on the exemplary job that they do and the quality of service that comes from the group. Still, the unit has a desire to take the level of service even higher.



In 2015 Zone Maintenance employees completed a series of customer service training conducted by UT Employee and Organizational Development (EOD). This training was tailored specifically for Zone Maintenance and addressed standards and best practices to use as personnel interact with the campus community. Another goal of the training was to encourage the uniformity in how Zone Maintenance personnel respond to customers and how customer concerns are handled. New employees are scheduled to receive this training in late August 2018.

Zone Maintenance Initiatives Summary

Initiatives have an emphasis on improving services to the campus. Improved training from the Inspection and Zero Failures initiative will result in fewer equipment failures going forward, resulting in lower costs and better service to the campus.

Improved training will ultimately result in fewer employees per square foot, lowering costs.

Overall, these inspections will help the Zone Maintenance unit provide better service to the campus community. The following are the expectations of the initiatives:

Inspections will notice things others may have become used to seeing.

Emphasis is not necessarily on employee performance.

Inspectors will be able to point out needs (training, materials, and tools) and potential deficiencies in materials and workmanship.

Improvements in performance, if needed.

Foremen, re-purposed from existing positions, will be able to identify training needs and provide training, when able, on the spot and at the time the deficiency is found.

Foremen are designing the program from scratch. The scorecard, similar to restaurants, will be on display in the building.

Equalization for basis building condition (i.e., employee score not penalized due to building deferred maintenance conditions outside of the employee's authority to correct).

Rewards to excellent scores and build a greater sense of pride.

ZM Inspections	
<input checked="" type="checkbox"/>	_____
<input checked="" type="checkbox"/>	_____
<input checked="" type="checkbox"/>	_____
<input checked="" type="checkbox"/>	_____

Zone Maintenance Zero Failure Initiative

The Zero Failure Initiative within Zone Maintenance is a focus on certain components and/or modes of failure that should not be expected if normal expected maintenance is performed. Zero failure does not automatically point at the Maintenance Specialist, but will require an evaluation of the failure in each of the categories to determine if failure is the result of a manufacturing or design flaw, misapplication, needed training, poor performance by a Maintenance Specialist, or other.

The goal of this initiative is to minimize these failures by improving the quality of materials and tools the unit receives, improving the training if that is determined to be the root case, and improve employee performance where indicated.

The desired outcome of this program is to investigate any failures categorized into the zero failure category and determine why a given failure occurred. Such investigations may uncover a need for additional training or tools, in addition to parts or equipment performance.

To date this initiative has identified training needs for employees that were re-purposed from other areas of Facilities Services. This has culminated with ZM allowing other seasoned employees to spend more time mentoring the employees new to the tasks. For example, premature bearings failures in air handlers were occurring in one of the newer campus buildings. Additional training was provided for installation procedures while transitioning to a different bearing manufacturer.



Zone Maintenance General Initiatives

Square footage per employee was low in comparison to peers. To improve this ratio the unit was not filling positions as they became vacant.

Employees per supervisor is low in comparison to peers.

FACILITIES SERVICES ANNUAL REPORTS



Zone Maintenance & Archibus

The Archibus management system provides Zone Maintenance with information the unit has not had in the past. It is able to provide the management data and reporting the group did not have access to. With the system, work requests are routed directly from the requester to the personnel in the buildings. This direct routing results in shorter response times. Requesters will be able to provide feedback on how their request was handled. In addition, requesters will also be able to track the progress of their work request.

ZM has improved this by moving three foremen to non-supervisory roles and will further improve as vacancies occur.

Budgets will be tight in the coming year(s).

A redistribution of zones included the combination of Zone 2 with Zones 4 and 5, the expansion of Zone 9 into Zone 3, Zone 3 outlying buildings, and One Call Shift personnel absorbed into Zone 8. These changes freed up two foremen for inspections, and eliminated another foreman.

Zone Maintenance is now well within the ratio of its peers and positions are being filled as they become vacant. Management is continuing to evaluate this ratio and will make adjustments where needed.

For more information about each
Facilities Services unit and subunit
go to **fs.utk.edu**



THE UNIVERSITY OF
TENNESSEE
KNOXVILLE

FACILITIES SERVICES

APPENDICES

A

SIGHTLINES

B

APPA FPI REPORT

APPENDIX A - SIGHTLINES

Sightlines: Helping educational facilities better manage their facilities investments

Return on Physical Assets (ROPA) Report for 2016 – Benchmarking and analysis to provide peer comparisons and a more informed allocation of resources, reduction in operating costs, and improvement in service.



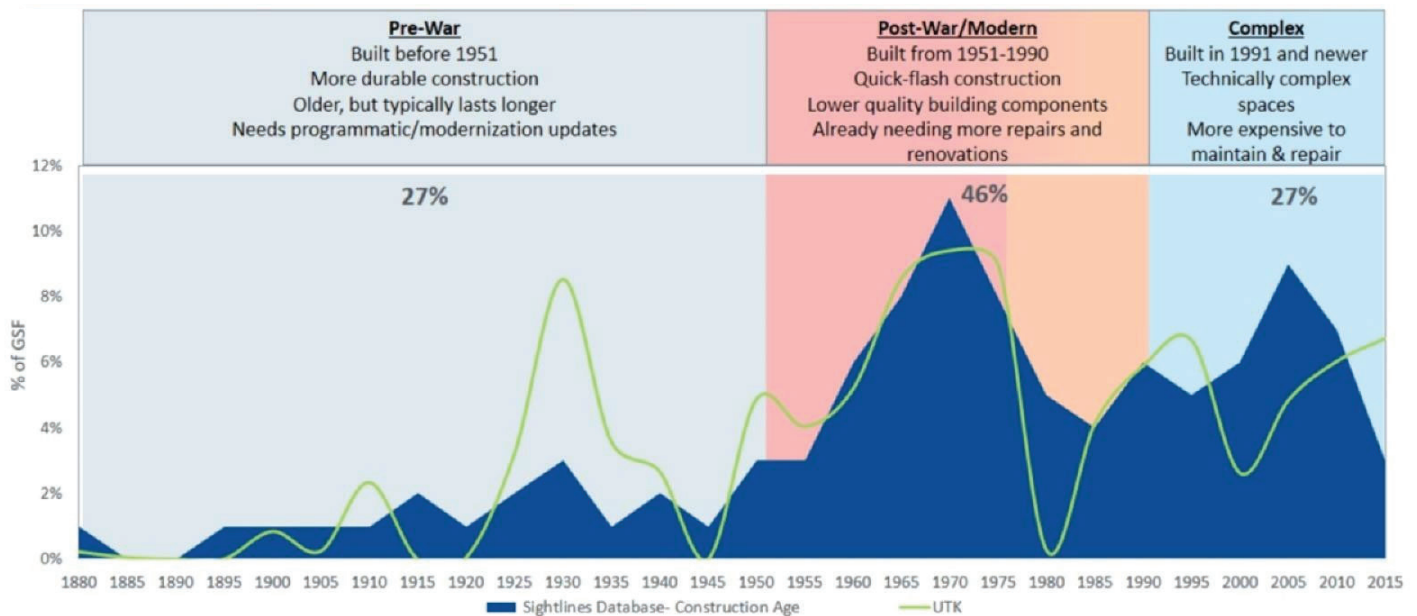
Peer Institutions

ROPA+ Analysis Space Totaling 7.2M GSF

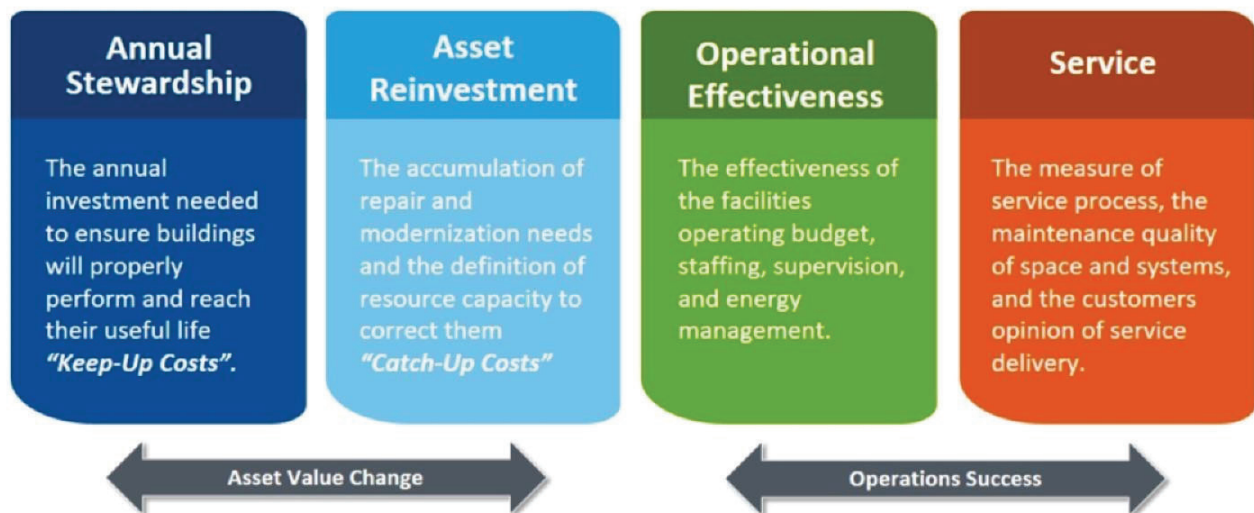
Institution	Location
Auburn University - E&G	Auburn, AL
Louisiana State University	Baton Rouge, LA
Mississippi State University - E&G	Mississippi State, MS
The University of Alabama (Tuscaloosa) - E&G	Tuscaloosa, AL
The University of Mississippi	Oxford, MS
University of Arkansas	Fayetteville, AR
University of Florida	Gainesville, FL
University of Georgia	Athens, GA
University of Missouri	Columbia, MO
SEC PEERS	

APPENDIX A - SIGHTLINES

Putting Your Campus Building Age in Context



Creating a Common Vocabulary



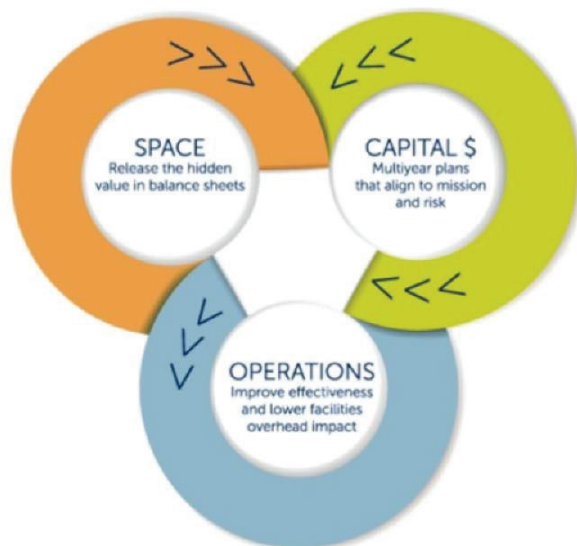
APPENDIX A - SIGHTLINES

Definitions of Terms

- **FTE** - Full Time Equivalent.
- **GSF** - Gross Square Feet used to measure size of building spaces.
- **Annual Stewardship** - Recurring capital invested into existing campus space.
- **Asset Reinvestment** - One-time capital used to invest into existing campus space. Examples could include gifts, grants, or bonds.
- **Scope 1 (direct)** - Emissions from the power sources owned or controlled by the institution, including on-campus stationary fossil fuel sources; mobile sources, such as the vehicle fleet; and fugitive sources, such as refrigerants and fertilizer.
- **Scope 2 (indirect)** - Indirect emissions from sources that are neither owned nor operated by your institution but whose products are directly linked to on campus energy consumption. This includes purchased energy; electricity, steam, and chilled water.
- **Scope 3 (indirect)** - Any other indirect emissions, including commuting by faculty, staff and students, air travel by faculty, paper, solid waste, wastewater and scope two transmission and distribution losses.
- **Global Warming Potential (GWP)** - A relative measure of how much heat a greenhouse gas traps in the atmosphere. It compares the amount of heat trapped by a certain mass of the gas in question to the amount of heat trapped by a similar mass of carbon dioxide.
- **MTCDEs (Metric Tons of Carbon Dioxide Equivalent)** - The carbon footprint is reported in metric tons of carbon dioxide equivalents (CO₂e). This measure includes all six greenhouse gases, which are converted to CO₂e based on their 100-year global warming potential.
- **Density Factor** - A measure of the amount use the campus buildings receive on a daily basis/The number of campus users per 100,000 GSF.
- **Technical Complexity** - The relative mechanical complexity of the campus on a scale of 1-5.
- **Transmission and Distribution loss (T&D Losses)** - The difference in the generated and distributed units of energy is known as Transmission and Distribution loss.
- **BTU (British Thermal Units)** - A unit of energy used to help normalize different sources of energy. MMTBU = 1,000,000 BTUs.

Space, Capital, and Operations

- This approach develops solutions which optimize resources, increase investment & lower costs

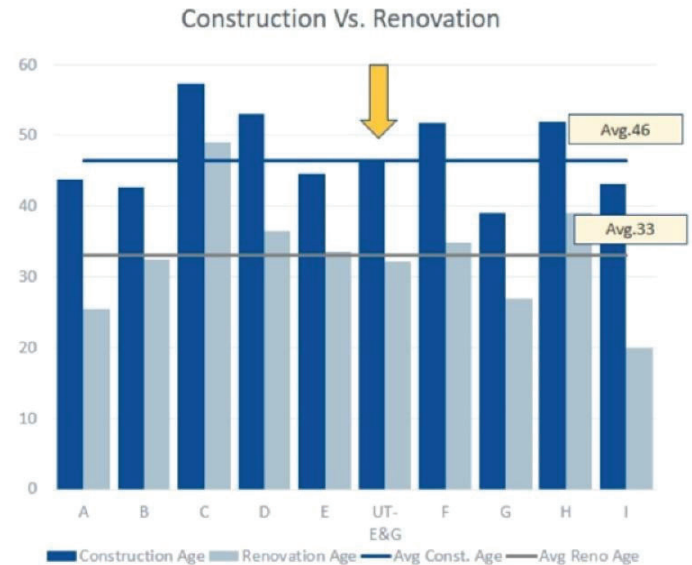


- In the next 10 years, 68% of UTK's Space will be "Over 25" age category – a time period when capital and operating demand becomes amplified
- A capital investment strategy around project selection is crucial as a majority of campus is already deferred – selecting the highest risk projects is a priority
- Facilities operating Budget is similar to Peer expenditures. Further discussion needed to solidify UTK's expenditure.

APPENDIX A - SIGHTLINES

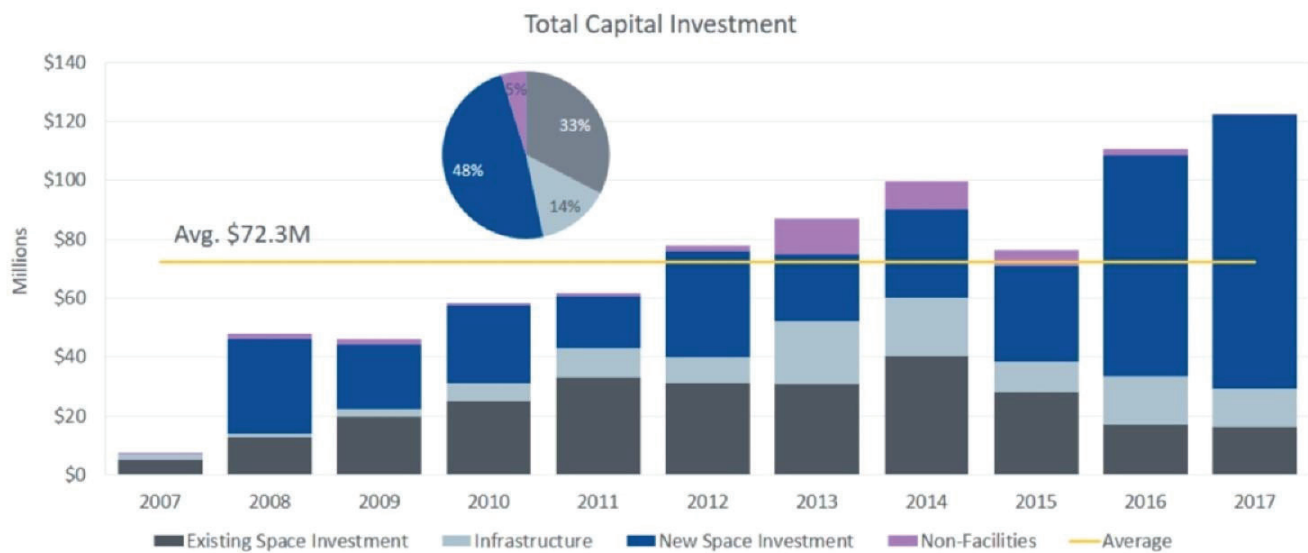
Construction vs. Reno Age by Campus

UTK reduced it's age by 10 years in 2007 and by 14 years in 2017



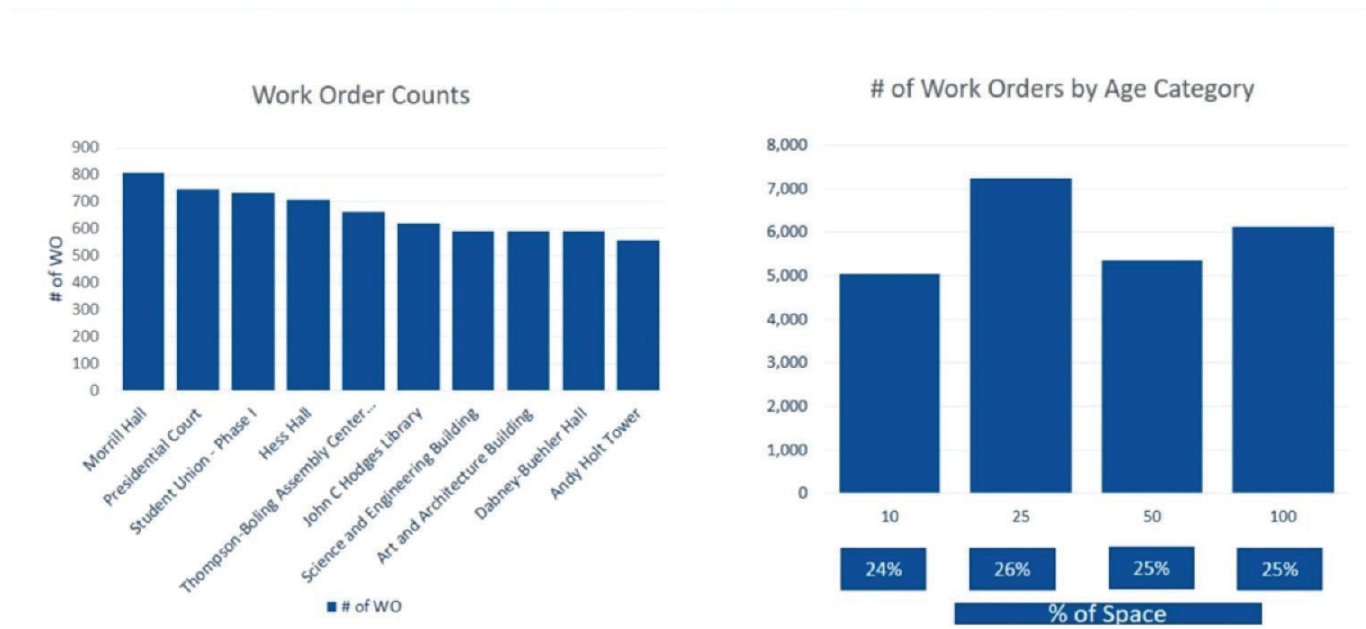
Total Capital Investment

New space spending makes up majority of the total capital spending

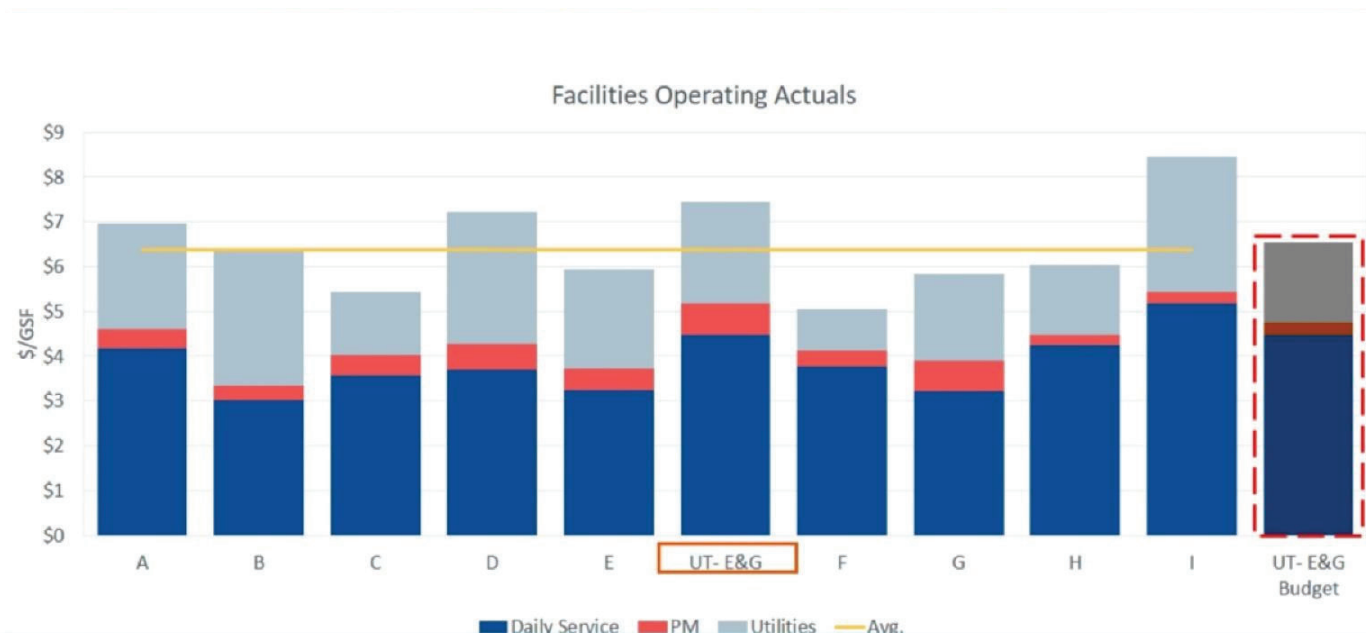


APPENDIX A - SIGHTLINES

Top 10 Buildings with the Highest Number of WO

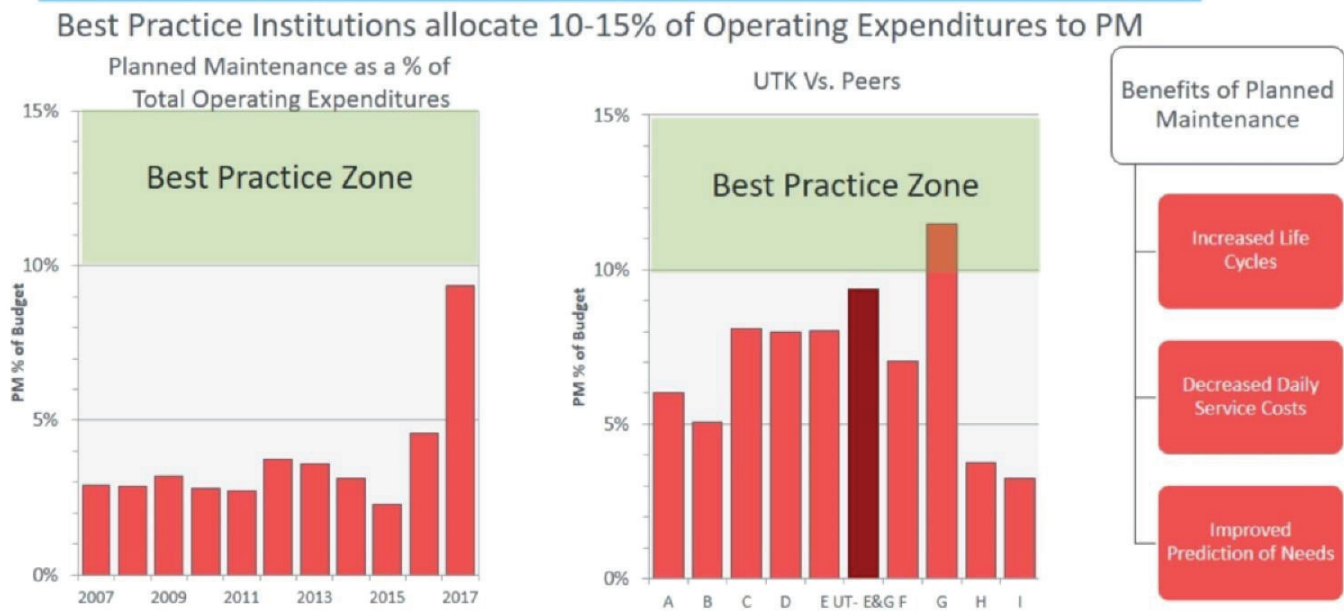


FY17 Facilities Operating Expenditures vs. Peers

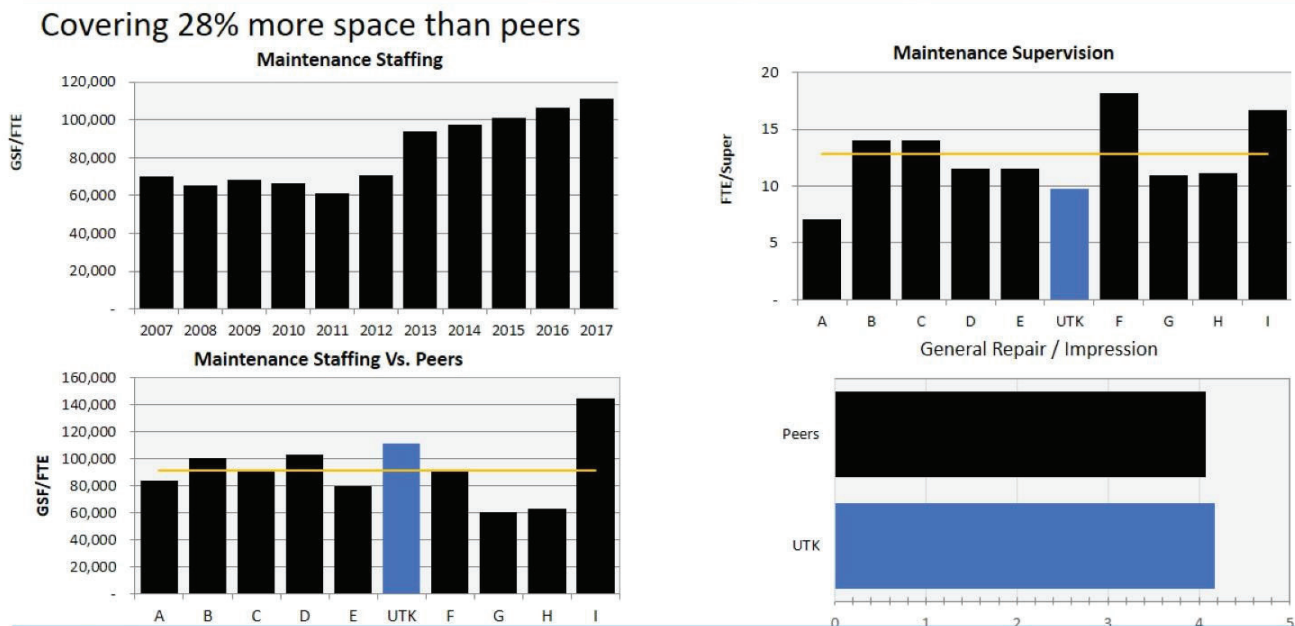


APPENDIX A - SIGHTLINES

Planned Maintenance on Lower End of Peers



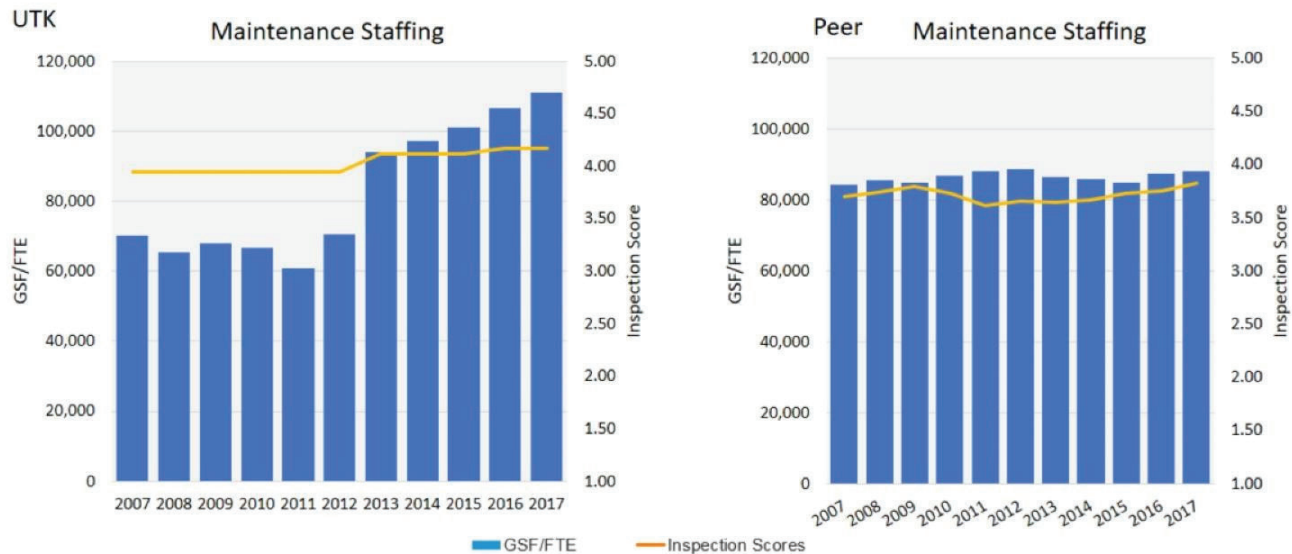
Maintenance; Covering More, Spending Less



APPENDIX A - SIGHTLINES

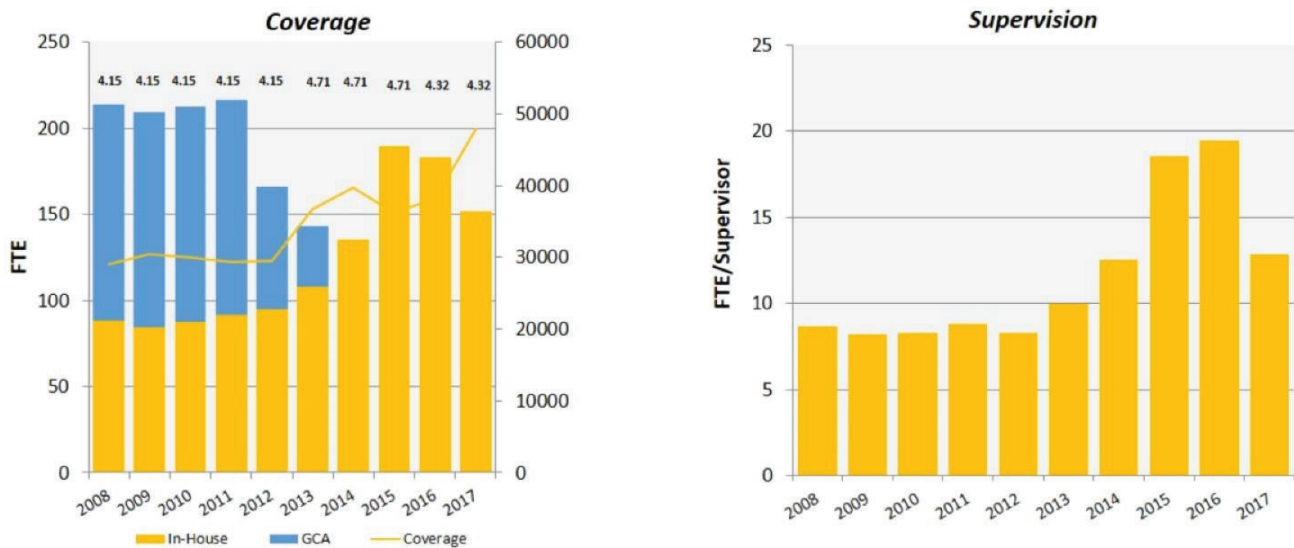
Covering More Than Peers

Scoring higher than Top 25 Institutions



In-House Custodians are Performing Effectively

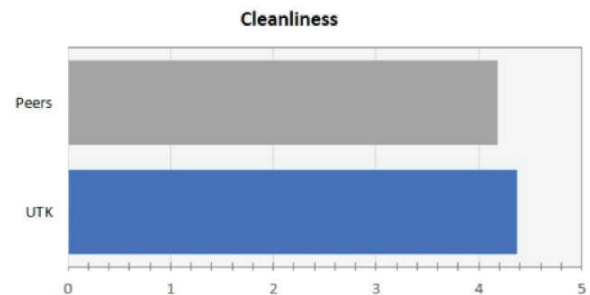
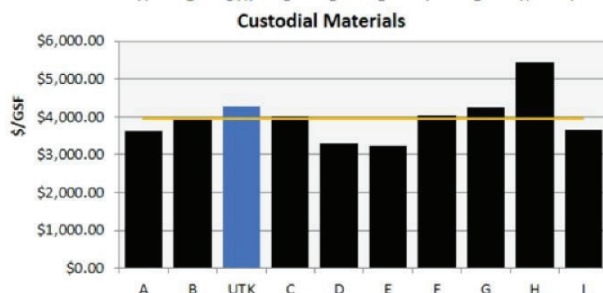
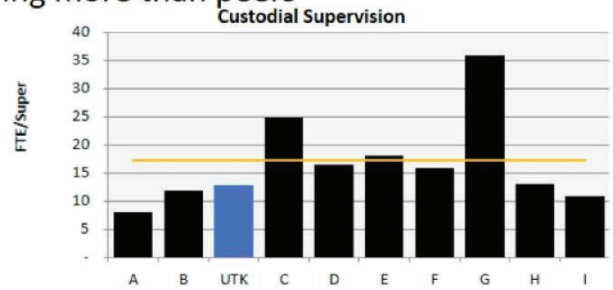
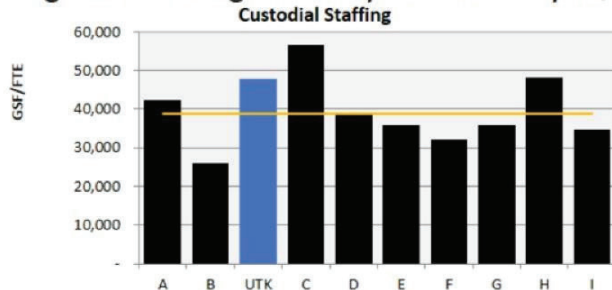
Increased custodial efficiency as custodial transition in-house



APPENDIX A - SIGHTLINES

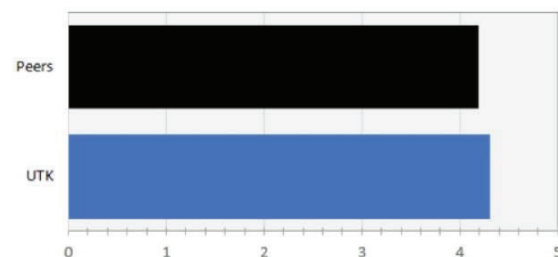
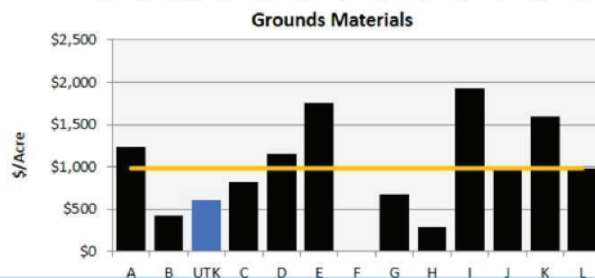
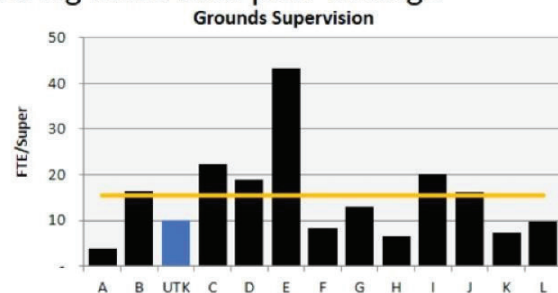
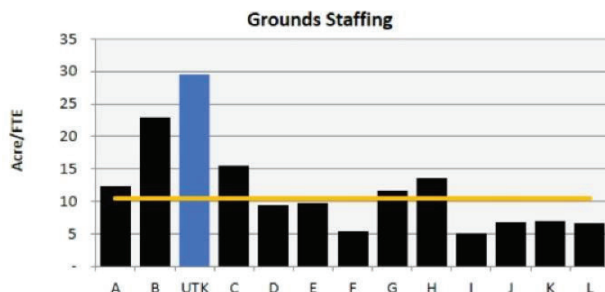
Custodial; Increased Coverage

Highest coverage in the years of analysis; Covering more than peers



Grounds; Covering More, Less Supervision

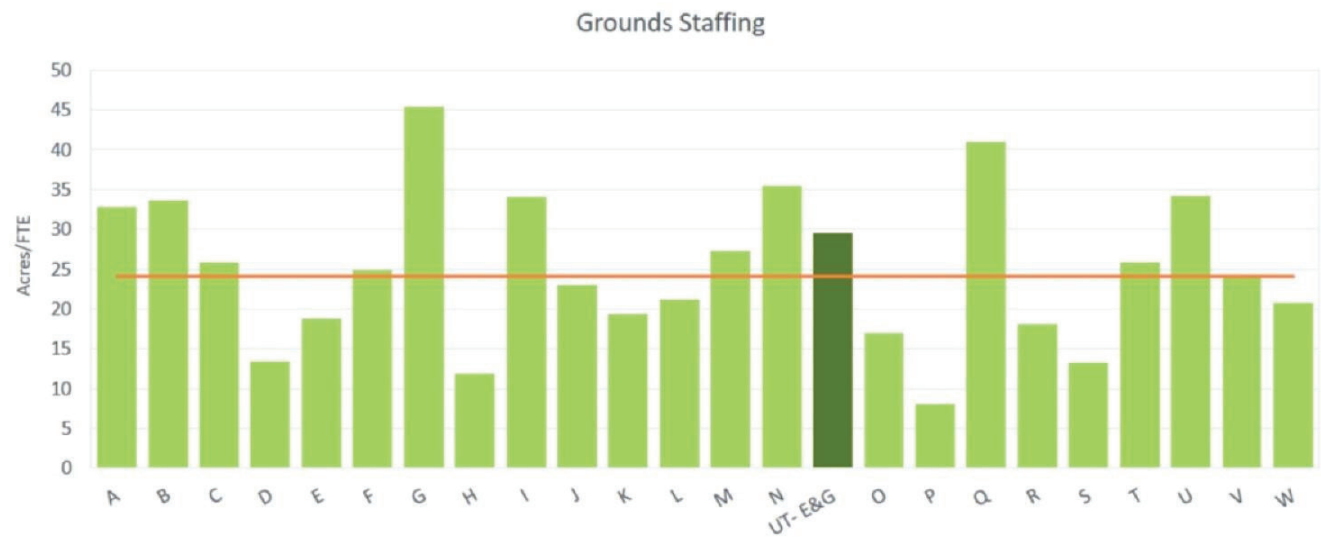
Coverage decreased in recent years, but still covering more than peer average



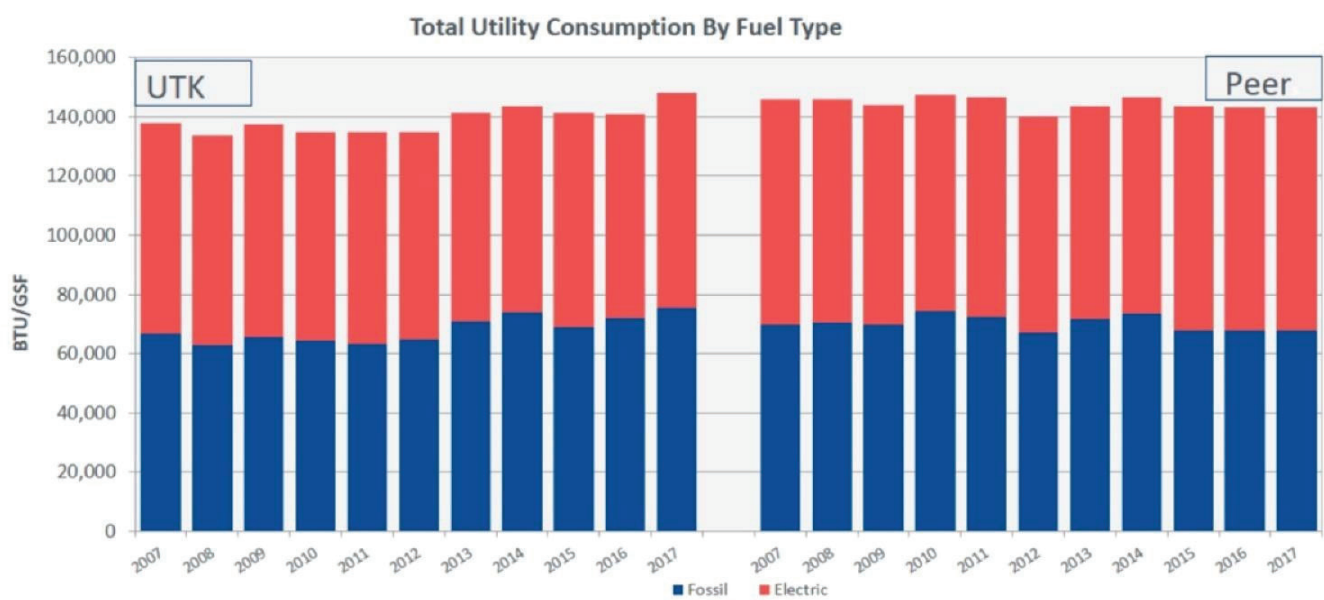
APPENDIX A - SIGHTLINES

Grounds Metrics

Covering more than the top 50 public institutions average

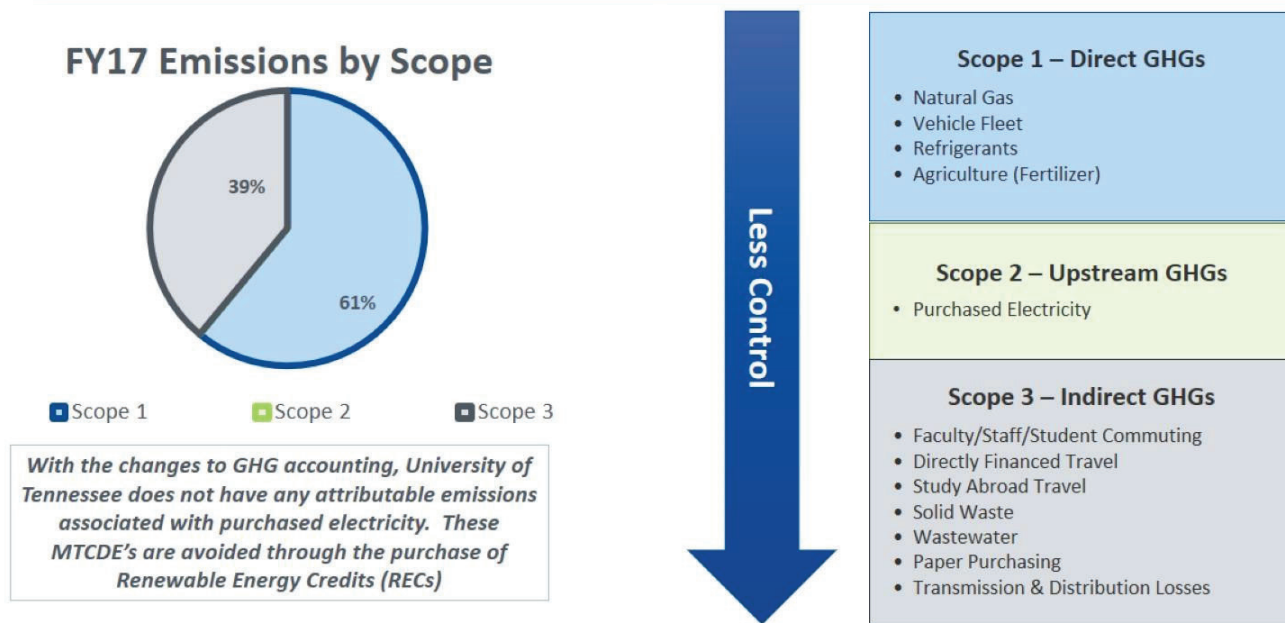


Energy Consumption vs. Peers

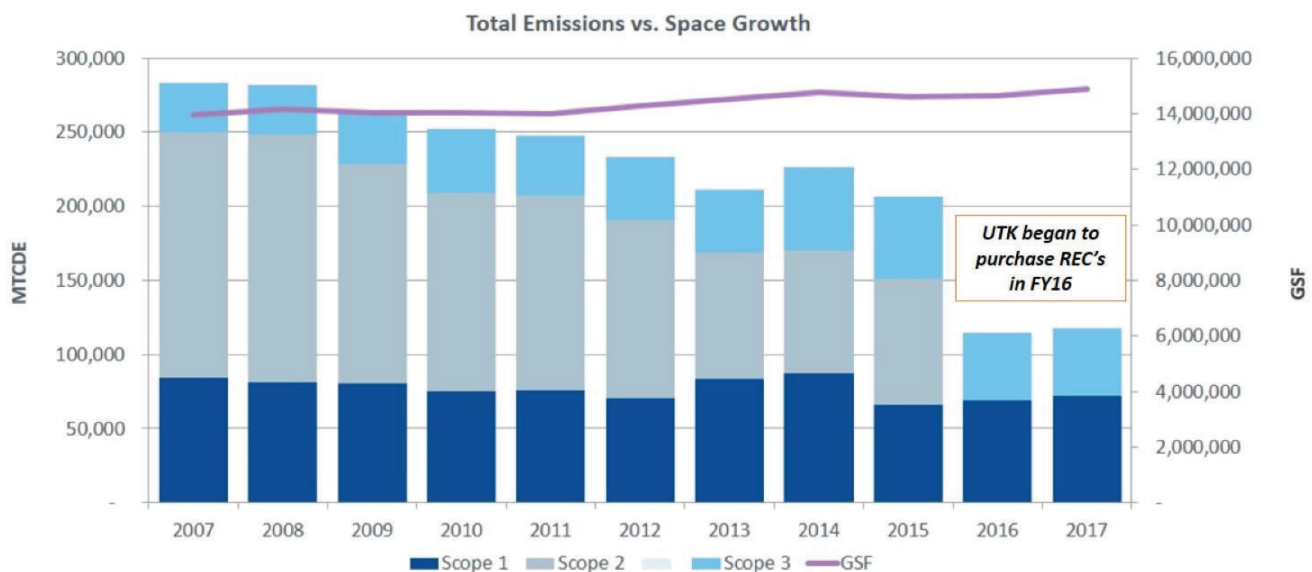


APPENDIX A - SIGHTLINES

Distribution of Emissions by Level of Control



REC purchases significantly change net emission profile



APPENDIX A - SIGHTLINES

Executive Takeaways

Space Insight

Currently, the University of Tennessee has achieved a balanced profile through renovating existing space, while also adding new space on campus. However, this balance is projected to change in the next five years as “newer” space begins to reach 10 years old. It will be important for the University of Tennessee to balance future investments between the backlog of existing older spaces with the modernization needs of newer but aging spaces.

Assessing Investment Impact

While overall spending has reached its highest levels in FY16 and FY17, spending into existing space has been decreasing since FY14. This has increased the level of backlog in existing space over the past few years. Aligning project selection with the existing need can help make investment more impactful, and help to free up operational resources.

Operations Performance

Total operating budget is at peer levels, but operating actuals have increased above peer levels. At the same time, UT has seen a large increase in PM over the past two years. It will be important to continue to focus on PM as much of campus is relatively young and will benefit more from ongoing PM. Additionally, maintenance coverage continues to stretch on campus which can impact the time available to do PM and customer service. Lastly, with the outsourcing proposal no longer looming, it is a good time to assess customer satisfaction with facilities and adjust as needed.

APPENDIX B - APPA FPI

1. APPA: Leadership in Educational Facilities

Facilities Performance Indicators Report (FPI) for 2016 – Comparison of average costs for grounds, custodial, maintenance, and other functional areas among peer institutions.



APPA FPI Report - 2016-17

University of Tennessee/Knoxville

Region: SRAPPA

Gross Square Feet: 16,164,913

Carnegie: Research Very High

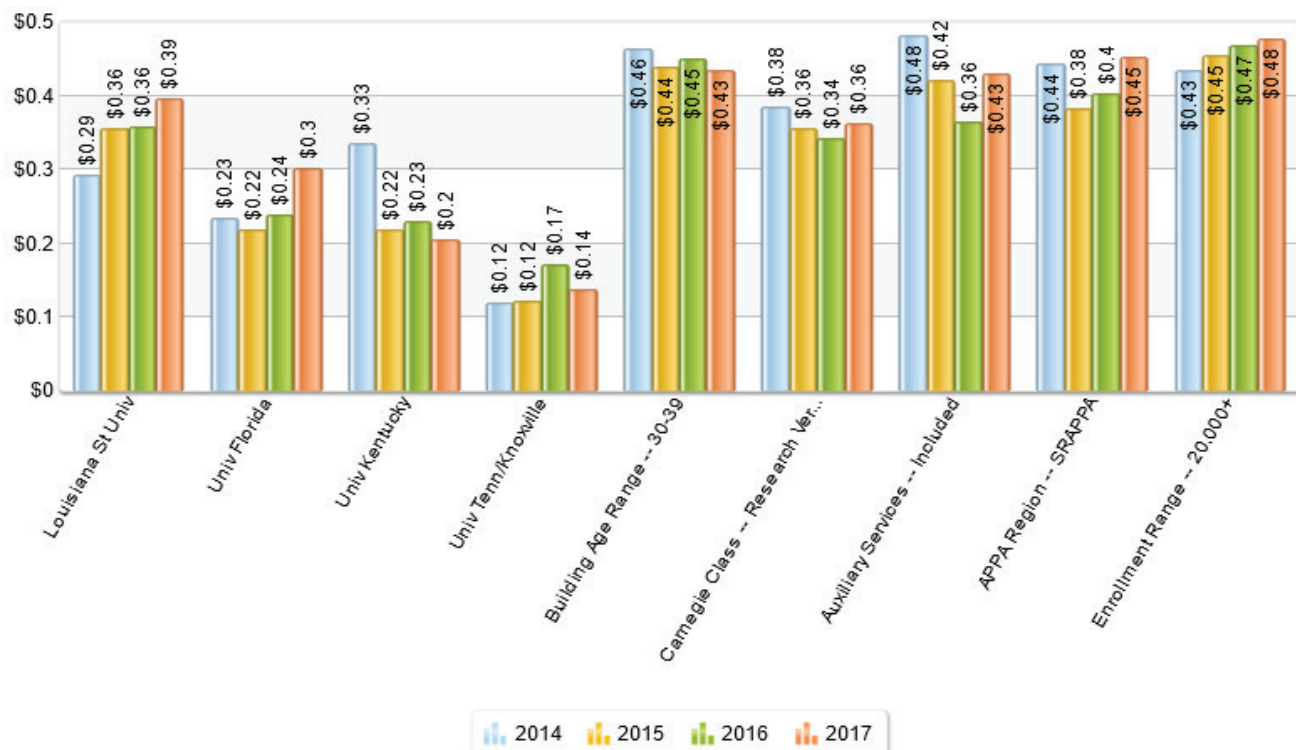
Number of Building: 282

Funding: Public

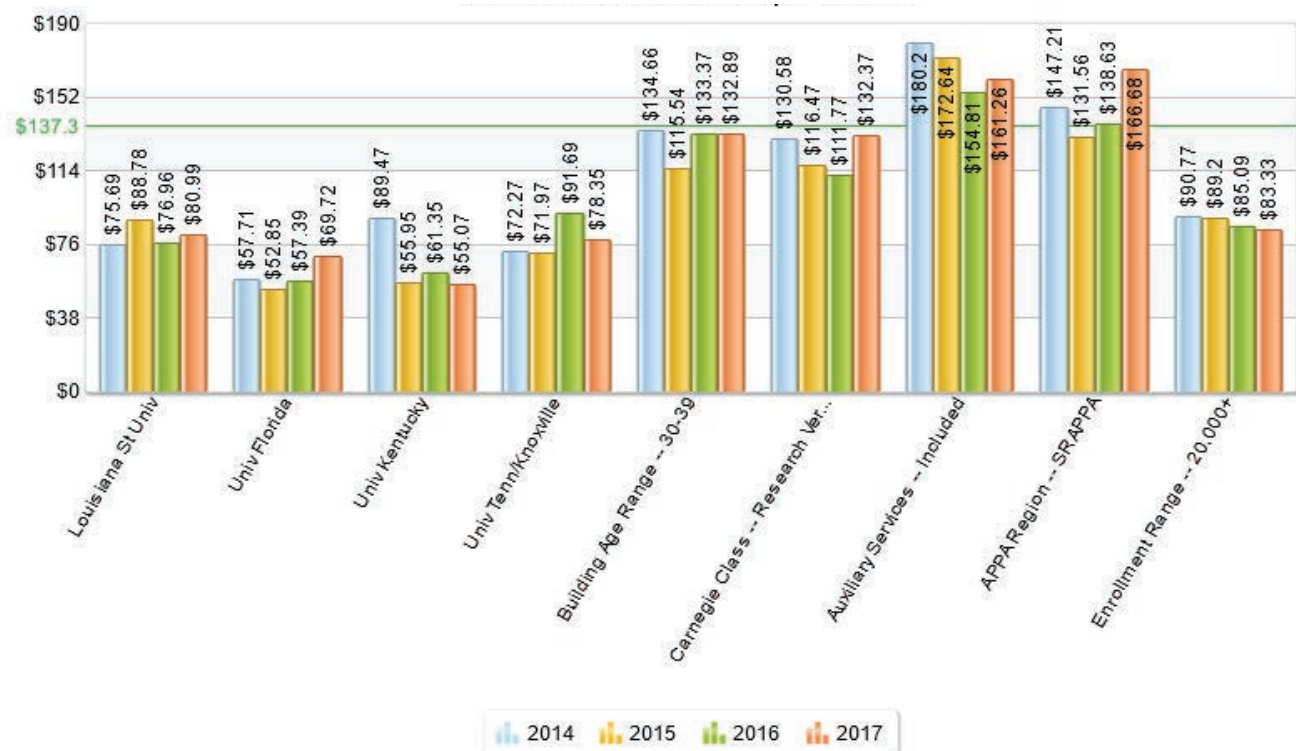
Number of Students: 28,321

APPENDIX B - APPA FPI

Administration Total Cost per GSF

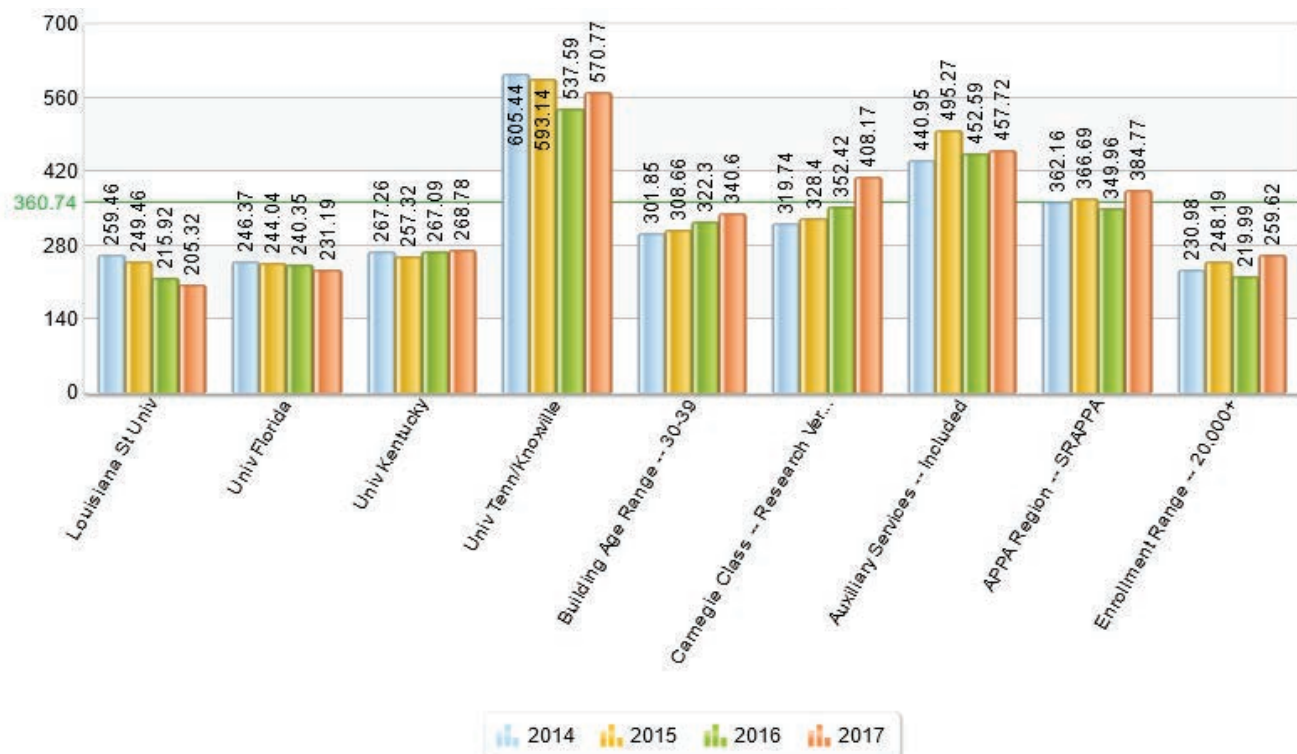


Administration Total Cost per Student

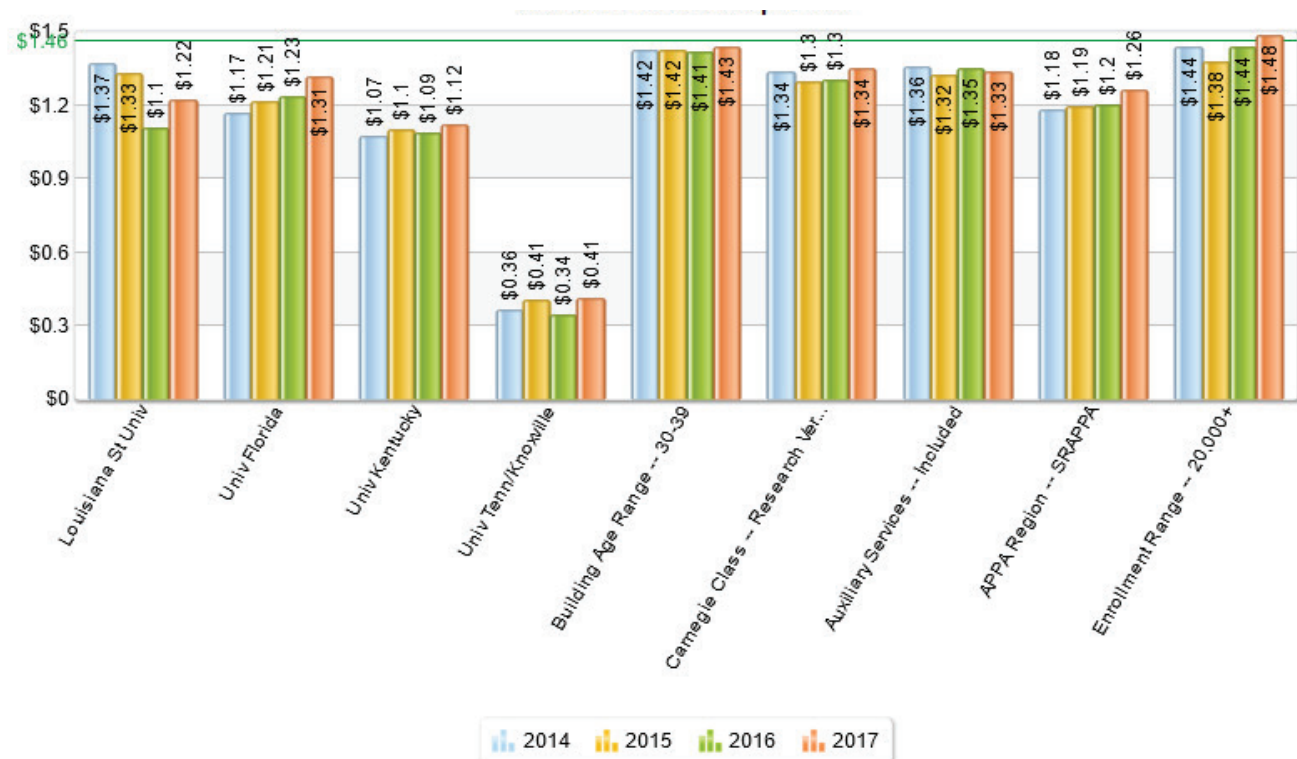


APPENDIX B - APPA FPI

Average GSF/Student FTE

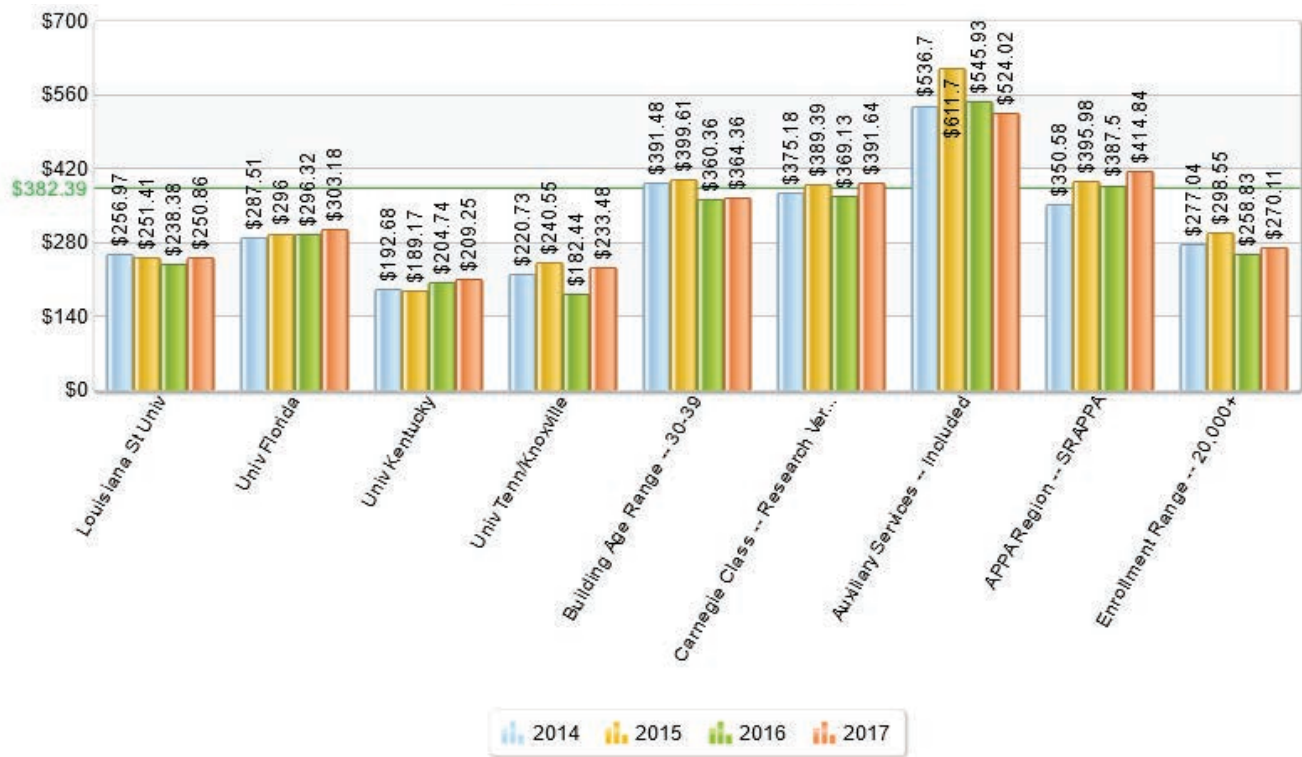


Custodial Total Cost per GSF

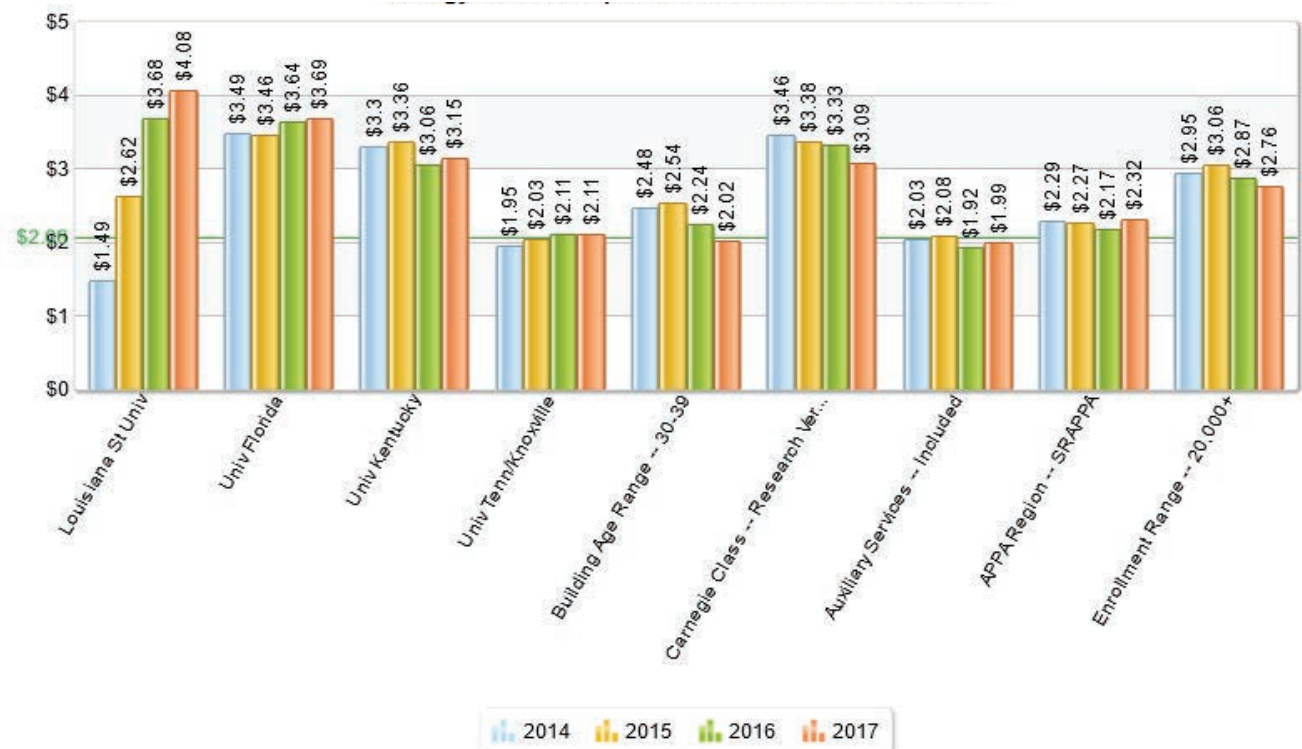


APPENDIX B - APPA FPI

Custodial Total Cost per Student

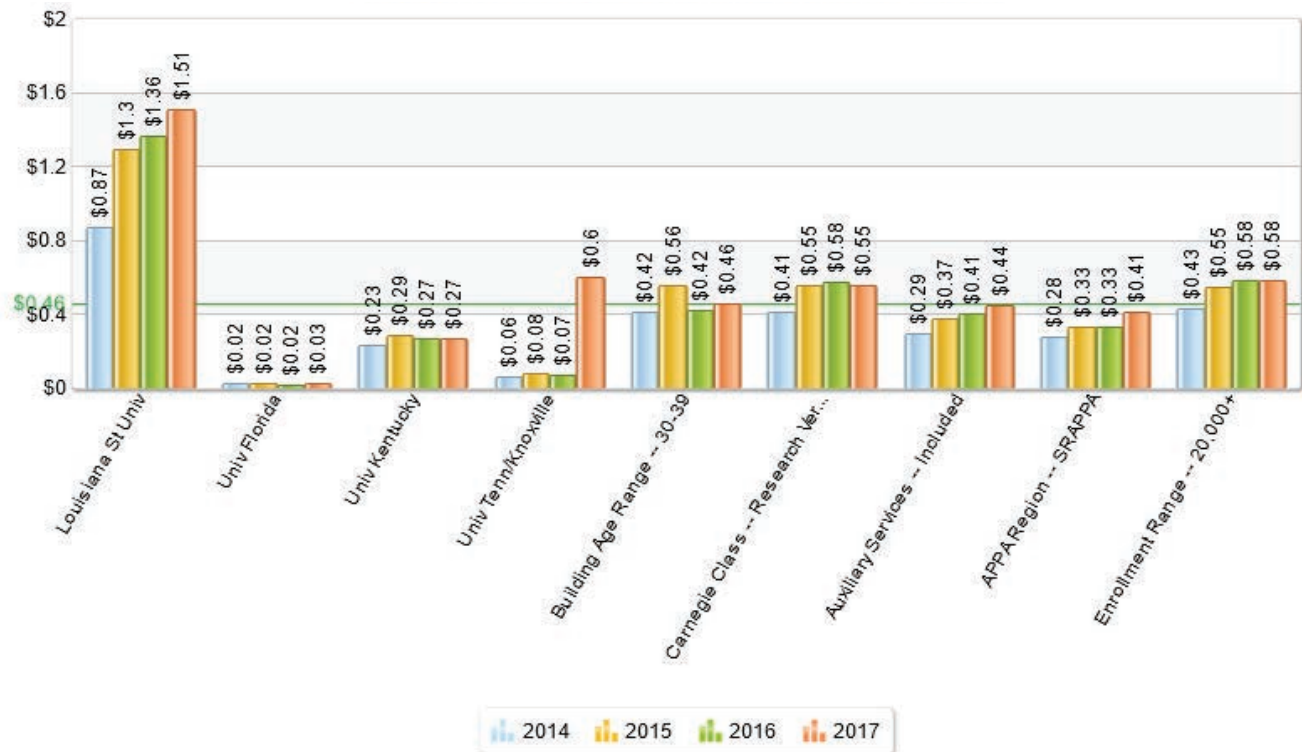


Energy Total Cost per GSF with Purchased Utilities

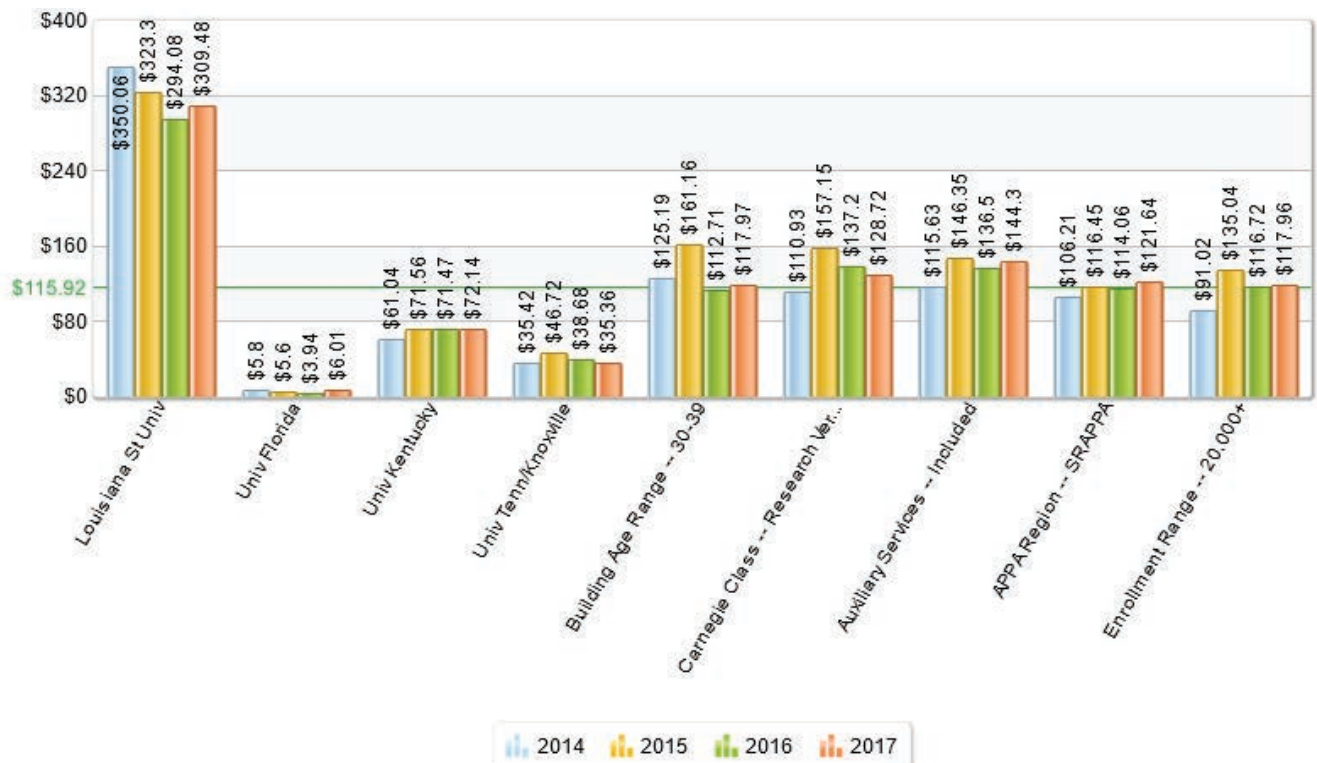


APPENDIX B - APPA FPI

Energy Total Cost per GSF without Purchased Utilities

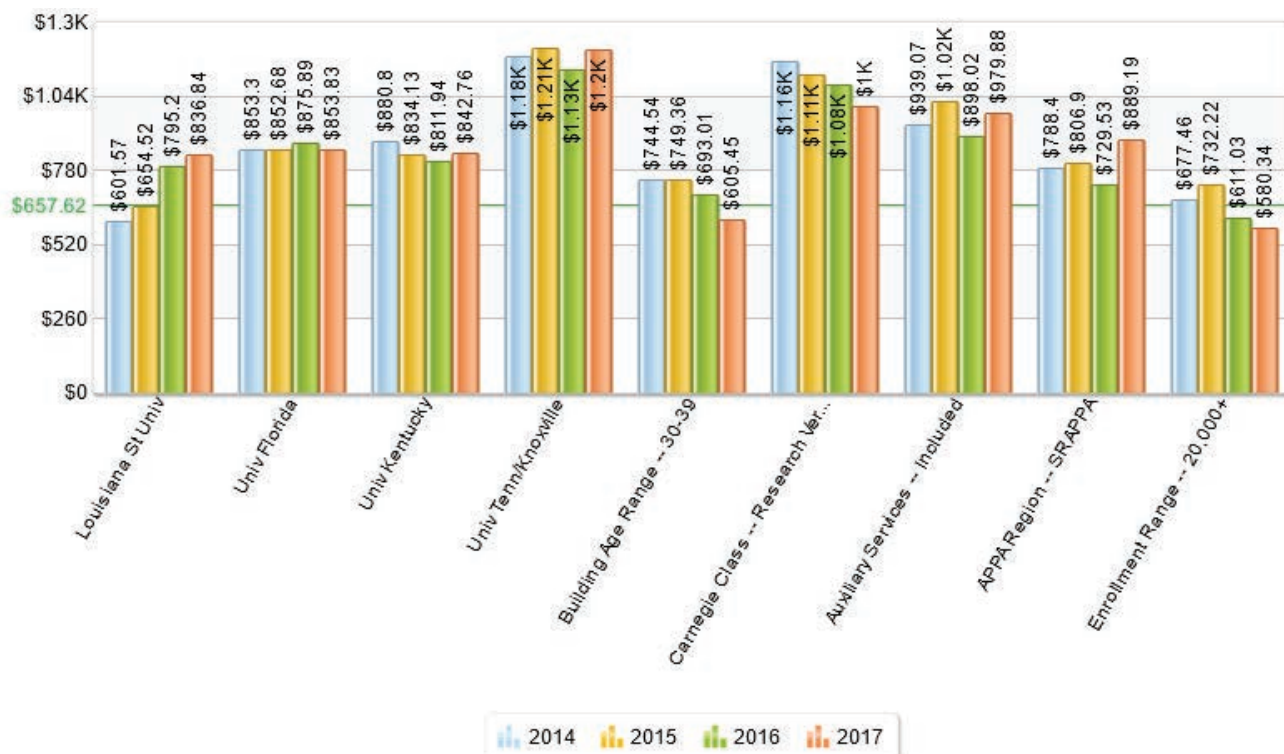


Energy Total Cost per Student FTE without Purchased Utilities

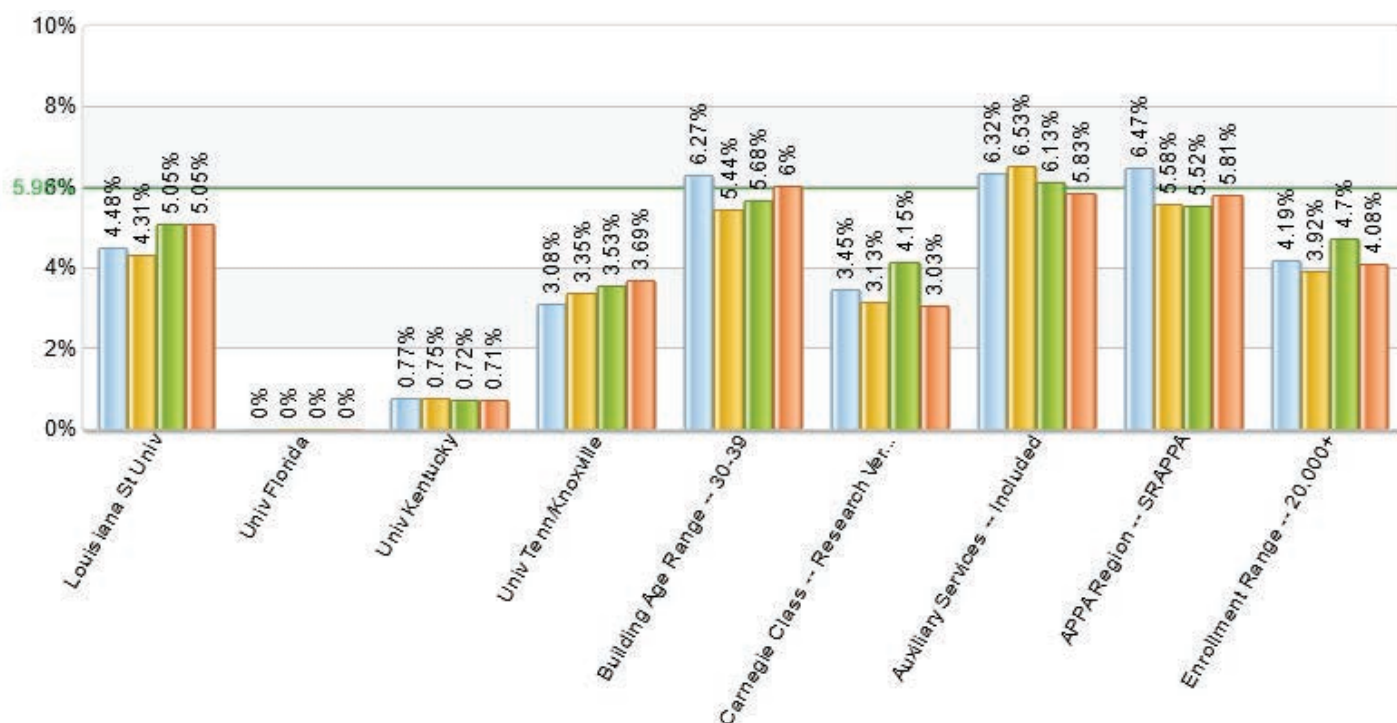


APPENDIX B - APPA FPI

Energy Total Cost per Student FTE with Purchased Utilities

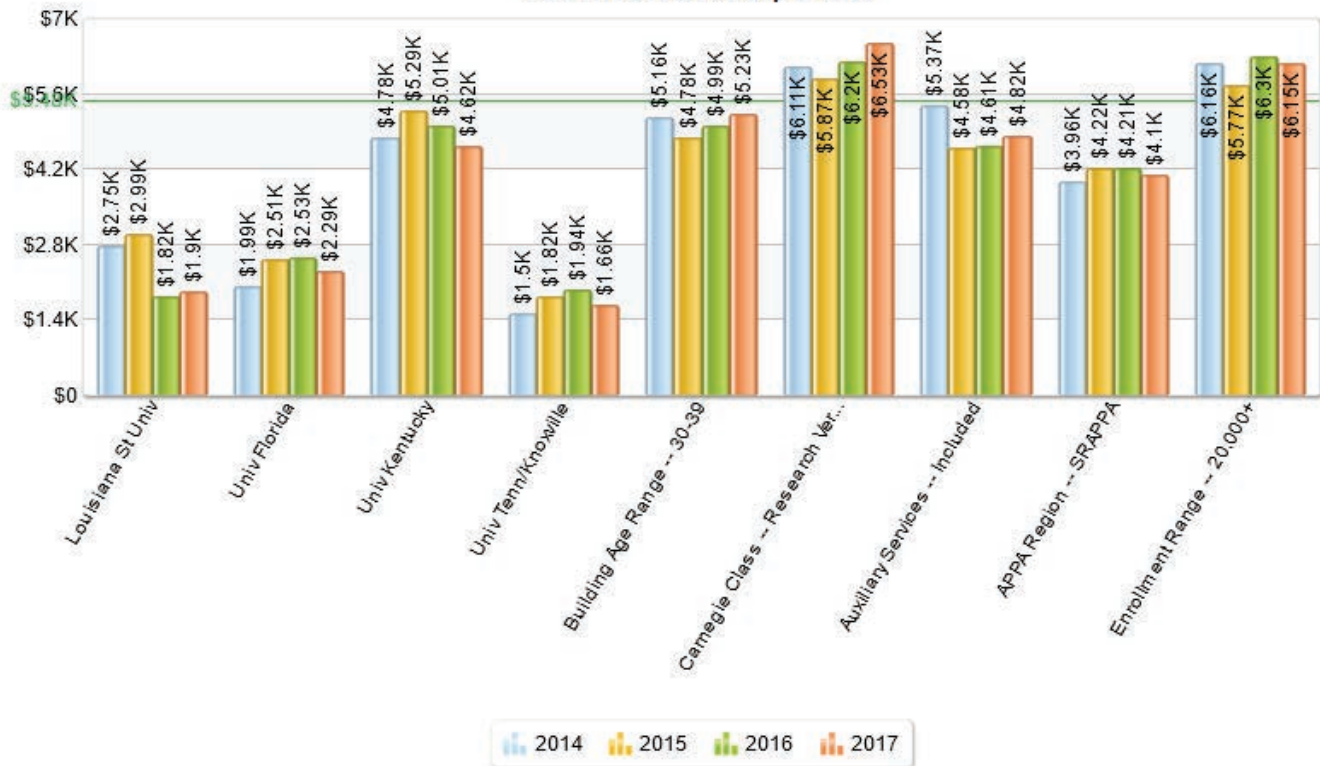


Facilities Expenditures/GIE

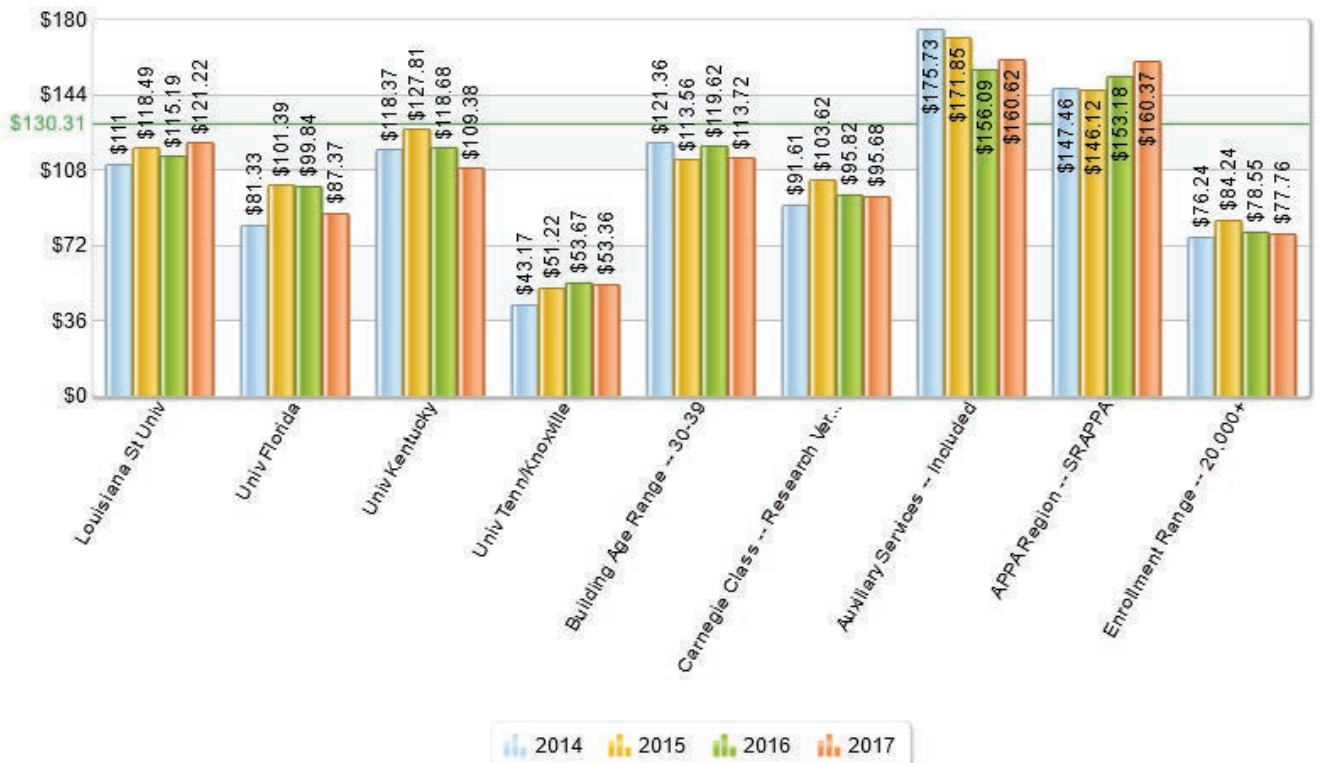


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Grounds Total Cost per Acre

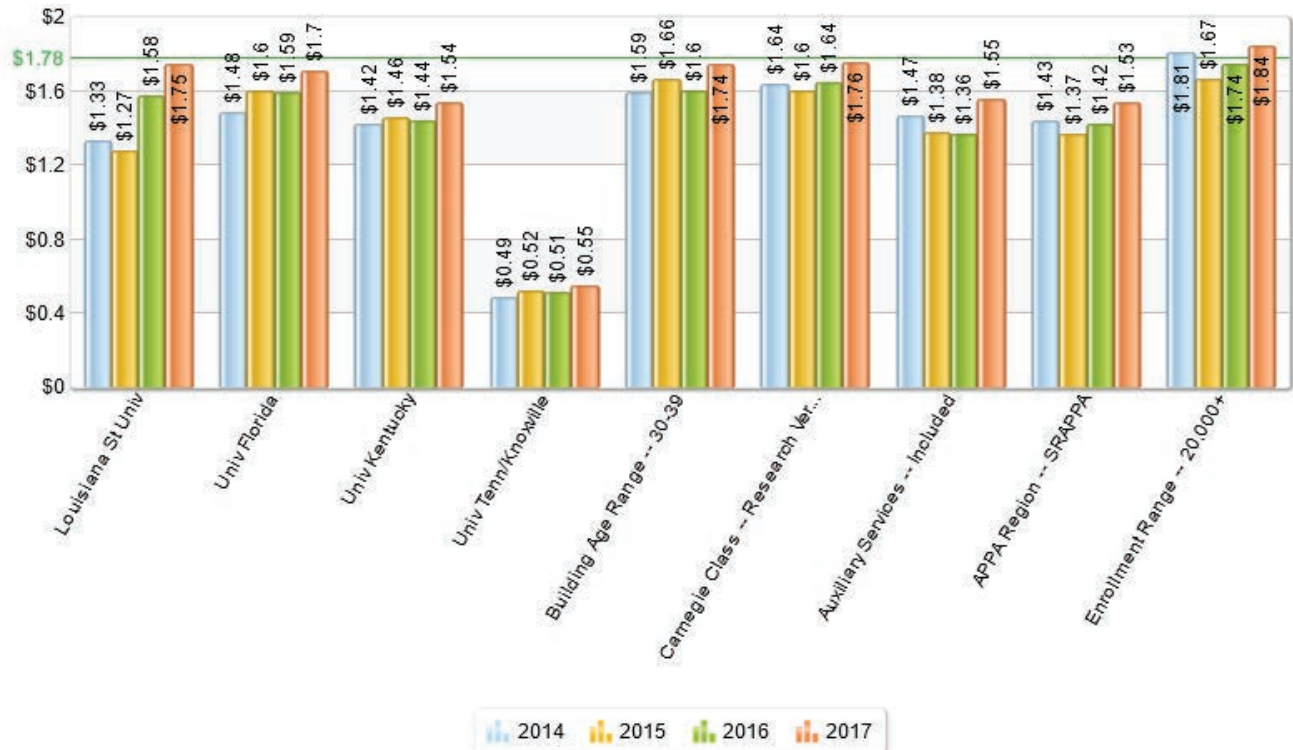


Grounds Cost per Student

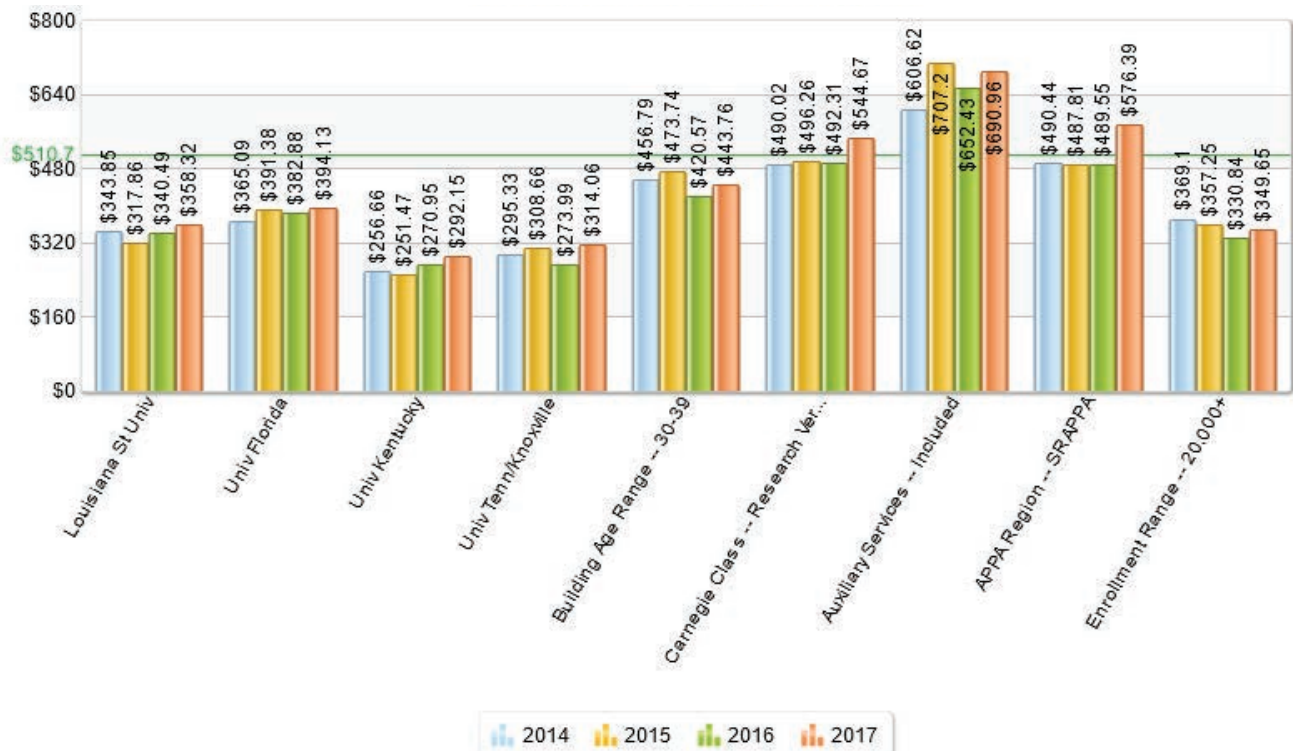


APPENDIX B - APPA FPI

Maintenance Total Cost per GSF

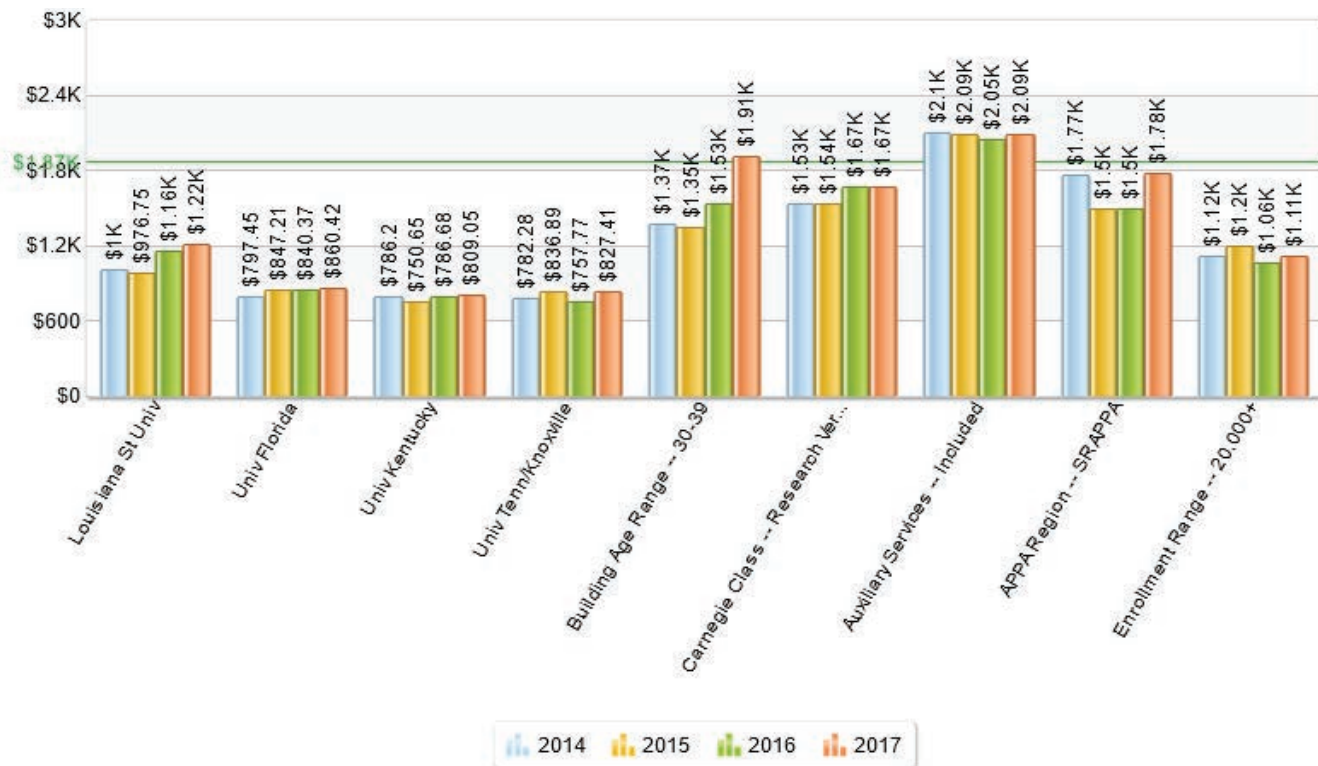


Maintenance Total Cost per Student

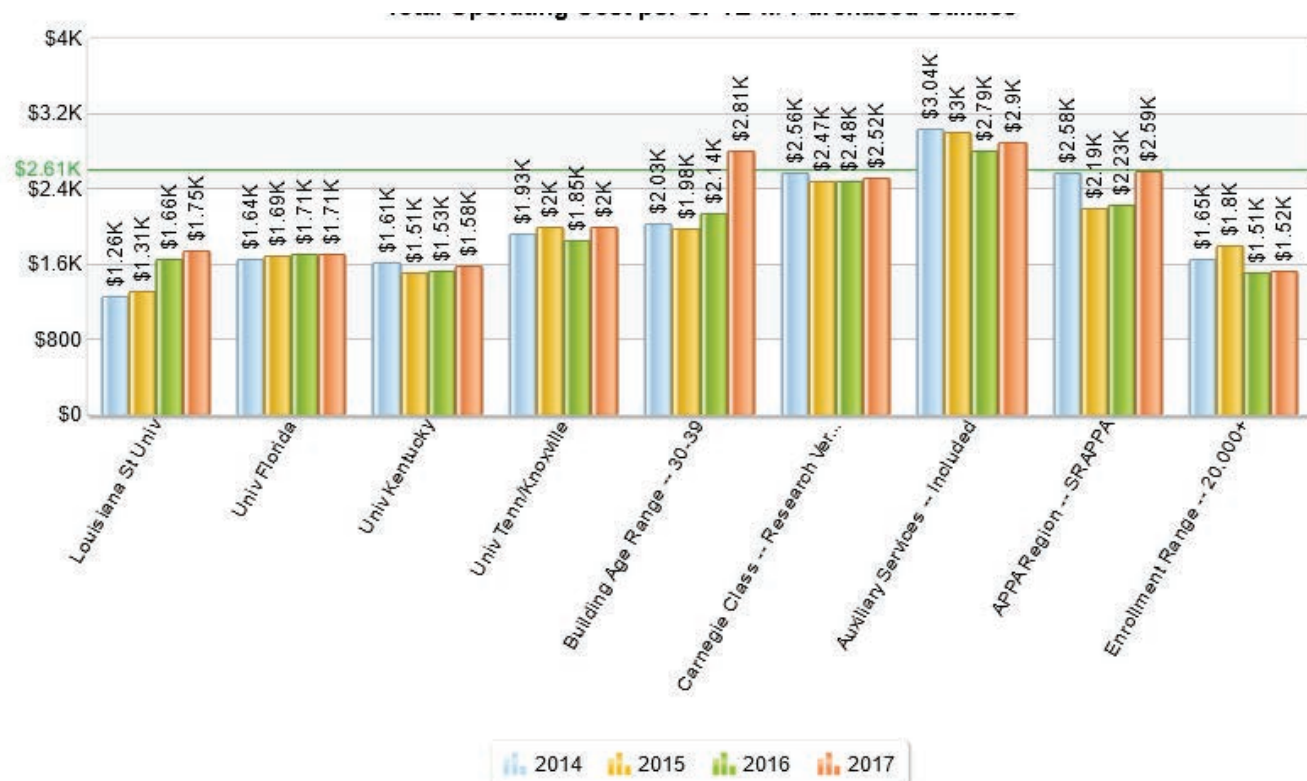


APPENDIX B - APPA FPI

Total Operating Cost per SFTE without Purchased Utilities

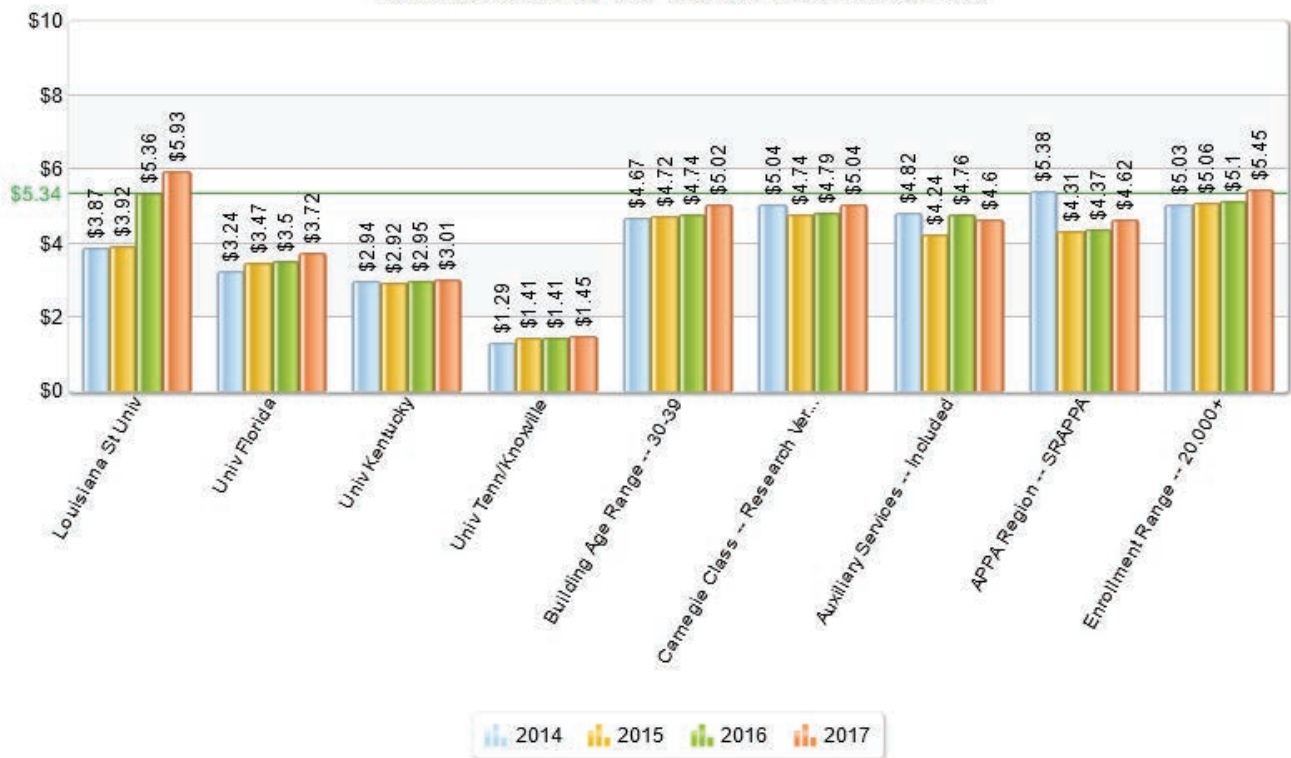


Total Operating Cost per SFTE with Purchased Utilities

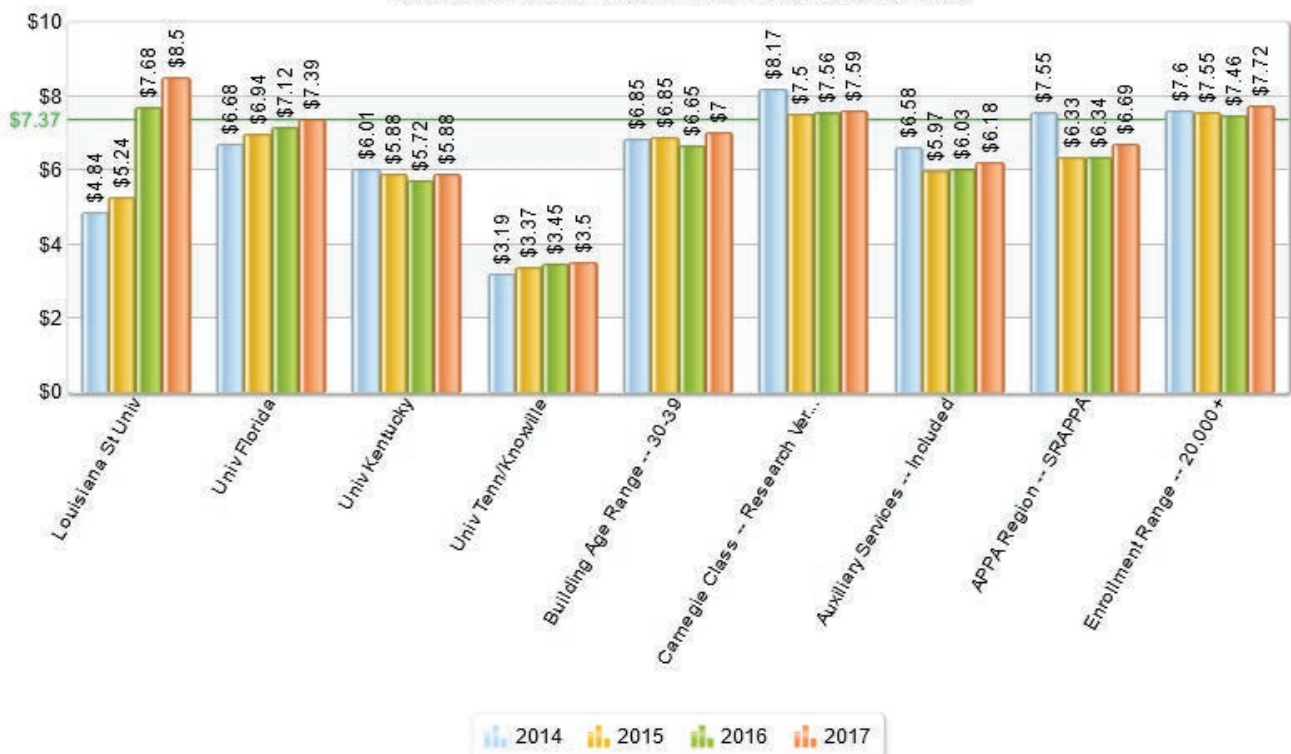


APPENDIX B - APPA FPI

Total O&M Cost Per GSF without Purchased Utilities



Total O&M Cost Per GSF with Purchased Utilities





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FACILITIES SERVICES

ANNUAL REPORT 2018

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