

# Summary of Services Annual Report

July 2020- June 2021



*October 2021*

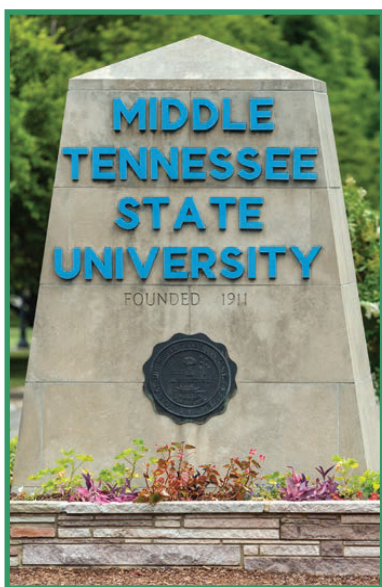
## *Facilities Services Department*

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[www.mtsu.edu/facserv/](http://www.mtsu.edu/facserv/)

*...maintaining facilities and grounds... in a safe, clean, and functional condition...Continuous growth...Continuous Improvement*



MTSU Facilities Services is a department reporting to Senior Vice President Alan Thomas of the Division of Business and Finance.

A Tennessee Board of Regents University, Middle Tennessee State University is an equal opportunity, non-racially identifiable, educational institution that does not discriminate against individuals with disabilities.

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# Assistant Vice President's Summary

Joe Whitefield

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***The mission of Facilities Services is to maintain facilities and grounds and present them to the university tenants and the public in a safe, clean, and functional condition while managing the resources and assets in accordance with applicable requirements, procedures, and constraints.***

***FY 20/21 has concluded and FY 21/22*** is well underway. The fiscal year will be most noted for the continuation of COVID-19 pandemic and the effects on campus operations. Plans and protocols were developed, revised, and implemented throughout the year and may continue as the new fiscal year (FY) begins. As always, Facilities Services maintains a constant focus on productivity management, innovation, informed decision making, and effective communication in serving the campus community.

This report highlights many accomplishments in FY20/21 for the department and updates the O&M and capital budgets. The following are samples of the Accomplishments and Challenges/Opportunities.

## Accomplishments

### Performance Metrics

The Summary of Services report from the previous FY identified a combined total of 108 individual goals across the departmental work units for FY 20/21. Overall, 91 of the goals were completely met or had substantial progress toward their completion (84%), 13 of the goals had progress toward completion but remain on-going (12%) and 4 of the goals had showed little to no progress (4%).

### Capital Projects, Construction Renovation Projects, and Maintenance Projects

- 15 capital construction projects were completed totaling \$17.60 million
- 104 renovation projects were completed totaling \$1.73 million
- 103 major maintenance projects were completed totaling \$1.08 million

### Customer Service and Communication

- All work units combined to complete 17,524 work orders for the year
- Supported the customer service survey process that produced useful feedback and consistently high ratings for services



- Maintained a brochure for academic and administrative personnel that outlines campus maintenance and operations and work order processing
- Continued weekly meetings with Residential Life maintenance staff to review work progress for Housing

### Management and Productivity

- The business intelligence software program was expanded within the department providing for significantly enhanced work analytics and improved project planning
- Staff, informational and safety meetings were conducted throughout the department
- EH&S training software (Safe Colleges) was used to enhance all forms of required training for the department and campus community (including COVID specific training)

### Energy Management

- The TN High Performance Building Guidelines are used to design energy efficiency and sustainability features into capital projects
- Facilities Services applies for and has been awarded numerous Sustainable Campus Fee projects to improve energy efficiency and sustainability of several existing facilities across campus
- The MTSU Energy Guidelines are in effect for the campus

### COVID-19

- Facilities Services participated on the Crisis Management Team and contributed to the University plans regarding campus shutdown, return-to-work/reopening, and modified operations
- Facilities Services participated on numerous committees and contributed to the University plans for returning to work (Charting Our Course)
- Facilities Services has responsibility for numerous operational protocols associated with the safe operation of the campus facilities

## Challenges and Opportunities

### Pandemic

The COVID-19 pandemic continues to be a major driver in all aspects of facilities operation. Health and safety of Facilities Services employees and all members of the campus community is the primary priority. Budget impacts and fiscal responsibility are also concerns as resources are directed toward COVID specific activities. As FY21/22 begins, the pandemic is still in effect and its ramifications are still unfolding in many aspects of University operations.

(Continued on page 4)

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## Budgets

Maintenance and Operations (M&O) budgets are for basic operational needs such as custodial services, grounds services, central utilities services, light bulb changing, etc., and routine maintenance and repair of facility systems such as HVAC, electrical, etc. The M&O budgets for Facilities Services have remained level over the years.

FY20/21 concluded with significant signs of significant inflation on both an annual basis and month-to-month basis. Inflation factors will impact all aspects of operations including in-house labor costs (and staffing), material costs, contractor support costs, and utilities. This will be a major area of focus for FY21/22 and beyond.

Capital maintenance projects are submitted each year, typically totaling \$10 million - \$13 million, to provide for the major repair and replacement needs of the campus. Funding formulas indicate an annual need of approximately \$12 million just to remain level. Recent funding history shows annual funding received in the amounts of \$2.0 million - \$4.5 million. After a few years of increased funding (\$5,867,000 - \$8,960,000), FY20/21 saw funding for 10 projects totaling \$9,965,000. Funding levels below the annual requirement are expected to continue. These deficits accumulate over time to a condition referred to as "deferred capital renewal." This condition is reported on in the Campus Master Plan.

## Utilities/Energy Costs

On the whole, energy and utility costs in FY20/21 decreased 7.2% from the previous FY. This reduction is estimated to be associated with energy efficiency as well as reduced energy demand from the COVID-related reduction in the use of facilities. This contributes to the compound reduction of 14.9% compared with FY 16/17. Beyond the consistent use and efficient operations of the facilities and utility plants over the years and the COVID implications, natural gas rates continued to remain fairly low. This is positive considering the reliance on natural gas to fuel the 5 mw turbine/cogeneration system. The Tennessee Valley Authority continues to adjust (net increases) electrical rates. MTSU maintained our time-of-use rate. As such, we remain judicious in our utilities operations and more efficient in every aspect of energy management.

## New Buildings and Infrastructure

New buildings add to the M&O and utility needs of the campus. The recent growth increases the demand for M&O services as well as the infrastructure capacity. Most notably, construction completed on the new Academic Building.

## Energy and Sustainability

There are many initiatives designed to increase the greening of the campus such as the Sustainable Campus Fee Program, the Tennessee High Performance Building Guidelines for capital projects, the recycling program, etc. These programs and initiatives are effective but are also limited by economic factors such as first costs and paybacks. Energy and environmental regulations are increasing as well. Overall, Facilities Services and the Center for Energy Efficiency do an excellent job of integrating the economic and program elements to maximize the energy and sustainability benefits across the campus.

## Conclusion

Although constrained by resources, we continue striving to maintain the campus in a safe, clean, and functional manner while aligning the department with the University mission and the Academic Master Plan. The COVID-19 pandemic impacts were and, as of this writing, still are significant to the Facilities Services organization and the campus physical environment. I want to express appreciation to the Facilities Services staff for their dedication and good work in pursuit of these goals during difficult circumstances. The accomplishments listed throughout this document are a testament to their commitment to Middle Tennessee State University.

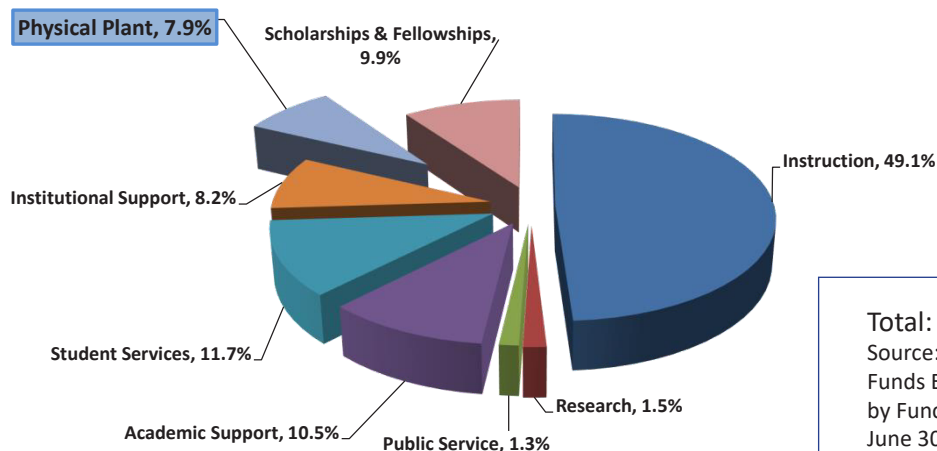
Finally, as we serve the University, it is important that we hear from our customers. Please review this document (as well as our website) for our service delivery. As always, feel free to contact us and let us know how we can serve you better.

*—Joe Whitefield*



FSD website

MTSU E&G Expenditures 2020-2021



**Total: \$315,234,947**  
 Source: Schedule of Current  
 Funds Expenditures & Transfers  
 by Function for the Year Ended  
 June 30, 2021

# Central Administration: Accounting Information Services

Lori Yoders

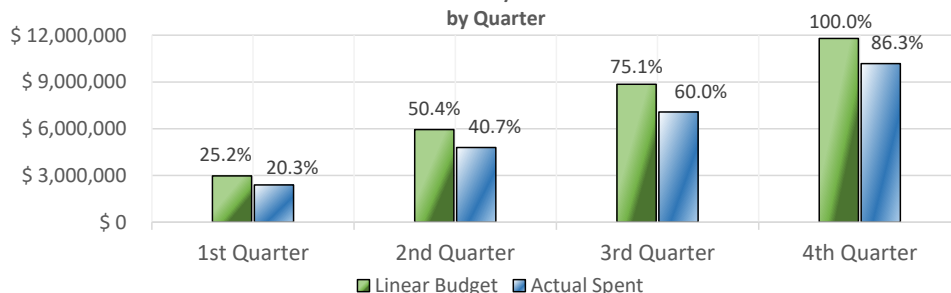
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## Facilities Maintenance & Operations

### E&G Budget & Expenditures

FY 2020/2021

by Quarter



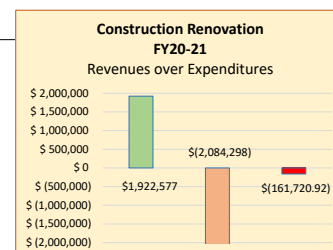
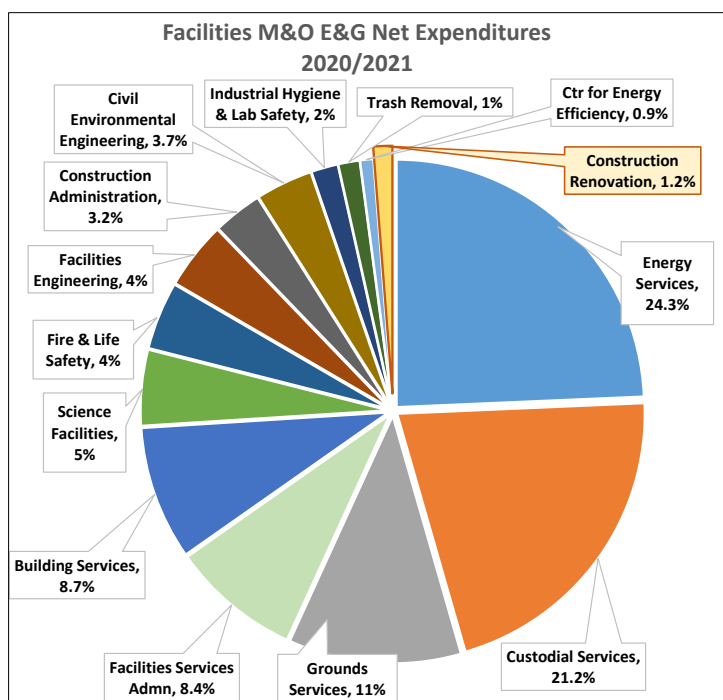
FY2020/2021	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	End-of-Year Totals	% of Total
Total M&O E&G Budget	7,206,388	7,206,388	7,049,728	7,128,058	\$ 28,590,562	
Total M&O E&G Expenditures	5,562,422	5,991,056	5,855,396	7,264,915	24,673,789	
-Non-Facilities M&O E&G Expenditures	\$ (3,169,151)	\$ (3,589,507)	\$ (3,576,895)	\$ (4,161,193)	(14,496,746)	
<b>Facilities M&amp;O E&amp;G Budget</b>	<b>2,972,143</b>	<b>2,972,143</b>	<b>2,907,531</b>	<b>2,939,837</b>	<b>\$ 11,791,652</b>	
<b>Facilities M&amp;O E&amp;G Expenditures</b>	<b>2,393,271</b>	<b>2,401,549</b>	<b>2,278,501</b>	<b>3,103,722</b>	<b>10,177,043</b>	<b>64%</b>
<b>% of Facilities Exp/Budget</b>	<b>20.30%</b>	<b>20.37%</b>	<b>19.32%</b>	<b>26.32%</b>	<b>86.31%</b>	
+ Facilities Work for Others	958,037	722,474	573,459	1,536,095	3,790,064	
+ Const. Renov. Work for Others	440,336	389,287	509,857	583,098	1,922,577	
<b>Facilities M&amp;O E&amp;G Expenditures with WFO</b>	<b>3,791,643</b>	<b>3,513,310</b>	<b>3,361,816</b>	<b>5,222,915</b>	<b>\$ 15,889,685</b>	

## Accomplishments & Highlights 2020/2021

- Managed finance continuity during the COVID pandemic with remote accounting, leveraged process automation, technology optimization, & proactive communication with colleagues
- Accelerated month-end closing process by overhauling spreadsheets to streamline the process, automate time-consuming tasks, and reduce manual errors
- Accounted for Facilities' incurring expenditures related to the COVID pandemic in a manner that could be easily identified during fluid financial decision making
- Utilized Excel & Power BI to create data-driven decisions, enhance reports, address financial issues, improve analytics, and provide meaningful insight
- Continued to update the FSD contract list & contract information
- Provided continuous accounting support to the Facilities Department, ensured contract renewal/rebid, accumulated costs to reclassify, met University cut-off demands throughout the COVID pandemic shutdown and return-to-work phases
- Continued to provide Notary service to the University

## Goals 2021/2022

- Seek and optimize technology to improve efficiency and expand day-to-day financial operations and management functions to improve workflow; produce a reference manual on Asset/Building/Property Facts & Figures
- Advance inventory accounting to track costs with a system of inventory record keeping
- Develop a processes outline for documentation of a procedures manual
- Continue to provide training resources for new employees and annual training for current employees/managers/supervisors



- Build on knowledge as an essential force in the financial development to update data, track changes, and refine the framework of spreadsheets and documents
- Annually review and update the Facilities' contract list and contract information
- Encourage employee development, education, and certification, including team building and communication

## Accomplishments & Highlights 2020/2021

- Completed Consolidated Utility Billing arrangements with Murfreesboro Water and Sewer Resources
- Completed Collective Billing Payment plan for ATMOS Gas accounts
- Achieved annual utility related agreements with Tennessee Valley Authority and Murfreesboro Electric: Generation Partners, Green Power Switch, TVA's Back to Work credit
- Implemented utility account adjustments due to Middle Tennessee Electric purchase of Murfreesboro Electric Dept.
- Reports completed for annual THEC, NCAA, & EPA Partnership; provided EIA monthly emissions data for required reporting
- Provided utility cost information for monthly auxiliary billings



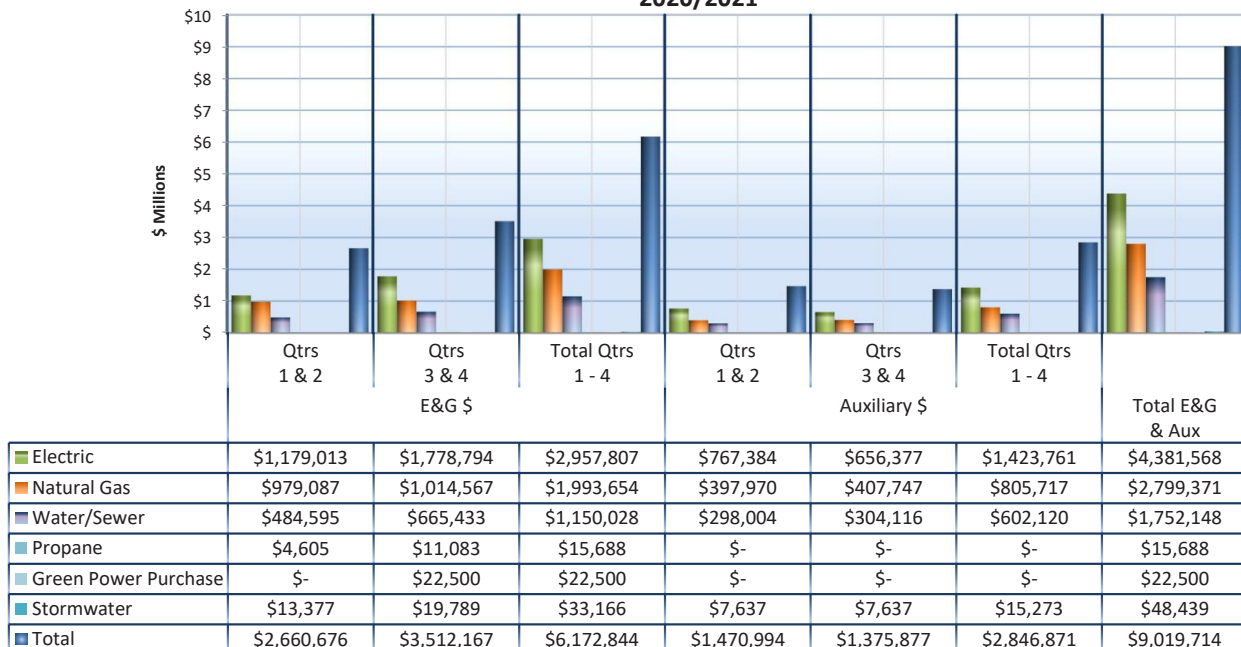
- Supported State Facility Utility Management (SFUM) platform for the State of Tennessee
- Updated Physical Facility Inventory Surveys (PFIS) for facilities and capital maintenance under THEC
- Continued partnered support of MTSU Sustainable Campus Fee Committee (SCF) under Student Affairs; oversight of awarded sustainable projects and Students for Environmental Action (SEA) projects
- Supported utilities/control design specs for new construction (New Parking Services Building, School of Concrete & Construction Management)
- Worked through COVID mandatory responses and adjustments; supported MTSU's 'Charting Our Course Plan'
- Continued serving on the President's Commission on the Status of Women and Women in STEM Boards
- Published Summary of Services Annual Report for FY20/21

## Goals 2021/2022

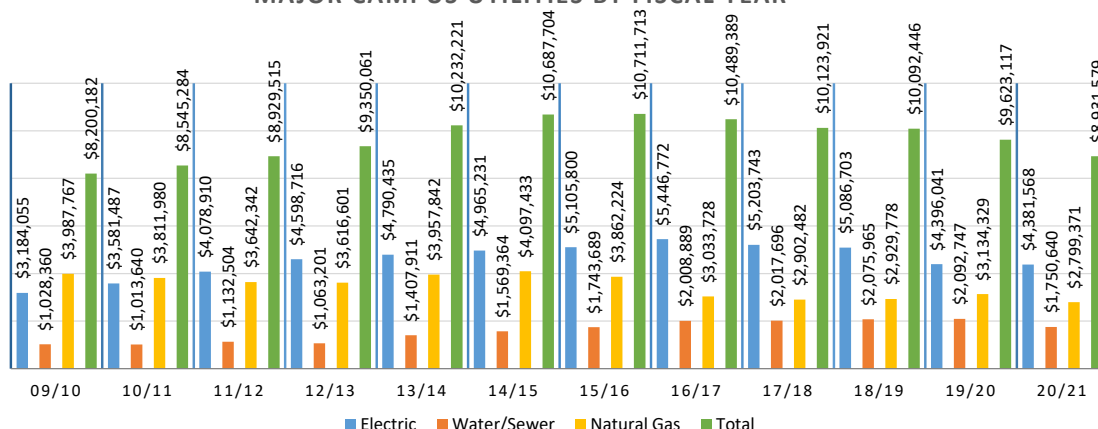
- Support and employ new Multivista construction documentation program
- Support utilities and sustainability design processes in new campus construction
- Continue 'Green Snapshots' information system for campus sustainability reporting
- Continue participation with building utility information for State Facility Utility Management (SFUM) for the State of Tennessee
- Continue working with THEC on updating Physical Facility Inventory Surveys (PFIS) for facilities and capital maintenance
- Continue to communicate with vendors and university departments with information as needed: utility/energy management data, support, research (new service, demolition projects, audits) and to resolve issues
- Continue support of MTSU Sustainable Campus Fee Program and other sustainable practices on campus
- Continue support of University Academics through internships, student workers, and volunteer opportunities, support classroom instruction for University departments per request
- Support further development and implementation of Power BI Analytics Program for utilities and building surveys
- Continue support of MTSU's 'Charting Our Course Plan' and focus on long-term impact of COVID

## Total Campus Utilities

2020/2021



MAJOR CAMPUS UTILITIES BY FISCAL YEAR



## Recycling Program - MTSU Recycles

Linda Hardyman



### Accomplishments & Highlights 2020/2021

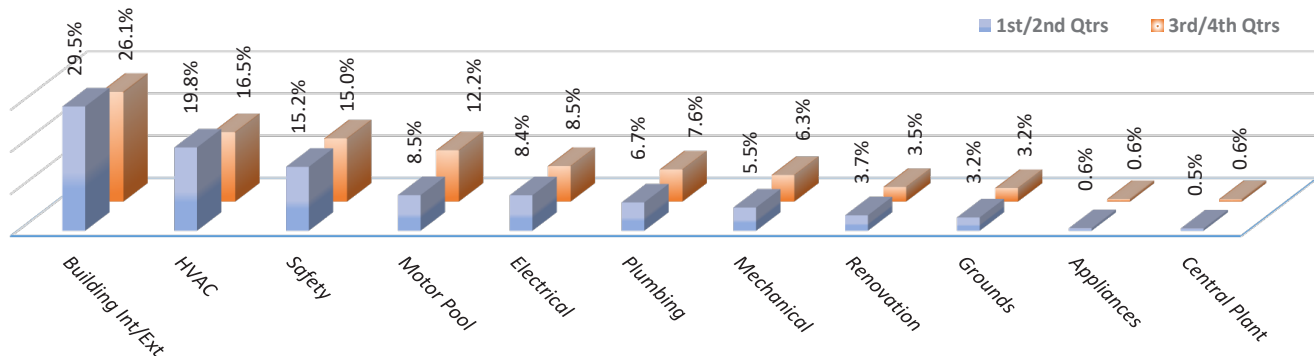
- Due to extreme contamination issues, community access to recycling at MTSU discontinued; cumulative statistics effected by limiting community access and off-campus collection limitations due to COVID-19 constraints
- Maintained recycling program to meet campus needs employing student and temporary workers
- Supported recycling efforts for Campus Planning, Capital Construction, and Construction/Renovation projects in multiple building's renovation projects, move in/move outs
- Oversaw implementation of additional Sustainable Campus Fee (SCF) projects submitted by students and others; completed awarded grants (Health & Human Performance) for water refills
- Continued dealing with major commodities issues relating to downturn in recycling markets, i.e. plastic bottles recycling only, vendor availability, restructured recycling for local community, limited access to certain commodity collections; issues with COVID-19; partnership arrangement with Rutherford County
- Continued athletic recycling support in suites, stadiums, with Students for Environmental Action (SEA); recycling improved for additional sports venues
- In addition to routine program tasks, responded to 445+ special requests for recycling on campus
- Supported Customs and other special outreach events on/off campus per opportunity

### Goals 2021/2022

- Support return to campus following modified COVID restrictions
- Continue to direct Sustainable Campus Fee sustainability projects – water refill stations, solar picnic table, solar trash compactors, etc.
- Carry on support of recycling education, correcting/promoting recycling issues, improving presence of recycling collection bins on campus
- Explore available initiatives to grow the program, deal with marketing issues, and avoid tipping fees for campus waste going to the landfill with efforts for least impact on the program due to marketing/commodities issues - face the many unique challenges
- Continue to support Campus Planning, Capital Construction, Construction/Renovation, and maintenance projects
- Continue to work with athletics staff to provide appropriate recycling at athletic events
- Continue working with MTSU Sustainable Campus Fee (SCF) Program for recycling project funding
- Improve presence of SCF in Power BI
- Explore partnership opportunities with MTSU initiatives, Recycle Rutherford, Rutherford County Government, available vendors
- Continue to provide classroom support through guest lectures, environmental seminars, and storm water initiatives
- Continue staff participation in training and development programs



## WORK ORDERS ORIGINATED 2020/2021



2020-2021 WORK ORDERS ORIGINATED

	1st Qtr		2nd Qtr		3rd Qtr		4th Qtr		Annual Totals	
	# WO	% of Total	# WO	% of Total	# WO	% of Total	# WO	% of Total	# WO	% of Total
Appliances	24	0.6%	22	0.6%	19	0.4%	35	0.7%	100	0.6%
Building Interior/Exterior	1,283	29.5%	1,054	26.5%	1,106	25.5%	1,290	26.6%	4,733	27.0%
Central Plant	24	0.6%	21	0.5%	24	0.6%	29	0.6%	98	0.6%
Electrical	333	7.6%	369	9.3%	396	9.1%	381	7.8%	1,479	8.4%
Grounds	138	3.2%	125	3.1%	114	2.6%	182	3.7%	559	3.2%
HVAC	917	21.1%	730	18.4%	713	16.4%	804	16.6%	3,164	18.1%
Mechanical	234	5.4%	224	5.6%	320	7.4%	260	5.4%	1,038	5.9%
Motor Pool	312	7.2%	392	9.9%	383	8.8%	737	15.2%	1,824	10.4%
Plumbing	307	7.0%	252	6.3%	403	9.3%	299	6.2%	1,261	7.2%
Renovation	186	4.3%	119	3.0%	132	3.0%	187	3.9%	624	3.6%
Safety	597	13.7%	667	16.8%	727	16.8%	653	13.4%	2,644	15.1%
Total	4,355	100.0%	3,975	100.0%	4,337	100.0%	4,857	100.0%	17,524	100.00%

## Accomplishments & Highlights 2020/2021

- Implemented Mainsaver event notification for work order activities, redesigned work request web forms, proposed adjustments to Power BI pages for improved access to data
- Worked with shop personnel to submit open work order progress notes to enhance communication with FSD personnel, Housing staff, and other customers
- Assisted FSD Accounting in designing, generating reports, and data extracts to access information from Mainsaver and Fuelmaster enabling viewing, analyzing, and verifying financial and maintenance records
- Explored new or expanded functionality in Mainsaver to identify ways to simplify workflow, enhance productivity and improve data accuracy of maintenance activities and financial expenditures related to work orders
- Continued to document and compile work order processes and procedures to produce operations manual, with a focus on reports and activities completed by Work Order Coordinator

[http://www.mtsu.edu/facserv/work\\_request\\_forms.php](http://www.mtsu.edu/facserv/work_request_forms.php)

## Goals 2021/2022

- Coordinate with FSD Systems Administrator to redesign and improve customer survey process and availability of data in Power BI
- Assist with upgrading Mainsaver to latest version; explore and implement new or enhanced functionality to improve workflow and productivity; continue to investigate using online forms and handheld devices to input and access Mainsaver data
- Review Mainsaver codes and coordinate with directors to streamline tracking of maintenance activities
- Continue to provide new and modified Argos reports to FSD Accounting and others
- Support FSD Systems Administrator in duplicating current monthly, annual, and periodic Mainsaver reports in Power BI

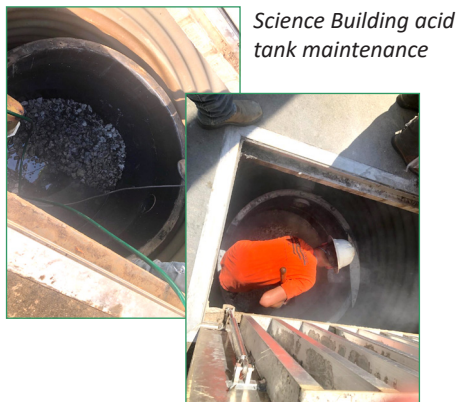


## Maintenance Projects: MP-2's Accomplishments & Highlights 2020/2021

As part of the Facilities Services (FSD) maintenance project process, MP-2 forms are used to track those maintenance projects which are major repair or replace projects beyond the routine, often involving deferred maintenance, multidiscipline event-related, or non-budgeted repairs that are \$5,000 or greater.

For FSD funded projects that are not considered of a Construction/Renovation nature, outside our normal operating budget, and needing expenditure approvals from a budgetary authority, completion of an MP-2 form provides a preliminary estimate for project approval and funding, assignment of a tracking project number, and allows all elements of projects to be accurately tracked until completed.

MP-2 Project Summary	2017/2018		2018/2019		2019/2020		2020/2021	
Building Services	75	\$ 502,536	91	\$ 503,509	33	\$ 699,574	26	\$ 333,186
Capital Construction ADM			1	\$ 5,209				
Civil Environmental/Engineering Services			1	\$ 13,079			2	\$ 23,060
CoGen Duct Burner Repair			1	\$ 224,903				
Energy Services	11	\$ 342,183	54	\$ 622,042	58	\$ 675,716	48	\$ 519,745
Engineering Services	5	\$ 126,793	9	\$ 107,526	5	\$ 126,779	6	\$ 70,035
Environmental Health & Safety	1	\$ 8,000			6	\$ 87,767	8	\$ 40,979
Facilities Services ADM			1	\$ 6,604	1	\$ 59,115		
Grounds Services			24	\$ 147,745	16	\$ 208,281	10	\$ 74,233
Life Safety/Emergency Mgmt Services			8	\$ 76,133				
Motor Pool	1	\$ 14,094	4	\$ 84,454	4	\$ 156,440		
Small Renovation					1	\$ 12,251		
Systems Engineering	1	\$ 41,000			1	\$ 26,560	3	\$ 23,304
<b>Totals</b>	<b>94</b>	<b>\$ 1,034,606</b>	<b>194</b>	<b>\$ 1,791,204</b>	<b>125</b>	<b>\$ 2,052,483</b>	<b>103</b>	<b>\$ 1,084,542</b>



Science Building acid tank maintenance



President's House roof repairs



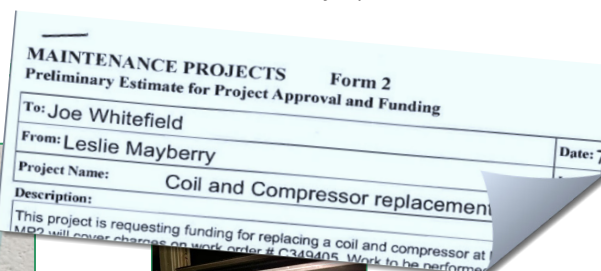
Repaired feed water pumps



New cooling tower drive



Central Plant emergency shut off at each exit



Coil replacement Rec Center



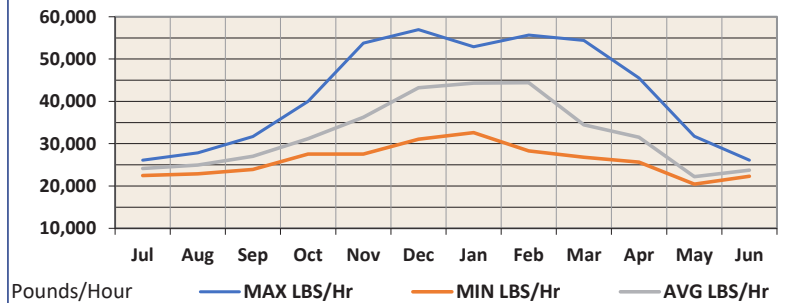
Baseball Stadium sewer line repairs

## Accomplishments & Highlights 2020/2021

- Managed 180 after hours work order callbacks
- Navigated transition for retirement of Reggie Floyd
- Projects for Central Plant:
  - Load tested Central Plant crane to prepare for summer shutdown work
  - Pulled boiler feedwater pump #2, repaired and re-installed
  - Repaired minimum flow valves
  - Replaced PVC reverse osmosis line with stainless steel
  - Repaired condensate drum leak
  - Inspected/repared main breaker to circuit #2 in electrical room due to damage created from early March storm
  - New engine installed on Solar turbine, November 2020
  - Improvements made on operational strategies increasing surveillance on rotating equipment motors, i.e. pumps in order to improve reliability
  - Improving Preventative Maintenance (PM) program for Central Plant to increase plant reliability
  - Created a Job Safety Assessment (JSA) Manual to improve on-boarding of new employees
  - Installed emergency shutdowns for boilers at each exit in the Central Plant

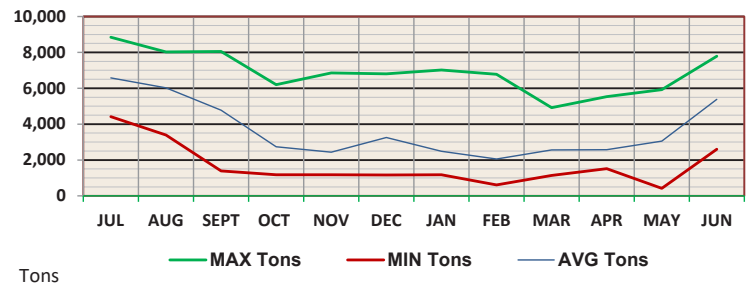
### Steam Production

2020/2021



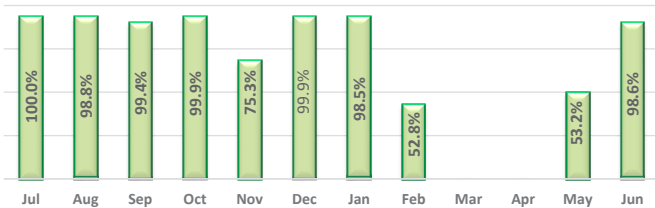
### Chilled Water Tonnage

2020/2021



### Turbine: Percent Runtime By Month

2020/2021



## Goals 2021/2022

- Continue exploring recovery of steam loop system condensate
- Continue to work to improve work processes through Power BI
- Review and implement a new water treatment contract
- Support capital & construction/renovation projects on campus
- Investigate and implement motor maintenance program
- Continue to organize and regroup Energy Services organization for improved work flow

### 2020/2021 Central Plant Equipment Peak Operational Levels

Natural Gas Fired Turbine/Generator					Steam Boilers					Chillers				
5 MW (Nominal)					85,000 Pounds/Hour (Peak)					11,500 Tons (Peak)				
	Mid-Year	3rd Qtr	4th Qtr	Annual		Mid-Year	3rd Qtr	4th Qtr	Annual		Mid-Year	3rd Qtr	4th Qtr	Annual
Peak MW	5.66	5.01	5.36	5.66						Max Peak Tons	8,845	7,013	7,789	8,845
Avg MW	4.45	4.93	4.46	4.53	Avg LBS/Hr	30,601	40,181	25,715	33,438	Min Tons	1,159	610	419	419
Total MWH	18,796.92	5,297.49	4,938.18	29,032.59	Peak LBS/Hr	29,784	65,381	55,496	65,381					

Purchased Power: 47,265.04 MWH

## Accomplishments & Highlights 2020/2021

- Managed 62 after hours work orders
- Installed Siemens TEC Controls on VAV's in Library to better control airflow and conserve energy
- Installed VFD (Variable Frequency Drives) for AHU (Air Handler Units) in the Business & Aerospace Building
- Installed new OA (Outside Air) dampers and actuators along with air measuring stations at Business & Aerospace Building west mechanical room
- Modified graphics in Desigo to include sequence of operation along with design drawings
- Managed 31 maintenance projects for Housing and Academics spaces
- Installed new VFD's in Murphy Center mechanical spaces
- Implemented installation of new differential pressure gauges on AHU filter housings to assist in strategies to discover proper durations for filter changes
- Managed 53 work orders on 7 different projects for weather related damage control for HVAC systems
- Began recruiting process for retirement of Energy Management Systems Assistant Supervisor
- Continued organization process of Energy Services HVAC shop personnel including new recruitments as well as out-sourcing strategies

PERFORMANCE MEASURES: Energy Services Preventive Maintenance and Service				
2020/2021		#Work Orders Completed	Man Hours	Avg Man Hours/WO
PREVENTIVE MAINTENANCE (PM)		Annual	Annual	Annual
	Appliances	26	17	0.7
	HVAC	1,324	5,988	4.5
	Mechanical	796	1,211	1.5
	Sub-total	2,146	7,216	3.4
	Central Plant	17	1,295	76.2
Total		2,163	8,511	3.9
SERVICE WORK ORDERS		Annual	Annual	Annual
	HVAC	205	2,814	13.7
	Mechanical	33	619	18.8
	Sub-total	238	3,433	14.4
	Central Plant	30	8,401	280.0
	Total	268	11,834	44.2

PERFORMANCE MEASURES: Energy Services Corrective Maintenance							
2020/2021		#Work Orders Completed		Man Hours		Avg Man Hours/WO	
CORRECTIVE MAINTENANCE (CM)		Replace/Repair	System Adjustment	Replace/Repair	System Adjustment	Replace/Repair	System Adjustment
	Appliances	42	11	135	27	3.2	2.5
	HVAC	1,210	656	4,261	1,458	3.5	2.2
	Mechanical	225	41	673	69	3.0	1.7
	Sub-total	1,477	708	5,069	1,554	3.4	2.2
	Central Plant	44	8	27	114	0.6	14.3
Total		1,521	716	5,096	1,668	3.4	2.3

## Goals 2021/2022

- Continue to perform preventative maintenance on building AHU's
- Continue to manage contracts for manpower resources
- Begin using Power BI as management resource tool to assist in workflow management
- Support capital maintenance and construction renovation work
- Develop workflow process for filter change management
- Develop strategies to assist Housing in management of HVAC work load



VFD at Rec



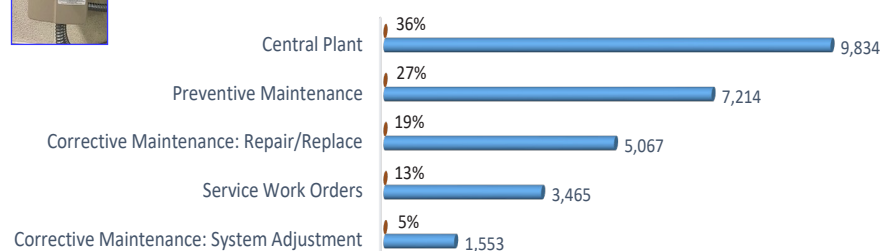
Central Plant

### Energy Services

#### Total In-House Work Order Hours

27,133 Man Hours

2020/2021



## Accomplishments & Highlights 2020/2021

### Systems Engineering

- Oversight of departmental fume hood certification and maintenance of fume hoods in Science complex (200 units)
- Prepared and implemented maintenance plan for Covid shut down of science complex
- Monitored installation of ionization units in air systems in critical athletic spaces on campus
- Assisted in the evaluation of engineering firms in preparation of new air valves for New Science Building
- Monitored the construction process of the Concrete & Construction Management Building

### GIS and Locating

- Responded to 876 locate tickets for contractors doing work on campus
- Worked with contractors and project managers to quickly resolve issues that arise when uncovering utilities on campus for local projects and Capital Maintenance projects
- Investigating aged and damaged infrastructure via locating and camera use in storm, sewer, and steam line repairs
- Meeting the continuous need to locate, identify, and photograph utilities exposed during repair or construction projects; updating MTSU GIS data base
- Coordinated with Multivista to incorporate GIS database documentation of latest photographic records for underground utilities associated with satellite chiller plant addition and new Concrete & Construction Management Building

### Elevators & Generators

- Conducted Spill Prevention PM activities along with monthly PMs on generators and elevators
- Completed 476 total elevator work orders and inspections
- Completed 331 total generator work orders and inspections
- Replaced 5 OEM elevator phones providing onboard programming capability and less downtime for more reliable service
- Implemented new barcode program to improve inspections for generators and elevators to reduce inspection turnaround time

### Information Technology/ Operational Technology (IT/OT)

- Expanded the utilization of Power BI analytics to the entire Facilities Services Department
- Streamlined regulatory training requirements with computer-based training

### Key Shop

- Cut a total number of 1,928 keys last year in the following areas: 1351 academic, 447 housing, 19 auxiliary, and 111 other
- Re-keyed Murphy Center; created keys for the Academic Classroom Building and new Parking and Transportation Services Building
- Built 684 key cores in-house with additional cores provided for the cafeteria renovations in both KUC and Corlew Hall
- Added 81 new access control readers bringing campus total to 983

## Goals 2021/2022

### Systems Engineering

- Continue to implement and monitor necessary PM's to care for Science complex
- Participate and monitor the construction of the new Concrete and Construction Management Building
- Participate in the design process of the new air valve system for the New Science Building

### GIS and Locating

- Continue to assist contractors and project managers to improve the campus infrastructure via new buildings and utilities and improvements made to the existing campus infrastructure
- Remain diligent in thorough locating for early phases of all projects and infrastructure upgrades to minimize damage to current infrastructure; anticipate and mitigate potential issues while assisting projects

### Elevators & Generators

- Support capital maintenance projects with the installation of new elevators in KUC, Peck Hall, and Walker Library
- Support capital maintenance projects with the installation of new generators at the University Police Crisis Center, Cogen Plant, and Bragg Media and Entertainment Building
- Improve barcode system procedures to provide more accurate equipment inspection information and diagnostic capabilities

### Key Shop

- Support the completion of the Concrete & Construction Management Building with new cores and keys

### Information Technology/Operational Technology (IT/OT)

- Integrate Siemens operational data into Power BI for trending information and troubleshooting activities
- Create and develop FSD standards for utilizing the Multivista platform

PERFORMANCE MEASURES: Engineering Services Coordinated and Conducted Activities						
2020/2021	Corrective Maintenance and Service Activities			Preventive Maintenance Activities		
	# of Work Orders completed	Man Hours	Avg Man Hours per WO	# of Work Orders completed	Man Hours	Avg Man Hours per WO
Keyshop	1,112	4,551	4.09	5	12	2.40
Elevators	335	388	1.16	813	403	0.50
Generators	54	46	0.85	332	443	1.33

## Accomplishments & Highlights 2020/2021

### Fire & Life Safety Services

- Installed state-provided Traumatic Bleeding Prevention/ Stop Kits throughout Campus
- In cooperation with the MTSU Police Department, assisted in completing a Department of Homeland Security sponsored campus-wide security audit of campus buildings
- Completed Campus Wide Siren System repairs and updates
- Continued program in cooperation with the MTSU Police Department to handle local alarms in Housing areas, such as Womack Lane Apartments, to reduce the number of afterhours callbacks; reducing the number of Murfreesboro Fire and Rescue responses to campus through this cooperative program
- Completed one-year follow-up inspection for Smoke Evacuation Systems Upgrade Project in Bragg Media and Entertainment, Student Union, Walker Library, College of Education, Miller Education Center, and Science Building

### Civil & Environmental Engineering Services

- Submitted the annual report to the Tennessee Department of Environmental Conservation (TDEC) for the July 1, 2020 – June 30, 2021 reporting year
- Created an MOU extending the 2021/2022 partnership between MTSU and the City of Murfreesboro for an eleventh year
- Coordinated with Campus Planning and Construction Management to ensure proper design and installation of stormwater systems for the Campus Stormwater BMP Phase I Capital Maintenance Project

### Industrial Hygiene and Laboratory Safety

- Completed 14,385 weekly, semi-annual, and annual inspections for compliance with Federal, State, and Local guidelines related to existing labs, lab hoods, hazardous materials and IACUC
- Managed the identification, collection, packaging, transportation, and disposal of approximately 4,811 pounds of chemical hazardous waste
- Supervised 19 asbestos containing materials (ACM) sampling and removal efforts campus-wide by MTSU and contractors; conducted 36 mold reports internally by EH&S
- Completed 4 Low-Level Waste Surveys, 13 General License Radioactive swipes with reporting, and 6 X-ray inspections with reporting to the Tennessee Department of Environment and Conservation (TDEC) Division of Remediation (DRH)
- Hired a part-time industrial hygienist for EH&S

2020/2021		Corrective Maintenance (CM)	Preventive Maintenance (PM)	Service Work Orders	Work Orders Completed	Program Totals
Industrial Hygiene & Lab Safety Services	Annual	93	2,276	566	2,935	5701
Life Safety & Emergency Management	Annual	61	2073	442	2576	
Civil & Environmental Engineering Services	Annual	6	117	67	190	

## Goals 2021/2022

### Fire & Life Safety Services

- Support the current capital maintenance project scoped to update Fire Alarm Systems in several campus buildings
- Hire new Fire Safety Inspector to fill current vacancy



### Industrial Hygiene and Laboratory Safety

- Incorporate lab inspections as well as all working files for IHLS into Power BI
- Update the Campus Safety Handbook
- Implement and update Chemical Hygiene Plan

### Civil & Environmental Engineering Services

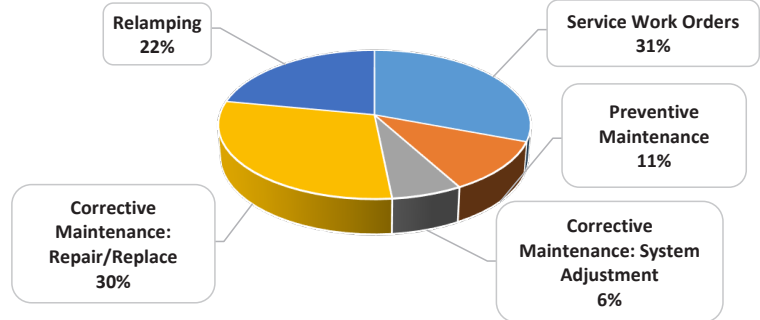
- Continue working with Campus Planning and Construction Management to ensure correct design and install of drainage and systems for the upcoming Campus Wide Utilities Upgrade Capital Maintenance project
- Coordinate stormwater mapping with Building Services and Campus Planning to update the Geographical and Information System (GIS); work as a team to further develop a process to map campus utilities and provide maintenance to infrastructure
- Create a campus drainage map
- Continue stormwater program partnership with the City of Murfreesboro to meet NPDES permit compliance

### STORMWATER PROGRAM ACTIVITIES 2020/2021

Targeted Education	
✓ Field Events (stream cleanups, tree plantings, tree day)	11
✓ Participants signed up for information & volunteer list	189
✓ Trash/Sediment Removed (LBS)	395
✓ Invasive plants removed	0
✓ Outreach: Trees planted/given out; mail-outs; door hangers	120
✓ Complaints/ Responses	1
General Education	
✓ Overall MTSU/Public/Classroom Education Events (booth, zoom, workshops)	1,180
✓ Educational print media/Promo items distributed	3,759
✓ Trainings Provided	0
Events conducted/ Events Cancelled due to COVID-19	22/6

## Accomplishments &amp; Highlights 2020/2021

- Completed over 3,000 individual service requests for Fiscal Year 2020-21
- Completed 32 projects valued at \$5,000 or more
- Generated 90%+ improved functionality of main waste line at Reese Baseball Field
- Retrofitted over 100 Sternberg Walkway Lights to LED to reduce burnout frequency and electricity consumption
- Repaired over \$100,000 worth of field lights at Floyd Stadium due to a lightning strike in time for the 1<sup>st</sup> home game – which was sadly cancelled due to Covid-related issues
- Replace the main roof and porch roof on the University's President's Residence
- Continued the process of periodic updating of PFIS records for each building on campus

Building Services: Annual In-House Man Hours  
2020/2021Academic  
Classroom  
Building

PERFORMANCE MEASURES: Building Services Corrective Maintenance

2020/2021		#Work Orders Completed		Man Hours		Avg Man Hours/WO	
		Replace/Repair	System Adjustment	Replace/Repair	System Adjustment	Replace/Repair	System Adjustment
CORRECTIVE MAINTENANCE (CM)	Appliances	5	1	7	1	1.4	1.0
	Building Interior/Exterior	638	272	2,434	622	3.8	2.3
	Electrical	178	154	697	210	3.9	1.4
	Plumbing	658	139	1,859	264	2.8	1.9
	Sub-total	1,479	566	4,997	1,097	3.4	1.9
	Re-Lamping	605	35	3,497	219	5.8	6.3
	Total	2,084	601	8,494	1,316	4.1	2.2



Sternberg Walkway Lighting

## Goals 2021/2022

- Plan the implementation of the final three stages of a five-stage plan to significantly improve the functionality of the main waste line at the Student Services Building delayed due to the Covid-19 response
- Continue to retrofit the Sternberg light fixtures with LED lamps to improve the safety and security on campus for the student population, visitors, and the larger campus community by improving campus lighting reliability with the added benefit of reducing MTSU's carbon footprint
- Continue the process of periodic updating of PFIS records for each building on campus
- Identify new sources of qualified candidates to fill current vacancies

PERFORMANCE MEASURES: Building Services  
Preventative Maintenance and Service

2020/2021		#Work Orders Completed	Man Hours	Avg Man Hours/WO
PREVENTIVE MAINTENANCE (PM)	Annual	Annual	Annual	Annual
	Building Interior/Exterior	191	1,120	5.9
	Electrical	59	30	0.5
	Plumbing	384	741	1.9
	Total	634	1,891	3.0
SERVICE WORK ORDERS	Annual	Annual	Annual	Annual
	Building Interior/Exterior	1,460	3,486	2.4
	Electrical	105	397	3.8
	Plumbing	59	527	8.9
	Renovation	542	784	1.4
	Total	2,166	5,194	2.4

## Accomplishments & Highlights 2020/2021

- Continued to input and update warranty items for projects in Power BI
- Parking and Transportation Building completed in December 2020; in service since January 2021
- Campus Stormwater Best Practices Phase 1 completed January 2021
- Alumni Gym Floor Replacement was completed August 2020
- Roof replacement for Project Help, KUC, SFA and VIS completed in October 2020; for Wiser-Patten and Cogen Plant completed December 2020
- Stark Ag and University Police HVAC and Mechanical Upgrades completed February 2021
- KOM HVAC completed in January 2021
- Installed new Softball Stadium seating January 2021
- Construction underway for New Concrete and Construction Management Building with budget of \$40.1M

## Goals 2021/2022

- Continue to look for opportunities to participate in continuing education and webinars to keep up to date of construction processes and technologies
- Participate in standardizing and updating Facilities work and other standards
- Support Campus Planning for continued standardization of work completed on campus locally as well as capital funded projects
- Support Facilities Services for standardization for continuity of equipment, process, and scope of work
- Design and begin construction on Murphy Center Curtain Wall project budgeted at \$4.6M from 2019-20 budget
- Begin programming and construction of approved 2020-21 capital maintenance projects for \$10M plus
- Begin programming for Applied Engineering Building with \$55M budget

2020/2021 Capital Projects Review		
FY Qtr	New Projects	Completed Projects
1st Qtr July - September	<ul style="list-style-type: none"> <li>Softball Bleacher Replacement</li> <li>Murphy Center ADA Restroom</li> <li>Campus Stormwater BMP I</li> </ul>	<ul style="list-style-type: none"> <li>KUC &amp; McCallie Food Court Renovation</li> <li>Greek Row #5 Renovation</li> <li>AMG Gym Floor Replacement</li> <li>Data &amp; Comm Systems Updates</li> <li>New Science Bldg Air Compressor</li> </ul>
2nd Qtr October - December	<ul style="list-style-type: none"> <li>Floyd Stadium Stair Repairs</li> </ul>	<ul style="list-style-type: none"> <li>Parking Services Facility</li> <li>KUC Mechanical &amp; HVAC Upgrades</li> <li>Wiser-Patten &amp; CoGen Reroof</li> <li>Piping &amp; Manhole Replacement Phase II</li> <li>Roof replacements - KUC, SFA, VET, PHLP</li> </ul>
3rd Qtr January - March	<ul style="list-style-type: none"> <li>Recording Studio Relocation for Concrete/Const Mgmt Project</li> </ul>	<ul style="list-style-type: none"> <li>Softball Bleacher Replacement</li> <li>Campus Stormwater BMP I</li> <li>Stark Ag &amp; Police Mechanical/HVAC Upgrades</li> <li>Murphy Center ADA Restroom</li> <li>KOM HVAC Upgrades</li> </ul>
4th Qtr April - June		



Concrete & Construction Management Building/Demo of Ezell and Abernathy



Parking & Transportation Building



Softball Stadium seating

## Construction Administration Capital Project Summary

2020/2021	1st FY Qtr		2nd FY Qtr		3rd FY Qtr		4th FY Qtr		Annual Totals	
	# Projects	Value of Projects	# Projects	Value of Projects	# Projects	Value of Projects	# Projects	Value of Projects	# Projects	Value of Projects
Beginning Active Projects	12	\$ 49,373,105	10	\$42,599,486	6	\$37,111,688	2	\$35,573,539	30	\$ 164,657,818
Added Projects	3	\$892,986	1	\$1,051,954	1	\$1,851,131	0	\$0	5	\$3,796,071
Completed Projects	5	\$7,666,605	5	\$6,539,752	5	\$3,389,280	0	\$0	15	\$17,595,638
Ending Active Projects	10	\$42,599,486	6	\$37,111,688	2	\$35,573,539	2	\$35,573,539	20	\$150,858,252

## Accomplishments &amp; Highlights 2020/2021

- Utilizing Power BI for regular project updates and tracking
- Attended virtual training related to COVID-19 preparedness through APPA
- Major completed renovations include:
  - Coordinated installation of twenty-two campus walking tour signs
  - Chris Young Café – venue renovation and grand opening
  - Science Building - Biology Education Faculty research area renovation
  - Miller Education Center – initial songwriting classroom completion
  - College of Education – renovations for animation labs
  - Jones Hall - renovated portions for International Affairs Departmental relocation
  - LRC 221 – supported updated technology
  - BDA – folding corridor seating option for students
  - Bragg – Center for Popular Music entrance revitalization
  - Airport – oversaw removal of 727 aircraft
  - Ingram Shelter – enclosed open pavilion

## Goals 2021/2022

- Update Construction/Renovation web page
- Utilize Power BI for project reporting and PFIS updates
- Update Special Project Request process
- Rebid current electrical and painting contracts
- Successfully complete major renovations:
  - TAF classrooms in BAS, Todd, SAG and Honors College
  - Data Science department relocation to Midgett Building
  - University Police – renovations at College Heights
  - Songwriting Center lobby and classroom construction
  - Asian Studies relocation to Miller Education Building
  - Historic Preservation relocation to Peck Hall
  - STEM department office renovation in Fairview
  - Physicians Assistant Program renovations in Cason-Kennedy Nursing Building
  - True Blue TV Production Services relocation in James Union Building
  - Improvements at Vocational Ag Building for Food System Training Facility
  - Extensive interior painting at Cason-Kennedy Nursing, College of Education, and Health Services

New campus walking tour signage



Chris Young Cafe



Jones Hall International Affairs conference room

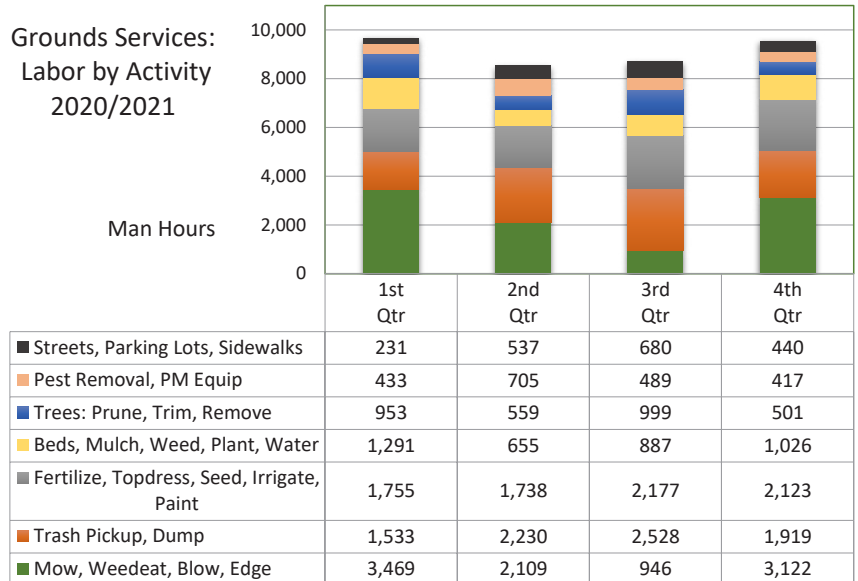
## Construction/Renovation Project Summary

2020/2021	1st FY Qtr		2nd FY Qtr		3rd FY Qtr		4th FY Qtr		FY Totals	
	# Projects	Value of Projects	# Projects	Value of Projects	# Projects	Value of Projects	# Projects	Value of Projects	# Projects	Value of Projects
Beginning Active Projects	38	\$ 1,445,113	40	\$ 1,458,647	35	\$ 1,351,433	25	\$ 1,079,936	38	\$ 1,445,113
Added Projects	28	\$ 270,552	23	\$ 334,186	16	\$ 354,850	50	\$ 758,302	117	\$ 1,717,890
Completed Projects	26	\$ 257,018	28	\$ 441,400	26	\$ 626,346	24	\$ 409,766	104	\$ 1,734,530
Ending Active Projects	40	\$ 1,458,647	35	\$ 1,351,433	25	\$ 1,079,936	51	\$ 1,428,472	51	\$ 1,428,472

## Accomplishments & Highlights 2020/2021

- Performed two rounds of sidewalk grinding to remove small imperfections and uneven spots on sidewalks around campus
- Improved mulching processes for landscape beds on campus
- Added riprap around drainage culverts to help prevent erosion
- Continued tree replacement program
- Expanded new turf care program to further improve playing surfaces of athletic fields
- Performed top-dressing project on intramural fields to help improve field quality and drainage
- Continued re-landscaping of areas on campus
- Continued training

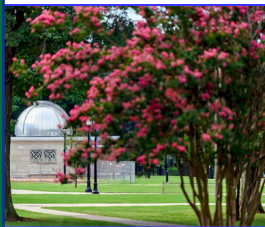
Grounds Services:  
Labor by Activity  
2020/2021



Total Hours: 36,452

## Goals 2021/2022

- Continue sidewalk/hardscape improvements
- Continue re-landscaping areas of campus
- Improve irrigation system on intramural fields
- Perform second round of drainage improvements to soccer field
- Continue tree replacement program
- Explore ways to improve mulching processes for landscape beds on campus
- Add riprap around drainage culverts to help prevent erosion
- Continue training



Propane mower fleet

### PERFORMANCE MEASURES: Grounds Services

2020/2021	#Work Orders Completed		Man Hours		Avg Man Hours/WO	
	Mid-Year	Annual	Mid-Year	Annual	Mid-Year	Annual
Maintenance	32	68	126	241	3.9	3.5
Preventive (PM)	13	16	56	60	4.3	3.8
Corrective (CM)	19	52	70	181	3.7	3.5
Service	250	557	3,843	62,799	15.4	112.7
Routine	250	514	3,843	39,775	15.4	77.4
Annual	0	43	0	23,024	0.0	535.4
Total	282	625	3,969	63,040	14.1	100.9



## Accomplishments & Highlights 2020/2021

- Worked with FSD Accounting to improve billing processes
- Continued on-site emissions testing
- Monitored and responded to changing COVID-19 response plan for Motor Pool operations and fleet reservations

## Goals 2021/2022

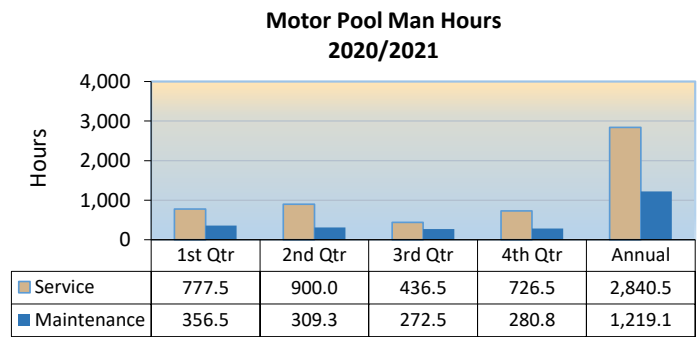
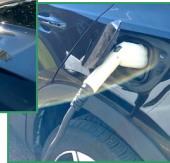
- Continue upgrading of Motor Pool fleet vehicles
- Implement a computerized fleet vehicle reservation process
- Continue to upgrade shop equipment to maximize efficiency
- Continue training



Bayer-Travis

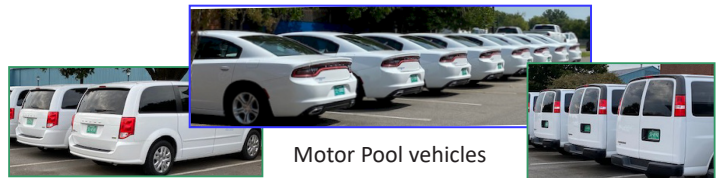


EV charging Station



### PERFORMANCE MEASURES: Motor Pool

2020/2021	#Work Orders Completed		Man Hours		Avg Man Hours/WO	
	Mid-Year	Annual	Mid-Year	Annual	Mid-Year	Annual
<b>Maintenance</b>	660	1,060	665.8	1,219.1	1.0	1.2
Preventive (PM)	652	1,034	645.3	1,172.1	1.0	1.1
Corrective (CM)	8	26	20.5	47.0	2.6	1.8
<b>Service</b>	475	969	1,677.5	2,840.5	3.5	2.9
<b>Total</b>	<b>1,135</b>	<b>2,029</b>	<b>2,343.3</b>	<b>4,059.6</b>	<b>2.1</b>	<b>2.0</b>



Motor Pool vehicles

## Accomplishments & Highlights 2020/2021

- Brought online for service: New Academic Building, Parking Services Building, and Aerospace lease office
- Monitored custodial contractor service contract terms
- Supported COVID-19 restrictions: hired supplementary staff through contractor to support recommended cleaning requirements, distributed sanitizing materials to faculty and administration for offices and classrooms, distributed disinfection kits for specific areas, serviced hand sanitizer stations throughout campus, continued review of high pedestrian traffic areas
- Completed mandatory and recommended training sessions, as required by the University and Facilities Services Department/EH&S

E&G Space 2020/2021	Gross Square Feet	Cleanable Square Feet	% Cleanable Square Feet
<b>Facilities Services Department</b>			
In-house	464,964	135,164	5%
Contract Labor	2,494,164	1,793,112	74%
<b>Murphy Center Complex</b>			
In-house	-	-	0%
Contract Labor	595,019	501,817	21%
<b>Total</b>	<b>3,554,147</b>	<b>2,430,093</b>	<b>100%</b>

## Goals 2021/2022

- Coordinate discussions with housing administration and custodial contractor for options in cleaning Corlew, Deere and Nicks Halls for fall and spring semesters
- Explore possibilities for hiring garbage truck driver position through custodial contractor for Grounds Services
- Ensure custodial contract terms are upheld
- Continue COVID-19 recommendations for cleaning campus facilities by hiring additional staff as needed, continue disinfection services and supporting faculty classrooms needs
- Continue review of updated CDC recommendations for cleaning services for educational/public facilities
- Complete mandatory and recommended training, as required by the University and FSD/EH&S



## Accomplishments & Highlights 2020/2021

- Assigned safety training topics in Safe Colleges to Facilities Services employees according to EH&S team Recommended Training List
- Updated Safe Colleges training records for employees who completed off-line training sessions
- Coordinated topic-specific safety training (requiring both classroom and hands-on instruction) for other campus departments including Production Services, Recreation Center, Photography, Student Union, Tennessee Miller Coliseum, Marketing and Communications, and Media Arts
- Prepared training reports, as requested, for FSD managers or supervisors

## Goals 2021/2022

- Continue to work closely with the EH&S Team regarding safety training updates
- Serve as administrator/department coordinator for Safe Colleges; input training assignments according to Recommended Training List prepared by EH&S; input any off-line training completed by Facilities Services employees; prepare training completion/outstanding reports, as necessary, for review
- Review and schedule any specialized safety training topics as requested by FSD Directors or Supervisors

FSD Employees Training Records 2020/2021		Leadership/Professional Development			Technical Training		
By Training Type	# Employees (Full-Time)	# Employees Trained	Total Hours		# Employees Trained	Total Hours	
			In-House	Conference		In-House	Conference
Central Administration							
-Assistant Vice President	2	2	3.5		2	7.8	0
-Accounting Information Services	5	5	18.1		5	19.5	0
-Employee Development	1	1	3.6		1	3.6	0
Engineering Services							
-Director	1	1	2.0		1	3.9	0
-Center for Energy Efficiency	2	2	17.9		2	14.2	0
-Work Orders	4	4	21.8		4	15.6	0
-Civil/Environmental Services	5	5	15.6		5	23.7	0
-Industrial Hygiene & Lab Safety	3	2	4.0		3	33.2	0
-Life Safety & Emergency Management	2	2	3.5		2	32.8	0
-Systems Engineering	1	1	2.0		1	3.9	0
-Key Shop	5	5	10.0		4	26.1	0
Building Services	14	14	23.7		14	121.9	0
Construction Administration	4	4	10.5		4	17.8	0
Construction Renovation	4	4	10.8		4	18.5	0
Energy Services	20	20	34.5		20	145.8	0
Grounds Services/Motor Pool	24	24	39.3		24	137.3	0
Custodial Services	15	15	22.9		15	69.1	0
<b>TOTALS</b>	<b>112</b>	<b>111</b>	<b>243.65</b>	<b>0</b>	<b>111</b>	<b>694.7</b>	<b>0</b>

Number of Employees per Total Hours Trained 2020/2021	# Employees (Full-Time)	0 Hrs	1-10 Hrs	11-20 Hrs	>20 Hrs
-Assistant Vice President	2		2		
-Accounting Information Services	5		4	1	
-Employee Development	1		1		
Engineering Services					
-Director	1		1		
-Center for Energy Efficiency	2		1		1
-Work Orders	4		3	1	
-Civil/Environmental Services	5		4	1	
-Industrial Hygiene & Lab Safety	3		2		1
-Life Safety & Emergency Management	2		1		1
-Systems Engineering	1		1		
-Key Shop	5		5		
Building Services	14		5	9	
Construction Administration	4		4		
Construction Renovation	4		4		
Energy Services	20		14	6	
Grounds Services/Motor Pool	24		23	1	
Custodial Services	15		15		
<b>TOTALS</b>	<b>112</b>	<b>0</b>	<b>90</b>	<b>19</b>	<b>3</b>



## SafeColleges Training

These training opportunities available for campus departments, and more, are provided to enhance job performance, promote safety, and comply with laws and regulations.

# Excerpts from Campus Master Plan 2015 - 2025

## Facility Assessment: Education and General Use Facilities

Like many universities and colleges, MTSU has simultaneously experienced significant growth and increased fiscal constraints. These conditions have led to postponement of major repairs and replacement of facilities and infrastructure. This delay, combined with aging facilities, leads to a degradation of the facilities and an increased backlog of maintenance and capital renewal projects commonly referred to as deferred maintenance.

	Building Name	Building ID	Year Constructed	Gross SF	Assignable SF	Current Condition (1)	Site Suitability (2)	Physical Building Rating (3)	Existing Program Suitability (4)
ALOF	Alumni Office (2263 Middle Tennessee Boulevard)	24-172	1948	2,796	1,814	94.3	M	A	A
ALUM	Alumni Relations House (2259 Middle Tennessee Blvd.)	24-174	2008	10,105	5,435	94.7	M	A	A
BAS	Business & Aerospace Building	24-091	1997	184,931	102,233	90.1	M	A	A
BDA	Boutwell Dramatic Arts	24-031	1964	56,164	36,757	79.6	M	C	D
BLH	1417 East Main Street (Center for Historic Preservation)	24-097	1958	3,041	2,191	71.5	L	D	D
BRAGG	Bragg Media and Entertainment Building	24-083	1990	91,114	52,325	89.3	M	B	C
CAB	Cope Administration Building	24-034	1965	50,976	29,325	85.3	M	B	A
CH	College Heights Chapel	24-197	1959	9,362	7,828	75.4	M	C	C
CKNB	Cason-Kennedy Nursing Building	24-084	1994	31,494	18,259	96.5	M	A	A
COE	College of Education Building	24-229	2010	91,206	50,989	100	M	A	A
DSB	Davis Science Building	24-041	1967	75,258	40,966	81.2	H	B	A
DYS	Tennessee Center for the Study & Treatment of Dyslexia	24-155	2000	7,169	4,146	96.0	H	A	A
EHS	Ellington Human Sciences	24-025	1962	15,509	10,619	85.5	M	B	D
EZEL	Ezell Hall	24-072	1973	52,452	32,775	66.4	L	D	D
FAIR	Fairview Building	24-149	1962	38,250	22,960	89.4	M	B	A/C
FH	Forrest Hall	24-017	1954	14,177	8,807	84.0	L	D	A
FSHP	Farm Shop	24-232	2011	9,772	9,396	96.1	H	A	A
GH	Greenhouse	24-073	1975	4,774	4,709	80.1	L	D	B
HARR	1416 East Main Street (Center for Historic Preservation)	24-130	1925	2,454	1,478	80.2	L	D	D
HC	Horticulture Facility	24-093	1997	9,002	6,458	87.1	L	D	C
HONR	Paul W. Martin, Sr. Honors Building	24-166	2003	20,720	11,601	98.5	M	A	A
ING	Sam H. Ingram Building (2269 Middle Tennessee Blvd.)	24-169	1951	27,498	17,838	96.8	M	A	A
JACK	Tom H. Jackson Building1	24-003	1911	8,224	4,825	84.2	H	B	B
JH	Jones Hall1	24-005	1921	39,855	21,103	84.6	H	B	A
JUB	James Union Building	24-015	1952	58,354	36,626	83.6	H	B	A
KOM	Kirksey Old Main1	24-002	1911	83,706	45,947	70.9	H	C	A
KUC	Keathley University Center	24-042	1967	122,671	80,518	85.9	M	B	B
LIB	James E. Walker Library	24-094	1998	254,596	171,275	96.8	M	A	A
LRC	Ned McWherter Learning Resources Center	24-074	1975	65,865	38,296	93.8	M	A	A
LYTL	1114 East Lytle Street (Lytle House)	24-171	1948	1,874	1,401	89.4	M	B	B
MB	McFarland Building	24-054	1969	10,285	6,424	90.5	M	A	A
MD	Main Dairy	24-230	2011	22,190	18,987	98.8	H	A	A
MEC	Miller Education Center	24-241	1999	126,839	105,196	93.5	M	A	A
MGB	E.W. Midgett Building	24-076	1959	18,615	11,126	62.7	L	D	D
NB3	Nursing Building Addition	24-84A	2006	24,044	13,814	97.5	M	A	A
OBS	Observatory	24-194	2007	724	363	96.9	M	A	A
PCS	Pittard Campus School1	24-007	1927	47,487	29,526	79.7	H	C	B
PH	Peck Hall	24-044	1968	110,501	53,126	73.0	M	C	D
PHLP	Project Help	24-088	1996	4,568	3,158	90.2	M	A	B
PKS	Parking Services Building	24-158	1951	12,099	7,441	86.6	L	D	A
PRES	President's Home1	24-001	1911	7,794	7,015	87.2	H	B	A
PSB	Printing Services Building	24-175	2005	4,320	3,659	97.4	M	A	A
ROTX	ROTC Annex	24-010	1942	10,143	8,477	63.9	L	D	B
SAG	Stark Agribusiness and Agriscience Center	24-045	1968	25,463	15,340	76.7	M	C	A
SCI	Science Building	24-249	2014	263,670	144,540	100	M	A	A
SFA	Saunders Fine Art	24-022	1959	32,788	19,811	78.0	M	C	D
SSAC	Student Services and Admissions Center	24-245	2012	64,500	33,002	100	M	A	A
STU	Student Union	24-238	2010	210,846	111,153	100	M	A	A
TB	Telescope Building	24-106	1986	412	346	80.1	L	D	D
TCM	Telecomm Building	24-089	1996	10,267	5,959	91.8	M	A	C
TLC	Tennessee Livestock Center	24-070	1972	157,316	91,738	85.6	L	D	A
TODD	Andrew L. Todd Hall	24-019	1958	114,388	65,666	96.4	H	A	A
VA	Vocational Agriculture	24-080	1979	6,047	5,163	84.3	L	D	C
VET	Voorhies Engineering Technology	24-009	1942	39,289	28,488	78.9	L	D	C
WANH	209 North Baird Lane (Internal Audit)	24-103	1958	1,243	900	78.4	L	D	B
WMB	Wright Music Building	24-081	1980	31,357	20,802	82.5	M	B	B
WPS	Wiser-Patten Science Hall	24-008	1932	41,116	24,612	82.8	H	B	A
WSC	Wood - Stegall Center (University Advancement)	24-156	2001	10,142	4,630	98.6	M	A	B

### Legend:

- (1) Current Condition Score (0-100) determined by the Physical Facilities Survey Score as of August 2015 (PFIS).
- (2) Site Suitability Score (High, Medium, Low) determined by factors including various land uses, code issues, and original campus structure.
- (3) Physical Building Rating (A-D) determined by combining the Current Condition and Site Suitability Scores as shown in the matrix.
- (4) Existing Program Suitability (A-D) determined by the factors including quantity and quality of space and the fit of programs to the design.

### Deferred Maintenance:

Current Condition				
Site Suitability				
		> 90	80 - 90	< 80
	High	A	B	C
	Medium	A	B	C
	Low	C	D	D
Physical Building Rating				

Table A-2 Educational and General (E&G, Maintenance, Utilities, & Athletics)

Physical Building Rating	Square Feet	20-Year Deferred Maintenance (1)
A	1,773,836	\$35,459,630
B	886,512	\$88,670,198
C	422,487	\$46,857,416
D	240,427	\$22,538,570
Other	11,540	\$865,008
Infrastructure (2)		\$48,597,706
20-Year Capital Renewal Funding (3)		(\$56,968,010)
<b>Total</b>	<b>3,334,802</b>	<b>\$186,020,518</b>

## MTSU Capital Maintenance

### Project Lists per FY Capital Budget Request

2019 - 2020	Priority	Project Name	FY 19/20 Request	Appropriated Funding	Project Status
	1	Several Buildings Roof Replacements	\$ 600,000	\$ 600,000	Funded
	2	KOM Mechanical, HVAC, Fire Protection, Lighting & Ceiling Upgrades	\$ 5,600,000	\$ 5,600,000	Funded
	3	Stark Ag/Police Station Mechanical & HVAC Upgrades	\$ 1,965,000	\$ 1,965,000	Funded
	4	Campus Stormwater BMP Phase I	\$ 785,000	\$ 785,000	Funded
	5	Sidewalk Repair/Replacement Phase I	\$ 800,000	\$ <del>800,000</del>	Not Funded
	6	Miller Education Center Boiler Replacement	\$ 400,000	\$ 400,000	Funded
		<b>Total:</b>	<b>\$ 10,150,000</b>	<b>\$ 9,350,000</b>	
2020 - 2021	Priority	Project Name	FY 20/21 Request	Appropriated Funding	Project Status
	1	Murphy Center Window Repair/Replacement	\$ 4,600,000	\$ 4,600,000	Funded
	2	Elevator Modernization Phase III	\$ 2,000,000	\$ -	Not Funded
	3	Water & Sewer System Updates Phase II	\$ 490,000	\$ -	Not Funded
	4	Several Buildings Roof Replacements	\$ 950,000	\$ -	Not Funded
	5	Steam/Condensate & Manhole Repair/Replacement Phase III	\$ 1,400,000	\$ -	Not Funded
	6	Sidewalk Repair/Replacement Phase I	\$ 610,000	\$ -	Not Funded
		<b>Total:</b>	<b>\$ 10,050,000</b>	<b>\$ 4,600,000</b>	
2021 - 2022	Priority	Project Name	FY 21/22 Request	Appropriated Funding	Project Status
	1	Campus Wide Utilities Phase 1	\$ 1,139,000	\$ 1,139,000	Funded
	2	Several Buildings Elevator Modernization Phase 1	\$ 950,000	\$ 950,000	Funded
	3	Campus Wide Life Safety Systems Upgrade Phase 1	\$ 400,000	\$ 400,000	Funded
	4	Cope Building Roof Replacement	\$ 600,000	\$ 600,000	Funded
	5	Science Building HVAC & Exhaust System Upgrades	\$ 2,000,000	\$ 2,000,000	Funded
	6	Several Buildings Elevator Modernization Phase 2	\$ 885,000	\$ 885,000	Funded
	7	Campus Wide Life Safety Systems Upgrade Phase 2	\$ 1,285,000	\$ 1,285,000	Funded
	8	Campus Wide Utilities Phase 2	\$ 1,816,000	\$ 1,816,000	Funded
	9	College Heights Electrical Upgrades	\$ 400,000	\$ 400,000	Funded
	10	Tennessee Livestock Roof Replacement/Refurbishment	\$ 490,000	\$ 490,000	Funded
		<b>Total:</b>	<b>\$ 9,965,000</b>	<b>\$ 9,965,000</b>	
2022 - 2023	Priority	Project Name	FY 22/23 Request	Appropriated Funding	Project Status
	1	Multiple Buildings Elevator Modernization Phase 3	\$ 1,407,800	\$ -	Funding Request
	2	Campus Wide Lighting and Lighting Control Updates	\$ 952,200	\$ -	Funding Request
	3	Multiple Buildings Mechanical and Controls Updates	\$ 2,000,000	\$ -	Funding Request
	4	Campus Wide Access Control and Security Updates	\$ 800,000	\$ -	Funding Request
	5	Multiple Building Exterior Envelope Updates	\$ 2,000,000	\$ -	Funding Request
	6	Campus Wide Utilities Phase 3	\$ 2,500,000	\$ -	Funding Request
	7	Multiple Buildings Roof Replacements	\$ 1,400,000	\$ -	Funding Request
	8	Campus Wide Sidewalk Repair and Replacements	\$ 738,000	\$ -	Funding Request
		<b>Total:</b>	<b>\$ 11,798,000</b>	<b>\$ -</b>	



Funded by a fee initiated by the MTSU student body, administered by the Division of Student Affairs, and supported by the Tennessee Board of Regents at the time, the intent of the MTSU Sustainable Campus Fee Program is to decrease consumption of non-renewable energy with a directed portion for purchasing 'green power' from TVA to facilitate production of electricity from wind, solar power, and methane gas as a clean alternative to traditional energy sources. The reminder of the funds are used for local campus projects.

## MTSU Sustainable Campus Fee (SCF) Program

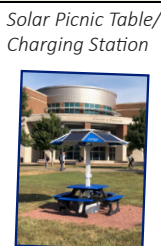
Approved Projects	2006-16	2016-17	2017-18	2018-19	2019-2020	2020-2021	Totals
Green Power Purchase	\$ 2,050,000	\$ 150,000	\$ 150,000	\$ 50,000	\$ 50,000	\$ 22,500	\$ 2,472,500
Air Compressor System- Integrated control module/program						\$ 6,000	\$ 6,000
Air Handling Units Energy Upgrades Rec					\$ 70,000		\$ 70,000
Air Flow Meter Installations	\$ -	\$ 9,000	\$ 3,500				\$ 12,500
Alternative Fuel- Biodiesel Production Project	\$ 2,500						\$ 2,500
Alternative Fuel- Convert a Bus to Run on Used Cooking Oil	\$ 15,000						\$ 15,000
Alt Fuel- Convert Vehicle to Operate on Natural Gas/Installation of Compressed Gas Station	\$ 8,500						\$ 8,500
Alt Fuel- Comparing the Pollutant Emissions for Various Alt Fuels	\$ -		\$ 5,944				\$ 5,944
Alt Fuel- Development of Flex-Fueled Engine (ph1 solar,ph2 hydrogen)	\$ 54,000						\$ 54,000
Alt Fuel - Development of High Performance Additive fuels to Reduce Emission of Pollutants						\$ 4,474	\$ 4,474
Alternative Fuel- Hybrid/Alternative Fuel Vehicle Project	\$ 47,850						\$ 47,850
Alternative Fuel- Increasing Production Capacity of Biodiesel	\$ 9,965						\$ 9,965
Alternative Fuel- Kenaf Agriculture for Sustainable Community	\$ 5,935						\$ 5,935
Alternative Fuel- Multi-fuel Bus Emission Testing Project	\$ 10,944						\$ 10,944
Alternative Fuel- Propane Powered Mower (6)	\$ 23,223		\$ 13,000	\$ 12,600	\$ 13,600	\$ 13,600	\$ 76,023
Alternative Fuel- Running Vehicles off Wood Gasification	\$ 4,500						\$ 4,500
Bee Keeping and Colony Collapse	\$ 10,000						\$ 10,000
Battery Operated Grounds Equipment (40V lithium-ion)	\$ -	\$ 2,500					\$ 2,500
Bicycle Friendly Campus/shelters PH (1)/ shelter PH (1)	\$ 88,132		\$ 9,000	\$ 11,500	\$ 11,500	\$ 5,800	\$ 125,932
Biofuels- Cellulose Production/Optimization-Conversion to Ethanol				\$ 3,980			\$ 3,980
Biofuels- Conversion of Oyster Shells into Catalyst for Biofuels				\$ 3,900			\$ 3,900
Biofuels- Ultrasonic Generator and Biotech Applications Research	\$ 6,360	\$ 4,820					\$ 11,180
Biorenewable Solvents for Pigment Extraction and Textile Dyeing				\$ 380			\$ 380
Blast Hand Dryers for REC/ Hand Dryers (LIB,FAIR)	\$ 11,270	\$ 9,107					\$ 20,377
Boiler Sequencing Controller- M2G (ING)	\$ 7,698						\$ 7,698
BTU Meters for Chillers at Chiller Plant and Satellite	\$ -		\$ 9,000				\$ 9,000
Bypass Feeders (15 buildings)	\$ -	\$ 9,800					\$ 9,800
Change Hot Water Valve Tops in Murphy Center	\$ 6,502						\$ 6,502
Chilling Plant- Pressure Gauges Installation	\$ 1,000						\$ 1,000
Clean/Replace Coils AMG, BRAGG, FH, VET, JUB, FAIR, KUC, TCM, BDA, WPS, TLC, MB, MC, CKN, KOM,BAS,KOM,JH,Todd,KUC,many buildings	\$ 74,651		\$ 9,500		\$ 4,000		\$ 88,151
Closed Loop Sediment Filtering System (KUC, LIB, MC, TODD, SAG, VET, LRC, BRAGG, JH, CAB, CKNB, EHS, BDA, BAS, WMB, MEC other Bldgs)	\$ 211,350			\$ 10,000		\$ 5,000	\$ 226,350
Dehumidifier Project in VET 108	\$ 13,600						\$ 13,600
Development of a Biosensor to Detect Hydrogen Production	\$ 4,250						\$ 4,250
Energy Analysis- Building Heating/AC Energy Efficiency Study	\$ 1,500						\$ 1,500
Energy -Conduct Light Level Studies in TODD, BRAGG, BAS, PH	\$ 5,500						\$ 5,500
Energy - Data Loggers for Energy Efficiency Analysis	\$ 6,000	\$ 2,060					\$ 8,060
Energy -Flow Meter; Compact Infrared Cameras for Energy Audits	\$ 13,350		\$ 5,000				\$ 18,350
Energy Analysis- Infr Thermometer Guns/Sensors&Monitoring Tools	\$ 500		\$ 4,905				\$ 5,405
Energy Analysis- Siemens Energy Analysis for SCI	\$ 12,000						\$ 12,000
Energy Analysis- Steam Trap Ultrasonic Test Equipment	\$ 2,600						\$ 2,600
Energy Analysis- Test and Balance Hot Water System (KUC)	\$ 12,716						\$ 12,716
Energy Books Purchase for LIB and Facilities Offices	\$ 6,323						\$ 6,323
Energy Conservation Project in BDA: Motion Sensors	\$ 4,568						\$ 4,568
Energy Efficient Replacement Washer	\$ -		\$ 11,617				\$ 11,617
Flowmeter BTUmeter for MC/VET/AMG/RH				\$ 9,000	\$ 27,000		\$ 36,000
Hot/Chilled Water Valve Assessment	\$ 5,000						\$ 5,000
HVAC Controls Replacement (WMB)	\$ 29,950						\$ 29,950
HVAC Pleated Filter Projects- SCI, JH, FAIR, BRAGG, CKNB, Horse Science, HOB, WMB, ROTC, COE, HONR, Public Safety	\$ 19,999						\$ 19,999
HVAC Pocket Filter- Multiple Buildings (21+)/ Synthetic CKN,PH,BRAG	\$ 137,849	\$ 10,175	\$ 2,976	\$ 3,905		\$ 10,765	\$ 165,670
Install FilterPave Porous Pavement in Parking Lot on Champion Way	\$ 18,665						\$ 18,665
Install Variable Frequency Drives- JH, LIB, BDA,MC,BAS	\$ 35,292	\$ 18,554				\$ 7,743	\$ 61,589
Install Variable Speed Drive Motor Additions - 2 phases Rec Center				\$ 30,994			\$ 30,994
Install Milk Cooling System at the MTSU Farm	\$ 17,500						\$ 17,500
Install a Geothermal Cooler System on the MTSU Farm	\$ 27,150						\$ 27,150
Installation of Programmable Thermostats in F/S Maintenance Shops	\$ 1,200						\$ 1,200
Installation of Variable Speed Compressor in COGN	\$ 24,000						\$ 24,000
Insulate Pipes- Multiple Buildings (19+)	\$ 116,409			\$ 16,200			\$ 132,609
Insulated Garage Door Replacement- Motor Pool	\$ 3,950						\$ 3,950
ITD-AMX Resource Mgmt Suite Sys Upgrade; Virtual Mgmt Software	\$ 17,500						\$ 17,500
ITD- "Lights out" Cope Data Center	\$ 1,316						\$ 1,316
Lab Upgrade of Instr (ICP-OES) Donated by TN Health Dept. Lab	\$ -		\$ 7,400				\$ 7,400
Lamp Crusher	\$ 4,000						\$ 4,000
Landscape - JUB						\$ 8,000	\$ 8,000
Laser Alignment Devices	\$ 5,681						\$ 5,681
Light Switch Plate Labels	\$ 2,500						\$ 2,500

(Continued on page 23)

Approved Projects	2006-16	2016-17	2017-18	2018-19	2019-2020	2020-2021	Totals
Lighting- Ann Campbell Early Learning Center LEDs				\$ 5,696			\$ 5,696
Lighting- Retrofits Mechatronics Lab, MTSU Airport Ramp Lights	\$ -	\$ 9,050		\$ 4,300			\$ 13,350
Lighting- Retrofitted LEDs/ Outside Lamps : Old Main Circle, Walnut Grove, Rutherford Lot, E Alumni Dr, Greek Row, Ezell, Womack, Sims/Beasley, DSB, JUB, RH, VET, JACK				\$ 39,412	\$ 39,600	\$ 39,600	\$ 118,612
Lighting- Occupancy Sensors Honors Building	\$ 3,372						\$ 3,372
Lighting Projects LEDs- LIB Atrium; REC Cardio Room/indoor pool; BRAGG & PH; studio BRAGG & LRC; VET; BAS S lobby; LRC 221; WMB Hinton Hall; VET 120 lab, LIB student area	\$ 119,268	\$ 18,377	\$ 38,144		\$ 5,600		\$ 181,389
Lighting- Re-lamp KKNB (existing portion) and FAIR	\$ 61,200						\$ 61,200
Lighting- Replacement of Incandescent Lamps in MC	\$ 5,729						\$ 5,729
Lighting- Re-lamp MTSU Parking Garages with LEDs				\$ 36,658			\$ 36,658
Manhole Cover Replacement			\$ 6,600				\$ 6,600
Microfiber Cleaning System				\$ 1,296			\$ 1,296
Outside Air Damper with AFM Station included for KOM, BAS, Bldgs/ BAS				\$ 40,000	\$ 20,000		\$ 60,000
Permeable Pavers for Sustainable Learning Environment (FH)	\$ 13,050						\$ 13,050
Polution monitoring of Middle Point Landfill - water					\$ 7,990		\$ 7,990
Poster Campaign and Earthwise Reusable Bag Project	\$ 18,160						\$ 18,160
Pressure Differential Sensors for MOH, BRAG, CKN, DSB, JUB, others				\$ 4,000		\$ 4,000	\$ 8,000
Proteat Mold Treatment for Air Handling Units	\$ 1,400						\$ 1,400
Re-caulk Exterior Windows (DSB)	\$ 14,000						\$ 14,000
Recycling- Community Drop-Off Upgrades	\$ 3,000		\$ 5,500				\$ 8,500
Recycling Support for Special Events (7)	\$ 10,500	\$ 3,500	\$ 3,500	\$ 3,500	\$ 3,500		\$ 24,500
Recycling Supplies for MTSU Recycling Program	\$ 73,500	\$ 4,000		\$ 3,500	\$ 9,600	\$ 3,000	\$ 93,600
Recycling- Increase Behavior by Applying Behavior Sci Principles	\$ 1,300						\$ 1,300
Recycling- Pickup Truck Purchase	\$ -	\$ 14,000					\$ 14,000
Recycling Pilot Program: Dorm Room Recycling Bins	\$ 9,000						\$ 9,000
Recycling- Animation Contest with Recycling or Sustainability Theme	\$ -		\$ 750				\$ 750
Recycling- Promotion of SCF Program/RecycleMania	\$ 1,000			\$ 2,000			\$ 3,000
Recycling- Technology Lab Resources	\$ 1,800						\$ 1,800
Replace Older Motor with Energy Effic motor in HOB, WMB, SAG, MC, TLC	\$ 44,543	\$ 12,851					\$ 57,394
Replace Older Pump with Energy Efficient Pump (KUC)	\$ 5,424						\$ 5,424
Replacement of Exterior Windows (MB, HOB)	\$ 60,000						\$ 60,000
Replacement of VFD for BAS HVAC Return Fan (ph- 1 of 5)	\$ -		\$ 9,900				\$ 9,900
Research- Eco-Friendly Bio-Composting of Horse Carcasses	\$ 31,140						\$ 31,140
Research- Bring Green Chemistry to Campus (pHVI)(pHVII)(pHVIII)	\$ 18,255	\$ 3,017	\$ 3,250	\$ 3,510	\$ 2,723	\$ 2,402	\$ 33,157
Research- "Clickable" Polymers	\$ 600						\$ 600
Research- Develop Novel Approach to Producing Biofuel	\$ 9,500						\$ 9,500
Research- DRIPS Project (D and R into Pervious Surfaces)	\$ 13,500						\$ 13,500
Research- Environmentally Benign Synthesis Using Electrochemistry	\$ -		\$ 3,100				\$ 3,100
Research- Pesticide Impacts on Soil Microbe Health	\$ -		\$ 8,500				\$ 8,500
Research- Plastic Recycling Priorities: Quantifying Different types of Microplastic Particles found in Surface Water						\$ 6,636	\$ 6,636
Research- Sustainable Design: Recycling of Ginseng Plant Waste for Biofuel Using Pond Microbe	\$ -		\$ 9,000				\$ 9,000
Research- Turning Manure into Gold	\$ 1,000						\$ 1,000
Restroom Flush Valves Replacement (LIB)	\$ -	\$ 9,020					\$ 9,020
ReRev Cardio System Elliptical Machines in REC	\$ 30,000						\$ 30,000
Self-Sustainability Initiative Through Alternative Horticulture	\$ 10,000						\$ 10,000
Server Consolidation/Visualization- Health Services	\$ 20,000						\$ 20,000
Siemens Ctrlrs for Var Air Vol Boxes - LIB (26 boxes)/LIB (30 boxes)				\$ 10,560	\$ 12,534		\$ 23,094
Solar- Unmanned Aircraft System Solar Project						\$ 32,980	\$ 32,980
Solar Attic Fans in FH and EHS/ WH	\$ 28,932				\$ 3,500		\$ 32,432
Solar- Big Belly Solar Trash Compactor (9)/software upgrade	\$ 23,094	\$ 11,789	\$ 11,800		\$ 7,540		\$ 54,223
Solar- Golf Cart Conversion 1 and 2 (electric to solar)	\$ 24,380						\$ 24,380
Solar- Install 8kW System	\$ 81,224						\$ 81,224
Solar- Patio Umbrellas (2) / Picnic Table (2)	\$ 4,500			\$ 13,195	\$ 13,700		\$ 31,395
Solar- Buy Organic Dyes for Organic Dye Sensitized Solar Cells	\$ 1,100						\$ 1,100
Solar- Boat Project/ Student projects trailer	\$ 14,011				\$ 5,000		\$ 19,011
Solar- WMTS-FM 88.3 Solar Power Supply Project	\$ 31,900						\$ 31,900
Stwater Ctrl Proj- Rain Gardens, Bioremediation Ponds for M54	\$ 38,859	\$ 11,500	\$ 5,000				\$ 55,359
Compliance/Maint, Bank stabilization, PKG Lot Run-Off, Native Plants							
Student Suitabilities Ed. Initiative ; Learning Garden-Raised Bed	\$ 2,500					\$ 4,000	\$ 6,500
Sub-Metering for Chilling Plant and MC	\$ 8,000						\$ 8,000
Tree Planting Projects (7)	\$ 8,500	\$ 15,500	\$ 12,500	\$ 11,000	\$ 8,000	\$ 6,000	\$ 61,500
Ultrasonic Transmitters (MGB)	\$ 18,130						\$ 18,130
Water Conservation for Rural and Urban Citizens	\$ 25,000						\$ 25,000
Water Refill Stations- SGA Resolution 7-14-F, Multiple bldgs (61 units)	\$ 29,585	\$ 31,532	\$ 41,212	\$ 25,200	\$ 12,200	\$ 17,500	\$ 157,229
Y-pattern Valve Changeout- COGN	\$ 7,600						\$ 7,600
<b>Total:</b>	<b>\$ 4,127,804</b>	<b>\$ 360,152</b>	<b>\$ 390,598</b>	<b>\$ 356,286</b>	<b>\$ 327,587</b>	<b>\$ 200,000</b>	<b>\$ 5,762,427</b>



Tree Projects



Solar Picnic Table/  
Charging Station



Water  
Refill  
Stations



Bike Shelters




Recycling bins



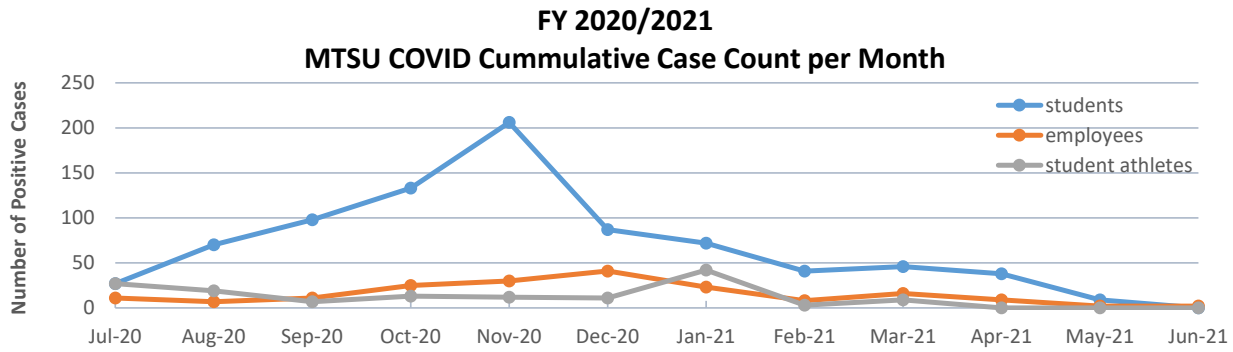
Big Belly Solar Trash  
Compactors




<https://www.mtsu.edu/coronavirus/>

EXPLORE LEARN BELONG APPLY QUICK LINKS

MTSU RESPONSE to Coronavirus Disease



Home  
Stay on Course  
Return-to-Work Plan  
Return to Campus FAQs  
Employee COVID-19 Precautions  
Student COVID-19 Precautions  
MTSU COVID-19 Task Force  
Key Decisions and Indicators  
Schedule Changes  
MTSU Student Health Services  
Return to Floyd Stadium  
MTSU Education Abroad  
CARES Act Disclosures  
Health Resources

### Reporting Requirement

In order to keep Student Health Services informed on the campus community's status please fill out this [online form](#) for students, faculty, or staff who:

- Test positive for Covid-19 OR
- Have symptoms consistent with COVID-19 OR
- Have sought COVID-19 testing OR
- Are close contacts of positive COVID-19 persons





Cleaning: UV lamps, electrostatic sprayers, hand sanitizing units, disinfectant supplies



Increased ventilation levels & Installed Merv 13 and 15 filters in specific areas






Signage across Campus













## Actions 2020/2021: University and FSD Teamwork

The University faced several challenges dealing with the continuation of COVID-19. From initial planning to support in dealing with the progressing pandemic, Facilities Services (FSD) was at the forefront of decisions and activities associated with campus facilities, operations, and EH&S (Environmental Health and Safety).

The following is a partial list of actions implemented associated with the Spring 2020 campus shut-down and/or the phased reopening in the Summer and Fall of 2020.

### Plexiglas

- Ordered/installed Plexiglas in public interface areas
- Ordered installed Plexiglas in non-private office areas

### Hand Sanitizer

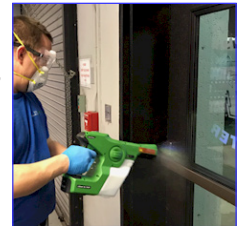
- Ordered/distributed hand sanitizing stations in public areas in buildings (FSD)
- Purchased/Distributed hand sanitizer to departments on demand (Purchasing)



*Plexiglass barriers*

### Cleaning/Disinfecting

- Added custodial staff for increased disinfecting of classrooms at night and high touch areas of buildings throughout the day
- Provide disinfecting services in areas after an employee tests positive for COVID as needed and directed by Health Services
  - disinfecting products
  - electrostatic sprayers
  - UV lamps
- Purchased/Provided hundreds of disinfecting kits to staff for individual disinfecting of high touch areas in labs and office areas
- Purchased/Provided disinfecting wipes to faculty for individual disinfecting of teacher stations in classrooms



### Ventilation

- Modify Ventilation schedules of air handling equipment to increase outside air (where possible)
- Increase filtration levels of air handling equipment (where possible)
- Added/adding ionizing and UV equipment to air handling systems in high risk areas (Health Services, Central Plant, Athletic areas)

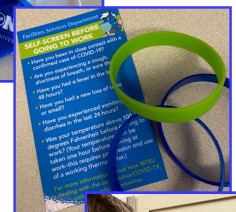
### Other \*

\*Many of these actions/protocols have been and continue to be modified in conjunction with the University's guidelines through the various pandemic phases.

- Adhere to safety protocols including:
  - self screen
  - masking
  - hygiene
  - social distancing
- Provided COVID training to campus via EH&S training platform
- Purchased/Provided thermometers to campus community for on-site employee health checks
- Perform on-site employee health checks
- Water fountains taken off-line returned to service
- Purchased/Provided masks to campus community
- Created and issued a safety protocol acknowledgment for contractors and vendors on campus
- Established/Implemented alternative work schedules for employees
- Established Occupancy limits for spaces and elevators across campus
- Installed signage in buildings across campus (Event Coordination)
- Implement safety protocols for employees
  - gathering on campus
  - traveling across campus in vehicles



*Masks & screening*



These actions have served, and will continue to serve, as critical elements in the overall University plans for operating the campus during the pandemic.

I AM *true*  
**BLUE**

For more information about the University plans, see the University Coronavirus webpage at <https://www.mtsu.edu/coronavirus/>



## *Summary of Services 2020/2021 Annual Report*

This report is produced by the FSD assistant vice president and staff and published by FSD Administration.  
Linda Hardymon, Editor/Publishing Coordinator

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