



UNIVERSITY OF
MARYLAND

DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY AND RISK
ANNUAL REPORT
2020-2021



MESSAGE FROM THE EXECUTIVE DIRECTOR



The Department of Environmental Safety, Sustainability and Risk (ESSR) at the University of Maryland, College Park (UMD) is committed to providing leadership in the identification, management, and mitigation of safety and environmental risks in addition to fostering safety and sustainability on UMD's campus.

The University community first heard about a novel coronavirus—then referred to as 2019-nCoV—from the University Health Center on January 22, 2020. A week later, the University was monitoring news about cases in the United States and by early March 2020, three confirmed cases were identified in Montgomery County, Maryland. On March 30, 2020, the University implemented virtual learning for all classroom instruction and instructed employees to telework if their job

functions could be done remotely. On August 3, 2021, the University announced it would resume most on-campus learning and operations for the Fall 2021 semester—almost seventeen months after SARS-CoV-2 arrived in the United States. Campus operations resumed with a low positivity rate due to the on-going mask mandate and 98.4% fully vaccinated rate (as of November 30, 2021).

Though the University operated at limited on-campus research and academic capacity for the fiscal year, ESSR remained active onsite to continue its important work in providing essential services and regulatory required activities. The Office of the Fire Marshal conducted walkthroughs of buildings to assess fire code compliance, conducted annual fire inspections, conducted fire drills in residential facilities, reviewed construction plans, and conducted testing and code inspections on construction sites. The Office of Research Safety provided onsite support for laboratories that use radioactive materials. The Office of Environmental Affairs continued its regulatory required inspections and provided regulated waste pickup and disposal services. Occupational Safety and Health conducted respirator training and fit testing for healthcare workers, certain researchers, and University Police Department (UMPD).

The department also adapted to support the remote learning and working community, establishing virtual programs to support training, communication, and engagement. ESSR provided hazardous materials and fire extinguisher training to UMPD and moved the residential assistant fire training online. A new course was developed for Non-human Primate Herpes B virus (for applicable researchers) and the two new trainings on *Workplace Safety for Employees and Workplace Safety for Researchers and Supervisors* were added online.





MESSAGE FROM THE EXECUTIVE DIRECTOR CONTINUED

ESSR also released a number of important, campus-wide initiatives during the 2021 fiscal year. These include a new Research Safety Standard; a new SustainableUMD Progress Hub; online BioRAFT modules for facilities, equipment and lab signage; working with the Vice President of Administration on Enterprise Risk Management; and participating in the facilities for a number of entrepreneurial companies.

In addition to regular department efforts, ESSR also actively supported the University through participation in COVID-19 committees, workgroups, and task-forces. These included: Health, Safety & Risk Management Task Force; Return to Campus Work Group; Student Life Advisor Work Group; Face Coverings Task Team (chair); COVID-19 Testing, Metrics & Operations Monitoring Group; DC Area Consortium on Workplace Safety; UV Light for Air Disinfection; Incident Response Team; Campus Infectious Disease Management Committee; UMD Global Operations; and the Summer Campus Task Team.

ESSR had a very busy year supporting the University through the pandemic while continuing the regular work of the department. On his first day in office as the University's 34th President, Dr. Pines wrote to the campus about his two priorities—to promote excellence in everything we do and to create an inclusive, multicultural environment. ESSR stands ready to support these priorities and the goals and objectives that our new President sets for the future.

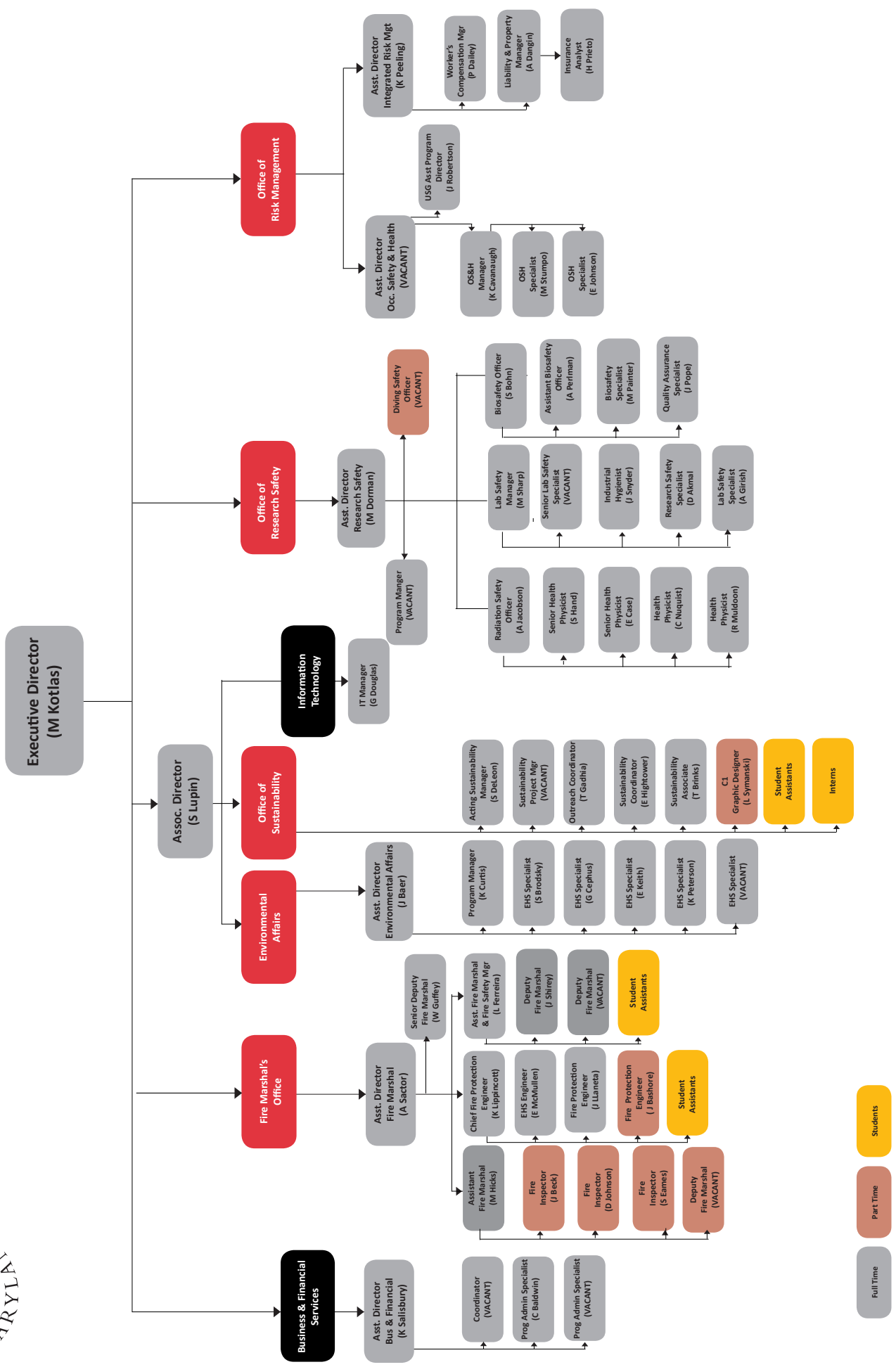
The following report will provide more information about the work that has been done by ESSR during Fiscal Year 2021.

Maureen Kotlas
Executive Director





DEPARTMENT OF ENVIRONMENTAL SAFETY, SUSTAINABILITY & RISK



Full Time
Part Time
Students

DEPARTMENT OF ENVIRONMENTAL SAFETY, SUSTAINABILITY & RISK

Our Vision

Our vision is a campus where safety and sustainability are core values at every level of the institution.

Our Mission

Our mission is to provide leadership in the identification and management of safety and environmental risks and to foster excellence in safety and sustainability through our technical expertise, our quality of work and our professional integrity.

Our Values

The Department of Environmental Safety, Sustainability & Risk (ESSR) holds these values as intrinsic to our mission—

Protect People and the Environment

We put the highest priority in returning people home the same or better than they arrived. Through education, training and knowledge sharing we promote a culture of safety and sustainability.

Excellence

We expect state-of-the-art competencies of ourselves and others in all areas of workplace safety, environmental management and sustainability. We deliver high quality programs and services to the campus community.

Leadership

Our people at all levels, have ownership and take initiative in their areas of responsibility and demonstrate the safe, sustainable and environmentally friendly behaviors we expect of others.

Service

We provide professional services to the University of Maryland community. We are a resource for those we support and we follow through on our commitments in a timely manner.

Diversity

We acknowledge and honor the fundamental value and dignity of all individuals. We are committed to inclusiveness and actively seeking and encouraging discussion and participation from a diverse group with different perspectives and experiences.

Collaboration

We are committed to building partnerships and working together to find the best solutions to collectively achieve our goals. We are open to new ideas and creative solutions. We seek to engage and motivate the campus community to accept ownership of the university's safety and sustainability culture.

The Office of Environmental Affairs (OEA) is engaged in three primary areas of focus – regulated waste management, environmental compliance assurance, and assisting with environmental aspects of property acquisition and development. OEA works with campus stakeholders to facilitate campus-wide compliance with federal and state environmental regulations. OEA helps the campus community manage environmental risk by developing policies, procedures, training, and consulting with campus entities including faculty, staff and students in labs, offices, and maintenance shops. OEA conducts required regulatory inspections, testing, and reporting. OEA provides oil and hazardous materials spill response and remediation services for the campus.

Regulated Waste Management Programs

The regulated waste programs encompass the collection, management, and disposal of all chemical, biological, radioactive and universal waste generated at the College Park campus and UMD's satellite facilities. OEA operates a fully-permitted hazardous waste storage facility on campus, one of only 14 such facilities in the State of Maryland. The facility's operations are performed in a cost-effective and safe manner to ensure that all waste is managed safely and practices meet all federal and state environmental regulations. In FY21, OEA collected and managed approximately 65,800 pounds of hazardous chemical waste, 29,100 pounds of biohazardous waste, and 1,300 pounds of radioactive waste. OEA also manages and disposes of regulated universal waste (batteries, fluorescent bulbs, and light ballasts), collecting and recycling approximately 50,600 pounds of universal waste in FY21. OEA was able to divert and recycle over 9,800 pounds of scrap and semi-precious metal last fiscal year and

diverted approximately 1,300 pounds of waste collected as municipal solid waste, which is significantly less expensive to manage than hazardous waste. Required regulated waste training was provided to over 1,620 University faculty, staff, and students during FY21.

Spill & Incident Response

Clean up and spill responses for most HAZMAT incidents are managed by the OEA unit. OEA staff are on call 24 hours a day, 365 days a year to respond to and mitigate environmental incidents on the campus. OEA responded to 18 incidents in FY21. Most of these spill responses were conducted solely by OEA staff, while several were conducted with the assistance of the Prince George's County Fire Department and other ESSR units. Additionally, OEA staff conducted investigations of 3 reported illicit stormwater discharges, as part of the Illicit Discharge Detection and Elimination (IDDE) program required by the MS4 stormwater permit.

Stormwater / Pollution Prevention Compliance & Training

Stormwater management, permitting, and pollution control efforts remained priorities for OEA, who currently oversees three National Pollutant Discharge Elimination System (NPDES) permits for the university: an Individual Industrial Permit, which specifically regulates campus discharges from outfalls to surrounding streams (Permit #08-DP-2618), a 12-SW Permit, which permits the discharge of stormwater from certain facilities that are targeted as high potential sources for stormwater pollution, and a NPDES Municipal Separate Storm Sewer System (MS4) Phase II General Permit (Permit #13-SF-5501), which covers the general discharge of stormwater run-off from land, pavement, building rooftops, and construction sites on campus. Collectively, these permits require the university to monitor its discharges, meet certain discharge limitations, maintain a Stormwater Pollution Prevention Plan (SWPPP), and employ Best Management



Chemicals inventoried for safe removal following laboratory cleanup





OEA Environmental Specialists test water at campus outfall

Practices (BMPs) to minimize pollutants discharged in the stormwater. In addition to stormwater management efforts on the College Park campus, OEA provided similar support to the IBBR and USG campuses in Rockville.

As required by the federal Oil Pollution Act, OEA has developed and maintains a Spill Prevention Control and Countermeasure (SPCC) Plan to prevent and mitigate oil spills on campus. OEA is responsible for tank and piping testing, monthly tank inspections, personnel training, above-ground fuel storage tank projects, and SPCC Plan revisions. The SPCC Plan currently has 380 oil-containing assets distributed throughout campus that must be inspected and maintained in accordance with the Plan. OEA provided similar SPCC support to the IBBR/USG campus, as well as the six research farms operated by the University.

During FY21, OEA continued the renewal of the University's Oil Operations Permit that allows for the storage, transportation, and dispensing of oil on the campus. This permit governs 95 oil storage tanks distributed throughout campus. SPCC Plan training and SWPPP training were provided to 476 University employees by OEA, as required by our various permits and the governing regulations.

Air Quality Permitting & Reporting

UMD is required under federal and state regulations to hold a Title V Air Quality Permit, primarily due to the university's Combined Heat and Power (CHP) facility. OEA collaborates with departments on campus to ensure that requirements associated with the Title V Air Quality Permit are completed and submitted in a timely manner. This includes testing fuel-burning equipment, permitting new fuel-burning equipment and reporting air emissions from the campus, including "greenhouse gas" emissions. OEA recently completed a facility-wide audit in support of the renewal of this permit, which governs the operation of approximately 100 pieces of fuel-burning equipment, including turbines, boilers, generators, water heaters, furnaces, and charbroilers.

OEA reviewed and commented on the draft Title V Air Quality Permit issued in FY21, a development in the renewal application process started in FY20. During FY21, OEA supported various campus departments with obtaining 10 air Permits to Construct for fuel-burning equipment.

OEA continued to support the IBBR campus with their state-issued air Permit to Operate for their relatively new micro CHP system. OEA continues to provide technical support to the University as we plan and implement the NextGen project, which seeks to refurbish the University's CHP facility.

Campus Development Initiatives

During FY21, OEA continued to provide support to the University when acquiring new property, developing existing properties, and engaging in new relationships with non-University entities. In addition to conducting environmental site assessments related to property acquisition/divestment transactions, OEA provided technical assistance to multiple partnerships with non-University entities, including the Purple Line Project, several start-up ventures, and projects related to the beneficial redevelopment of the University's former landfill areas and build-out of the Discovery District.

OFFICE OF THE FIRE MARSHAL

The Office of the Fire Marshal (OFM) works to preserve and protect life and property from fire, explosion, and natural hazards. This is accomplished through enforcement of the State Fire Prevention Code, fire protection engineering, training, public education, fire investigation, and emergency response and preparedness. OFM is the Authority Having Jurisdiction (AHJ) for the University of Maryland. Fire Marshals are delegated legal authority by the Maryland State Fire Marshal.

Virtual Fire Safety Training

When it became apparent that the pandemic related limitations of in-person instruction would be lasting more than a few months, fire safety training normally delivered in person was converted to online versions. An online version of Laboratory Fire Safety was posted on the ESSR website using the BioRAFT software. New Employee Orientation coordinated through UHR was presented through Zoom. Resident Assistant Training was updated and narrated by the OFM and posted on BlackBoard by Resident Life. Although the pandemic limited the number and size of events, some units used the opportunity of reduced operations to provide Crowd Manager training to all of their staff through Zoom sessions.

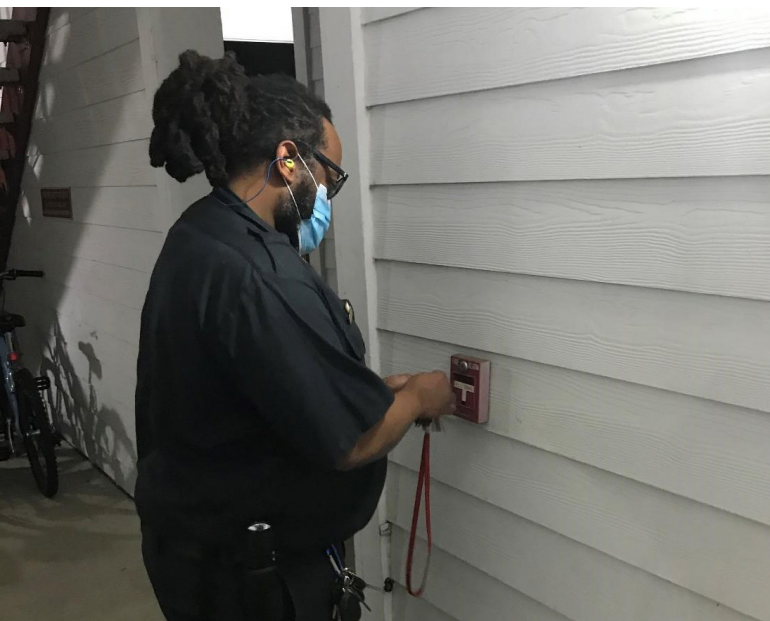
Fire Evacuation Drills – COVID Style

OFM coordinated a collaborative effort with Resident Life, Residential Facilities, the Office of Fraternity and Sorority Life, and Capstone Management to perform code-required fire drills with the following objectives for residents: learn the sound of the fire alarm, practice fire evacuation routes, and know the assembly areas for their buildings. Another goal was to limit exposure to COVID-19.

For this reason, fire drills were not conducted in quarantine/isolation housing whose residents were provided with building-specific fire safety information. New procedures were developed and implemented to send an email notice to residents before a drill was conducted to communicate information and expectations. Residents were also sent an email after the drill with feedback on their performance. Occupants were notified by posting entrances of each building with the date of fire drill. The results of the drills were shared in real time using Google Drive with the planning partners. The modifications were well received by residents who appreciated the enhanced communication. The OFM and planning partners expect that most of the changes will be continued even after the state of emergency has subsided.

OFM Works with Facilities Management to Meet Construction Deadline

A working group convened by the Chief Fire Marshal with key Facilities Management staff researched many possible factors for significantly reduced water pressure and flow at the Heritage Community construction site. They ultimately identified an old water line and closed valves as the primary sources of the water pressure problems. Facilities >>



A Deputy Fire Marshal activates the fire alarm at The Courtyards Heritage Community



Heritage Community construction site as seen from a lounge in Pyon-Chen Hall



Management was able to use an emergency procurement and secure accelerated WSSC approval to replace the 8-inch water main.

A plan was developed to address water supply issues in time for the scheduled opening of Pyon-Chen Hall for the fall semester. The plan included testing the fire pump to the performance level needed for sprinklers, evaluating the 8-inch water line, and securing the emergency procurement contract to repair or replace the water line. As a result, 800 feet of the water line was replaced and the fire pump was able to pass performance testing.

A contingency plan was also developed in case the fire pump/water pressure issue at Pyon-Chen was not resolved before the planned move-in date in August. Fortunately, the OFM and Facilities Management team were able to resolve the issue without needing to implement the contingency plan.

The Clarice Smith Performing Arts Center Gets Connected

The Clarice wood shop supports stage productions and is equipped with a wood dust collection system which is protected by a Flamex Suppression water system. To enhance safety and comply with the current State Fire Prevention Code, the Flamex suppression system was connected to the building fire alarm system. OFM arranged for the project to be paid for by available OSHA funds managed by ESSR. When the work was completed, an OFM Fire Protection Engineer witnessed the acceptance test with The Clarice scene shop staff.



An OFM Fire Protection Engineer (front) witnesses the Flamex acceptance test The Clarice scene shop staff

OFM Staff Support Fire Code Development

OFM staff not only work to enforce the fire code, they also strive to bring changes to the code that would better meet the needs of the university by serving on national consensus code and state code committees. Important code changes were submitted for the 2023 edition of National Fire Protection Association (NFPA) 45 Standard for Laboratories Using Chemicals, a code with extensive impact on UMD research and science instruction. Code change proposals include: a definition of open flame operations in laboratories with the minimum distance for open flames from combustible materials; and permitting non-listed, custom built electrical equipment and furnaces in labs to be field evaluated.

As a member of Maryland Fire Prevention Update Committee, the Chief Fire Marshal proposed an amendment to the fire code that would allow the authority-having jurisdiction to approve the use of one-gallon containers for alcohol-based hand sanitizer dispensers. The current allowable capacity of alcohol-based hand sanitizer dispensers is much less than a gallon. The Chief Fire Marshal approved the temporary use of one-gallon containers at UMD by Facilities Management in the early stages of the pandemic because they were the only products available from the UMD supplier. There was a general consensus of the Committee, led by the Office of the State Fire Marshal, that it was reasonable for the one-gallon containers to be used in light of the pandemic situation. The larger containers were not known to be a significant cause of fires and the pandemic was the greater threat.

OFM staff serve on the following committees::

- NFPA 101 Life Safety Code
- NFPA 45 Standard on Fire Protection for Laboratories Using Chemicals
- NFPA 3 Standard for Commissioning of Fire Protection and Life Safety Systems
- NFPA 4 Standard for Integrated Fire Protection and Life Safety System Testing
- NFPA 80 Standard for Fire Doors and Other Opening Protectives
- NFPA 105 Standard for Smoke Door Assemblies and Other Opening Protectives
- NFPA 5000 Building Construction and Safety Code
- State Fire Prevention Code Update Committee

RESEARCH SAFETY

The Office of Research Safety (ORS) includes the expertise of the Biosafety, Laboratory Safety, Radiation Safety, and Scientific Diving Safety professional staff who support the research community in meeting the *University's Expectations for Conducting Safe Research*. At UMD, our researchers know that research excellence and safety are inextricably intertwined. Thus, safety is a core value of our institution and an integral part of the responsible conduct of research. The University leadership expects all members of our research community to integrate safety into their research activities, to strive for excellence and to go beyond minimum compliance.

From collecting samples in remote areas around the world to handling hazardous materials within the research and teaching laboratories on campus, research often provides for multiple health and safety risks and regulatory requirements to be identified and managed. ORS offers a broad range of services and partners with the research community by providing comprehensive safety training classes, conducting risk assessments and exposure monitoring, and assisting with implementation of safety controls to minimize risks. ORS directly administers many of the university's federal and state licenses and registrations for hazardous and risk significant materials, ensuring regulatory commitments are met as the research community works to achieve their research goals.

RECOGNIZING OUR CAMPUS RESEARCH SAFETY CHAMPIONS

Each day our faculty, staff and students demonstrate the importance of safety by actively caring for others and identifying safer ways to do work and conduct research. Over the last year, together with ORS, university leadership has taken note of these engaged safety champions in our campus community. When positive, proactive measures were observed, the Vice President for Research provided each with an official University of Maryland Laboratory Research Notebook. Throughout the year, hundreds of University of Maryland Laboratory Research Notebooks were gifted to the campus research community with notes of "Thank You" and appreciation.

A New UMD Laboratory Research Notebook



A new University of Maryland Laboratory Research Notebook

Inspired by the university's efforts to strengthen the campus research safety culture and integrate safety into everything we do, ORS created a new University of Maryland Laboratory Research Notebook. The Office of the Vice President for Research funded an initial procurement. The notebooks include the *University of Maryland's Expectations for Conducting Safe Research*, contact lists for research support, and

guidelines to protect intellectual property. In addition to rewards for safety excellence, in 2020 these UMD Laboratory Research Notebooks went on sale through the University of Maryland Department of Business Services. Links to purchase a UMD Laboratory Research notebook were added to the ESSR ORS webpage.

Thank You to Safety Champion Jared Robinson

With an eye towards everyone's safety, Jared Robinson, an undergraduate senior employed as an assistant laboratory animal technician in the Department of Laboratory Animal Resources (DLAR), spoke up to his team when he identified a possible safety concern. Although

initially unsure if it was significant, Jared noticed an issue with missing information about a study's chemical agents. It turned out Jared was correct. His willingness to speak up and his concern for everyone's safety led to actions to help everyone work safer and to ensure compliance. Dr. Larry J. Shelton, the University Attending Veterinarian had the honor of presenting Jared with a UMD Laboratory Research Notebook. "Thank You Jared Robinson!"



Jared Robinson, UMD undergraduate senior, DLAR team member and Safety Champion accepts Laboratory Research Notebook

Thank You to Safety Champions Amber Johnson & the Students in ENME 432

The learning objectives for the School of Engineering class ENME 432 Reactor and Radiation Measurements Laboratory, includes understanding nuclear processes, radiation detection, and measurement techniques. Each week, the students are required to use radioactive materials to complete the interesting hands-on laboratory experiments. >>



In 2020, ENME 432 instructor Amber Johnson, who is also the Director of the Maryland University Training Reactor, along with the students were all recognized for the emphasis they place on safety. Since the start of this course many years ago, the first lecture and 4-hour lab have been dedicated to radiation safety. In addition, throughout the semester safety is intertwined in demonstrations and learning. This year each student was provided with a UMD laboratory Research Notebook. They will use these notebooks to detail their laboratory experimental data.



Instructor Amber Johnson, Director Maryland University Training Reactor & Radiation Facilities with the students in ENME 432

LEADERSHIP'S COMMITMENT TO SAFETY IN RESEARCH

In January 2021, the Vice President for Research, Senior Vice President and Provost and the Vice President for Administration signed into effect, a new University of Maryland Research Safety Standard. This action marked a significant milestone in the university's progression toward an "instinctive" safety culture - one where safety becomes integral in routine behaviors and can be expressed as "This is how we conduct safe research at the University of Maryland".

The new Research Safety Standard, was a collaborative effort of the Laboratory Operations and Safety Committee (LOSC) and ESSR's ORS. The Research Safety Standard documents the fundamental requirements and specific responsibilities in research areas where hazardous materials are present or where hazardous operations occur. The Research Safety Standard applies to traditional research laboratories as well as studios, makerspaces, workshops, machine shops in research departments, shared support facilities, field research, and research at university-owned farms. In addition to the fundamental requirements, the Research Safety Standard includes supporting procedures that will help the laboratories implement the safe practices in their spaces. Procedures include topics from appropriate laboratory attire, personal protective equipment, and completion of research safety training to communication and closure of laboratory inspection findings.

Funded Prescription Safety Glasses

The American Academy of Ophthalmology reports that more than 20,000 workplace eye injuries occur every year. According to the Bureau of Labor Statistics, over 10% of these work-related eye injuries involve chemical burns. Many eye injuries can be prevented by wearing appropriate

personal protective equipment, including safety glasses or goggles. Employees who require prescription eyewear face an additional challenge. They must wear safety glasses or goggles over their existing glasses or acquire prescription safety glasses. The simplest solution of wearing safety glasses over existing prescription glasses can cause glare, fogging, and discomfort. This often leads to employees removing their protective eyewear, putting themselves at risk. In addition, as part of an incident investigation within the campus laboratories, the ability to obtain prescription safety glasses was identified as a significant need at our campus.

In response to key recommendations of the LOSC, and with the support of ESSR's ORS, the Vice President for Research and the Senior Vice President and Provost funded a prescription safety glasses program for the campus research community. Over 185 researchers have requested prescription safety glasses through the funded program. ESSR's ORS was critical in the success of this initiative by selecting a variety of ANSI Z87 frames effective for research operations at the University of Maryland, establishing an off-campus resource compliant with COVID-safety protocols, and facilitating a master-contract with the support of the Department of Procurement and Business Services.



Steve Hand, Senior Health Physicist and Laser Safety Officer in the Department of Environmental Safety, Sustainability & Risk, shown wearing prescription safety glasses

The Office of Risk Management (ORM) supports the academic and operational departments in their efforts to manage risk using a number of methods that are complementary to the Maryland State Self Insurance Program and commercial insurance. The department regularly provides consultation with respect to hazard identification, loss control techniques, risk transfer and the application of commercial insurance.

Basics of Insurance and Liability at UMD

In February 2021, the ORM gave a virtual presentation titled “Basics of Insurance and Certificates of Insurance” for the Procurement and Business Services Department. The attendees received a refresher course on the types and amounts of insurance required for

professional services, construction, and commodity agreements; preferred insurance and indemnification language for contracts and agreements that provide the best liability protection for the University; and how to read and interpret a certificate of insurance. This knowledge sharing event reinforced how the ORM can support the mission of the Procurement and Business Services Department (plus other campus units) and at the same time, reduce the liability risks for the University. This presentation is available to all academic and operational departments.

presentation was so well-received, the team was invited by UHR for an encore presentation to students during finals week entitled “Finals...What A Pain.” OSH was invited by RecWell to produce a video with this information for student use. Ergonomic resources were emailed to participants and are available on the ESSR website.

Providing Respirators to UMD Employees

The OSH unit had a unique role in the COVID-19 pandemic response on campus by continuing to provide access to respirators for UMD employees. There was an increased need for all respirator types, including N95s, in order to ensure research and daily campus operations could continue. OSH quickly pivoted to remote training for new respirator users and moved the fit testing station to the research safety laboratory space in the Chemical and Nuclear Engineering Building. Staff wrote procedures to ensure social distancing and employee protection. This included partnering with Dr. Milton and his staff to quantitatively fit test newly designed face coverings and respirators for filter effectiveness. Approximately 200 quantitative fit testing sessions and 21 initial training sessions for respiratory protection were conducted in the fiscal year.

The Basics of Insurance and Certificates of Insurance

Katharine Peeling – Asst. Director for Risk Management
Andreas Dangin – Property & Liability Manager
Hector Prieto – Insurance Analyst

OSH Supports Ergonomics For Working at Home

Occupational Safety and Health (OSH) personnel collaborated with RecWell and University Human Resources (UHR) to develop and co-present “Work-From-Home Ergonomics and Productivity” for the virtual Human Resources Growth Workshop Series. This presentation included simple solutions from OSH personnel for improving ergonomics while teleworking. The RecWell team reviewed simple exercises and stretches which can be done next to a workstation for increased energy and flexibility. The



COVID-19 and Workers' Compensation

UMD's 2020 Workers' Compensation program was providentially impacted by the COVID-19 pandemic. Due to the pandemic occurring in the first quarter of 2020, the University initiated a complete online learning environment and teleworking for a majority of faculty and staff. This reduction in campus density resulted in a 50% reduction in OSHA recordable injuries and illnesses from the 2019 calendar year.

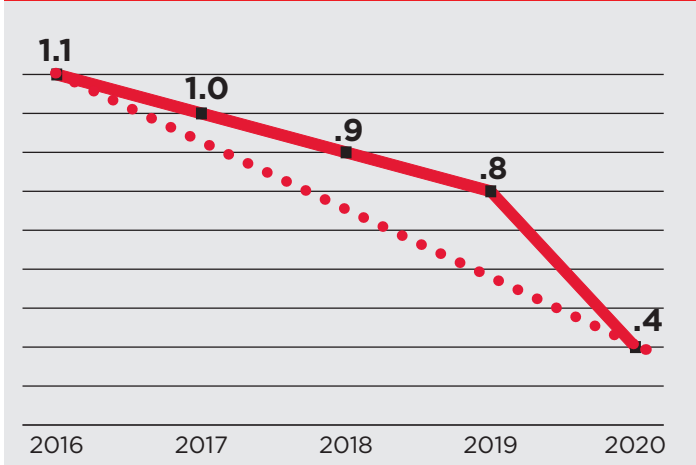
The U.S. Bureau of Labor Statistics (BLS) compiles a wide range of



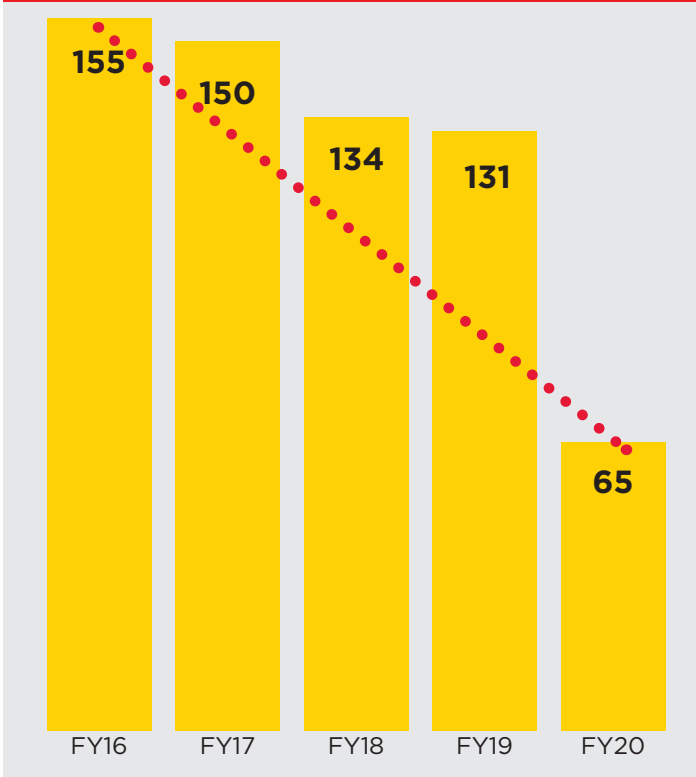


information about workplace injuries and illnesses. UMD uses the BLS Total Recordable Incidence Rate (TRIR) to compare how we are doing with other colleges and universities. Although we have seen a steady decline in our TRIR over the past 10 years, the 2020 TRIR also impacted by the pandemic is down 50% over the 2019 calendar year.

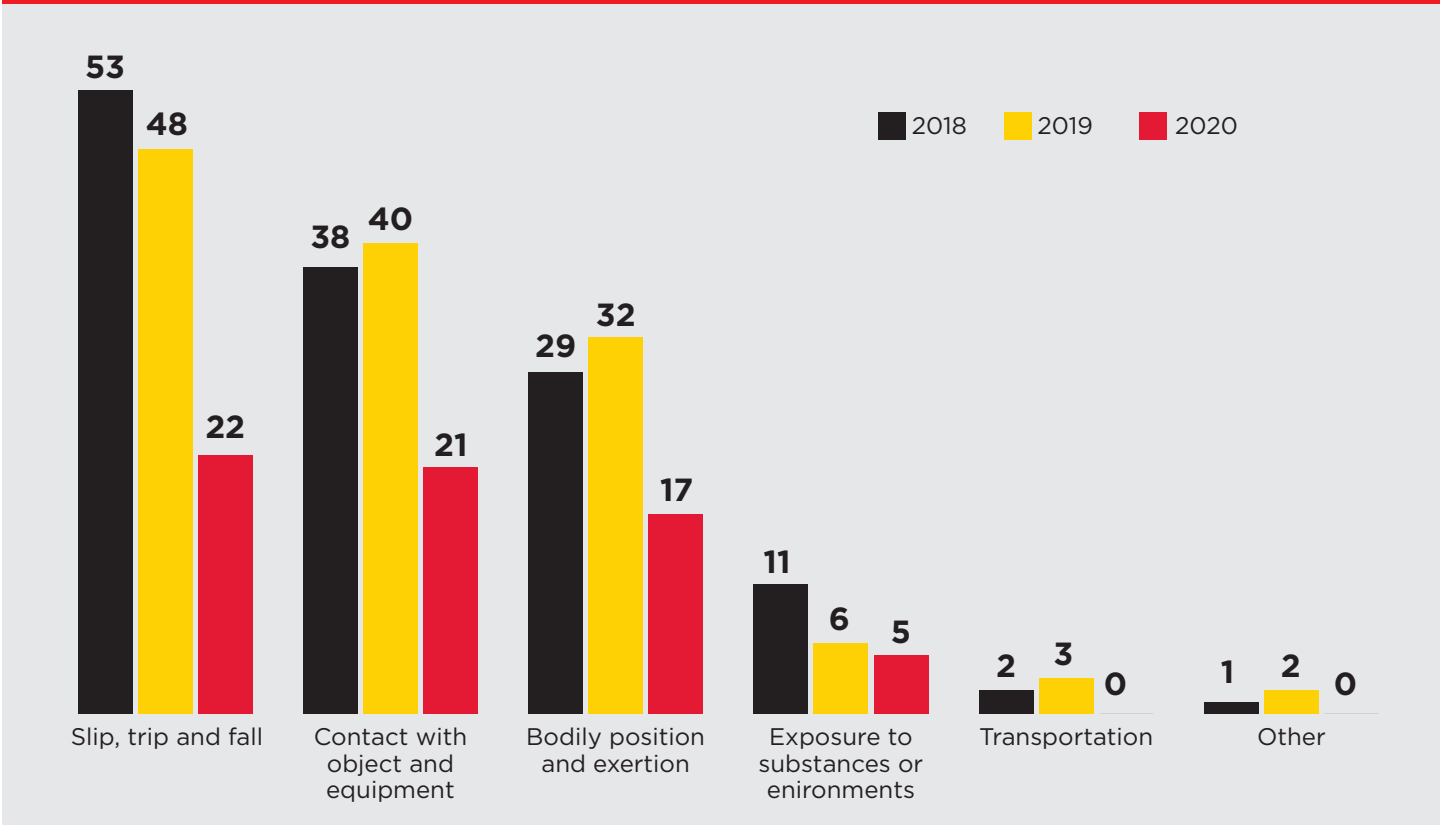
2016-2020 UMD OSHA Total Recordable Incidence Rates



UMD 5-Year OSHA Recordable Injury & Illnesses



2018-2020 UMD Recordable Injuries & Illnesses by Incident/Event



The Office of Sustainability (OS) supports and advances environmental performance, economic prosperity and social equality through a variety of initiatives. The staff facilitate the development and implementation of sustainable policies, practices and curricula for the campus community.

President's 2025 Carbon Neutrality Goal

In 2018, the Student Government Association submitted a letter to the Office of the President urging the university to accelerate its carbon neutrality goal from 2050 to 2025. The Office of Sustainability (OS) has since facilitated analysis and stakeholder engagement to determine viable pathways to meet the earlier date. As a result of this work, the Sustainability Council submitted specific recommendations to the President in May 2020 to officially change UMD's target date for carbon neutrality to 2025.

The Council's recommendations emphasized that the university should implement the most cost-effective solutions to achieve net-zero greenhouse gas emissions by 2025, continue efforts to phase-out fossil fuels, and develop long-term goals to become climate restorative.

The last would require the university's operations to remove more greenhouse gas emissions from the atmosphere than they emit. OS also provided support to present clear information to the President's cabinet on the topic of accelerated climate action.

As a result of this engagement and analysis process, University President Darryll Pines announced during his inauguration address on Earth Day 2021 that UMD will accelerate its Climate Action Plan goal to become a Net-Zero Carbon Neutral campus by Earth Day 2025. The new President emphasized that "we all must become climate ambassadors."



Solar panels on the Regents lane parking garage

UMD Fleet Electrification

At the request of the Vice President for Administration, OS analyzed the potential costs, savings, and greenhouse gas emissions reductions from converting UMD's fleet of approximately 1,100 vehicles to electric vehicles (EVs). OS assembled an advisory group including representatives from Facilities Management, the Department of Transportation Services, and the Administrative Modernization Program to guide the project. The group used the U.S. Department of Energy's Alternative Fuel Life-Cycle Environmental and Economic Transportation (AFLEET) tool to run the analysis.



Electric vehicle charging station

Results suggest transitioning by: replacing light-duty vehicles with EVs when existing vehicles need replacement; installing charging infrastructure in a phased way; seeking grants/incentives for EV purchasing and infrastructure projects; and replacing heavy-duty vehicles with EVs when the total cost of ownership, with or without grants/incentives, is at or below that of a comparable conventional vehicle. Lastly, the results suggest UMD mitigate the climate impact of fleet emissions using verified carbon credits during the transition to a fully electrified fleet.

The analysis made its way to the desk of President Pines, who announced during his inauguration address that UMD will have a 100% EV fleet by 2035.

SustainableUMD Progress Hub

OS launched a new website (sustainingprogress.umd.edu) to help the UMD community track campus-wide progress toward university and global sustainability goals. The site aims to kick off the next decade of sustainability at UMD through an interactive, digitally-based platform for sharing stories and data on climate action, smart growth, sustainable food, waste minimization, resilient watersheds and other sustainability challenges at UMD.





Student volunteering at the Community Learning Garden on Good Neighbor Day

Pandemic Impact on Energy and Greenhouse Gas Emissions

OS worked closely with the Engineering & Energy unit in Facilities Management to assess the impact of remote working on UMD's campus carbon footprint. During the COVID-19 pandemic, campus energy consumption decreased 7% and net greenhouse gas emissions decreased around 4.5% as the University transitioned to remote learning and working environments. Analysis shows that around 85% of building-level energy consumption is required to maintain building base-load operations but campus occupancy drives the use of propane, fuel oil, and other campus stationary fuels. UMD saw major reductions in greenhouse gas emissions from air travel and commuting, moderate reductions from solid waste disposal, and minor increases from electricity and steam generation at the Combined Heat and Power (CHP) plant as the boilers returned online after a two-year repair period.

University Sustainability Fund

Over the past 11 years, the Sustainability Fund awarded \$3.2 million in grants to 156 projects at UMD, including the carbon offset project that neutralizes all greenhouse gas emissions from undergraduate student commuting initiated in 2018. OS administers the Fund and coordinates a student-majority committee that reviews grant proposals and makes funding recommendations to the University Sustainability Council. All revenue comes from undergraduate student fees.

The Fund played a special role in 2020-2021 by providing financial support for sustainability programs that would have been suspended due

to COVID-19 related budget constraints. OS received a grant to support five positions that are critical for making progress toward achieving UMD's sustainability goals.

Several innovative projects also received grants in 2020-2021 including \$120,000 for the reconstruction of the award winning reACT Solar Decathlon house on campus as a living lab for sustainability, over \$30,000 for global sustainability experiential education opportunities, and \$50,000 for the next phase of the environmental restoration of Campus Creek, among several other projects.

Sustainability Outreach

OS continued to collaborate closely with the Department of Residential Life, the Department of Fraternity and Sorority Life, Dining Services, and Facilities Management throughout the year to promote a culture of sustainability among students, staff, and faculty. OS supported and guided student leaders on the Sustainability Outreach Team to conduct virtual programming, create digital toolkits to support sustainability while socially distancing and working from home, and support outdoor events on campus. Four outreach interns helped train and coordinate 16 Green Terp Ambassadors who worked throughout the year to assist with outreach programming and digital social marketing.

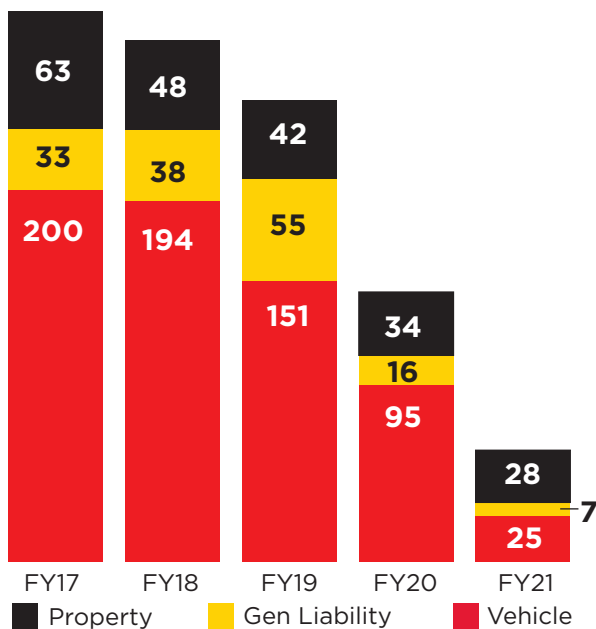
OS and SustainableUMD partners launched the Green Terp dialogue series to encourage student discussion of sustainability issues and solutions. Throughout the year, the dialogues focused on sustainable transportation, energy, waste reduction, and sustainable food. During the year, 1,237 students registered for Green Terp programs and 796 students achieved certification.



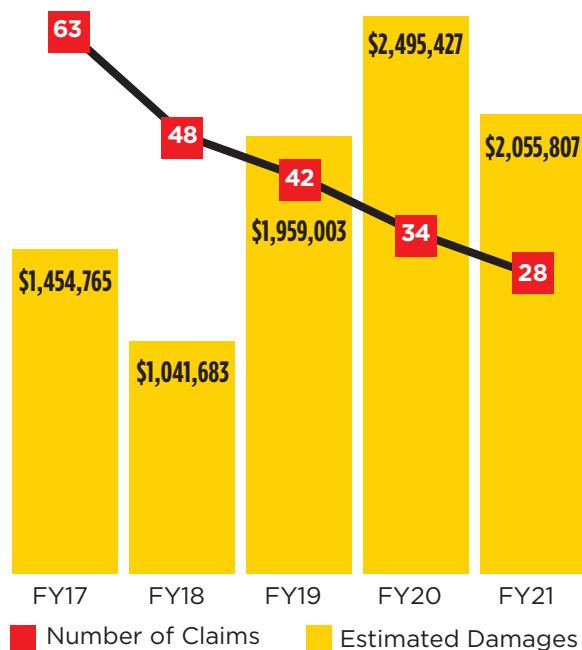
Members of the Green Terp Outreach team at a campus event

METRICS

INSURANCE PROCESSING CLAIMS FY17-FY21



PROPERTY CLAIMS FY17-FY21



FY21 PROPERTY CLAIMS

| Type of Claim | Reason Detail | Number of Claims | Damages (in dollars) |
|--------------------|--------------------|------------------|-----------------------|
| FLOOD | EQUIPMENT FAILURE | 5 | \$240,000.00 |
| | WEATHER | 2 | \$710,000.00 |
| | OTHER | 1 | \$300,000.00 |
| | BACKUP SEWER | 7 | \$520,000.00 |
| | PIPE FAILURE | 2 | \$109,520.00 |
| | FOUNDATION PROBLEM | 1 | \$30,000.00 |
| OTHER | | 6 | \$49,440.00 |
| FIRE | | 1 | \$75,000.00 |
| POWER OUTAGE | | 3 | \$21,846.51 |
| GRAND TOTAL | | 28 | \$2,055,806.51 |

FY21 GENERAL LIABILITY

| Type of Claim | Number of Claims |
|--------------------|------------------|
| TORT INJURY | 2 |
| TORT PROPERTY | 5 |
| GRAND TOTAL | 7 |

FY21 STATE VEHICLE CLAIMS

| Type of Claim | Number of Claims |
|--------------------|------------------|
| BACKING | 6 |
| OTHER | 5 |
| REARENDED | 3 |
| SIDESWIPE | 11 |
| GRAND TOTAL | 25 |

TRIR = # of injuries x 200,000 ÷ total # hours worked.
 UMD's 2018 TRIR is 0.9 continuing the downward trend. The Bureau of Labor Statistics (BLS) uses the North American Industry Classification System (NAICS) for industry comparison. The NAICS 2017 TRIR calculation (most recent) for colleges, universities, and professional schools (6113) is 1.71. UMD continues to outperform the national average.



DEPARTMENT OF ENVIRONMENTAL
SAFETY, SUSTAINABILITY & RISK

www.essr.umd.edu

301.405.3960