Environmental Health and Safety

Annual Report

of the Vice-President (Finance and Administration)

2017

To the Building Program Committee

Of the Board of Governors

April 2018

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1. EXECUTIVE SUMMARY

The Annual Report on Environmental Health and Safety (EHS) summarizes the effectiveness of Carleton's efforts in managing the operational risks of a research and educational intensive university.

The Environmental Health and Safety Office is a critical partner in support of Carleton's mission through developing, promoting and implementing best practices in prevention strategies while balancing these with responsible risk taking:

- By establishing structures, policies, standards, programs and educational opportunities
- By managing Carleton's response to regulatory issues related to health and safety, the environment and research associated areas
- By identifying opportunities to influence change in safety awareness
- By ensuring early identification of emerging trends and recommending proactive responses
- By fostering and strengthening a culture of collaborative prevention and effective resolution of health and safety concerns
- By embedding sustainability principles in all our operational, research and academic endeavours

More then ever, Carleton is subject to an increasing array of health & safety and compliance legislation, increasing in complexity, as traditional Employer boundaries are broadened to include our students and broader community given societal influences. These require differing intensity of activities, program development, training and documentation for compliance. As such, these require a robust internal responsibility system to ensure we support Carleton's core pillar of innovation in research and education, while ensuring that Carleton is managing risks responsibly.

Table 1: Key Performance Indicator Changes between 2016 and 2017

	2016	2017	Change
# of Critical Injuries	3	4	
Days Lost to Injury Claims	48	42	
# of Lost Time Injuries	7	8	
Average # of Lost Days/Injury Claim	6.9	5.25	
# of Good Catches Reported	89	160	
# Responses to Fire Alarms	108	87	
H&S Awareness Training (%completion)	70	63	

1.1 2017 ACHIEVEMENTS AND SUCCESSES

- Conducted survey of 250 full time staff and faculty members who had undergone individualised ergonomics assessments over the previous 3 years with EHS. **96%** of respondents indicated the assessment provided strategies which improved their symptoms, with **71%** no longer requiring the use of paramedical services. In 2017, that means approximately 25 of our employees are no longer using their own time and paramedical benefits to address their pain. Completed 91 ergonomics assessments this year, a 20% increase over the previous year.

- Completed Phase 2 of enhancing engineering controls through a performance verification study of Local Exhaust Ventilation units across the campus. Over **50** different units tested and verified, with several identified as deficient. Repairs or enhancements implemented, and training developed for their safe and effective operation. Result is enhanced awareness, with increased staff and student safety.

- Conducted campus wide Noise Hazard Assessment to ensure all campus operations compliant with recently introduced Occ. H&S Act requirements. Implemented signage, including PPE requirements, the generation of a program along with employee engagement and awareness.

- Improved safety culture through the resurrection of the Health & Safety Award. Two staff members were recognized in 2017 for their **demonstrated commitment and promotion of health & safety with colleagues and students**. The 2017 recipients received their awards at a celebratory event for the 200th meeting of the Joint Health & Safety Committee. Senior Leadership, including the President and Vice President Finance and Administration, presented an overview of changes over the past 35 years.

- The Workplace Violence Prevention Program was reviewed and updated to align with new modifications to the Occupational Health and Safety Act, including enhanced investigation and reporting requirements, and seamless integration with the Sexual Violence Policy requirements.

- The integrated data management system, CU WorkSafe, was developed and introduced in several phases during 2017, and will continue to be rolled out during 2018 as additional modules are implemented. The system provides integrated data collection and analysis tools which reinforce the Internal Responsibility System, streamline faculty and staff required actions, and provide enhanced trending and metrics to assist decision making.

1.2 GOALS AND OBJECTIVES 2018 AND BEYOND

- Develop and implement an effective strategy to ensure compliance with WHMIS 2015 legislation which requires relabelling of over 30,000 chemical containers in Carleton's Chemical Inventory, and retraining of all staff and students who will be impacted by the legislation, prior to December 30, 2018.
    - **Goal: Ensure Carleton is compliant with legislation, as of December 2018**
    - **Goal: WHMIS training updated**

        - **Target: All first year undergraduate Chemistry students trained in updated WHMIS training material**
        - **Target: All new Research Staff and Students trained in updated WHMIS**
        - **Target: 20% of existing staff, subject to WHMIS, retrained**

- Roll out Phase 2 of CU WorkSafe (Audits and Inspections) and integrate support for mobile platforms (August 2018).
    - **Goal: All injuries, incidents and good catches reported directly into CU WorkSafe**
        - **Target: 50% of all injuries, incidents and good catches reported directly into the software system in 2018**
        - **Target: 80% of all reports closed out with required actions**

- Develop and implement strategies to effectively address incoming marijuana legalization prior to summer 2018. Collaborative approach with VP Students and Enrolment, HR, DUS, Risk Manager, Legal Counsel and faculties.
    - **Goal: Seamless approach to legislation that will establish expectations, while meeting student, staff and management objectives**

- Develop campus wide risk-based H&S training strategy as a recommendation from the EHS Internal Audit to strengthen EHS culture and reduce risk across the organization through alignment with ISO 18001 standards. Collaborative approach with HR, OQI, EDC and faculty and departmental stakeholders. CUPE2424 classification initiative to be leveraged.
    - **Goal: Develop an implementable framework that will assign training to each person, based on their occupational risk**
    - **Goal: Provide training programs that meet needs of the community**
        - **Target: Update Workplace Violence and Harassment training and transfer to CuLearn platform**
        - **Target: Develop and launch Fumehood Safety Training**
        - **Target: Introduce training feedback process for online training**

2. 2017 STRATEGIC PRIORITIES – What drove us?

2.1 ASSESSING NEEDS: INTERNAL FORCES

In accordance with Carleton's Health and Safety Management System, activities, programs and policies are continually reviewed with the goal of further strengthening Carleton's environmental health and safety performance and positioning Carleton as a responsive organization, capable of readily adapting to changes in both the regulatory environment and with the ability to reduce risk while supporting our teaching and research activities.

With 2017 being the third year of strategic investment of $14M annually into renewal of university facilities, there are increasingly construction type activities within staff and student occupied spaces. With increased regulatory oversight being evidenced across the construction industry, increased attention to

ensuring staff and student satisfaction, and fiscal restraint applied to all projects, there is an increasingly critical need to ensure health and safety measures are not only adhered to at a minimum, but that these become consistently embedded in all activities moving forward. A Contractor Safety Oversight framework was drafted, and will be fully implemented in 2018.

As first described in the 2016 annual report, investment into improved effectiveness into health and safety decision making through metrics was secured with the development and implementation of an integrated EHS data management system, **CU WorkSafe**. Trialed during third and fourth quarter 2017, and following extensive stakeholder engagement and feedback, this "Made for Carleton" solution was officially launched to the campus in January 2018 to positive reviews. Phase 2, which addresses inspections and audits, and which integrates directly into facilities management and planning operations will be introduced later in 2018. Not only does **CU WorkSafe** provide decision making value to align objectives and targets with identified trends and needs, it also fully supports the Internal Responsibility System and provides the Carleton community with a powerful resource for engaging with health and safety.

3. REGULATORY REQUIREMENTS – 2017 impacts

As part of Carleton University's ongoing commitment to ensure compliance with current and emerging regulatory change in health and safety policy matters, the following were identified as requiring monitoring or action, either at the university level, or at the provincial level, through the Council of Environmental Health and Safety Officers (CEHSO).

3.1 OCCUPATIONAL HEALTH AND SAFETY ACT AMENDMENT (BILL 177)

Bill 177, the "Stronger, Fairer Ontario Act" was an omnibus budget measures Bill introduced in November 2017 that received Royal Assent in December 2017. The Ministry of Labour (MOL) significantly increased fines to include individual fines rising from $25K to $100K per charge and corporate fines from $500K to $1.5 Million. In addition, a new requirement was introduced requiring notification to the MOL if any JHSC member identified potential structural inadequacies.

The potential impact of the amendment will be mitigated in 2018 through the updating of the Health and Safety Management System which should result in increased awareness of Roles and Responsibilities of Leadership and Supervisors, and in proactively addressing identified deficiencies.

3.2 OCCUPATIONAL HEALTH AND SAFETY ACT AMENDMENT (Bill 70)

Bill 70, the "Building Ontario Up for Everyone Act" received Royal Assent on December 8, 2016. This introduced the definition of health and safety management system and the accreditation of health and safety management systems. Mid 2017, a standard for a voluntary health and safety management system was introduced and consultations were held on the draft standard. Carleton provided commentary in December 2017 as part of the broader university response.

Carleton University's Health and Safety Management System was reviewed under the leans of this proposed standard, as well as compliance with the CSA standard (CSA Z1000) on Occupational Health and Safety Management Systems. A final version will be introduced mid 2018.

3.3 OCCUPATIONAL HEALTH AND SAFETY ACT (Regulation 833 and Regulation 490 Amendment)

Occupational Exposure Limits (OELs) were amended in August 2017 for 21 chemical substances based on recommendations by the American Conference of Governmental Industrial Hygienists (ACGIH). These would take effect as of January 2018. Amendments to the minimum Oxygen content in Air (19.5%) were likewise implemented.

A review of the 21 substances was conducted and it was determined that there would be no impact to current Carleton activities. EHS had previously identified 19.5% as the minimum safe level for Oxygen for all Carleton activities, and therefore there was no impact.

3.4 OCCUPATIONAL HEALTH AND SAFETY ACT (Regulation 860, WHMIS Amendment)

The WHMIS Regulation was amended mid-2016 to adopt new, international standards that are part of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). The amendments affect various requirements governing labels and safety data sheets for hazardous workplace chemicals. A transition period is in effect to gradually phase out the old requirements.

A provincial strategy is under development to enable universities to comply with the intent of the legislation, without incurring significant financial impact. At Carleton, the partnership with nine other Ontario universities through the HECHMET Chemical Inventory Consortium is being leveraged. There are currently 30,000 individual containers of chemicals at Carleton that if required to be replaced, would conservatively require a $1M reinvestment, a cost borne almost entirely by research faculty members.

3.5 WORKPLACE SAFETY AND INSURANCE ACT (Bill 127, Stronger, Healthier Ontario Act)

A CEHSO led working group, prepared a white paper for submission by the Council of Ontario Universities (COU) in July 2017 to the WSIB as part of public consultation on the draft policy on Chronic Mental Stress as part of *Bill 127, Stronger, Healthier Ontario Act.*

Among potential impacts to universities identified were the dual role of students as workers and the intersection with legislation related to sexual violence investigations. Initial documentation from the province indicates that bullying and harassment claims would form the majority of anticipated claims due to the policy revision.

4. MANAGING RISK @ CU

To assist in managing risks that affect the university, an evolving risk review process is completed annually which includes regulatory compliance elements as well as program identification and gap analysis, particularly with regard to the infrastructure elements. Injury/incident data such as severity and frequency dimensions are also incorporated when establishing the risk ranking.

4.1 2017 RISK MITIGATION ACTIVITIES AT A GLANCE

4.1.1 In House Risk Assessments and Program Development

In 2017, ***a total of 22 risk assessments were completed*** and included areas such as: 1) campus wide noise assessment, 2) Ductless fume hood risk assessment and commissioning (including air sampling), 3) Animal allergen exposure study for staff and students working with animals, 4) Chlorine and Chloramine exposure study for the Carleton Pool, 5) IAQ and mould concerns, 6) Decommissioning of research laboratories and animal facilities to allow for demolition of building for the Arise building, and 7) Various ergonomic assessments. These risk assessments were a combination of reactive and proactive in nature.

The above highlights primarily task specific risk assessments but 2017 also included the completion of a campus wide noise hazard assessment, an asbestos condition assessment, and a fire evacuation signage standardization. The noise assessment was to bring the university into compliance whereby all high noise areas are to be identified and appropriate controls recommended. This required the assessment of over 70 suspected high noise hazard areas and pieces of equipment. As a result, 26 areas were identified as requiring appropriate hearing protection signage (installed in 2017) and hearing protection. This included the identification of 7 locations whereby double hearing protection may be needed.

Protection from inhalation hazards requires a properly fitted respirator. EHS conducted fit testing and provided training on respirator use and maintenance to 9 individuals in 2017 including 5 undergraduate students from the School of Social Work prior to their practicums in a health care setting.

With respect to the asbestos survey, it was completed as part of the 5 year review cycle to update the campus wide asbestos containing materials (acm) inventory and condition assessment. This involved the review of approximately 150,000 m2, 25,000 linear metres of insulation along with 10,000 fittings of acm to determine condition and risk. 2018 will see the remediation of asbestos as needed based on risk while taking into consideration the type of asbestos, percentage of asbestos, current condition, and location.

Lastly, the completion of the third and final phase of the fire evacuation signage was completed to bring all building evacuation signage up to a consistent and pre-determined signage standard. This included updated signage for Leeds, Stormont-Dundas, Fieldhouse, Herzberg labs, University Centre, and Mackenzie. All existing outdated signage were removed and 174 new signs were installed to include safe destination sites and floor plans.

4.1.2 Performance Verification of Engineering Controls on Campus

In 2017 a concerted effort was made to assess the engineering controls in place on campus. This included the evaluation of fume hoods, biological safety cabinets and various styles of local exhaust systems. These are the primary safety controls in place on campus to mitigate the risk of biological and chemical exposures for our workers and students.

2017 was the first year that the campus fume hood verification testing was completed internally by the EHS Office. This allowed a quicker response time to address issues and discuss with end users issues that were noticed during the testing process. 205 fume hoods were tested and some of the key outcomes measures can be found in the table below. After the initial testing and follow up testing, 53 fume hood monitors were fixed, the flow to 10 fume hoods were adjusted to within an acceptable range, and 37 of the fume hoods that failed the initial performance test passed the performance criteria after adjustments were made for an average 18% increase. The table is broken down into results from initial as tested findings and outcomes after follow ups were completed.

Table 3: Fume hood certification pass/fail rates

		Face Velocity		Face Velocity Deviation		Smoke Test		Fume Hood Monitor		Overall Performance	
		%	Count	%	Count	%	Count	%	Count	%	Count
Initial	**Pass**	**81**	166	**91**	186	**91**	179	**69**	120	**60**	122
Results	**Fail**	**19**	38	**9**	18	**9**	17	**31**	55	**40**	82
Follow Up	**Pass**	**86**	176	**92**	188	**91**	179	**99**	173	**78**	159
Results	**Fail**	**14**	28	**8**	16	**9**	17	**1**	2	**22**	46

In addition to the fume hoods, 16 biological safety cabinets were tested according to ANSI/NSF 49-2008: *Biosafety Cabinetry – Design, Construction, Performance, and Field Certification* and where deficiencies were noted they were addressed at the time of the assessment.

A campus wide inventory of all local exhausts such as snorkels, down draft tables and slot hoods was created and the effectiveness of each was verified. Each unit was tested to a defined guidance level and ensure a standardized level of 'as used' performance on campus. All units were tested and compared to ANSI or ACGIH Industrial Ventilation guidance parameters. As a result, 14% (8 of 58) local units did not pass the testing criteria for their particular style of exhaust. These units were then individually reviewed

with the Principal Investigators to assess specifics on chemical use, frequency and amounts to determine if further actions were needed. Repairs or enhancements implemented, and training developed for their safe and effective operation. Result is enhanced awareness, with increased staff and student safety.

4.1.3 Undergraduate Laboratory Exercise Review

The departments of Health Sciences and Neuroscience will launch undergraduate laboratory programs in the fall of 2018. Throughout the development of the program and the specific exercises, EHS has reviewed and consulted with the lab coordinators.

This review provided a safety perspective on the proposed exercises in regards to the handling and disposal of chemicals and biologicals along with specific control measures, such as the use of biological safety cabinets available in the new Health Science Building

4.1.4 Hazardous Waste and Chemical Management

The Chemical Inventory continues to be an integral system for research and academic laboratories across Carleton. In 2017, nearly 3000 chemicals were entered into the inventory and nearly the same amount were disposed of. Consultation of the inventory related to laboratory risk assessment is required for decommissioning procedures and laboratory cleanout. Building Fire Safety Plans were updated and targeted chemical risk banding has begun using the data available in the inventory system. EHS also continues to leverage the inventory in our reporting requirements to Global Affairs Canada for chemical weapons declaration.

EHS continues to manage disposal of hazardous waste to reduce storage of chemicals and ensure compliance with MOECC regulations. Hazardous waste disposal decreased across faculties and services.

4.1.5 Audit of EHS Office

In 2016, Price Waterhouse Cooper performed an internal audit of EHS to assess the adequacy and effectiveness of policies, procedures and practices of the EHS Office as compared to generally accepted international standards. The April 2016 Report concluded:

> "there is a strong culture and commitment to EHS across the University – from the direction, services and support provided by the EHS Office and senior executives/Board of Governors commitment to oversight relative to EHS to the individuals working across the University who demonstrate their commitment to a safe and healthy working environment on a daily basis".

The audit identified some opportunities to further strengthen the overall Environment Health and Safety program to reduce the potential to expose the University to a moderate level of risk.

One final recommendation, to develop a university wide health and safety training framework, was initiated in 2016 in collaboration with Human Resources and Faculty Leaders, and will continue through mid 2018. The centralized learning management system (CuLearn) will continue to be leveraged to enhance delivery of core health and safety training to staff and students across campus.

Furthermore, the implementation of an enterprise EHS software tool for EHS data management will allow for improved information for trending and decision-making as confirmed through the audit.

4.2 ENFORCEMENT BY LEGISLATIVE AUTHORITIES

Table 4: Summary of Enforcement Agency Involvement

Ministry of Labour (MOL) - Enforcement	**Ministry of Labour (MOL) - Notifications**
• 1 inspection • 1 order for information	• 4 notifications for Critical Injuries • No orders, No legal pursuits
Ministry of Environment (MOE) – Enforcement	**Canadian Nuclear Safety Commission (CNSC)**
• No inspections • Follow-up from 2015 - ECA granted - Abatement Plan continues	• No inspections • Full compliance • License renewed
Canadian Food Inspection Agency (CFIA)	**Public Health Agency of Canada (PHAC)**
• Full compliance	• No inspections or enforcement
Public Works and Government Services Canada (PWSGSC)	
• Full compliance	

4.2.1 Ministry of Labour: Notifications

The following were reported in 2017:

- March 22, 2017: An employee of C&W sustained burns to his face and hands from an Arc Flash incident when he dropped a hand held device onto a live electrical conduit. The incident occurred in the mechanical room in Leeds Residence. The employee had not been wearing the appropriate personal protective equipment required under the C&W lock out tagout procedures.
- May 8, 2017: A construction worker/supervisor sustained a fractured pelvis when he was struck by a backhoe in the construction site for the ARISE building. The individual had just exited a portable toilet recently located on the site when he walked into the path of the vehicle. A safety site review was completed by the construction company and the MOL.
- June 2, 2017: A worker sustained a fractured wrist when she fell down the steps in Robertson Hall. A review of the incident indicated the presence of some areas of pitted concrete. High heeled footwear may have contributed to the fall. The pitted sections of concrete were repaired.
- November 9, 2017: A worker sustained a fractured kneecap when she fell on the sloped pathway from the Library to the parking garage. A review of the incident indicated a possible flash freezing of ice along the slope. Handrails were present, and footwear was appropriate for the conditions

An order for information was received for the Arc Flash injury, however Carleton's programs were all found to be in compliance. No orders were received for the two other injuries, and the MOL did not attend.

4.3 SAFETY AND COMPLIANCE COMMITTEES

4.3.1 Joint Health and Safety Committee

The primary objective of the JHSC is to oversee the internal responsibility system and is comprised of worker and management representatives working together to promote a co-operative, positive and progressive approach to dealing with health and safety issues. The committee met five times in 2017 (January, March, June, September and November).

A celebration of the 200th meeting of the JHSC occurred with over 90 current and past members of the JHSC attending a celebratory luncheon. The Ministry of Labour attended, and in speaking with senior leadership, praised Carleton for its health and safety management.

Local safety committees in Science and Engineering continue to examine and develop mitigation strategies to address hazards and risks specific to their work environments.

4.3.2 Radiation Safety Committee

The Radiation Safety Committee reports to the Vice President Finance and Administration and is chaired by the Dean of Science. The Committee met on April 18, 2017. The Two new X-ray installations (Physics and Mechanical and Aerospace Engineering) were approved by the Ministry of Labour.

4.3.3 Animal Care Committee

The Animal Care Committee reports to the Office of the Vice-President (Research and International). The EHS representative on the committee actively participates in the assessment of Animal Use protocols in regards to animal welfare and occupational health, performs mandated inspections of animal holding spaces and facilitates the acquisition of controlled substances often associated with animal work. Other than activities related to the temporary transfer of animals to the University of Ottawa, there were no noteworthy incidents.

4.3.4 Biohazards Committee

The Biohazards Committee reports to the Office of the Vice-President (Research and International). An update was provided to the Committee members by the Biosafety Officer regarding the successful application of an institutional licence under the Human Pathogens and Toxins Act. Currently, Carleton holds 31 active Biohazard permits. 13 biohazard applications were submitted, reviewed and approved in 2017. The assessment includes a review of training records, potential hazards, preventative measures such as engineering controls and decontamination procedures. A laboratory inspection of the proposed location is also conducted to ensure biohazard containment requirements are met before approval of the research project.

4.4 POLICY STRENGTHENING AND RISK REDUCTION STRATEGY

The Asbestos Management Policy was updated in January 2017, with minor changes related to program maintenance and compliance with Regulations.

The Building Authorities Policy was renewed in April 2017, with a strengthened focus on increased communications prior to, during and following activities impacting the buildings in question, and alignment with the CU WorkSafe reporting structure.

The Golf Carts in Tunnels Policy was renewed January 2017, with an added focus on the need to advise of any factors which would impact the driver's ability to safely operate the golf carts.
The EHS Policy was renewed in October 2017, without changes.

The Workplace Violence Prevention and Workplace Harassment Prevention Policies were renewed in October 2017, without changes. However, significant changes were introduced into the Programs associated with those policies.

5. PERFORMANCE INDICATORS

5.1 INJURY, INCIDENT AND WSIB INDICATORS

In 2017, Environmental Health and Safety received reports of 149 incidents/accidents in the workplace (89 injuries, 60 incidents). These represent an increase of 25% in injury reports, and a 100% increase in incident reports.

Together, this represents an overall increase in reporting of 50% from 2016, which successfully reflects ongoing engagement and awareness efforts to ensure the reporting of all injuries and incidents, as well as good catches, as these form the cornerstone of identifying and addressing hazards, and preventing injuries from occurring.

Root Cause Analysis of these increased reports identified common risks which could be mitigated by streamlining the LOTO (Lock Out Tagout) program, and strengthening the Construction Safety Program, as well as targeted messaging to the community to address specific hazards.

Table 5: Incident and Injury Metrics

	2015	2016	2017	Change
# of Critical Injuries	2	3	4	↑
Days Lost to Injury Claims	102	48	42	↓
# of Lost Time Injuries	9	7	8	↑
Average # of Lost Days/Injury Claim	11.3	6.9	5.25	↓

Of these 149 reports, there were a number of incidents of significance.

In September, a student who had been suspended for misconduct returned to campus and ambushed two DUS officers with an imitation gun. Minor injuries to the officers resulted. The former student was arrested and charged by Ottawa Police. Review of the incident resulted in improvements to the DUS response procedures and increased lighting surrounding Robertson Hall.
A minor fire occurred in a dryer in the laundry room of Lennox Addington. No injuries occurred, but the incident resulted in improved housekeeping procedures and messaging to students on fire safety.
A fire in an electrical vault resulted in loss of power to residence. No injuries occurred and FMP were able to rapidly and effectively restore power and reduce impact on students.
Minor injuries (exposure) occurred following a chemical spill in NWRC. Technical expertise and Carleton's building monitoring capabilities proved invaluable, and strengthened relationships with both NWRC and the Ottawa Fire Department responders.

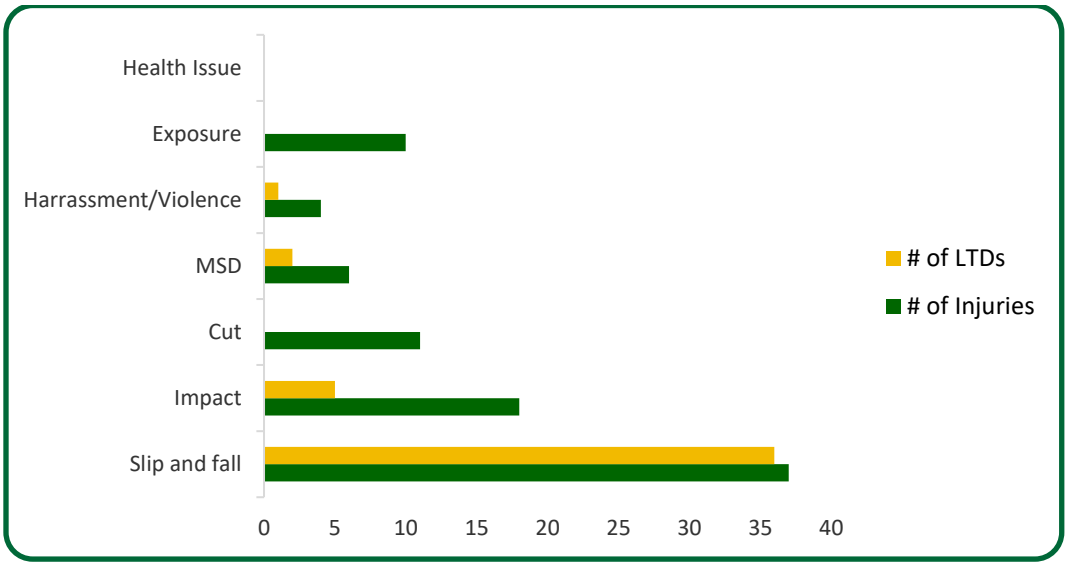

Figure 1 Number of injuries vs. number of LTD's taken within the 2017 calendar year

The injuries from 2017 (above) continue to support the long term data suggesting that slips and falls along with MSDs are the primary cause of any lost time days accumulated in the incidents calendar year irrespective of the number of incidents (see Figure 2 below).

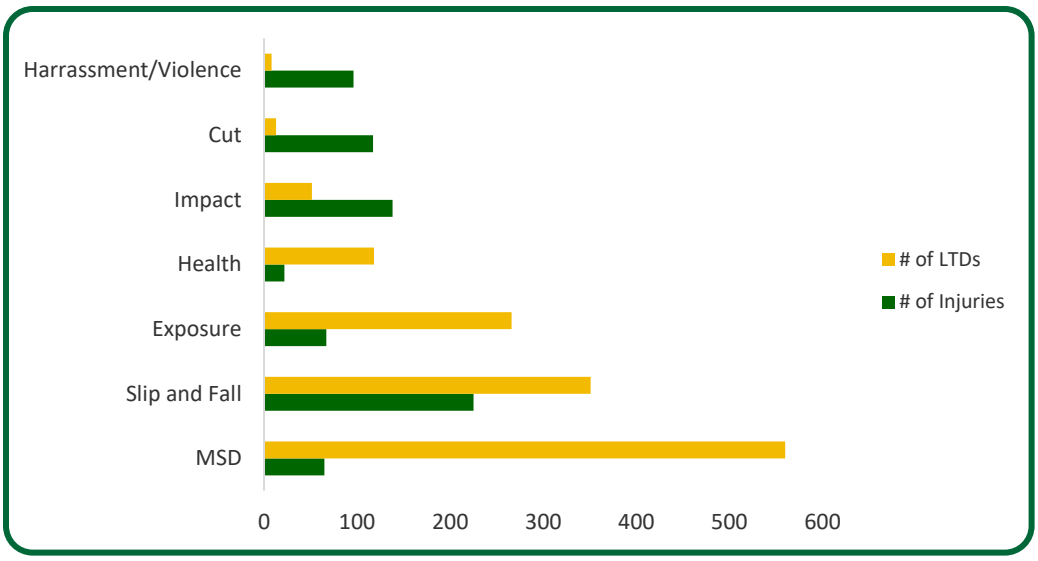

Figure 2 Number of injuries vs. number of LTD's taken within calendar year from 2010 to 2015

5.1.1 Comparison with Other Ontario Universities

The Workplace Safety and Insurance Board (WSIB) determines insurance premiums based on how an employer compares with other employers in the same category. Carleton University is measured for performance against the rate group (which includes Ontario Universities, post secondary non universities, museums and libraries), as well as across the universities.

Lost time Injury Frequency examines the number of injuries where time is lost, divided by a denominator representing the total number of hours worked by the total of all employees.

Over the past five years, Carleton University consistently has a lower LTI frequency than the average of all Ontario Universities, although the gap is narrowing.

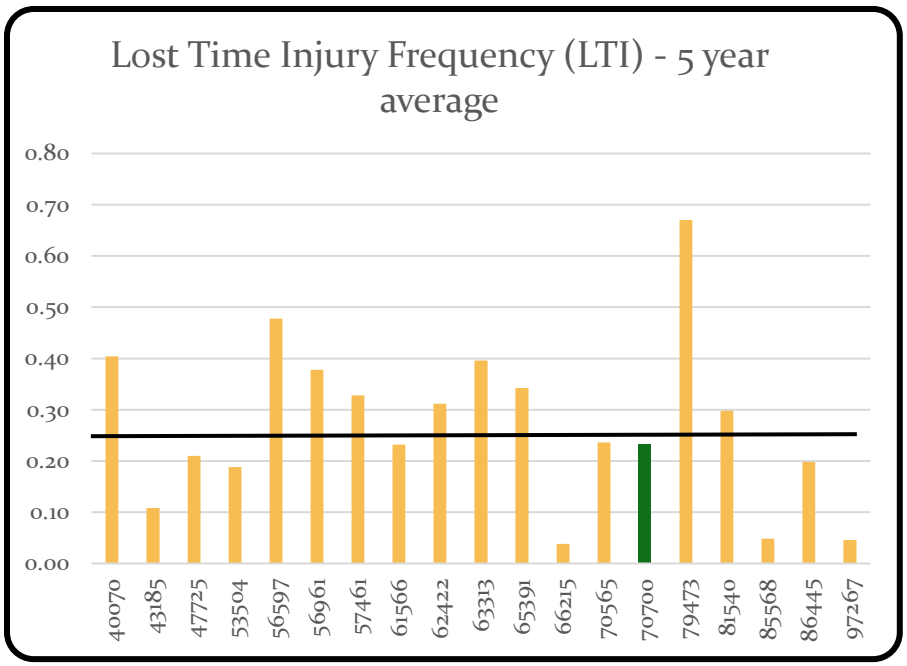

Figure 3 ***Lost Time Injury Frequency (2012-2016*) 2017 data will only be available fall 2018***

In addition to the LTI frequency, the WSIB calculates a performance index (PI) based on projected costs for sustaining employees that become injured in the workplace. While projected medical costs account for a portion of the costs, the majority of the cost projection is based on the time that an employee will be away from work.

As reported previously, the WSIB rate framework is changing, with their new model to be implemented in 2020. The major impacts will be that injury impacts will move from a four year window to a six year window, meaning that significant injuries, with extensive leave and costs, will work against the employer for a longer period of time. On the other hand, annual premium costs will be more regularised, as there would be a maximum of 15% increase per year, as compared to the current premium calculations.

When the Performance Index exceeds 1.0, the universities are in a surcharge position. When the universities are below 1.0, they are in a rebate position, and the WSIB would return funding to the employers.

Of note, over half of the Ontario Universities, including Carleton, have been in a surcharge position, on average, over the past five years.

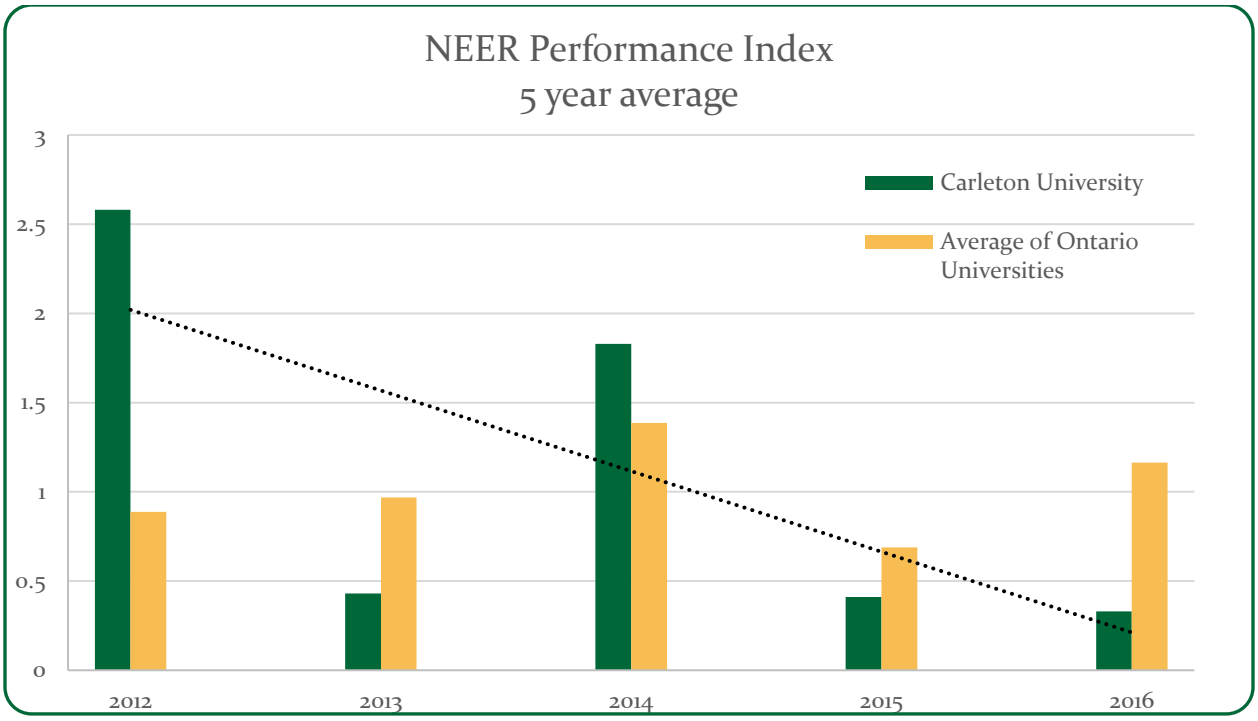

Figure 4 Performance Index (2012-2016*) 2017 data will only be available fall 2018

As indicated in the Performance Indicators at the beginning of this section, **Carleton has successfully reduced the average # of lost time days per claim from 11.3 days in 2015 to the current 5.25 days in 2017**, largely due to increased efforts at ensuring employees are able to successfully and safely return to work following their injuries.

5.2 TRAINING PERFORMANCE INDICATORS

5.2.1 Worker and Supervisor Health and Safety Awareness Training

In 2017, 1731 employees and students completed the Worker Health & Safety Awareness training which brought the overall completion rate to 63%. Low completion rates (51%) for the 2465 employees hired in 2017, unfortunately lowered the overall completion rate from 70% in 2016. Unfortunately, we seem to be missing an opportunity to get new employees trained.

There were however improvements among particular groups. Among organizational units/faculties, VP Students & Enrollment (64%) and the Faculty of Public Affairs (54%) increased completion rates by 6% and 4% respectively. Improvements within employee groups were seen between Academic Management (77%) and Labour Trades (96%) who increased completion rates by 12% and 6% respectively.

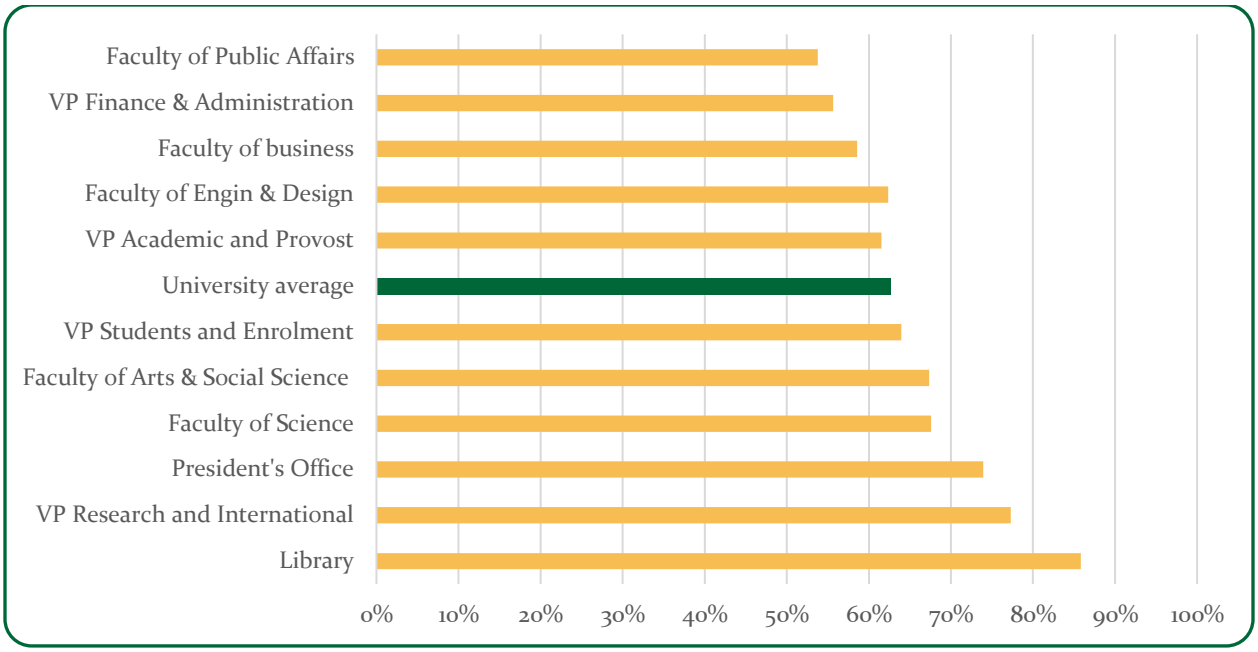

Figure 5 Worker Health & Safety Awareness training completion rates when separated by Faculty or Organizational Unit

In 2017, 331 supervisors completed the Supervisor Health & Safety Awareness addition to the Worker Health & Safety Awareness training. Dialogue continues with Human Resources to provide this data as a compliance and completion percentage, as definitions of "Supervisor" vary across the organization. Equally challenging to quantify is compliance with the requirement to ensure all supervisors have completed the training within five days.

Metrics such as increased and timelier incident/injury reporting, increased inquiries for risk assessment, more effective close-out of inspection reports, speak to the effectiveness of the training, and overall improvement in safety culture.

5.2.2 Workplace Violence and Harassment Prevention Training

In 2017, 1633 employees and students completed the Workplace Violence and Harassment Prevention Training. As with the Worker Health & Safety Awareness training, low completion rates (51%) among 2017 hires, overall completion has decreased from 74% in 2016 to 65% in 2017.

While many employee groups show levels of compliance above 95% (Department of University Safety, Labour Trades, Academic Management, Administrative Management, Administrative Staff), certain groups remain challenging. Casuals (48%), Contract Instructors (62%), and Graduate Studens/TAs/RAs (69%) have further decreased completion by 7%, 5%, and 3 % respectively.

This shows demonstrated commitment to Carleton's workplace violence and harassment prevention policies and programs by core staff groups, with work to be done with Carleton's more transient workforce.

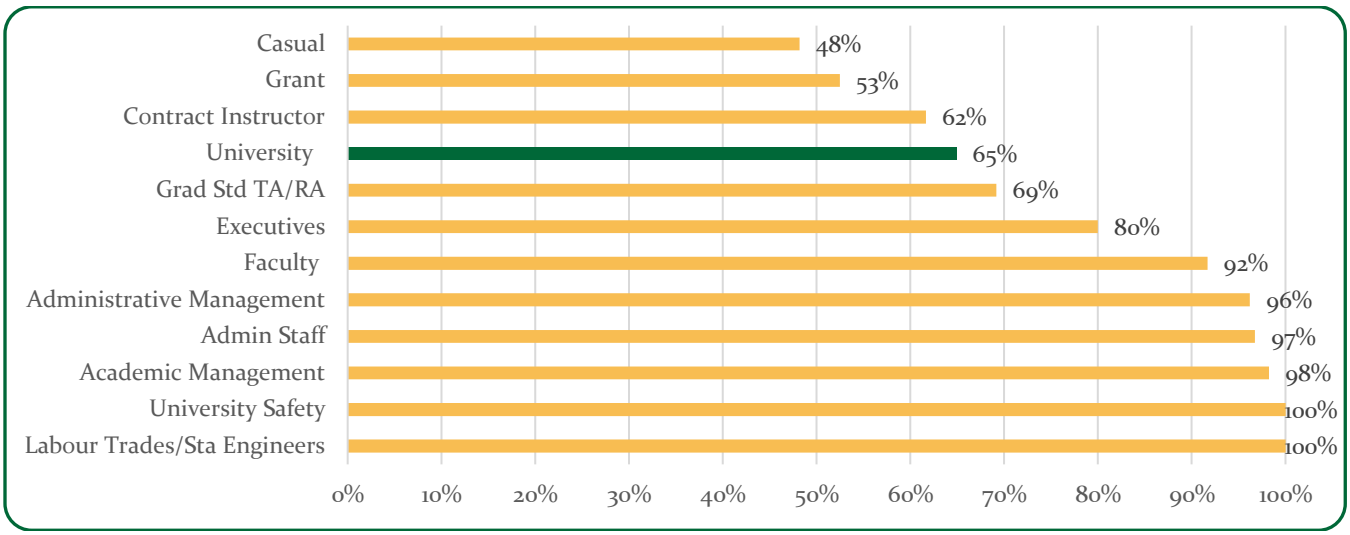

Figure 6 2017 workplace violence and harassment prevention training completion rates when separated by employee group

In 2018, the Workplace Violence and Harassment Prevention Training will be updated and renamed to include new elements from the policies and programs approved in 2017.

5.2.3 Additional Health and Safety Training

Training development and delivery continues to be tailored and responsive to the needs of the organization, with the majority of the training being developed and provided by EHS staff. The use of some third-party service providers remains the most effective solution for highly specialized areas where the expertise is best acquired externally.

Table 6: Summary of all training offered by EHS in 2017

Training Course	Sessions Delivered	# of Participants Completed	Facilitator
Aerial Work Platform Training	3	25	external
Asbestos Awareness	online	221	EHS
Bio-Safety Awareness	5	44	EHS
Workplace Health and Safety Inspections	2	10	EHS
Emergency First Aid and CPR	3	49	external
Fire Safety Awareness	online	297	EHS
Laboratory Safety	11	133	EHS
Ladder Safety	online	19	EHS
Laser Safety Training	2	9	EHS
Radiation Safety Training	4	39	EHS
Supervisor Health & Safety Awareness	online	328	EHS

Transportation of Dangerous Goods	2	12	EHS
Uninhabited Aerial Vehicle Workshop	1	15	FED/EHS
Violence	online	1633	EHS
WHMIS	online	1,760	EHS
Worker Health & Safety Awareness	online	1731	EHS
Working at Heights Training	1	10	external
Young Worker Orientation	2	49	EHS

** It is noted that the 1760 participants who completed the WHMIS training in 2017 also included 1179 first year chemistry students.*

5.3 PROMOTING SAFETY CULTURE

The safety culture of an organization represents the shared beliefs, attitudes and work practices of employees and management. An organization that successfully develops a strong and vibrant safety culture can expect to realize tangible results in reducing workplace accidents and their associated costs.

5.3.1 Good Catch Reporting

Often referred to as a near miss, a Good Catch is an unplanned event that did not result in injury, illness or damage, but had the potential to do so, had circumstances been slightly different. Near miss incidents often precede loss-producing events, and are therefore a key opportunity to rectify a situation, and prevent injury, and promote safety-based behaviours.

	2015	2016	2017
# Good Catches Reported	37	89	160

Since introduction in 2015, Good Catch reports have once again doubled, resulting in a **400%** increase in proactive reporting within a two-year period, enabling Carleton to implement corrective actions in advance of an incident.

5.3.2 Events

In 2017, EHS once again organized and successfully ran a weeklong series of activities to promote North American Occupational Safety and Health (NAOSH), Mental Health Awareness and Emergency Preparedness week. Presented in collaboration with Healthy Workplace and the Department of University Safety in May of 2017.

Senior leadership had a recurring presence throughout the week's events and received a hands-on demonstration of AEDs (automated external defibrillators). This became the driving force to establish and fund AEDs across campus for 2018 -2021.

The annual NAOSH week events provide an excellent opportunity to focus, reinforce and strengthen the Carleton community's commitment to occupational health & safety, mental health, and emergency preparedness in support of the SIP goal of organizational excellence.

The **200th meeting of the Joint Health and Safety Committee** occurred September 27th, 2017. Over 90 members of the current and previous members of the committee, current union Presidents, Ministry of Labour representatives, and Senior Leadership, including the President and two Vice Presidents, attended and celebrated the vibrant programs that have been endorsed by this largely voluntary organization. Major milestones and events were celebrated through pictures and statements.

2017 saw the resurrection of the Carleton University **Health and Safety Award** as a means to honour those employees who have exemplified safety culture. Two members of the Carleton Community, Beth McLarty Halfkenny (Faculty of Science) and Alex Proctor (Faculty of Engineering & Design), were nominated by their peers and awarded the 2017 Health and Safety Recognition Award at the 200th JHSC meeting Luncheon. Both recipients were identified for their restless dedication in ensuring their students are offered experiential learning opportunities while maintaining robust safety culture in their laboratories and workshops. Experiencing these learning opportunities through a defined safety lens will surely prepare them for their future careers and reflect positively on the educational experience offered by Carleton University.

Fire Prevention Week was held in October of 2017, with a particular focus on residence students. In collaboration with Ottawa Fire Services, students were given the opportunity to extinguisher a virtual fire with hands-on direction. More than 200 students visited the Fire Prevention Booth stationed in Residence Commons over two days. Other fire safety activities were held for the duration of the week.

5.3.3 Communications

A particular focus was placed on increasing awareness of EHS services at Carleton in 2017. Health and Safety has been a recurring theme in internal Carleton Newsletters (Top 5, State of the Ravens, The Graduate) and the intranet feed, appearing an average of 3 times per month. Specific events and training have also been promoted through the Carleton Events Calendar, the Student Events Calendar, the Healthy Workplace Newsletter and Notice Boards, mass emails, and messaging from Senior Leadership.

Social media has proven to be an effective way to reach and interact with members of the Carleton, and general community. On twitter, **@CU_HealthSafety** has achieved an average monthly growth of 14 followers and an average monthly reach of over 7400 views. More importantly, the extent to which our audience engages with our content is indicative of the strength of our connection with the community. We are proud to say that our average engagement rate is 1.85%! This is well-above the 1% that an average, well-established twitter user hopes to achieve and represents a 0.4% increase from 2016.

As hoped, this engagement with the community resulted in increased participation in safety culture initiatives throughout 2017 and increased awareness and utilisation of EHS services on campus. 2017 saw an increase of 17% in website traffic in comparison to 2016. The increased traffic suggests a rise in health and safety information seeking and buy-in from the community. To support this growth in safety culture, we will continue to expand our informational resources and programing in 2018 to meet the needs of the Carleton community.

5.4 FIRE ALARM STATISTICS

A total of 87 calls for service were made to Ottawa Fire Service (OFS) in 2017. This was a decrease from the previous year from 108.

External cause unknown and malicious acts contributed to 31% of all calls for service. Twelve incidents were due to malicious acts involving students/visitors intentionally activating a pull station, tampering with smoke/heat detector, or smoking/vaping indoors. Nineteen of the incidents involved unknown particulates triggering a smoke detector. These incidents may involve smoking/vaping indoors where the odor dissipates and is undetectable when OFS arrives on scene.

Construction related false alarms fell from 24 events last year to 11 this year despite an increase in intensity of construction and renovation, in large part due to increased communications with our construction partners.

Twenty incidents resulted in a notice of malfunction issued to Carleton University down from 26 in 2016. Three were due to actual fire events (dryer fire in residence, Arc-flash event in service duct in residence tunnel, and a minor construction related fire incident in Herzberg). The majority of the remaining were due to detector or other system failure.

In addition, DUS responded to a further 13 incidents related to garbage/cigarette/mulch fires, and fire extinguisher thefts and discharges (malicious acts).

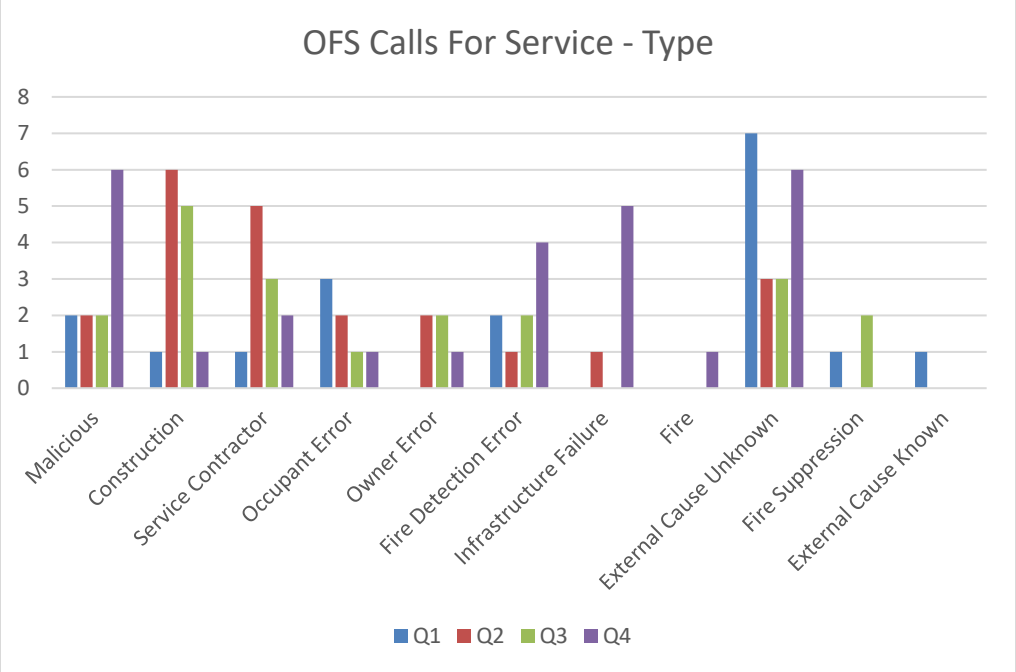

Figure 8 OFS Calls for Service for 2017 – categorized by Type

5.4.1 Emergency Evacuation

Timed egress fire evacuation drills were conducted for all buildings. The target for a successful exercise was to achieve substantial evacuation by the 8-minute mark. All academic buildings met this requirement. Fire Drills for residence occurred during the first week of the fall semester to enhance and supplement student orientation activities. All residences achieved the target of 8 minutes for substantial evacuation.

6. LOOKING TO THE FUTURE AND BEYOND

As EHS continues implementation of multi year initiatives, the coming year will solidify the trend for positive change in safety culture across the organization. Carleton's Excellence Canada successful journey in Mental Health, Excellence Innovation and Wellness, as well as Healthy Workplace, could not be achieved without a strongly embedded Health and Safety foundation, based on risk assessment, continuous improvement and employee and student engagement. These position Carleton firmly at the forefront to meet incoming legislative oversight and compliance, innovative research activities, student focused educational activities and responsive operational enhancements.

6.1 EHS Benchmarking Recommendations – Data Management

The EHS data management system is being implemented in two phases, the first phase (Injury/Incident/Good Catch) successfully rolled out in 2017, and the second phase (Inspections, Equipment and Audits) will be rolled out mid 2018.

Combined, these complementary processes will provide a definitive entrenchment of the Internal Responsibility System across the campus, leveraging the injury, inspection and risk assessment landscapes. A comprehensive communication strategy will accompany deployment across campus to supplement early adopter engagement, and ensure a successful tool for capturing and analysing, and ultimately decreasing risk through strategic investment

6.2 Internal Audit Recommendations

The 2016 PWC Internal Audit of EHS identified a number of opportunities to strengthen EHS and reduce risk across the organization. These include updating Carleton's Health and Safety Management System, establishing annual targets and objectives, formalizing an operational risk and hazard register aligned with legislative requirements, developing risk assessment tools to assist departments with their specific risk assessment activities, and formalizing a campus wide training matrix that would assist departments and supervisors with identifying required training aligned to hazards.

The latter part of 2018 will see the introduction of a campus wide health and safety training strategy. This strategy will be underpinned by a number of foundational elements, including:

1) the "learning" required to address regulatory and risk based processes;
2) a learning and teaching methodology consistent with our staff and student's needs;
3) phased development and provision of training to meet those needs, at a campus and specific departmental or risk level;
4) as well as consolidated management tools to support these.