Stanford University

Environmental Health & Safety

Strategic Plan 2017 - 2020

Stanford | Environmental Health & Safety

A Strategic Direction for 2017 - 2020

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We hope to create a culture... which integrates safety and health seamlessly with the work of our laboratories and classrooms, and which can be learned...and passed along to future generations.

Director's Letter

As a global leader in education, research, and program development, Stanford University has embraced its role in not only mastering current technologies and bodies of knowledge, but in seeking better solutions, expanding what is possible, and training the next generation of thought leaders, whatever the field may be. As a service department supporting this mission, Environmental Health & Safety has adopted the same intellectual curiosity and commitment to excellence for which our academic departments are so renowned. While it is important to maintain the current high level of health, safety, and environmental activities across the university—activities which have placed us among the leaders in the field—it is not enough to be generally very good at ensuring the wellbeing of our campus community. We need to continue to look for opportunities to improve, shine a light on our strengths and weaknesses, and address any gaps in our knowledge or in the application of established best practices.

As a result of broad institutional support, Environmental Health & Safety is empowered to expand upon the traditional role of specialized service departments such as ours. We will continue to train, monitor, and support Stanford employees and researchers. We also hope to help advance a culture which incorporates safety into the curriculum and the onboarding processes of all new employees, which integrates safety and health seamlessly with the work of our laboratories and classrooms, and which can not only be learned here at Stanford but passed along to future generations as our students, faculty, researchers, and staff go out into the world.

We realize this is an ambitious undertaking with significant challenges to achieve these goals. This strategic plan, developed with input from many campus units and drawing from the significant body of work completed by the 2014 faculty-led lab safety culture task force, is an attempt to chart a course to significantly improve both the quality and consistency of our programs, processes, and campus partnerships. Given the funding implications of the changes and nominal expansion of programs we are proposing, it is especially important to place the budget needs within the context of a set of strategic imperatives and overarching goals, but just as important, to highlight areas where we remained constrained as well. To that end, we have attempted to summarize the high-level institutional program priorities within the department of Environmental Health & Safety, while drawing attention to potential obstacles and limitations which may continue to pose challenges in the years ahead.

Lawrence M. Gibbs

Associate Vice Provost for Environmental Health and Safety

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Strategic Vision

Safety as an Institutional Core Value

As described in the Founding Grant, Stanford was established as a university of "the highest grade" aiming to "qualify its students for success." True to its original mission, Stanford has grown into a world-class institution admired both for the extraordinary intellectual achievements of its faculty, as well as its human-centered approach to teaching and developing the next generation of leaders. This combination of transformative research and a highly-personalized educational experience reflects the core values of the university. These values also place the highest priority on safety, environmental stewardship, and the well-being of the Stanford community.

Purpose of EH&S

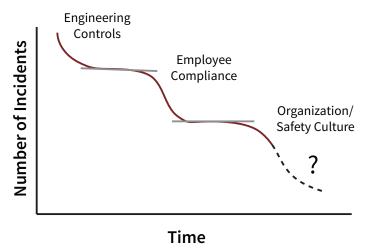
The purpose of Environmental Health & Safety (EH&S) is to help the campus community make decisions and take actions consistent with an uncompromising commitment to safety and environmental stewardship.

In practice, our primary function is to manage health, safety, and environmental risks across campus while not impeding the academic progress and operational needs of the institution. EH&S strives to help individuals and units address potential risks and minimize impacts to human health and the environment. At the same time, we also help to reduce uncertainty related to compliance, public relations, and financial liability, all of which can undermine the primary objectives of our campus partners. As a department, our role is to work collaboratively with

faculty, students, and staff to balance competing priorities, whatever they may be, while promoting excellence in safety and environmental stewardship at all times.

EH&S in Higher Education

Recent incidents at other universities have led to increased attention to safety in academia and research [2,3,4,5]. This comes at a time when society's attitudes at large have also shifted, placing a greater emphasis on safety and lowering the tolerance for mistakes or injuries on campuses. Stanford recognizes these increased expectations and seeks to be flexible and forward thinking on matters related to health, safety, and the environment. The decision to shift course as a department is not in reaction to any recent serious incident at Stanford, nor significant health and safety concerns, but rather a proactive effort towards further mitigating risk and advancing health and safety within the Stanford community.



Strategies to reduce workplace safety risks have evolved over time. Historically, efforts have been heavily focused on accident rates as the primary metric and strategies have largely been driven by regulatory requirements rather than an interest in broad-based cultural change. The advent of commercial engineering controls, such as machine guarding and localized ventilation contributed to decreased accident rates. [6,7] Eventually, however, these technologies generated diminishing returns and employers began to rely on improved employee compliance with rules and policies to improve safety. [7] Currently, these efforts seem to have reached a plateau. To further reduce risk and accident rates, we recognize the need for a paradigm shift away from compliance-based programs and toward an approach which seeks to improve culture and organizational dynamics.

In 2014, the Stanford University Committee on Health and Safety's (UCHS's) Task Force for Advancing the Culture of Laboratory Safety found that advancing a stronger and more positive safety culture is critical to "the continued development and sustainability of Stanford's academic laboratory research programs." While the report focused on research laboratories, the findings and recommendations readily apply to improvement of the safety culture throughout the Stanford community more broadly.

Departmental Direction 2017 - 2020

In the past, our focus as a department has been on programs designed around compliance. Going forward we intend to shift away from a regulatory-centric approach and to expand our efforts to ensure that health, safety, and environmental protection are integral to Stanford's intellectual culture. We strongly believe that a system of rules and established protocols is no substitute for improving the understanding of key safety principles and reinforcing the best instincts of our faculty, students, and staff. There are three underlying questions our strategic vision strives to address:

What is the core outcome we wish to enable?

What do we wish to provide?

How do we wish to engage?



Our Strategic Anchors: The logic behind our programs and actions

Core Outcome We Enable:

Integrated Safety & Environmental Protection

The core outcome we want to enable is for safety and environmental protection values to be built into the way faculty, staff, and students work and think. EH&S strives to move away from an era when safety was important but adjunct to missions, goals, or objectives and toward safety and environmental protection being integrated into all processes. To achieve this end, safety must be relevant, practical, and second nature to the campus community. The 2014 UCHS Task Force Report findings highlight this goal by recommending the creation of "a culture where our scientists don't think about safety as a compliance issue or a set of guidelines distinct from their research activities, but as a fundamental value embedded in everything they do."[8] This implies that we address risks in ways that do not require constant reminders and enforcement, but rather enable the Stanford community to operate routinely in safe and environmentally-responsible ways.

EH&S intends to drive integrated safety and environmental protection through improvements in the spaces we occupy (the built environment), the systems with which we interact (administration and governance), and the stories we tell (behaviors and attitudes).

While fostering integration initiatives on campus, EH&S continues to examine the organization and culture within our own department. EH&S leadership and management recognize the need to shift from a technical, discipline-specific approach, to one that integrates EH&S programs in an improved business services model. As we move forward on these changes, the needs of the campus community must be the primary consideration for planning and organization of people, infrastructure, communication, and material components of services.

"An effective laboratory safety program must be integrated into the research process rather than being an annual housekeeping exercise conducted days before an anticipated annual laboratory inspection."

-University of Hawaii at Manoa Incident Report March 16, 2016

Integrated Safety & Environmental Protection

Spaces Systems Stories

Built Environment Administration & Governance Behaviors & Attitudes

SPACES

The spaces we occupy...

Institutional growth at Stanford continues to expand square footage and has led to a more geographically-dispersed campus. This growth, along with increasing, constantly evolving research and regulatory complexity puts a strain on existing resources. However, construction and renovation of spaces also presents opportunities to effect changes to the built environment (offices, labs, and workspaces) that reduce risk and positively influence health, safety, and environmental protection.

While health and safety regulatory codes will continue to be a programmatic driver, Stanford can and should transition to a behavior and impact-focused approach. In addition to engineering controls such as fume hoods or shutoff valves, the built environment can be used to shift behavior by reducing barriers and encouraging positive actions in the spaces around us. A simple change to the built environment such as placing lab coat hooks near entry doors cues a visual reminder and makes it easier for researchers to don personal protective equipment when entering the lab. There are also gains to be made in residence spaces on campus. For example, Stanford dormitories often serve as the University's unofficial "start-up incubators;" but with this comes unidentified "research" risks. Establishing appropriate makerspaces can create safe environments for students to design and build. Serving as the link between project managers, user groups, technical groups, architects, and designers, EH&S will help define, develop, and replicate best safety practices across campus.

SYSTEMS

The systems with which we interact...

The design and implementation of systems (e.g., protocols, governing bodies, policies, and technology tools) can have a significant impact on how safety is perceived as well as on the effectiveness for meeting stakeholder objectives. For example, findings from the recent University of Hawaii at Manoa lab incident report (in which a post-doc lost her left arm in an environmental research lab) identified an administrative weakness, specifically "absence of formal risk assessment protocols" as a root cause. [4] An item that came out of the 2014 UCHS Task Force Report was the need to utilize technology solutions to integrate and streamline the use of laboratory safety support information with research tools. [8] Utilizing technology, people, and resources in smart ways to design services with the full user experience in mind allows simplification of complex systems to make them more powerful and approachable to users. In contrast, services that are created in siloed parts (even if individual parts are well designed) often result in a poor user experience if the parts do not integrate well with each other.

Our goal at EH&S is to implement a "service design" approach where individual services work together to provide users with a streamlined, holistic, and valuable experience. Streamlining safety-related administrative tasks will increase adoption rates of safety programs and further promote a positive health and safety culture.



STORIES

The stories we tell...

Culture is defined at least in part by the stories we tell. A strong safety culture requires positive attitudes and behaviors that are pervasive throughout the entire campus community. Concepts found in social marketing and behavioral science can be adopted to influence these attitudes and behaviors.

Targeted messaging from peers and leadership on health, safety, and environmental stewardship will help alter collective values. [10] The Stanford BeWell program is an example of an initiative that has successfully encouraged leadership participation and peer messaging. When members of the campus community see leaders participating in the Cardinal Walk or read about someone they know in BeWell "success stories" they are more likely to believe that wellness is the norm at Stanford.

Communications that shift the perception from a compliance rationale to an approach based on best practices take priority. Positive communications about safety and environmental stewardship done well can help accomplish this shift in mindset. In partnership with stakeholders, EH&S plans to increase communication and share positive safety stories across campus. This includes increasing safety communication in groups, staff meetings, symposia, and day-to-day discussions.

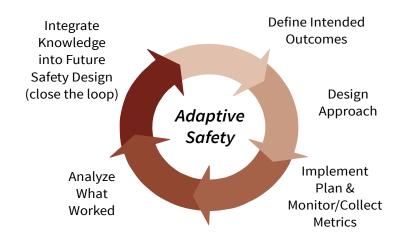


What we provide:

Adaptive Problem Solving

Our task as a department is to solve risk-related problems for the university. Effective problem solving "aims to discover what [users] need and then design solutions that will help advance those interests." [11] This task may require addressing multiple problems from multiple stakeholders simultaneously (e.g. a research group's need to proceed with work safely and the university's need to maintain regulatory compliance).

With adaptive problem solving, we aim to move from "one-and-done" initiatives to providing an iterative approach for program improvement. This framework allows forward action using the best current approaches with the goal of improving on these outcomes over time. The adaptive approach progressively reduces risk by implementing solutions, collecting metrics on the effectiveness of those programs, and learning from initiative outcomes to improve future efforts. This process is solution-based, iterative and user centered. Successful adaptive problem solving takes a broad view of problems, deliberately tests the effectiveness of approaches, and makes adjustments along the way.



Adaptive model in which current best practices are used, outcomes analyzed, and information gained feeds into future initiative efforts



Successful adaptive problem solving takes a broad view of problems, deliberately tests the effectiveness of approaches, and makes adjustments along the way.



EH&S's valued partnerships empower workers to come up with their own best safety practices while EH&S staff provide technical knowledge and facilitate the effort.

How we engage:

As Valued Partners

Our impact on the well-being of the campus community is dependent on our ability to build strong partnerships. We strive to shift from an "us and them" mode of interacting with stakeholders to one of collaborative and valued partnerships. This model of engagement requires flexibility and adaptation of EH&S roles based on user needs. Faculty and staff are the subject matter experts in their duties and unit objectives; we plan to work jointly with them for successful delivery of EH&S services that also support their business and academic goals.

This synergistic approach increases buy-in for safety initiatives and fortifies relationships with EH&S. At the core of these relationships is our ability to build genuine trust with all members of the campus community. Trust is founded on interactions that demonstrate both competence in our ability to help them solve problems and palpable concern for their needs. [12] We accomplish this trust by serving in a variety of roles including advisors, educators, technical experts, inspectors, technicians, and medical professionals. Trust is built with our partners when the interactions and administrative processes with EH&S are transparent, intuitive, and inclusive.

Program Priorities



Key priorities provide our department with focus and direction in everything we do.



Research & Academic Support

01. Reason for Prioritization

Research that pushes the boundaries of knowledge has inherent risks. Whether it be students, faculty, or staff, intrinsic to learning new skills is a propensity to incur mistakes. This situation is especially evident within academic research laboratories where the fervor to produce results often overlooks the basic safety and risk assessment precautions. This is one of the major unaddressed risks identified in academic research laboratories, including at Stanford. We believe EH&S can help prevent those mistakes and anticipate risks by integrating more fully with the research and teaching/learning activities on campus.

02. Goals

Develop Expectations for Research Safety: Establish institutional 'Expectations for Research Safety' so that there is a common understanding for excellence in research safety. These expectations will serve as a management framework that emphasizes risk assessment, implementation of controls, and sharing of lessons learned as foundational elements across all health and safety disciplines.

Faculty Onboarding: Create a cohesive onboarding process for faculty that reinforces the concept of safety as a core value at Stanford, introduces the framework for managing safety, and communicates that resources, including EH&S, are available to help make them successful.

Increase Field Presence & Interaction: Expand outreach efforts to labs with the intent of strengthening working relationships and expanding hands-on problem solving. Ensure EH&S has a visible presence in all labs and an active and ongoing working relationship with labs and activities engaging in moderate or high hazard operations. Our intent is to be viewed by researchers and students as an extension of their lab or shop.

Launch a Safety Fund: Administer a "Research Hazard Mitigation Fund" used to correct potential hazards or support proactive measures to advance safety in labs and academic areas.

Current staffing levels have not allowed for in-depth follow-up, validation of program implementation or forward movement on programs and initiatives in a timely manner. Program efforts in the past have been aligned around specific technical areas (biosafety, chemical, radiation, etc.) with coordination between programs on an as needed basis.

Existing distribution of work has resulted in staff with research technical expertise spending significant portions of their time on routine administrative tasks.

Increasing outreach and engagement to labs and academic spaces will require additional staff. Beyond the currently posted Senior Research Specialist (one-time funding for FY17), current estimate is that three additional FTE would be necessary to provide the level of support envisioned in goals above. For FY18 we intend to request base funding to maintain the Senior Research Specialist plus funding for an additional entry level position. Staffing levels will be reassessed annually based on program development and response from the academic community.

Enhanced program efficiencies can be realized by redistribution of some routine compliance-related activities to a Hazardous Waste/General Lab Technician; this would allow staff with greater research technical knowledge to increase interactions with high hazard labs. Technical programs and associated training will need to be updated to reflect and reinforce a more unified framework for managing safety in research, requiring additional resources.

03. Limitations of Current Effort

04. Budgetary Impacts

Emergency Management & Continuity Planning

01. Reason for Prioritization

Emergency response and continuity planning programs require a high degree of coordination and involve all aspects of University operations. No unit or area of the university is isolated from the impact of an emergency and the need to prepare and plan is universal. Our focus is on helping campus partners to appropriately pre-plan and limit disruption to their critical functions and restore services as rapidly as possible.

02. Goals

Develop Response Teams: Enhance existing life safety and response planning through the development of interdisciplinary, local response, and evacuation teams.

Facilitate Continuity Planning: Reduce the impact of disruptive events by minimizing downtime, reducing financial impact, and restoring other critical operations in a timely manner.

Emergency Response Excercises: Regularly conduct exercises for departmental teams and university emergency responders to inform, challenge, and test response and continuity plans.

Emergency Operations & Dispatch Centers: Facilitate design and construction of a new Class 1 Emergency Operations Center as well as a Campus Dispatch Center to support University operations.

03. Limitations of Current Effort

Resource limitations have not allowed significant levels of engagement with all departments requesting assistance. Existing staffing can only support maintenance of a central planning tool and limited training and consulting with no exercise programming.

Effective business continuity management requires a level of planning and resilience from all units. Lack of ownership by individual units (i.e. "someone else will take care of it") puts the

University at additional risk in the event of a campus wide incident. This risk issue has been identified as one of the three top institutional risks for review by the University Cabinet and Board of Trustees in Fall 2016. The current continuity planning tool does not meet all of Stanford's enterprise planning needs.

Expanding or accelerating continuity plan development will require additional personnel to facilitate the planning process. Leveraging the efforts of the grass-roots continuity planning team supported by EH&S, UIT, and Audit and Risk Management will allow for some development but sustained progress will be difficult without dedicated staff knowledgeable in this area. There are two alternatives to move this program forward.

Option 1: Limited Support Model With Gradual Increase: Continue existing support at a level sufficient to provide limited consulting and training resources. With approval, redirect some staff time dedicated to ProtectSU earthquake restraint program to continuity planning as program transitions to maintenance mode in FY18. Base funding would be requested in FY19 to maintain and build on efforts initiated with the above identified one-time funds.

Option 2: Accelerated Support Model: If progress is desired more rapidly, adding an additional FTE(s) as soon as possible would be necessary. This increase would allow the program to begin expanding consulting services to local units who are ready to engage in the planning process and could be further augmented as the ProtectSU program activity level is reduced to a maintenance level.

Replacing the existing continuity planning tool with a more full-featured alternative would require an increase in funding. At this point we have not identified an alternative that provides sufficient value to warrant a change but this is an area likely to require investment in future years.

04. Budgetary Impacts

Injury Prevention & Loss Reduction

01. Reason for Prioritization

Preventing workplace injuries is essential to Stanford's efforts to advance employee wellness and campus-wide operational efficiency. The development of an on-campus Occupational Health Center (OHC) has been a critical part of the long-term strategy for reducing work-related injuries and the impact those events have both on employees and their respective units. Building on that effort with enhanced and expanded workplace injury-control and return-to-work strategies will lead to significant savings in terms of both direct and indirect institutional costs.

02. Goals

Enhance Incident Analysis & Communications of Lessons Learned:

Promote continuous improvement and effective mitigation of potential hazards through improved reporting and tracking of incidents and near misses, analysis of root causes that focus on system failures rather than individual errors, and dissemination of safety information that helps others learn from prior mishaps.

Develop & Implement Safety Metrics & Dashboard Tools: Build upon the recently implemented electronic health record system and efforts to revise the incident reporting process; develop metrics and dashboards to improve decision making and help local units and campus leaders focus safety related efforts.

Proactive Safety Interventions: Shift focus of injury reduction efforts towards more proactive interventions aligned with the Center for Diseases Control (CDC) Total Worker Health approach. Coordinate with University Safety Partners, local unit leaders, the BeWell employee wellness program, Risk Management, and Human Resources.

Stanford's injury loss control strategies have been successful in implementing safe work practices, preventing risk of musculoskeletal disorders, and reducing work-place hazards. One limitation of current injury reduction efforts is that relevant data is inconsistently collected and not readily accessible. Ongoing implementation of a new electronic medical records system and upcoming development of a web-based incident reporting system will improve data accessibility and quality. Effective use of the data gathered from the new systems will continue to be an ongoing area of organizational growth.

03. Limitations of Current Effort

We do not anticipate a request for additional general funds in FY18 in support of the above goals. Current programmatic budgets are adequate for making substantial progress in this area; however, we do anticipate an additional funding request related to the opening of the Redwood City campus. Our goal in this area is to provide off-site employees with comparable access to EH&S services. Programmatically we will need to strengthen partnerships with key stakeholders and adjust efforts to meet their business needs to meet the goals noted above.

04. Budgetary Impacts

With relocation of the OHC to the new EH&S facility anticipated for CY2018, we believe there will be opportunities achieve cost savings and further improve employee wellness by establishing in-house physical therapy and alternative treatment modalities. Enhancements in this area would be in partnership with Risk Management and BeWell and based on additional analysis of potential impacts.

Process Improvement & Data Management

01. Reason for Prioritization

Our ability to improve the experience of our partners and end users is dependent on our capacity to rethink existing processes, leverage IT solutions, and improve the access and usability of data systems. As a result of compliance needs, our department has already made substantial investments in technology and data management, but by focusing on the user experience we can significantly impact the utility of safety-related systems and services.

02. Goals

User-Centered Service Design: Improve customer experience through user-centered service design and change management.

System Connections: Generate new opportunities by focusing on connecting or extending existing systems and making data available and usable. This means building platforms and registers others can build upon, providing integration resources (like APIs) that others can use, and linking to the work of others.

Evaluate Our Systems & Leverage Existing Software: Continuously evaluate our systems to look for opportunities to improve how we work internally, with customers, and with other stakeholders through business process redesign. Where possible, leverage existing software platforms to jump start efforts (e.g., BioRaft). Emphasize business objectives and how processes relate to them.

03. Limitations of Current Effort

Over the years, systems have been developed to support specific program functions. Their design and the business processes they support has been influenced more by how EH&S is organized rather than by user perspective. In addition, long term stability and success of existing EH&S programs has created a resistance to

change even as user expectations and institutional needs have continued to evolve. Finally, in some cases the level of support provided by central IT Support do not fully align with EH&S's needs for agility and flexibility.

Meeting the above goals will require a thoughtful allocation of resources that is aligned with the objectives and strategic plans for EH&S as a whole as well as for the effected program areas. In the short term, we believe we can maintain existing systems and make substantive program improvements by focusing on low cost redesign of business processes that utilize existing systems and resources.

Longer term, we believe that this is an area that will require significant investment if we are to meet the needs and expectations of the campus community. We intend to request one-time funds in FY18 in support of the service design effort and anticipate a budget request in FY19 to address areas of opportunity identified in conjunction with campus partners during CY17.

04. Budgetary Impacts

Communications & Outreach

01. Reason for Prioritization

Effective communication and outreach programs are essential to the success of any safety or environmental health initiative. A comprehensive communication strategy which facilitates behavioral and attitudinal changes will directly impact broad-based habits and practices and has the potential to significantly improve Stanford's safety culture.

02. Goals

Targeted Communications: Align communications efforts to provide operationally useful safety-related information when, where, and how it is most needed by campus community (Safety Information Service project).

Behavior-Change Based Marketing Techniques: Use of more progressive communications techniques to reinforce the concept that safety is the "social norm" and is a "core value" at Stanford. Efforts will be focused on techniques that facilitate behavior change, encourage interaction and discussion, and lead to a more collaborative safety environment.

Leverage Existing Communication Channels: Cohesive messaging that will leverage existing programs, trainings, subject matter expertise, and one-on-one interactions to impact how safety programs are implemented on campus.

03. Limitations of Current Effort

Communications efforts to date have had varying levels of success. There has been a tendency within the department to view communications as an afterthought rather than an integral part of program planning. This has been coupled with limited efficacy of existing distribution channels and an over reliance on information being passed along to those that need to know. For example, there is no current method in place to communicate directly with the

research community. These challenges have been exacerbated by limited resources devoted to helping technical program managers develop and execute cohesive communication strategies. Additionally, there is a great need to be able to use many different modes of communications outreach, especially with students and grad students who are more responsive to new modes of direct communication. Currently, we are just beginning the process for enhanced outreach and communications.

Achieving the goals noted above will require technical managers and specialists within EH&S to take a more proactive role in coordinating communication strategies for their program areas as new initiatives are conceived. At the same time, we must ensure that efforts are coordinated and supported across the department to convey a cohesive safety message. Our efforts to encourage safety as the social norm at Stanford will require collaboration and support for local units and campus leaders so that the campus community receives a consistent and positive message about the importance of safety at Stanford.

With regards to funding, support for the website redesign over the past 2 years has been funded from departmental reserves. Going forward, further application development and communication efforts will require base funding given the scope and scale of EH&S programs and to work towards the vision for a Stanford Safety Information Service. Conversion of FY17 one time funding to base will be requested in support of this program area.

04.
Programmatic
and Budgetary
Impacts



"You've got to think about big things while you're doing small things, so that all the small things go in the right direction." - Alvin Toffler

The strategic plan we propose here builds on the past, while looking to the future. This plan is not meant to be rigid or an endpoint. It is intended as a living document - part of a learning process. A critical aspect of that process, is evaluating and adjusting our path as we build on our knowledge and allowing flexibility as conditions change with time. Having a strong, yet adaptable, collective vision for EH&S will allow the University to reap the greatest health, safety, and environmental benefits from efforts and resources, keeping with the characteristic excellence of Stanford.

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