

Experiential Learning & Professional Development Opportunities

Professional associations provide professional development and networking opportunities to students and incumbent workers, bridging education to practice. Many associations provide experiential learning opportunities; professional conferences and other networking opportunities, as well as student scholarships and other support. In addition, many institutions either require or strongly encourage work-based learning experiences for their students through internships and/or co-ops. Industry and education/training providers can work together to ensure that safety-focused experiences and application of safety skills are an important component of these professional development experiences. Relevant maintenance experiential and work-based learning is available through the following sources:

[American Society of Safety Professionals \(ASSP\)](#)

ASSP is a global association of occupational safety professionals that advocates for safer work environments. It supports student chapters and provides scholarships, educational resources, and a student-focused Future Safety Leaders Conference among other professional development and networking opportunities.

[National Association of County Engineers \(NACE\)](#)

While NACE does not offer student membership, they provide education and training events to county engineers, road managers, and related professionals across the US.

[Association of General Contractors \(AGC\)](#)

Student Chapters exist at accredited two- and four-year schools offering programs in construction management, construction technology, and construction-related engineering. Membership in an AGC Student Chapter provides young professionals with an opportunity to observe and develop their skills with current industry leaders. AGC sponsors contests for student chapters that apply construction knowledge to real-world problems. AGC's Foundation provides scholarships for undergraduates, graduate students, and students pursuing a technical degree or apprenticeship. Opportunities such as job shadowing and career fairs are available through state AGC chapters.

[Traffic Safety Scholars \(TSS\) Program](#)

The TSS Program provides awards of up to \$1,000 to undergraduate and graduate students to help defray the cost of attending the Lifesavers Conference on Highway Safety Priorities. This conference provides opportunities to learn about highway safety issues from leading experts and network with the largest gathering of highway safety professionals anywhere in the country.

[National Highway Institute \(NHI\)](#)

NHI provides trainings and education for highway professionals in order to improve the conditions and safety of roads, highways, and bridges.

[American Traffic Safety Services Association \(ATSSA\)](#)

ATSSA represents the road safety, traffic safety, and highway safety industry with effective legislative advocacy, traffic control safety training, and a far-reaching member partnership. ATSSA offers a variety of experiential learning and additional training and networking opportunities through its annual convention and traffic expo, mid-year meetings, and National Work Zone Awareness Week activities.

[American Public Works Association \(APWA\)](#)

APWA student membership connects students to a

network of professionals. Membership is available to anyone enrolled in at least nine credit hours per semester at an accredited college, university, junior college or community college offering associate's, bachelor's or advanced degree programs in engineering, public administration, planning, construction, or other public works-related coursework. State chapters provide scholarships as a way to attract students to this field. Public Works conferences or expos often include an Equipment Rodeo—a competition for technicians in a number of maintenance occupations to show their skills troubleshooting mechanical issues or maneuvering equipment in various weather conditions. Local winners advance to regional and national Rodeos. These events showcase the latest in technology and equipment and offer an opportunity for a student to engage with public works staff as well as equipment manufacturers.

Public Agencies and Transportation Organizations

Cities and counties as well as state transportation agencies provide opportunities for paid internships, co-ops, externships and on-the-job training in the maintenance field.

[State Local Technical Assistance Programs \(LTAP\)](#)

These FHWA-funded centers offer training and coordination for Local Roads Programs or Road Scholar Programs. Opportunities for students vary by state.

[Federal Highway Administration \(FHWA\) EOT Program](#)

FHWA's Emergency Transportation Operations program provides tools, guidance, capacity building and good practices that aid local and State DOTs and their partners in their efforts to improve transportation network efficiency and public/responder safety when a non-recurring event either interrupts or overwhelms transportation operations.

[Federal Highway Administration \(FHWA\) TIM Program](#)

The Federal Highway Administration has training for safer, faster, stronger, more integrated incident response, through its National Traffic Incident Management Responder Training Program. This program includes web-based training, a communications toolkit, newsletters, and videos that can help to better equip students and professionals in the industry of traffic incident management.

[National Traffic Incident Management Coalition \(NTIMC\)](#)

NTIMC is a multi-disciplinary partnership forum spanning the public safety and transportation communities to coordinate experiences, knowledge, practices, and ideas to improve incident management practices.

[Traffic Incident Management Network \(TIM\)](#)

TIM connects traffic incident management professionals from different disciplines. Through the network, students and professionals focused on traffic incident management can have access to the Responder, the monthly newsletter, webinars, podcast, virtual peer exchanges, and more.

Innovative Strategies for Integrating Safety Competencies into Varied Programs of Study

A safety career pathway involves attaining specialized safety competencies within various traditional transportation programs of study. In addition to acquiring academic and technical preparedness within a broader field (e.g. Civil Engineering or Construction), students and incumbent workers on a safety career pathway will pursue research, experiential learning, on-the-job training and other work-based or real-world learning experiences focused on transportation safety. Examples of effective safety integration models are listed that provide curricular and co-curricular value to student safety career preparedness:

Co-Curricular

Transportation Agency/University Research Partnerships

Research partnerships between university faculty and state DOTs are proven sources for safety workforce development when they: 1) are implemented over the long-term; and 2) actively involve faculty and both undergraduate and graduate multi-disciplinary students in the implementation of safety research and project development.

On-Campus DOT Design Units

Many campuses partner with transportation agencies to provide on-campus internship experiences to undergraduate students in roadway design or traffic operations projects. These programs provide students with hands-on design experience and exposure to state DOT standards and practices while building a pipeline into transportation engineering careers.

Safety-Focused Work-Based Learning

Particularly in construction programs, many institutions either require or strongly encourage work-based learning experiences, which can be utilized to attain safety-focused experiences and to apply safety skills in the workplace.

Curricular

Engaged Scholarship

Most universities provide mechanisms to incorporate community projects into student coursework, either through senior design, capstone, or service learning courses. Engagement of transportation organizations with universities to provide safety-focused course-based projects can serve as a powerful student exposure and recruitment tool to safety career pathways. Some universities provide opportunities to scale up these types of engaged scholarship opportunities so that one agency partner can provide multiple projects over the course of an academic year.

Safety-Focused Course-Based Learning

Integration of safety topics and experiential learning into the classroom can be accomplished in various ways, including incorporation of safety-focused case studies and lab exercises into required coursework; and implementation of assignments that demonstrate understanding of safety principles and processes, through development of safety plans, safety data

analysis assignments, or implementation of accident investigations or safety audits. Job site visits and field trips have also been identified useful tools for promoting student interest in safety.

Students can design their own externship experience.

Competency-Based Curriculum

A curriculum that meets academic and quality standards, designed and organized by competencies required for jobs and cross-walked with industry skill standards and certifications, can be designed for safety. Job profiling and the use of "SMEs" should be considered to meet the competency needs of employers. The proliferation of industry-driven professional safety certifications can be used to facilitate this process. Programs of this kind may award credit for prior learning, allowing incumbent workers to achieve credentials by demonstrating knowledge and skills developed on-the-job.

Asynchronous Learning

Provide education and training for students and incumbent workers at times and locations convenient to students and employers, rather than instructors or institutions. This may include evenings or weekends, blended or "hybrid" delivery models, and delivery at off-campus locations.

Problem-Based Learning

Problem-based learning provides students with opportunities to solve real life problems, often in environments that replicate the workplace (e.g. design within constraints, working on multidisciplinary teams, etc.). Industry engagement with educators to provide real world problem examples and guidance on project constraints enhances student experience.

Work-Based and Experiential Learning

Incorporate opportunities for "learning-by-doing", including internships, co-op work experience, simulations, and team class projects that are assignments from local employers.