

Proceedings
of the
**Highway Safety Workforce
Planning Workshop**

April 3–4, 2002
San Antonio, TX



U.S. Department of Transportation
Federal Highway Administration





U.S. Department
of Transportation

**Federal Highway
Administration**

400 Seventh St., S.W.
Washington, D.C. 20590

On April 3 and 4, 2002, the Federal Highway Administration's Office of Safety hosted a workshop to discuss topics related to workforce development for the highway safety community. The workshop was sponsored in partnership with the Institute of Transportation Engineers (ITE), Transportation Research Board (TRB), and the American Association of State Highway Officials (AASHTO). The goal of the workshop was to develop key highway safety workforce strategies and to raise the bar for the transportation profession. Benefiting from the presence of both public and private sector stakeholders' perspectives, the workshop attendees also gave feedback toward the reauthorization of the Transportation Equity Act for the 21st Century (TEA-21).

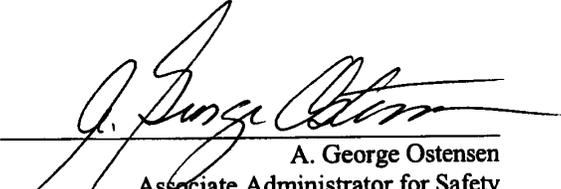
Representatives from the workshop participated in one of the three breakout sessions, focusing on training and professional development, organizational management perspectives of developing a safety workforce, or the tools and technology required to transfer knowledge and information among professionals. In addition to discussing larger topic areas of workforce development such as human resources and organizational management, the workshop also conveyed the need to continually raise public awareness. This could be done through mechanisms such as educating decision-makers, managers, and political officials on the importance of road safety and highway safety training.

In identifying the needs of the safety professionals, the workshop participants highlighted recommendations that could serve as future goals for advancing the workforce. For example, the participants stated that there was a need for a national transportation clearinghouse that would house all training and professional development information, so people could easily access information about such opportunities from a range of providers. The participants also recommended that the safety community needed quality data to make compelling cases for enhancing highway safety through effective use of human capital.

The speakers discussed an array of topics from the goal of continuously developing comprehensive training courses and matching them with the appropriate highway safety professionals to legislation that would address the development of transportation workforce and safety education. The workshop attendees discussed establishing safety in undergraduate curriculums and initiating pilot projects that would establish highway safety and training in state plans.

Efficient use of human capital can have significant organizational impacts in a performance driven environment. It can also help agencies meet their programmatic safety goals such as reducing injuries and fatalities on our nation's roadways. The workshop attendees developed policy proposals for the next steps that the highway safety community could pursue in an effort to meet the agency's goals. Our future progress toward workforce development includes new training courses that are underway to adequately prepare safety professionals.

The Office of Safety for the Federal Highway Administration will continue to partner with our external and internal collaborators to assess the kinds of resources and safety technologies necessary for the continual training and development of the workforce. We look forward to continuing participation from our safety and transportation community, and encourage everyone to take part in helping enhance safety on our nation's highways.



A. George Ostensen
Associate Administrator for Safety

Contents

Proceedings	5
<i>Introduction</i>	5
<i>Outcomes</i>	6
<i>Next Steps</i>	6
Summary of Issues and Recommended Policies	8
<i>Human Resources</i>	8
<i>University Education</i>	9
<i>Tools/Technology</i>	10
<i>Training</i>	10
<i>Organizational/Institutional</i>	12
<i>Certification</i>	13
<i>Public Awareness</i>	14

Proceedings

Introduction:

The Safety Workforce Planning Workshop was held in San Antonio, Texas on April 3–4, 2002. The workshop was co-sponsored by Federal Highway Administration (FHWA), Institute of Transportation Engineers (ITE), American Association of State Highway Officials (AASHTO) and Transportation Research Board (TRB). It was attended by representatives of organizations in the highway safety community who assessed the needs of the safety workforce, and they discussed steps that could be taken to ensure transportation agencies have a capable workforce to meet future needs. The goal of the workshop was to derive policy recommendations that would help enhance highway safety training and workforce development.

Recommendations

Some key topics of the workshop included legislation to improve safety training and education, strategies to provide continuous professional development and an approach to address workforce planning for the U.S. Department of Transportation. The workshop attendees recommended that enforcement, engineering, education and emergency medical services communities be involved in safety education and awareness outreach. It was also recommended that changes made through traditional safety partners be incorporated into the programs of external agencies such as driver's education courses so safety information can be transferred to a larger audience.

Engineering, Education and Enforcement

We need to continuously educate highway professionals and the public about where, why and how fatalities occur on the nation's roadways. A combination of education, enforcement and engineering helps us improve safety by educating the drivers, professionals and enforcement officials. Studies from the insurance industry show that safety is enhanced when there is the perception of apprehension from enforcement coupled with education and public awareness. The first steps toward fatality prevention are awareness through education and commitment to the safety of other drivers on the road.

Due to past fatality rate reductions resulting from improved awareness, training, technology, research and programs, the Federal Highway Administration estimates that 109,000 highway fatalities were prevented in the year 2000. Good training, increased awareness and a quality workforce do make a difference in enhancing safety on our roadways.

Human Capital to Enhance Safety

A safe and secure surface transportation system is vital to reduce highway fatalities, injuries and crashes. While the change in the number of highway fatalities in recent years has been relatively unnoticeable, 41,821 people were killed on our roadways in 2000. Decreasing the number of fatalities will depend on a multifaceted approach to safety changes, which includes affecting driver behavior through education and training, improving roadway infrastructure, changing vehicle design and meeting traffic operations needs. How well our safety workforce is trained and kept up to date with the newest approaches to enhancing safety will be key to decreasing fatality figures.

Outcomes:

The attendees drafted policy recommendations that included developing safety training programs and a comprehensive plan to prepare the workforce for their roles and responsibilities, establishing and funding a road safety curriculum and having safety training that is performance driven. The attendees suggested a central source for housing all of the training information. The participants also recommended measuring the success of safety training by having performance evaluations of safety professionals and by measuring reductions in fatalities, injuries and crashes.

The following are a number of policy recommendations developed by the workshop participants:

- Provide direct funding for training and education, include training in the agencies' strategic plan and have a workforce plan to address highway and occupational safety needs.
- Establish and maintain a comprehensive system of quality safety training that (1) includes a clearinghouse for training in the "Four Es" (engineering, education, enforcement and emergency medical systems); (2) assures the quality integration, timeliness and appropriateness of the training; and (3) ensures integration of safety in related disciplines.
- Make safety training a requirement for all safety related positions. Make a CEU requirement in existing licensing programs. Have professional organizations offer CEUs in safety. Establish certification programs for specific jobs.
- Define and implement a national, state and local team effort with specific targets (reduction in fatalities and disabling injuries) and make sure financial and human resources are available and adequately trained.
- Legislate and institutionalize explicit consideration of safety at all levels of transportation.
- Establish ongoing programs to retain and educate the safety workforce, which are goal-oriented and performance driven.

Next Steps:

There is room for improvement, and that is why we need to have continuous education and training on how we can all contribute to this goal. For example, our fatality and injury numbers are on a "plateau." We need to find new opportunities and technologies to restore progress. We need quality, timeliness, and value in developing countermeasures. We need to be aware that the safety needs may vary according to the needs of each locality and by the functional class of roads. There are areas still to be discovered among the safety professionals who have been in the field for a number of years. Training and planning the safety workforce are going to be a process in evolution.

The next steps for institutional consideration and implementation include the following:

- Develop a national clearinghouse to comprise the information and data that would reflect the training, conference and professional development opportunities for the roadway safety community.
- Investigate the possibility of a certification program for highway safety engineers.
- Encourage the integration of highway safety courses in transportation and civil engineering curriculums at universities.
- Continue integrating planning, engineering, design, operations and training efforts necessary for highway safety.
- Explore the technology, data, analysis and evaluation needs for enhanced safety.
- Keep training updated and current with current safety practices and learning mechanisms.
- Develop cooperative safety training with professional societies, universities, Local Technical Assistance Program (LTAP) centers, administrations within the U.S. Department of Transportation (US DOT), consultants and others.
- Develop and deliver training in a timely manner. To help enhance highway safety in areas such as training, education and workforce development, the FHWA and U.S. DOT have been expanding partnerships that are internal and external to the agency.

FHWA continues to work with organizations such as AASHTO, TRB and ITE to integrate safety with the organizational strategies. In an environment that supports a performance culture, the use of human capital is a vital area that can help government reduce costs and be able to do more with fewer resources. Taking into consideration the future retirements of the federal government workforce, we can learn from the National Science Foundation model that has been able to utilize its workforce and workplace technology in a way that it accomplished twice the workload with half the workforce. Outsourcing and e-government concepts are a couple of initiatives that are being investigated to raise the efficiency and accountability in government.

FHWA desires to have a workforce plan, annual performance reports and strategic program strategies linked together to monitor the agency's progress toward its mission objectives. In addition to supporting the core organizational mission, FHWA supports empowering the workforce to help carry out the agency goals. The agency recognizes that to have effective use of human capital, there must be an effective preparation, planning and funding to provide the mission support.

High performance organizations must have a plan in place to integrate what the employees can contribute to the mission and vital goals for the agency. Human capital must be taken into consideration to measure the return on an agency's investment in its vital focus areas, such as reducing the number of fatalities and injuries on our nation's roadways. FHWA will continue to identify the gaps between the current and future skills and knowledge for the profession. The agency will look toward integrating the human capital perspective in its strategic planning process. We will continue to include training and professional development opportunities to effectively carry out the organizational functions and enhance highway safety.

The next part of the Workshop Proceedings shows a summary of issues and recommended policies compiled from the San Antonio Workforce Planning Workshop.

Summary

Issues and Recommended Policies

1 Human Resources

Issues:

- 45 percent of FHWA's work force will be eligible for retirement in 2010. 40 percent of state and local government employees will be eligible to retire in the next 15 years (2017).
- Retention of road safety researchers. Few stay in the field long enough to gain sufficient experience.
- No visible influx of trained safety researchers.
- Recruitment:
 - ◆ We need professionals. Most states are lacking people who want to get into the transportation and safety field.
 - ◆ How do organizations recognize the achievements of employees who actively pursue professional development (e.g., road safety training)?
 - ◆ How does professional mobility affect training priorities and decisions in various organizations?
 - ◆ New transportation professionals will have much less access to the experience base as compared to their predecessors.
- Road safety research does not offer an attractive and progressive career path.
- Why would people enter a career in safety? In traffic engineering?

Policy Statements/Associated Actions:

1. The U.S. Department of Transportation shall develop a strategic plan to address the highway safety workforce needs between 2002 and 2022. This strategic plan will have the overall objective of obtaining the quality and quantity of human resources required to gain order of magnitude decreases in highway-related fatalities, injuries and property damage accidents.

2. As part of the U.S. DOT's Safety Workforce Development Strategic Plan (SWDSP), each State DOT will develop its own highway safety workforce strategic plan. The U.S. Department of Transportation will develop guidance for the components of each state's SWDSP.
3. Safety organizations such as AASHTO, ITE, APWA, NACE, TRB and the National Safety Council are also encouraged to develop highway safety workforce strategic plans.
4. Each state and each safety agency/organization should develop the required knowledge, skills and abilities for positions that have direct or indirect relationships to highway safety.
5. Professional organizations such as and ITE and AASHTO should encourage and reward/recognize voluntary efforts of its members who go into classrooms at the elementary, middle school and high school levels to discuss the transportation and safety professions and concomitantly, discuss the "outrageous" number of fatalities and injuries resulting from crashes.
6. Employers (federal, state, local and private sector) are encouraged to recognize employees who have obtained safety licensure and certification by (1) career advancement (including promotions—title and dollars and (2) recognition by peers.
7. The U.S. Department of Transportation shall develop an incentive program for the provision of training for state, local and safety organizations.

2 University Education

Issues:

- There are not enough professors/teachers in transportation.
- There is not an undergraduate degree in transportation engineering.
- Civil engineers graduate from a four-year program without being taught about the link between the design decisions they will make and the crash frequency and severity that will follow.
- The road safety research workforce is often insufficiently trained and therefore, quality suffers.
- There are no graduate programs at universities to train road safety researchers.

Policy Statements/Associated Actions:

1. Create a highway safety profession with engineering and non-engineering components.
2. Provide highway safety training at the graduate and undergraduate levels.
 - ◆ Initiate a pilot program at state universities that will establish and fund highway safety courses.

- ◆ Require transportation and highway safety courses in all Civil Engineering curriculums.
- ◆ General education requirements for undergraduate and graduate programs need to emphasize basic skills that are required for engineers, planners, educators, law enforcement and the judicial/political communities. The skills include excellent oral and written communication, constituency building, negotiation and how to develop partnerships.

3 Tools/Technology

Issues:

- The standards and warrants in the MUTCD are the embodiment of opinion and experience, not of scientifically supportable empirical evidence.
- The safety profession has learned the power of data. Today we operate on anecdotal experience. Without data, it is difficult to make compelling arguments.
- There is poor quality control (refereeing) in publications. There is a large body of publications that includes incorrect and misleading studies.

Policy Statements/Associated Actions:

1. Build a relevant and strong comprehensive infrastructure to support the technical and research requirements of the road safety profession.
2. Increase and sustain funding for research and development, and deployment of the IHSDM, the Highway Safety Manual, the AASHTO Strategic Plan and CHSIM software, to allow for the evaluation of safety performance of roadways.

4 Training

Issues:

- How can we focus safety training to deliver the latest skills and knowledge?
- What instructor skills and knowledge are needed to deliver road safety courses?
- How can we prevent the current duplication of efforts and stop reinventing the wheel?

- How do we maintain and change National Highway Institute courses?
- How can we recognize the needs of different audiences? Who is the audience? Suggestions include: all contractors, government workers, driver's education and the engineering, education, emergency services and law enforcement professions.
- How can we develop cooperative and coordinated safety training recognizing that we have professional societies, universities, LTAP Centers, DOT's, career professionals, private companies and independent consultants?
- How can organizations judge the quality of training and how well it meets their training needs?
- What is available and what is missing in terms of knowledge, skills and abilities?

Policy Statements/Associated Actions:

1. All agencies and entities engaged in the "Four Es," shall make safety training a priority; direct funding should be provided for these purposes; included in their strategic plan; and have a workforce plan to address highway and occupational safety needs.
2. Post-graduate highway safety training needs to be affordable, accessible and available geographically to states and local jurisdictions.
3. Establish and maintain a comprehensive system of quality highway safety training.
4. Specific actions:
 - a. Develop a national clearinghouse for training in the "Four Es."
 - b. A National Highway Safety Training Coordinator/Integration Specialist position will be established. This position will be the link between federal, state and local highway safety training programs.
 - c. Conduct an inventory/survey of all available highway/road safety training opportunities/curricula within six months of the Workforce Planning Workshop. Identify gaps, overlaps and duplication of effort.
 - d. Deconflict courses.
 - e. Define logical professional development courses and desirable training outcomes by discipline and level.
 - f. Update Courses.
 - g. Catalog existing professional development courses and associated outcomes and prioritize and fund the development of additional courses.
 - h. "Clean up" the courses that have been developed over the past 30 years.
 - i. Use modular course elements for easy adaptation, updating and making changes.
 - j. Use expert panels to review new and proposed courses. Include private sector on expert panels to increase their participation in training courses.
 - k. Use certified subject matter experts to update highway safety training courses annually.
5. Instructors of highway safety professional development courses shall be certified based on their knowledge, skills and abilities in various subject areas.

6. The National Clearinghouse will be responsible for keeping an updated list of certified subject matter experts and developing a tracking system of highway safety specialists.
7. Develop a coordinated training and professional development structure that allocates roles and responsibilities. Develop mechanisms to share resources.
8. Use a train-the-trainer program to ensure fundamental understanding of subject matter issues.
9. Training Delivery/Outreach
 - a. Expose as many people to safety training as possible. Identify target groups (including rural practitioners and safety-related occupational positions).
 - b. No one size fits all. Training must have multiple formats with multiple ways to reach different groups including graduate level courses, training at state DOTs, e-learning and the use of peer-to-peer support.
 - c. Provide accessibility for training through development cost grants and price subsidies. For non-distance learning, assure geographic dispersion of course offerings.
 - d. Use the Internet to create a support network that includes on line training, electronic libraries and resource centers and discussion forums for safety professionals around the world.
 - e. Develop tools to evaluate the effectiveness of professional development courses in fulfilling intended outcomes.

5 Organizational/Institutional

Issues:

- Road Safety training programs are territorial.
- There is a problem with mistrust between different levels of government. Conflicts in different political systems cause difficulties in information sharing.
- Who (what organizations) should do what? Determine how to better integrate all of the pieces. Integrating and coordinating all of the elements are necessary to move forward.
- We need to have a clear understanding of funding streams (for the “Four Es”).
- Who should assume fiscal responsibility for ensuring that a continuous and comprehensive training process is maintained?
- Resources for training are finite.

Policy Statements/Associated Actions:

1. Require a chapter on transportation safety in each Metropolitan Planning Organization's long-range transportation plan.
2. Develop incentives for the creation of roadway safety chapters/sections of local county/municipal/township transportation plans.
3. Require a section on road safety impacts in environmental impact statements that address accident frequency and severity for any project receiving federal funding. Develop and use a screening process in a FONSI to determine roadway safety impacts.
4. Develop incentives for the preparation of a section on road safety impacts in state and local environmental impact statements that addresses accident frequency and severity.
5. Develop a public/private sector consortia or partnership to provide input to workforce development efforts. This consortium shall provide policy input to the proposed National Clearinghouse on Highway Safety Workforce Training. One of the results of this partnership will be the identification of champions for highway safety taskforce development initiatives.
6. Develop a funding program that would be in the range of \$200 million. Potential ways to fund this include: charge \$1 on every vehicle registered that would be put back into the training program. There are currently (in the year 2000) 217,028,000 registered vehicles in the United States. These dollars would be used to fund the National Clearinghouse, including associated highway safety training activities.

6 Certification

Issues:

- Shouldn't traffic engineers, transportation planners, or highway designers get certified? There is not a corresponding oversight for road safety. Shouldn't there be independent oversight?
- There are differences in certification from state to state, which causes training difficulties.

Policy Statements/Associated Actions:

1. The National Highway Safety Workforce Development Clearinghouse will survey each state to determine the components and requirements of transportation/safety personnel certification programs.
2. All projects using federal funds shall have a certified highway safety engineer sign plans at the preliminary, final design and construction levels, prior to approvals. The signing of plans by certified highway safety engineers will signify that that the safety impacts of the design have been reviewed and

noted and mitigated wherever possible.

3. The development of a certification program for highway safety engineers is required.
4. Certification programs for other professionals who are not engineers will also be developed. Examples of professionals that could benefit from highway safety certification include transportation planners, law enforcement personnel, trainers of professional development courses, public works directors, university professors and others.
5. Professional societies such as the Institute of Transportation Engineers, American Association of State Highway and Transportation Officials, ASCE and others should develop certification requirements, core content knowledge, skills and abilities and standards for safety training.
6. The U.S. Government, States and local jurisdictions should develop standard contractual provisions that will require licensure and/or certification for professionals engaged in the conduct of highway operations, roadway design, construction and/or maintenance projects.

7 Public Awareness

Issues:

- The loss of lives and significant injury due to highway crashes is not real for the decision makers. We need to "outrage" them with the facts.

Policy Statements/Associated Actions:

1. Develop a program to educate and empower decision makers, management and the political/judicial officials on the importance of road safety and roadway safety training. The goal of the program is to outrage this target group based on the number of fatalities and significant injuries in their jurisdictions. Track the progress of the fatality and injury statistics in the jurisdictions where education of the target groups has taken place. Encourage volunteers to go to the target jurisdiction and target individuals annually to make presentations and to encourage discussion on the loss of lives due to highway fatalities.