
Mini-Summit Report

Emergency Vehicles and Roadway Safety

The mini-summit on emergency vehicle and roadway safety was conducted in Orlando, Florida on Saturday, January 21, 2006. The session was hosted by the Fire Department Safety Officer's Association in conjunction with the 18th Annual Apparatus Specification and Vehicle Maintenance Symposium.

The mini-summit participants included fire department members, apparatus manufacturers and dealers, fire equipment suppliers, independent consultants and individuals with a particular interest in emergency vehicle and roadway safety issues. The mini-summit was scheduled to follow a meeting of the Safety Task Force of the NFPA Technical Committee on Fire Department Apparatus and many of the task force members participated in the mini-summit.

The purpose of each mini-summit is to seek guidance from involved and experienced individuals to identify the best practices, strategies and methods to implement the 16 firefighter life safety initiatives. The participants in this mini-summit were asked to focus on driver selection and training, emergency response policies and procedures and emergency vehicle design issues, as well as roadway incident scene safety. Individual focus groups were assigned to direct their efforts toward each of these subject areas.

The general discussion underlined the need to change the fire department culture that tolerates unsafe response. In too many cases the prevailing fire department culture allows inappropriate risk-taking and justifies unsafe practices. These factors contribute to an unacceptable frequency of firefighter fatalities and injuries and an alarming number of civilian fatalities resulting from collisions with emergency vehicles.



Seat Belts

The topic of seat belt use by firefighters was discussed by three of the four focus groups. The summit participants were unanimous in underlining the need for more effective measures to ensure that all firefighters use seat belts, whenever they are driving or riding in fire department vehicles. The seat belt issue is one of the prime examples of the cultural change that is essential to improve firefighter safety. While many states and virtually all fire departments have adopted rules or regulations requiring the use of seat belts, the summit participants noted that compliance with these regulations is a serious problem in many fire departments.

The seat belt issue was identified as a top priority, based on the number of preventable fatalities and serious injuries that result from ejection from vehicles that are involved in collisions or falls from moving apparatus. The participants agreed that seat belt usage must be mandatory and the rule must be enforced. The seat belt issue was identified as a personal accountability problem, while the failure to enforce seat belt regulations was described as a management and supervisory issue.

The participants encouraged further research and development to address some of the reasons why firefighters do not wear seat belts, including the need for more user-friendly seat belt systems in ambulances and better integration of seat belts and SCBA straps in apparatus cabs. A variety of technological measures were proposed, including warning lights and alarms to indicate when a seat is occupied and the seat belts is not fastened and interlocks that would prevent starting or moving a vehicle until everyone on board is properly belted in place.

The companion issue of loose equipment inside the cabs of fire apparatus was also discussed in detail. The importance of securing all potential projectiles, including SCBA, was stressed. The policy of removing SCBA from the cabs of fire apparatus was generally considered as a positive step to improve safety, although there was not unanimous agreement that this change is essential. Supporters of the "SCBA out of cabs" policy observed that this change would also promote safety by slowing down the initial actions of firefighters at an emergency scene and causing them to spend more time sizing-up the situation.

The newly adopted amendment to NFPA 1901, requiring all equipment on the outside of fire apparatus, including fire hose, to be properly secured to the vehicle was considered to be a positive advancement.

Driver Training and Qualifications

The driver selection and training group underlined the necessity to ensure that all emergency vehicle drivers are properly trained to operate their vehicles skillfully and in accordance with all appropriate safety procedures. Driver training is essential for the safety of firefighters and the general public. This group expressed strong support for the concept of a national fire service driver's license as a means to ensure that drivers are adequately trained and skilled. This type of licensing system is currently used in several Canadian provinces and a few states, including California and Connecticut have elements of a system.

The basic approach would be similar to the existing commercial driver's license (CDL) program, with specific requirements for emergency vehicle operators. The initial training of fire service drivers should be directed toward obtaining this license. The license should include a classification system that would rate vehicles according to size and weight, as well as the type of transmission and brakes.

The summit participants also agreed that the emergency vehicle driver's license program should incorporate medical examinations and random testing for drugs and alcohol.

The development of this system would require a joint effort of the United States Fire Administration and the Department of Transportation. The implementation would have to be accomplished through the states, which issue drivers' licenses. The states could be required to participate in the system in order to qualify for the distribution of federal highway funds.

There was strong support for the IAFC model policy on drug and alcohol use. The participants concluded that there should be no allowance for any drugs or alcohol, including prescription drugs that could impair driver performance.

The summit participants noted that existing driver training programs need to be strengthened to meet the needs of the fire service. These efforts should be directed toward a generation of firefighters who have a greater orientation toward electronics and technology and tend to be less experienced at driving fire apparatus or other large vehicles.

Simulation training was identified as a priority. Simulators provide the opportunity to expose student drivers to a wide range of situations and driving conditions. While the technology is expensive, the investment is justified by the value of the training and efficiency of the delivery system. The participants recommended partnering with military and commercial simulation system developers to make greater use of the advanced technologies that are currently available for aviation and battlefield simulation training.

The recommendations also included the development of a cadre of advanced hands-on driver instructors, as opposed to developing more hand-off model programs. The concern with existing model programs was that the quality of the program is often diluted as the material is handed down through successive levels, before it reaches the students.

Analysis of Accidents

The summit participants identified the need for more comprehensive reporting and analysis of emergency vehicle accident data. The existing accident reporting systems provide very limited information relating to the frequency and severity of accidents involving different types of emergency vehicles. The analysis should examine rates and causal factors, as well as the impact on emergency responders and civilians and associated costs.

The data collection and reporting objective would require an expansion of existing systems that are managed by law enforcement, transportation and insurance interests.

Fire service organizations should become involved in these systems in order to identify the needs and represent the interests of the fire service.

The participants noted that insurance companies are in a position to leverage greater control over driver actions and fire department policies. While some particular insurance companies were recognized for their efforts to promote driver training and safety procedures, the feeling was expressed that insurance companies could exert more direct pressure on their clients to require compliance with best practices.

Private automobiles as emergency response vehicles

The mini-summit participants advocated a prohibition on the use of privately owned vehicles for emergency response. The discussion centered on the number of fatalities involving POV response as well as the wide variations in state regulations and the lack of effective controls over fire department members responding in their own vehicles. Some states allow privately owned vehicles to be equipped and operated as emergency vehicles, some permit warning lights only, and some prohibit any use of private vehicles for emergency response. The consensus of the mini-summit was that privately owned vehicles should not be considered as emergency vehicles and should not be subject to any special regulations or privileges. The summit also recommended the adoption of Federal legislation to regulate the colors of warning lights for emergency vehicles.

Response Policies

The policy and procedures discussion stressed the need for fire departments to take a risk management approach in determining appropriate procedures for responding to emergency incidents. Specific policies should set speed limits, define policies for crossing intersections and traveling in opposing traffic lanes, and require emergency vehicles to stop at red lights and stop signs before proceeding. The increased use of emergency vehicle preemption systems was encouraged.

Policies to reduce unnecessary emergency responses were also encouraged. The discussion included the need for standard triage policies to classify incidents for emergency or non-emergency response at the time of dispatch. The participants concluded that the overall risks to emergency responders and citizens could be reduced by eliminating emergency response to situations that do not require urgent intervention. Based on the high number of overturn incidents involving water tankers (tenders), there was a consensus of opinion that these vehicles should not respond to any incidents as emergency vehicles.

The same discussion noted the need for more public education efforts to make civilian drivers aware of appropriate actions when encountering emergency vehicles or passing emergency incident scenes.

Apparatus Design

The discussion of apparatus design and maintenance was primarily directed toward issues that are or should be addressed in NFPA standards. The participants noted that most of the existing provisions and recommended changes to these standards are based on opinions and anecdotal information, due to the lack of good data and scientific research. More effort is needed to educate fire service members about the NFPA standards system and how to become involved in the standards development process.

The discussion addressed the need for improved standards for rollover resistance and cab integrity, particularly for commercial cab apparatus. The apparatus design standard should include static and dynamic tests to ensure that finished vehicles are stable in all predictable operating conditions and cabs provide adequate protection for all occupants. The discussion included suggestions to eliminate all loose equipment in cabs and to place all SCBAs in storage compartments instead of seat backs.

The participants also noted the need for more research and development on ergonomic issues, including cab access and egress, as well as safe steps, handholds and walking surfaces on top of apparatus. Design provisions to reduce the need to climb on top of apparatus were encouraged. The addition of higher visibility striping and markings on apparatus was also recommended.

The proposed release of NFPA 1911, Standard on Inspection, Maintenance, Testing, and Replacement of Fire Apparatus, was considered as a positive step to ensure that all fire apparatus is properly inspected and maintained. All emergency vehicles should be regularly inspected for compliance with state vehicle safety requirements. Certified mechanics and technicians should be responsible for ensuring that all vehicles are safe and fully operational.

The discussion of apparatus design addressed several areas where advancing technology is making progress toward reducing or eliminating safety concerns. The specific subjects that were mentioned included:

- black box recorders and cameras
- roll stability systems, air bags
- tire pressure monitoring and run flat devices
- backing sensors
- auxiliary braking systems

Anticipated advances that should become available in the near future include:

- enhanced electronic braking
- yaw control
- heads up displays
- armor protection.

The discussion noted that apparatus manufacturers are often reluctant to introduce innovations that would increase costs, unless they are required by mandatory standards or purchasers are willing to accept the added expense.

Suggestions were made to develop an NFPA Standard for patient transport vehicles and to place more emphasis on third party certification of vehicles.

Scene Safety

The scene safety discussion addressed a range of topics relating to safe practices and warning systems for incidents that occur on roadways or expose firefighters to traffic hazards.

Noting the common observations that emergency vehicle lighting is either too bright or not bright enough, the participants recommended federal funding of additional studies to determine the best colors, intensity and placement of emergency warning lights. The research program should also study the proper use of scene lighting (as opposed to warning lights) and the most effective placement of vehicles to block an incident scene. Research efforts should be directed toward the establishment of uniform regulations and procedures for warning lights and apparatus positioning to protect the scene.

A priority was placed on ensuring that all responders working on roadways are provided with high visibility vests. An example of the proposed design for an ANSI public safety vest was displayed at the meeting.

The discussion also addressed the use of traffic cones and the placement of advanced warning devices and signs to alert approaching drivers. The participants discussed the development of automatic cone placement systems, noise making cones and LED devices to replace railroad flares.

The DOT intelligent traffic systems program was described and several examples of innovative approaches were discussed, including the use of AM/FM radio transmitters and variable text messaging systems to provide early warning of highway incidents and advise motorists when emergency vehicles are approaching. The establishment of auxiliary response teams under the CERT and/or Fire Corps programs to provide traffic control was also discussed. Some of these teams have been provided with specialized highway traffic control vehicles and trailers with directional arrows.

The summit participants discussed the need for “move-over” laws, public education programs and public service announcements to teach drivers how to approach and safely pass by emergency scenes. This information should be a mandatory subject for high school driver education courses, license tests and remedial driver education programs. The problem of impaired and inattentive drivers was emphasized as an extreme risk factor.

The mini-summit participants also suggested that additional consideration be given to the definition of a line-of-duty death by the NFFF, USFA, IAFF, IAFC and NVFC. The existing system does not differentiate between firefighters who are killed as a direct result of placing themselves in harm’s way to save a life, versus those who make a conscious decision to ignore accepted safety practices. The opinion was expressed that we should consider the circumstances when considering how firefighter deaths are honored and classified.