

Watch Out !

A Review of Highway Incidents Involving Fire and EMS Personnel in 2000 & An Overview of Loss Prevention Recommendations

By: Jack Sullivan, CSP, CFPS - jack@lionvillefire.org
Lt. & Safety Officer (ret.), Lionville Fire Co., Lionville, PA

When you read the accounts, there are some comments that appear repeatedly. "To have a firefighter die because a driver was trying to hurry by an accident scene is difficult to take". "This was an unusual situation". "You always think it won't happen to somebody at your fire station". "It's one of the hazards of the job". "The wreck was unusual....". The comments have been made following incidents, where personnel and / or apparatus working emergencies along roadways, have been struck by vehicles. It's time to realize that the incidents are not unusual, and that they are happening with more frequency every day.

Let's review some of the incidents that occurred in 2000. Based on published news stories, and e-mails from fellow fire service personnel, I tracked a total of twenty-two (22) Highway Incidents in 2000 involving fire and EMS personnel. There were five (5) fatalities, 19 fire / EMS personnel injured, and 11 fire apparatus or ambulances struck while working highway incidents. Additionally, The National Law Enforcement Officers Memorial Fund and the Concerns of Police Survivors reports that 20 (police) officers died after being struck by cars while outside their cruisers in 2000.

(I am not including the police officer incidents in this report. Those incidents are just as important, but I don't have the details on each incident to properly include them.)

There were some identifiable trends. Eleven (11) of the incidents occurred at the scene of motor vehicle accidents (MVA's) where fire and EMS personnel had responded for reported injuries. Seven (7) of the incidents occurred at fire scenes, one was at a training exercise, one occurred at a medical call, one at the scene of a disabled fire truck, and one while a unit was backing into a fire station. Considering the number of motor vehicle accidents the fire service responds to as first responders, or for extrication, we should not be surprised that the majority of incidents occurred at accident scenes. MVA's, by their very nature, mean we'll be working on, or near, a roadway. We need to be extra vigilant when on the scene of accidents on limited access roads where speeds are higher and driver reaction times are shorter.

The majority of the incidents at fire scenes involved car fires. Only two involved a firefighter hooking to a hydrant or pulling hose at a structure fire. Once again, car fires on limited access highways require extra vigilance for the same reasons noted above.

At least six (6) of the incidents involved impaired drivers, either intoxicated, or in one case, sleeping. Twelve (12) of the incidents involved fire apparatus or ambulances that were struck by moving vehicles, and at least 8 of those incidents involved emergency vehicles parked in the roadway. Two incidents involved emergency vehicles struck while operating on the shoulder of the road.

Three (3) incidents involved emergency responders who were struck by vehicles while crossing roadways, and four (4) incidents involved responders struck while operating near open lanes of a roadway.

I'm not able to do a more thorough analysis of the incidents, given the level of detail and information provided by the news media, but we can all learn something from the trends and information outlined above.

Loss Prevention Recommendations for Highway Incident Safety

1) Build awareness through more intense training

We need to recognize, and build awareness with our troops, that these types of incidents are happening with more frequency. There have already been 4 emergency responders struck by vehicles in January of 2001. Three were struck while directing traffic and one was struck while unloading medical equipment off an ambulance. In one additional case this month, an engine was struck while hooked to a fire hydrant taking on water, but there were no firefighter injuries. With this kind of frequency, we can expect even more "struck by" incidents to occur in 2001.

Chicago Fire Commissioner James Joyce recently said "the me-first attitude of some drivers is endangering the lives of fire personnel", and he has instructed firefighters responding to calls to operate "as if someone is trying to run them over." Seems drastic, but three "struck by" incidents involving firefighters have occurred in Chicago within the last two months. Do you really need to experience a "struck by" incident in your organization in order to establish highway incident safety training? Does your Firefighter I, or EMT training class address highway safety? How about your annual in service training? Do you revisit the subject periodically as a refresher? Do you provide training bulletins, standard operating guidelines, lessons from losses, or other material to facilitate effective training for your personnel? Do you evaluate apparatus placement, and safety procedures during all types of drills and training? If you aren't already doing these things in your organization, they are a good first step. Get on it !.....Now !

2) Multi-Agency Planning, Training, Policies and Procedures

So you feel pretty good about the training, policies and procedures in your own organization. Have you also coordinated with fellow emergency responders in your area? Is local law enforcement aware of your strategies and plans? Do you have a coordinated approach to closing a roadway, or will that tactic be a complete surprise to the police officer arriving on the scene? Are all fire, EMS, police, transportation (DOT), and wrecker agencies involved in your plans, procedures and regular training? Have you conducted mutual table top drills? If not, then now is the time to open those lines of communication and coordination. Don't wait until your faced with a highway incident to begin training "on scene" personnel in what they need to do. Work together to develop highway incident response procedures.

There is an excellent Highway Incident video tape available, for no cost, in the Commonwealth of Virginia. A coordinated committee of Fire Department, EMS, Police, VA Dept. of Transportation, and Tow Truck Operators in the Hampton Roads area of Virginia, worked for over a year to develop a Highway Incident Management Plan. After agreeing on the plan, with the help of the Virginia Beach Fire Department Video Production Unit, the Committee produced a 17 minute video that demonstrates the plan, to be used for training of personnel in all agencies involved.

You can receive a copy of the Hampton Roads Highway Incident Plan Video by E-mailing a request to: Erika Ricks of the Smart Traffic Center in Virginia Beach, VA.
Her e-mail address is : Erika.Ricks@VirginiaDOT.org

You can also request an electronic copy of the six page Hampton Roads Highway Incident Plan by sending your request by e-mail to: Firefighter Eric Reddeck, Chairman, Hampton Roads Highway Incident Management Committee at creddeck@fire.city.chesapeake.va.us .

3) Limit Your On Scene "Exposure"

Only respond and deploy the amount of apparatus and personnel needed to control and resolve the incident. Limit the "on-scene" time to what is required to complete the assignment. Do not allow personnel to "wander" around the scene. Train personnel to keep an emergency vehicle between them and active traffic whenever possible. Clear up crews and leave the area as soon as practical.

4) Apparatus Placement and Scene Protection

Teach your personnel how to approach a highway incident scene. Make sure your company officers know how to "size-up" a highway incident, as well as they size-up a structure fire. Teach them to look for, and identify, scene safety hazards, including traffic patterns. Make "scene control" one of their early objectives. Protect the work area according to your local policies and procedures. Use apparatus, emergency and scene lighting, safety cones, flares and police personnel to gain control of the traffic, BEFORE, all personnel dedicate their attention to the mission at hand. If road closure is the local policy, or preferred method of traffic control, be sure to do it in as safe and expeditious manner as possible. Coordinate with all agencies on scene to make sure everyone knows the game plan. If you have the ability to employ variable message signage or flashing arrow boards at, or near the scene, implement their use as soon as possible. Road closures introduce the chance of additional incidents, so it's use should be limited, and employed only as necessary. Work with all agencies on scene to reopen closed roads, or lanes, as soon as practical.

5) Scene Lighting

Many of the incidents in the last few years occurred at night, or during low light conditions. While standard emergency vehicle emergency lighting can help gain you safe passage enroute to an incident, that same lighting can work against you, and scene safety, when parked at the incident. Train crews to prevent glare for passing drivers by limiting the use of apparatus headlights while on scene. Teach them to deploy scene flood lights to light the work area, while not creating a hazard for other drivers.

Studies have shown that increased use of amber lighting is effective for warning of work areas or emergency scenes. Design amber lighting into your new apparatus, and investigate cost effective ways to retrofit amber lighting on existing apparatus. DO NOT rely solely on the popular "small" directional arrows found on the back of modern fire apparatus, and built into many light bars. They are just too small to provide ample warning for the motoring public who often approach our incident scenes at high speeds. Larger trailer mounted arrow boards and variable message signs are effective if deployed well ahead of the incident. Since most emergency response agencies don't have the equipment or personnel available to employ these devices, it's important that you work closely with DOT personnel in your area. DOT crews can often deploy those devices in a reasonable time frame for "extended time on scene" incidents.

Teach your personnel how to properly and safely deploy traffic cones and flares to warn motorists approaching a highway incident. Cones with reflective bands, used in conjunction with flares (when scene hazards and fire hazards permit), can be very effective in routing motorists around the emergency scene. Proper spacing and location of the cones far enough before the scene is important if they are to be effective in slowing and redirecting traffic. Police vehicles should be located back in the approach area to the emergency. Studies have shown that the presence of a police vehicle will (most times) slow traffic as they approach.

6) Generous Usage of Retro-reflective and Florescent Clothing

Have all of your personnel been assigned, or have available, retro-reflective and florescent traffic vests or jackets ? Did you know that there is an ANSI Standard for High Visibility Safety Apparel ? The new ANSI / ISEA 107-1999, American National Standard for High-Visibility Safety Apparel, was published in July of 1999 by the International Safety Equipment Association (ISEA).

The standard specifies three conspicuity classes of garments based on the wearer's activities.

Class 3 garments provide the highest level of conspicuity to workers with high task loads in a wide range of weather conditions where traffic exceeds 50 mph. The standard recommends these garments for all roadway construction personnel and vehicle operators, utility workers, survey crews, emergency responders, railway workers and accident site investigators.

Class 2 garments are intended for users who need greater visibility in inclement weather conditions and whose activities occur near roadways where traffic speeds exceed 25 mph. Workers who would wear this class of garment include railway workers, school crossing guards, parking and toll gate personnel, airport ground crews and law enforcement personnel directing traffic.

Class 1 garments are for users who have ample separation from vehicular traffic that does not exceed 25 mph and where the background is not complex. Parking service attendants, workers in warehouses with equipment traffic, shopping cart retrievers, sidewalk maintenance workers, and delivery vehicle drivers would wear this class of garment.

Do your "traffic vests" meet or exceed the new standard ? Is the turnout gear assigned to your personnel adequate for operations in a Class 3 environment ? Have you ever evaluated the condition and effectiveness of the reflective material on your turnouts in low light or night time conditions ? I know of some fire departments that are designing new traffic vests for their personnel, that consider the requirements of the standard, while also considering the unique nature of our business; fighting fires and providing emergency medical treatment. Some are incorporating fire resistant and bloodborne pathogen protection in the design, as well as incident command identification needs.

Ok, now you have the vests, do your crews use them ? Do your company officers monitor and enforce their usage ? Does your Safety Officer carry spares ? Is there an adequate number of traffic vests available on all of your apparatus ? Is the care and use of the traffic vests taught in your entry level training classes, and reinforced during in service training ?

7) Use of Safety Officers and Personnel Accountability Systems at Highway Incidents

In the last few years there are a number of safety activities that have become "en vogue" in the fire service. Two in / Two out, Rapid Intervention Teams (RIT's), PASS alarms, bloodborne pathogens and universal precautions, Personnel Accountability and Scene Safety Officers are more common now than ever before. However, there still seems to be a disconnect in the usage of Scene Safety Officers and Accountability Systems when responding to highway incidents. Who needs them ? EVERYONE ! Someone on scene needs to be looking out for the safety of the work zone, and the emergency responders. Someone needs to be able to "see the big picture" and take the steps necessary to coordinate with other agencies to make sure the work scene is not open to intrusion by casual passerby's, or out of control vehicles. Are apparatus spotted to protect the scene ? Is advanced warning in place, or should additional police personnel be requested ? Are personnel wearing effective retro-reflective gear ? Is scene lighting effective, while not creating additional hazards ?

7) Use of Safety Officers and Personnel Accountability Systems at Highway Incidents (cont'd)

If an incident does occur, can you identify and account for all personnel operating on scene ? Do you know who responded to the scene on apparatus or in personal vehicles ? Is there anyone missing and perhaps trapped under the vehicle that crashed into your scene ? What if the vehicle intruding on the emergency is a tractor trailer ? In an incident that occurred in Lionville, PA in March of 1998, a tractor trailer overturned and swept through an accident scene striking 10 emergency responders. It came to rest, on its side, at the rear of an ambulance where most of the personnel on scene were located. The first arriving fire chief, after the secondary accident, had to determine quickly if any emergency personnel were trapped under the trailer, out of sight. Without the accountability system in use at the time, that would not have been possible. How would your procedures hold up in a situation like that ? The Scene Safety Officer should have personnel accountability as one of their assignments. As we all know, with staffing the way it is now days, this may be a luxury that is hard to come by. You may have to be very creative about how you facilitate this goal, but never the less, it has value. Find a way to make it happen, just like we're finding innovative ways to provide for Two in / Two out.

8) NIOSH Recommendations Following Firefighter LODD Investigations

There have been at least two NIOSH Firefighter Fatality Investigations involving "struck by vehicle" incidents in last couple of years. It might interest you to know what recommendations were developed as a result of those investigations. Here's a summary:

- Establish, implement and enforce standard operating procedures (SOP's) regarding emergency operations for highway incidents.
- Position apparatus to take advantage of topography and weather conditions (uphill / upwind) & protect firefighters from traffic.
- First control oncoming vehicles before addressing the emergency event, in the event the police have not arrived.
- Ensure that personnel position themselves and victims in a secure area, when it's not possible to protect the incident scene.
- (DOT) - Use of "variable message signs" to inform motorists of hazardous conditions or vehicular accidents.
- Ensure that personnel park or stage unneeded vehicles off the street / highway whenever possible.
- Ensure that personnel wear personal protective clothing that is suitable to that incident while operating at an emergency scene such as a highly reflectorized flagger vest (strong yellow green and orange).
- Ensure that personnel conducting traffic control measures use a highly visible stop / slow paddle.
- Establish pre-incident plans for areas that have a higher rate of automobile incidents.

I've attached the information at the end of this paper on where you can get copies of those investigations, at no charge, on the internet. I highly recommend that you get a copy of each, review them, and then build that information into your training programs.

Summary

"They're" out there. "They" are the drivers who are impaired by drugs, alcohol, medication, or lack of sleep, and the drivers who are distracted by cell phones, screaming children, their lunch, their morning coffee, and / or sun glare. Like every other aspect of emergency response, we need to recognize that there are certain inherent risks associated with "what it is that we do". We also need to accept the responsibility to employ every strategy and tactic available to us, to protect our crews from foreseeable risk. Highway incidents are dangerous. They are killers. They are happening with increasing frequency, and we as emergency responders are not doing everything we can to protect ourselves and our personnel. We need to "ratchet up" our efforts to train and protect our personnel from being struck by vehicles.

You, the Fire Chief, should audit your organization to determine the strengths and weaknesses in your Highway Incident Response Plan. You need to draft a plan to strengthen weak areas, and constantly review and encourage the progress being made in implementing that plan. Find financial support for new personal protective equipment if it is needed. Most importantly, be a leader in coordinating with other mutual aid organizations in your area.

You, the Safety Officer, should emphasize Highway Incident Safety training within your organization. You need to respond to highway incidents with the same goals and objectives that you have when responding to a structure fire. The exposures may be different, but the goal never changes; protect the crews on scene.

You, the Company Officer, should enforce the use of proper personal protective equipment with your crews. Ensure that the scene is controlled before attending to the business at hand. Monitor the task at hand, and monitor the safety of the scene until relieved of that responsibility by a shift officer, safety officer or assisting company officer. It's no different than what you do at structure fires.

You, the Driver / Engineer, should make sure that you spot your apparatus to protect the scene and crew, every time you park on scene. You need to provide flood lighting that enhances scene safety, and you need to arrange apparatus warning lights to provide effective warning without creating additional scene hazards.

You, the Firefighter / EMT, should learn and abide by, the safety policies and procedures of your organization. Be proactive in wearing proper protective equipment. Work on the side of apparatus away from moving traffic whenever possible. Watch out for your brothers when they get caught up in the task at hand and forget where they are operating. Participate enthusiastically during in service training. Help pass along good habits to new recruits and less experienced personnel. Realize that just because you have on a uniform or turnouts, that some drivers just won't see you, even under the best of conditions. You are not as strong as a guardrail, and you will not stop, or deflect, a moving vehicle. The vehicle will almost always win that contest.

Finally, we all should start operating at highway incidents "as if someone is trying to run us over." Just like we have seen our own die in building fires, some of us have seen our own die in "struck by vehicle" incidents while operating along highways. We won't be able to save every one of our brothers and sisters from this fate, but we just might be able to reduce the frequency of these incidents through our proactive efforts. Emergency responders have been known to accomplish some amazing feats. I know of no other group that is more qualified to accomplish this task. Let's get to it !

Listing of Highway Incidents Involving Fire and / or EMS Personnel in 2000

- 1/27/00 - Cincinnati, OH - 5 firefighters injured as vehicle strikes ambulance
- 2/14/00 - Lebanon, OH - Fire Chief struck and injured by FD SUV while on scene of MVA
- 2/18/00 - Fairview, UT - Firefighter struck and injured by SUV while on scene of MVA
- 3/07/00 - Norfolk, VA - Engine struck by out of control dump truck on I-264, one firefighter injured
- 4/21/00 - St. Louis County, MO - 2 paramedics injured when their ambulance and a police car were struck by a car at the scene of an MVA
- 4/26/00 - Fairfax County, VA - Engine struck by an auto operated by impaired driver at scene of MVA on Capital Beltway
- 4/27/00 - Atlanta, GA - 3 firefighters injured on I-20 when car struck engine at scene of a car fire
- 5/10/00 - Johnson City, KS - Fire truck struck by impaired driver on highway at scene of car fire
- 5/11/00 - Fairfax County, VA - Engine struck by an impaired driver at incident on I-95
- 5/26/00 - Chicago, IL - Firefighter pulling hose across road at structure fire, struck and injured by car
- 7/13/00 - Friendswood, TX - Fire captain struck and injured by hit & run driver while investigating smoke in a field
- 7/28/00 - Walcott, Iowa - Fire truck slowing to turn at emergency crossover on interstate, while responding to an MVA, caused three tractor trailer's to wreck
- 8/20/00 - San Ramon, CA - Citizen killed when her car hit a fire truck on scene of an MVA
- 8/21/00 - Gary, IN - Firefighter struck and injured while assisting engine backing into fire station
- 9/01/00 - Angeles National Forest, CA - One citizen killed and one injured when their motorcycles struck a slow moving fire truck
- 9/04/00 - Yuma, AZ - Firefighter struck and killed by ARFF apparatus while on training drill
- 9/04/00 - Ludlow, MA - Firefighter struck and injured while hooking up to hydrant at structure fire
- 9/17/00 - Maryland, MD - Firefighter struck and killed while crossing interstate at scene of MVA
- 10/24/00 - Clearfield County, PA - Three (3) firefighters injured when their parked rescue truck was struck on an interstate, by a tractor trailer driver who fell asleep
- 11/02/00 - Jonesboro, AR - Firefighter struck and killed while crossing road at scene of a disabled fire engine on a roadway
- 11/07/00 - Tiffin, OH - EMT struck and killed while assisting a pedestrian along a highway
- 12/23/00 - Chicago, IL - Firefighter struck and killed while working an MVA on a highway

References:

NIOSH Firefighter Fatality Investigations Involving "Struck By" Incidents:

NIOSH Report 99F-27 - August 5, 1999 Incident in Oklahoma -
2 Career firefighters were struck on an interstate; one was killed, and one
was left with serious injuries

Available on the internet: <http://www.cdc.gov/niosh/face9927.html>

NIOSH Report 99F-38 - September 27, 1999 Incident in South Carolina -
Volunteer firefighter dies after being struck by a tractor trailer truck.

Available on the internet : <http://www.cdc.gov/niosh/face9938.html>

American National Standard for High-Visibility Safety Apparel

ISEA-The Safety Equipment Association, Arlington VA 1999

Length: 26 pages Language: English

Reference number: ANSI/ISEA 107-1999

<http://www.safetysafetyequipment.org/hivisstd.htm>

EMERGENCY RESPONDER HIGHWAY SAFETY WHITE PAPER

<http://www.respondersafety.com/whitepaper.html>

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About the Author:

Jack Sullivan, CSP, CFPS is a retired Lt. and FD Safety Officer of the Lionville Fire Co., Lionville, PA. (www.lionvillefire.org). Currently residing in Midlothian, VA, Jack began his fire service career in Paoli Fire Co., Paoli, PA in 1972, and eventually attained the rank of Deputy Chief. In 1983, he relocated to Chesterfield, VA where he was a volunteer with the Chesterfield (VA) Fire Dept., a combination FD. He moved back to Pennsylvania in 1988, at which time he joined the Lionville Fire Co., eventually serving as Fire Lt. and the FD Safety Officer until relocating again in 1995 to Virginia. During his tenure in Lionville, he proposed and formed the FD Safety Officers Sub Committee of the Main Line Fire Chiefs Association, a networking committee for FD Safety Officers. Following the Line Of Duty Death of Firefighter Dave Good of the Lionville Fire Co., on the Pennsylvania Turnpike in March of 1998, Jack developed a safety training presentation for emergency services personnel entitled " It Was Just a Routine Call....Highway Incident Safety for Emergency Responders". He delivers that presentation regularly to fire service associations, Fire Departments, and Rescue Squads, and continues to study Highway Incidents involving emergency services personnel. Jack is a Certified Safety Professional and a Certified Fire Protection Specialist, and is the Managing Partner of Loss Control Innovations, a safety and loss control consulting firm in Richmond, VA

Jack Sullivan, CSP, CFPS
Managing Partner, Loss Control Innovations
316 West Broad Street
Richmond, VA 23220
Phone: 804-344-0009 ext. 308
E-mail : Jsullivan@LCInnovations.com