Session No. 653

Safe Practices for Traffic Incident Responders

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Introduction

Traffic responders work in one of the most hazardous environments – the highway. All too frequently, responders fall victim to the secondary incidents that occur as they attend to the original incident for which they were dispatched.

It has been estimated that about 40% of all law enforcement officers who perished in the line of duty died while responding to traffic accidents. These traffic accidents are also a major cause of death for firefighters, emergency medical personal, and tow operators, and they also impact the safety and mobility of road users.

Traffic incident management is emerging as a potential solution to address these safety and mobility needs and has been defined as the process of coordinating the resources of a number of different partner agencies and private sector companies to detect, respond to, and clear traffic incidents as quickly as possible while providing protection and safety to on-scene responders and the traveling public.

The application of traffic control devices typically used by road agencies and emergency responders is constantly evolving. This presentation focuses on the developing ways in which you can better protect the safety of on-scene responders and the traveling public during traffic incidents.

Manual on Uniform Traffic Control Devices—MUTCD

The inclusion of *Control of Traffic through Traffic Incident Management Areas* is a new addition to the Manual of Uniform Traffic Control Devises, Section 6I. It is in the MUTCD, Section 6I where the terms traffic incident and traffic incident management are defined.

A traffic incident is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic.

A traffic incident management area is an area of a highway or roadway where temporary traffic controls are imposed by authorized officials in response to a road user incident, natural disaster,

hazardous material spill, or other unplanned incident. It is a type of temporary traffic control zone and extends from the first warning device (such as an advance warning sign, lights on public safety vehicle, or cones) to the last temporary traffic control device or to a point where vehicles return to the original lane alignment and are clear of the incident.

Responders arriving at a traffic incident will need to estimate the magnitude of the traffic incident so that the expected time duration of the incident and the expected vehicle queue length can be estimated. Estimating the length of time and approximating the expected vehicle queue length will aid responders in determining the appropriate temporary traffic controls needed for the safety of all.

Traffic incident management is the process of coordinating the resources of police, fire, EMS, public works/traffic services and private towing companies to detect, respond to and clear traffic incidents as quickly as possible while:

- Providing scene safety for all responders
- Protecting the traveling public

Traffic Incident Classes

Traffic Incidents are identified as being major, intermediate, or minor.

Major traffic incident – Traffic incidents that involve closing all or part of a roadway facility for a period exceeding 4 Hours. Road users are usually diverted through lane shifts or detoured around the traffic incident and back to the original roadway. The MUTCD states… "All traffic control devices needed to set up the TTC (*temporary traffic control)* for a traffic incident should be available so that they can be readily deployed for all major traffic accidents."

Intermediate traffic incident – Traffic incidents that affect travel lanes from a time period of 60 minutes to 4 hours. They usually require traffic control on the scene to divert road users past blockage. Full roadway closures might be needed for short periods during traffic incident clearance to all traffic incident responders to accomplish their tasks. The MUTCD states…"All traffic control devices needed to set up the temporary traffic control at a traffic incident should be available so they can be readily deployed for intermediate traffic incidents.

Minor traffic incidents – Traffic incidents are disabled vehicles or minor crashes that result in lane closures of less than 60 minutes. On-scene responders are typically law enforcement and towing companies, and occasionally highway agency service patrol vehicles. Diversion of traffic into other lanes is often not needed or is needed only briefly. It is not generally possible or practical to set up a lane closure with traffic control devices for a minor traffic incident. The MUTCD states…"Traffic control is the responsibility of on-scene responders." Also, when a minor traffic incident blocks a travel lane, it should be removed from that lane to the shoulder as quickly as possible.

Note: These Traffic Incident Classes and times listed in this presentation were established for the Texas Manual on Uniform Traffic Control Devices, 2006. The National MUTCD has the same

Traffic Incident Classes. However, the time for a minor accident in the National MUTCD is 30 minutes.

Traffic Sign and Portable Traffic Control Devices

Signs and traffic cones have a long history of providing effective traffic control for temporary road work lane closures. Signs get the drivers' attention and warn drivers of the situation ahead. Cones help guide drivers in a safe path through the situation. Motorists are accustomed to seeing these portable traffic control devices when used for traffic control for work zones and respond accordingly.

If traffic signs and cones can send a clear message and provide positive guidance to a motorist driving through a temporary lane closure for road work, they can also be used effectively for temporary lane closures for a traffic incident. However, for many responders, the size and weight of conventional signs and cones present drawback to their use.

Conventional cones and signs supports are bulky and heavy. Cones used on public roads and highways should be 28 inches in height and have a minimum weight of 9.5 pounds. A traffic sign with a support system typically weighs in excess of 45 pounds. The size and weight of these devices presents no problem for a road crew as their work vehicles and trailers can readily carry these devices. However, this can be a problem for police officers and firefighters who typically have little or no room to carry cones, much less the larger and heavier signs and sign supports.

These shortcomings were recognized by the traffic control industry which responded by developing collapsible cones and fold-up sign systems that can be more readily carried and used by emergency responders. These compact devices weigh much less and collapse into carrying cases thereby taking up a fraction of the space of traditional devices.

For example, a compact set of six collapsible traffic cones, each with a 5 lb. base, measures about 14 in. by 14 in. and weighs about 35 lbs. Also, the newer more compactable folding 3 ft. by 3 ft. **"EMERGENCY SCENE AHEAD"** sign weighs about 29 lbs. and measures about 4 ft. by 1 ft. and comes in a fabric carrying case. These devices are more practical for first responders such as firefighters and/or police officers to carry with them on their emergency vehicles.

Below is an example of a 3 ft. by 3 ft. Advance warning sign for traffic incident management. The MUTCD states that signs used for a traffic incident area may have a fluorescent pink background with a legend and black border.

Exhibit 1.

High-Visibility Safety Apparel

The use of high-visibility safety apparel should be an integral part of the emergency responder's safety program. High-visibility apparel should meet the 2006 American National Standard Institute and International Safety Equipment Association standard, ANSI/ISEA 207-2006, High Visibility Public Safety Vests.

These high-visibility vests combine fluorescent and retro-reflective materials for enhanced visibility and are recognized for their role as the first line of defense against dangerous highway traffic.

ANSI/ISEA 207-2006 is a voluntary industry consensus standard that was specifically designed to increase the safety and visibility of emergency responders when working next to moving traffic at an incident scene.

This latest standard includes design and performance criteria for vests worn by police officers, firefighters, emergency medical services (EMS) and other public safety personnel. ANSI/ISEA 207-2006 includes a cut-out side for ease of access to a police officer's weapon, or EMS belt-mounted equipment. The standard also allows color-specific markings on the vest panel or trim to distinguish between police, fire and EMS responders.

Below is an example of a public safety vest meeting ANSI/ISEA - 207 - 2006.

Exhibit 2.

Pre-Incident Planning

In order to reduce response time for traffic incidents, highway agencies, appropriate public safety agencies (law enforcement, fire and rescue, emergency communications, emergency medical, and other emergency management personnel) and private sector responders (contracted towing and recovery companies and hazardous materials contractors) should mutually plan for occurrence of traffic incidents along the major and heavily traveled highway and street system.

The successful and safe resolution of highway incidents requires completion of many district activities, each of which is the priority of a specific agency or response crew. Interagency coordination and collaboration are therefore critical, such that responders cultivate a working trust with one another, transfer command and control when necessary, and ensure sufficient on-scene resources exist at all times. To achieve this, responders must collectively follow an approach that is based on regional coordination and cooperation.

Planning refers to the process of developing the Incident Action Plan, which is highly specific to a particular series of actions to be taken at a particular incident.

Pre-incident planning, on the other hand, is the process of completing much of the planning activity well in advance of the occurrence of any particular incident. Pre-incident plans could be developed for a complex highway location, such as an interchange, a work zone, or a special event. For highway incidents, pre-incident planning could establish best avenues of approach for incidents occurring on each particular stretch of highway or roadway in more rural communities.

It is recommended that cooperative, coordinated pre-incident plans be developed for known high accident locations. Representatives from all responder groups should participate in the pre-planning effort.

The MUTCD provides typical applications, which show the layout of temporary traffic control devices for typical roadway work situations. Some of these Typical Applications may provide useful guidance to traffic incident management situations.

Use of Emergency-Vehicle Lighting

As stated in the MUTCD, the use of emergency-vehicle lighting (such as high-intensity rotating, flashing, oscillating, or strobe lights) is essential, especially in the initial stages of a traffic incident, for the safety of emergency responders and persons involved in the traffic incident, as well as road users approaching the traffic incident.

Emergency-vehicle lighting, however, provides warning only and provided no effective traffic control. It is often confusing to road users, especially at night. Road users approaching the traffic incident from the opposite direction on a divided roadway are often distracted by emergency-vehicle warning lights and slow their vehicles down to look at the traffic incident, posing a hazard to themselves and others traveling in the same direction.

The use of emergency-vehicle lighting can be reduced if good traffic control has been established at a traffic incident scene. This is especially true for major traffic incidents that might involve several emergency vehicles from several agencies. If good traffic control is established through the placement of advance warning signs and use of traffic control devices (cones) to divert or detour traffic, then public safety agencies can perform their tasks on scene with minimal emergency-vehicle lighting.

Public safety agencies should examine their policies on the use of emergency-vehicle lighting, especially after a traffic incident scene is secured, with the intent of reducing the use of this lighting as much as possible while not endangering those at the scene. Special considerations should be given to reducing or extinguishing forward facing emergency-vehicle lighting, especially on divided roadways, to reduce distractions to on-coming road users.

Quick Clearance Concept for Traffic Incident Management

The greatest benefits of an effective incident management program are achieved through the reduction of incident duration. Reducing the duration of an incident is fostered by reducing the

time to detect incidents, initiating an expedient and appropriate response, and clearing the incident as quickly as possible.

Rapid response of appropriate resources to an incident and the quick clearance of the incident are, of course, the primary focus of a traffic incident management program. The main goals of an effective traffic incident management program are to:

1. Protect both the on-scene responders and the traveling public;
2. Reduce delays and associated impacts on the traveling public;
3. Reduce the possibility of secondary incidents;
4. Ensure that response resources used at the incident scene are put back into service as quickly as possible.

Objectives to improve incident clearance or the "quick clearance concept" are to:

- Restore the roadway to its pre-incident capacity as quickly and safely as possible;
- Minimize motorists' delays;
- Make effective use of all clearance resources;
- Enhance the safety of responders and motorists; and
- Protect the roadway system and private property from unnecessary damage during the removal process.

Clearance is the most crucial step in managing incidents due to the length of time required to remove obstructions and restore traffic flow. So remember to get in, get the job done, and get out.

Managing the Road Space

In order for traffic to move smoothly and safely past the incident, roadway space must be managed, with the following goals:

1. Separate scene operations from moving traffic. If lanes or roadways will need to be closed, traffic should be channelized to merge into other lanes or shoulders that will remain open to traffic. Cones or flares can be used to channelize drivers.
2. Take only as many lanes that are needed for only as long as they are needed. The primary concepts in managing the roadway space is to close only those lanes that are absolutely essential for protection of the incident responders and victims and to minimize the amount of time that those lanes will be closed.
3. Shield responders from traffic. Emergency vehicle positioning is a critical factor in both effectively using response resources and for on-scene safety. Due to their bulk, warning lighting, and on-board supplies and equipment, fire apparatus make useful temporary traffic barriers. According to NFPA 1500, 8.7.4, "Fire apparatus shall be positioned in a blocking position, so if it is struck it will protect members and other persons at the incident scene." Firefighter responding to a scene should be trained in proper blocking techniques, including the "Block Lane Plus One" concept.
4. Safety of Responders is critical. On scene responders should be trained in safe practices for accomplishing their task in and near traffic. Responders should always be aware of their

vulnerability and visibility to oncoming traffic. Always maintain an acute awareness of the high risk if working in or around moving traffic. Never trust moving traffic. Always look before you step! Crew members should exit the curb side or non-traffic side of the vehicle whenever possible.

Resources and References

1. Texas Manual for Uniform Traffic Control Devices, Texas Department of Transportation, 2006.

2. Traffic Incident Management by David Helman, Public Roads, Federal Highway Administration (FHWA), November/December 2004.

3. Simplified Guide to the Incident Command System for Transportation Professionals, FHWA, 2006.

4. Model Procedures Guide for Highway Incidents, National Fire Service Incident Management Consortium, 2004.

5. NFPA 1500, Fire Department Occupational Safety and Health Program, National Fire Protection Association, 2007 Edition.

6. ANSI/ISEA 2007-2006, the American National Standard for High-Visibility Public Safety Vests, International Safety Equipment Association, 2006.