

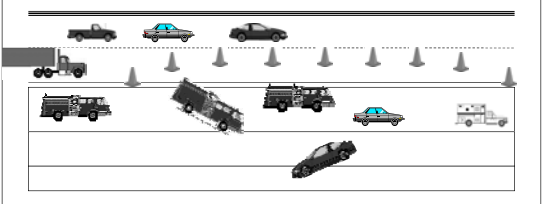



# Roadway Incident Safety for Emergency Responders



## Roadway Incident Safety for Emergency Responders







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## Learning Objectives

- Identify common hazards at roadway incidents and proactive ways to protect emergency responders
- Understand the Manual of Uniform Traffic Control Devices (MUTCD) Chapter 6I – Temporary Traffic Control through Incident Management Areas
- Understand the “NUG” – National Unified Goal for traffic incident management and what it means for emergency services
- Understand the ANSI Standards for “High Visibility” personal protective equipment
  - Awareness of the **New** Federal rule for high visibility PPE

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## Learning Objectives

- Understand the basics of proper positioning and placement of emergency apparatus and traffic control equipment
  - Traffic control equipment (Cones, signs etc.)
- Understand the benefits and proper application and use of proactive emergency apparatus safety features for on-scene safety
  - Emergency warning lights
  - High-visibility markings and graphics
- Discuss various ways to educate the general public and motorists about “Slow Down & Move Over” for emergency apparatus
- Use tabletop exercises to demonstrate an understanding of scene safety strategies and tactics
  - Training techniques

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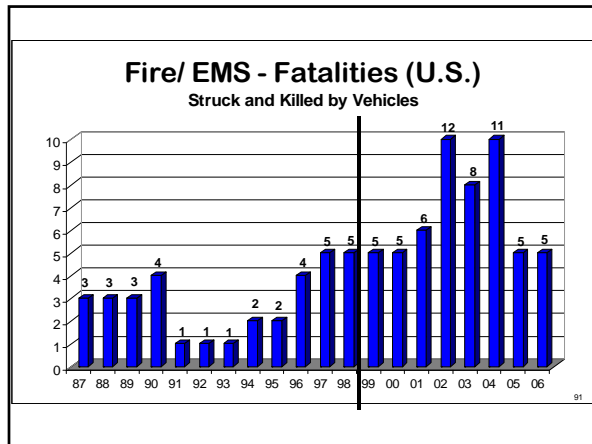
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# Roadway Incident Safety for Emergency Responders




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## Fire & EMS “Struck By” Incidents 2000 - 2003

- 121 Incidents Total
- 137 Fire / EMS responders struck
- 33 Fire / EMS Fatalities
- 97 Fire / EMS Injuries
- 34 Apparatus struck

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## Fire & EMS “Struck By” Incidents 2000 - 2003

- 76 Incidents while at MVA's (63%)
- 27 Incidents while at fire incidents (22%)
- 13 Incidents while at EMS calls (10%)
- 6 Incidents while at training sites (5%)

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# Roadway Incident Safety for Emergency Responders

## “Best Practices”

- **Build awareness through more intense training**
  - Job Orientation (Fire, EMS, Police, DOT, Towers)
  - Annual In Service Training
  - Bulletins, SOG's, Lessons from Losses
  - Evaluate equipment placement & safety procedures during all responses and training sessions.

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**USFA & IAFF**  
**Emergency Vehicle Safety Program**  
[www.iaff.org/evsp](http://www.iaff.org/evsp)

Seatbelt Use  
Intersection Safety  
Driver Training  
Roadway Incident Operations

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## “Best Practices”

- **Multi-agency coordination & communication**
  - Fire, EMS mutual aid agencies
  - Law Enforcement agencies
  - DOT, wrecker services, HazMat contractors
  - Preplan traffic control plans for major routes
  - Table top drills with mutual aid agencies
  - The “NUG”!



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# Roadway Incident Safety for Emergency Responders

## NTIMC Member Organizations

- Transportation (AASHTO, ATA/ATRI, ATSSA, FHWA, ITE, ITSA, I-95 CC, TRB, AMPO)
- **Fire & Rescue** (Emergency Responder Safety Institute, IAFC, IAFF, IFSTA, NFPA, NVFC, USFA)
- **Emergency Medical Services** (NASEMSO)
- **Public Safety Communications** (APCO, NENA)
- Towing & Recovery (TRAA, AAA)
- **Law Enforcement** (IACP)



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## What is the National Unified Goal (NUG)?

The Traffic Incident Management  
**National Unified Goal** is to provide for:

- Responder Safety;
- Safe, Quick Clearance; and
- Prompt, Reliable, Interoperable Communications.



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## NUG Objective #1 Responder Safety

NUG Strategies for promoting Responder Safety:

- Recommended Practices for Responders;
- Move Over / Slow Down Laws; and
- Motorist Training and Awareness.

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# Roadway Incident Safety for Emergency Responders

## National Unified Goal Training

- Establish Policies & Procedures (SOP/SOG)
- Initial Training (Orientation)
  - 10 Cones of Highway Safety
  - "Watch Out Behind You!" Program
  - Managing Highway Incidents (NUG Class)
  - Developing Traffic Control Assistant Program
- Annual Review of Policies/Procedures
- Table-top Exercises or Online Simulations

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## National Unified Goal Training

- Proper positioning of apparatus
  - Appropriate units dispatched
  - Units angled at @ 45 degrees in appropriate lanes
  - Wheels turned away from work area
  - Chocks deployed
  - Emergency lighting discipline
  - Traffic control devices (cones, signs, flares etc.)
  - All units on one side of road
  - EMS units with loading area protected
- Exit apparatus on side away from traffic
- Proper PPE

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## National Unified Goal

- Responder Safety Policies and Legislation
  - Slow Down and Move Over Laws
  - Policies requiring pre-planning for traffic control and traffic diversion
  - Policies supporting multi-agency and multi-jurisdictional training

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# Roadway Incident Safety for Emergency Responders

## **NUG Objective 2**

### **Safe, Quick Clearance**

NUG Strategies for promoting Safe, Quick Clearance are:

- Multidisciplinary TIM Procedures;
- Response and Clearance Time Goals; and
- 24 / 7 Availability !

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### **Multi-Agency Response (3-C's)**

- **Communication**
  - Prior to, during, and following the incident
- **Cooperation**
  - Cooperation vs. Competition
- **Collaboration/Coordination**
  - Before the incident
  - During the incident

**Each agency has a role to play in  
safety and incident stabilization**

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### **“Best Practices”**

- **Limit the Exposure**
  - Minimum Apparatus & Personnel
  - Limit crews on scene to only those necessary
- **Limit the time on scene**
  - Clear-up crews as soon as possible

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# Roadway Incident Safety for Emergency Responders

## "Best Practices"

- **Need for advance warning to slow passing traffic**
  - Arrow Boards, Flares, Cones, Police Cars, DOT signage
  - Variable Message Signs, News Media / Traffic Reports



Ron Moore, Plano (TX) Fire Dept.

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## **MUTCD – Chapter 6I CONTROL OF TRAFFIC THROUGH TRAFFIC INCIDENT MANAGEMENT AREAS**

The needs and control of all road users through a **TTC** (temporary traffic control) zone shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents.

Primary functions of TTC at a traffic incident management area are to move road users reasonably safely and expeditiously past or around the traffic incident, to reduce the likelihood of secondary traffic crashes, and to preclude unnecessary use of the surrounding local road system.

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## **MUTCD – Chapter 6I CONTROL OF TRAFFIC THROUGH TRAFFIC INCIDENT MANAGEMENT AREAS**

- **Minor** - expected duration under 30 minutes
- **Intermediate** - 30 minutes to 2 hours
- **Major** - duration of more than 2 hours

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# Roadway Incident Safety for Emergency Responders



## NFPA 1500 - 2002

8.4.27 ..... Fluorescent and retro-reflective warning devices such as traffic cones (with DOT-approved retro-reflective collars) and DOT-approved retro-reflective signs stating "Emergency Scene" (with adjustable directional arrows) and illuminated warning devices such as highway flares and/or other appropriate warning devices shall be used to warn oncoming traffic of the emergency operations and the hazards to members operating at the incident.

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## NFPA 1500 – 2007 New Material!

### Section 8.7 – Traffic Incidents

- “..all efforts shall be made to protect the members”
- “..establish .. standard operating procedures”
- “Fire apparatus shall be positioned in a blocking position....”
- “....warning devices shall be used to warn oncoming traffic....”
- “First arriving unit shall ensure that traffic is controlled before addressing the emergency”

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## Lime-Green Cones

- **NOT** intended for use on roadways
- Designed for pedestrian traffic on sidewalks
- Guidance is provided by the MUTCD
- Not generally recognized by motorists as a traffic control device

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# Roadway Incident Safety for Emergency Responders

## "Best Practices"

### • Apparatus Positioning and Arrangement

- Guard the scene, guard the crew and the victims
- Park apparatus at an angle & turn the wheels



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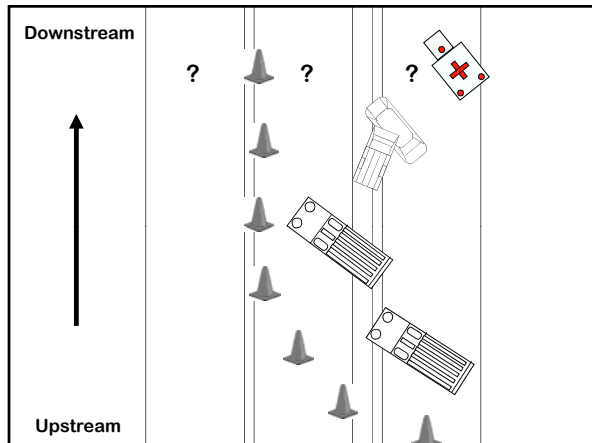
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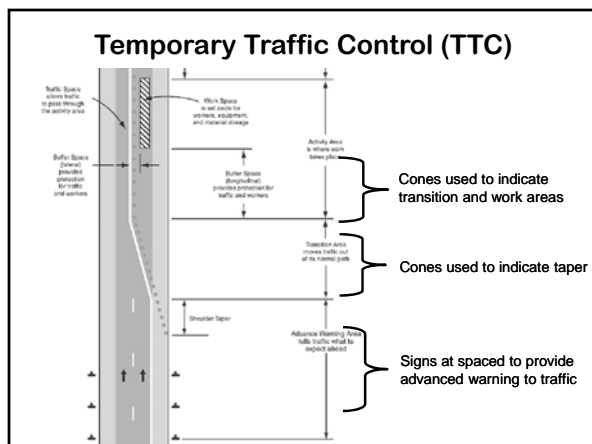
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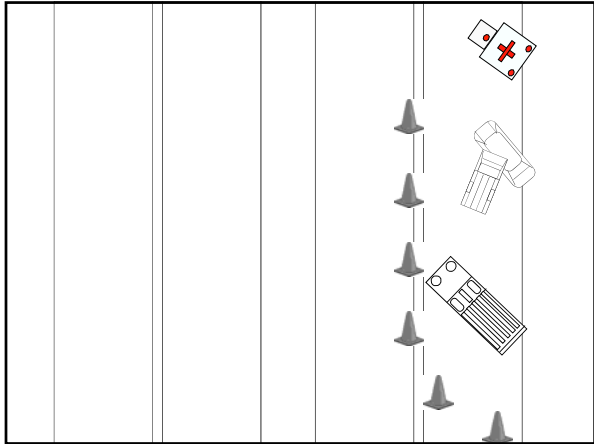
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# Roadway Incident Safety for Emergency Responders



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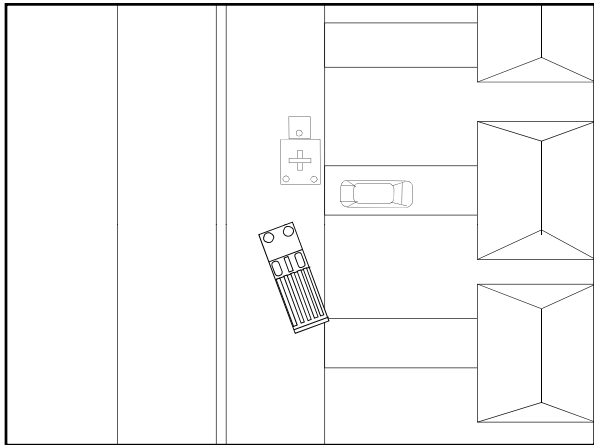
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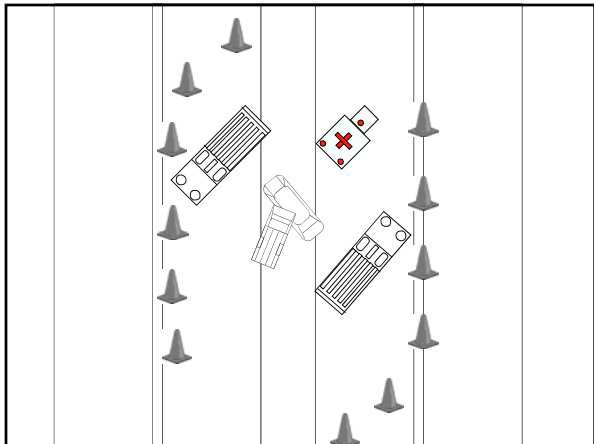
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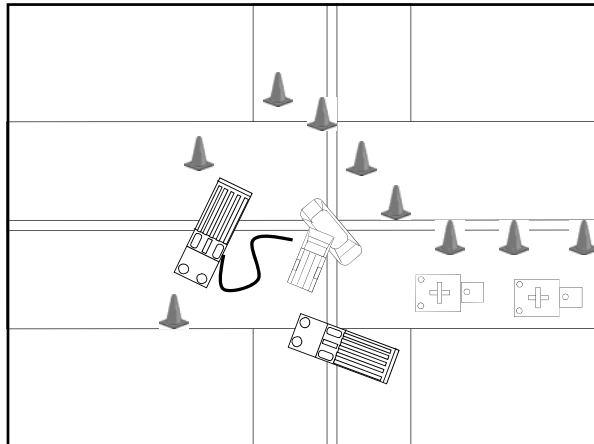
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# Roadway Incident Safety for Emergency Responders




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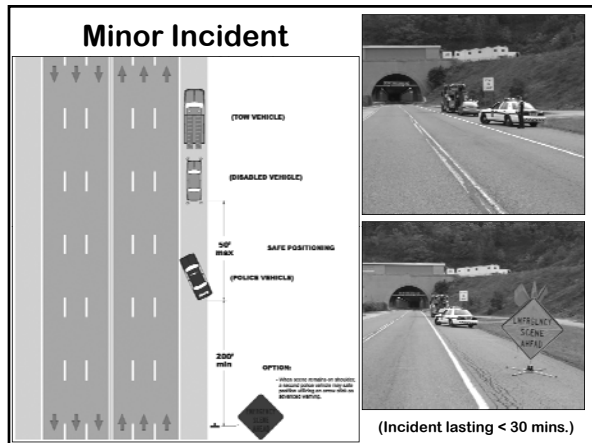
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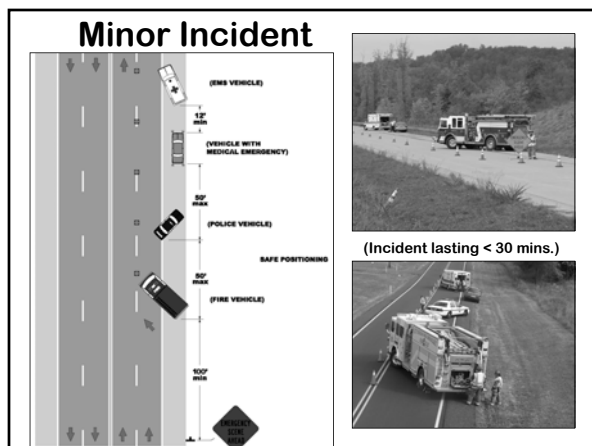
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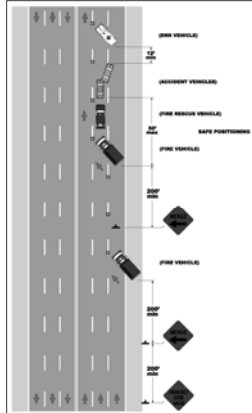
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# Roadway Incident Safety for Emergency Responders

## Intermediate Incident



(Incident lasting < 2 hrs.)



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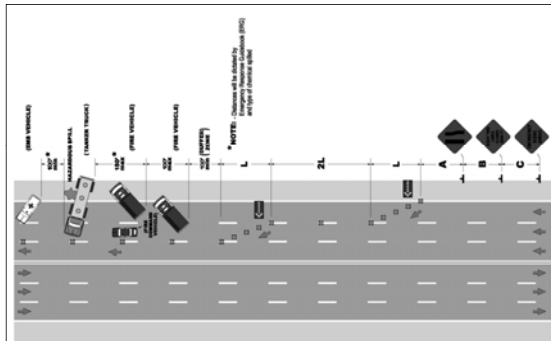
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## Major Incident

Single Vehicle Accident with Hazmat Spill and Injuries



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## “Best Practices”

### • Scene Lighting

- Reduce emergency lights, Use “Blocking” mode, Sign Boards, Arrow Boards, Arrow sticks
- Increase use of amber lenses (more apt to slow traffic, draw less rubbernecking)
- Provide scene illumination after dark
- Presence of Police vehicles shown to slow traffic

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# Roadway Incident Safety for Emergency Responders

## “Best Practices”

- Work on side away from traffic
  - Look !  
Before exiting vehicle
  - Consider Pump Operators & Location of equipment
  - Right-hand traffic stops?



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## “Best Practices”

### • Personal Protective Equipment

- Use of helmets and full turnouts
- High-visibility PPE
  - Reflective
  - Florescent



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## “Best Practices”

- Require **retro-reflective** AND florescent PPE
  - Turnout gear may not offer “high visibility”
  - Safety Vests - Get them & Use Them !
    - ANSI 107-1999 High Visibility Safety Apparel
    - ANSI 107-2004 Revisions
      - Class 3 MUST have sleeves
      - Speed designations removed

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# Roadway Incident Safety for Emergency Responders

## Public Safety Vests

- Provide access to equipment while worn
- Can be easily worn over firefighting PPE
- Optional breakaway safety feature



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## Federal Highway Administration 23 CFR Part 634

- To decrease the likelihood of worker fatalities and injuries
- "Sec. 634.3 Rule.
  - All workers within the right-of-way of a Federal-aid highway who are exposed either to traffic (vehicles using the highway for purposes of travel) or to construction equipment within the work area shall wear high-visibility safety apparel."
- Effective November 24, 2008

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## Federal Highway Administration Interim 23 CFR Part 634

All workers within the right-of-way of a Federal-aid highway who are exposed either to traffic (vehicles using the highway for purposes of travel) or to construction equipment within the work area shall wear high-visibility safety apparel.

**Firefighters or other emergency responders working within the right-of-way of a Federal-aid highway and engaged in emergency operations that directly expose them to flame, fire, heat, and/or hazardous materials may wear retroreflective turn-out gear that is specified and regulated by other organizations, such as the National Fire Protection Association.**

**Firefighters or other emergency responders working within the right-of-way of a Federal-aid highway and engaged in any other types of operations shall wear high-visibility safety apparel.**

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# Roadway Incident Safety for Emergency Responders

## **“Best Practices”**

- **Design safety features into all new apparatus**
  - Use of better hi-visibility markings on apparatus
  - Space for storage of traffic control equipment
    - Traffic cones
    - Warning signs
    - Traffic control equipment
  - Design warning lights to protect the incident scene
  - Consider location of equipment on truck
    - Rear compartments
    - Pump panel

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## **Apparatus Markings**

- Proposed revisions to NFPA 1901
  - Requires that 50% of the rear must be marked with high visibility chevrons
  - Red & Lime-green (yellow) combination
- Ambulance markings
  - State and Federal standards

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## **“Best Practices”**

- **Safety Officer assigned for scene safety**
  - Scene hazards and traffic control
- **Accountability System in Place on ALL Incidents**
  - Ability to account for all personnel on scene
  - Could you identify if any of your crew were under a vehicle that intruded on your scene ?

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# Roadway Incident Safety for Emergency Responders

## NIOSH Firefighter Fatality Investigation Recommendations

- Implement an incident management system to manage all emergency incidents.
- Establish a unified command for incidents that occur where multiple agencies have jurisdiction.
- Ensure that a separate incident safety officer (independent of the incident commander) is appointed.
- Establish pre-incident agreements with law enforcement and other agencies such as the highway department.
- Ensure that fire fighters are trained in safe procedures for operating in or near moving traffic.

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## NIOSH Firefighter Fatality Investigation Recommendations

- 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.

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## NIOSH Firefighter Fatality Investigation Recommendations

- 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).
- Use a traffic control device that maximizes your visibility to motorists when controlling traffic.
- Establish pre-incident plans for areas that have a higher rate of automobile incidents.

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# Roadway Incident Safety for Emergency Responders

## "Best Practices"

### • Public Education

- Community education about highway "manners"
- Public service announcements on TV and/or radio, newspaper articles, open house displays, fire prevention programs, bumper stickers, brochures etc.

### • Student and Driver Education

- High school classroom sessions
  - Drivers education classes
  - Coordinate with school resource police officers
  - Include EMS agencies
  - Use as a recruitment opportunity!

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## Take Action !

Awareness



Strategy &  
Tactics

Training



SOP's

Equipment  
(New &  
Existing)

Leadership

Don't be a Target !

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**The Emergency Responder Safety Institute**  
**[www.respondersafety.com](http://www.respondersafety.com)**

*Sponsored by the Cumberland Valley Vol. Firemen's Assoc.*



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