Traffic Incident Management & Responder Safety

Emergency responses to traffic incidents are rising and the main challenge is about how to safely manage those incidents in the best way to protect not only the emergency responders but also the victims of the initial incident and the motorists who are trying to pass by the scene. The secondary challenge is how to quickly clear the scene and resume normal traffic flow.

Statistics

In 2005 the Bureau of Labor Statistics (BLS) reported 390 workers of all occupations were struck and killed by vehicles on roadways. That number was up from the 378 fatalities reported in 2004. The BLS reports that there were 268 struck-by-vehicle incidents in 2009 and 277 similar incidents in 2010 and that struck-by vehicle incidents accounted for 6% of all fatal occupational injuries in 2009-2010. (Source - http://www.bls.gov/news.release/cfoi.t01.htm)

A 2001 NIOSH report indicated 26 firefighters struck and killed between 1990 and 1999 which at that time represented an 89% increase in those types of fatalities from 1995 to 2000. An NFPA report indicated that 36 firefighters were struck and killed by vehicles from 1989 to 1998. (Source: http://www.cdc.gov/niosh/docs/2001-143/). The NFPA annual Firefighter Fatality Reports also indicate that there were 3 firefighters struck and killed by vehicles in 2005; 3 similar firefighter fatalities in 2006; 1 firefighter fatality in 2007; 4 firefighter fatalities in 2008; and 4 firefighters killed in 2009 when struck by vehicles. There is no unified formal process in place at the moment to track the total number of struck-by-vehicle incidents involving emergency responder injuries, close calls and/or property damage.

The Emergency Responder Safety Institute tracked the following "struck-by-vehicle" incidents:

- 6 LODD for Fire and EMS personnel in 2008.
- 3 LODD for Fire and EMS personnel in 2009.
- 5 LODD for Fire and EMS personnel in 2010.
- 2 LODD for Fire and EMS personnel in 2011.

ERSI also recorded a member of the military fire service who was struck and killed by fire apparatus early in 2011 while on duty in Okinawa.

There are dozens of struck by vehicle incidents each year with injuries (including serious disabling injuries, like amputations) and property damage. ERSI tracked 78 incidents in 2011 where firefighters, EMS personnel and/or their vehicles were struck by other vehicles.

Law Enforcement:

You can obtain the most recent police-officer-specific data on LODDs from struck-by incidents here: http://www.fbi.gov/ucr/ucr.htm#leoka

According to those FBI reports from 1998 – 2007 there were 124 PD Officer LODD from struck-by incidents. The FBI reports that 13 police officers were struck and killed by vehicles in 2008, 6 officers were struck and killed by vehicles in 2009, and 11 officers were struck and killed in 2010. Most fatal cases occurred while officers were on traffic stops or directing traffic at incident scenes.

Law Enforcement Officers Accidentally Killed
Circumstance at Scene of Incident, 1998–2007
Struck by vehicles - Total = 124
- Traffic stop, roadblock, etc. = 50 Line of Duty Deaths
- Directing traffic, assisting motorist, etc. = 74 Line of Duty Deaths
Core Elements of a comprehensive Roadway Incident Safety Program
Use the following list to evaluate the current program elements for your agency:

1) Roadway Incident Safety training for all personnel
   a. Initial orientation for new employees before they respond to any emergency
      i. SOP/SOGs used as core competency
   b. Annual (minimum!) in-service training session for all personnel
      i. Review SOP/SOGs
      ii. Discuss strategies & tactics
      iii. Lessons from previous incidents
      iv. Tabletop exercises and scenarios
   c. All training in line with standard operating procedures and national, state and regional standards, rules, regulations and “best practices”
   d. Periodic joint training sessions with other emergency responders (PD, EMS, DOT etc.)
   e. Resources:
      i. Emergency Responder Safety Institute - [www.respondersafety.com](http://www.respondersafety.com)
      ii. FHWA On-scene Traffic Incident Management Operations
         [http://ops.fhwa.dot.gov/eto_tim_pse/about/onscene.htm](http://ops.fhwa.dot.gov/eto_tim_pse/about/onscene.htm)
      iii. I-95 Corridor Coalition Quick Clearance Toolbox
         [http://i95coalition.org/i95/Training/QuickClearanceWorkshop/tabid/188/Default.aspx](http://i95coalition.org/i95/Training/QuickClearanceWorkshop/tabid/188/Default.aspx)

2) Roadway Incident Response Procedures (SOP/SOG)
   a. Standard Operating Procedure documented, authorized and published
      i. Essential Components
         1. Terminology & Communications
            a. Lane designations
            b. Upstream/downstream
            c. Block right/Block left
            d. Unit designations
            e. Tac channel ops, radio procedures
         2. Incident Command (NIMS & ICS)
         3. Safety of Personnel (PPE, work areas protected)
         4. Vehicle Placement (Proper blocking procedures, safe parking)
         5. Operations
            a. Roadways
            b. Highways (high-speeds!)
            c. Bridges & Tunnels
   b. Compliance with NFPA 1500 (2007) Section 8.7 on Traffic Incidents
   c. Compliance with the Manual Of Uniform Traffic Control Devices (MUTCD) Chapter 6I – Control of Traffic through Traffic Incident Management Areas
   d. Compliance with any state, regional or local guidelines, rules or regulations
   e. Resources:
      i. SOP/SOG Template For Fire Department “Safe Positioning While Operating or Near Moving Traffic” - [www.respondersafety.com](http://www.respondersafety.com) or [http://tinyurl.com/5oz8nk](http://tinyurl.com/5oz8nk)
3) **Proper PPE for all personnel**  
   a. OSHA compliant PPE Hazard Assessment documented (http://tinyurl.com/59nkct)  
   b. NFPA compliant turnout gear (NFPA 1500, 1901, 1971)  
   c. ANSI compliant high-visibility garments  
   d. Resources:  
      ii. [http://tinyurl.com/7s5dbw](http://tinyurl.com/7s5dbw) – NFPA 1971: Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting  

4) **Multi-agency & multi-jurisdictional cooperation, collaboration & communication;**  
   a. All responding agencies attend and participate regularly in local and/or regional Traffic Incident Management Committees (TIM Committees).  
   b. Multi-agency planning and training on roadway incident response procedures on an ongoing basis  
   c. Multi-agency review and critique of traffic incidents with the goal of improving strategies and tactics at future incidents  
   d. Resources:  
      i. [http://tinyurl.com/76h7cf](http://tinyurl.com/76h7cf) - USFA & DOT Traffic Incident Management Systems  

5) **Proper positioning of emergency vehicles & traffic control equipment at incidents**  
   a. Large fire apparatus parked at an angle upstream of the incident work area  
   b. Front wheels turned away from incident scene and units properly chocked when parked  
   c. Proper deployment of advance warning devices  
      ii. MUTCD compliant high-visibility signs  
      iii. DOT cones – orange with reflective stripes (Not lime-green!)  
      iv. Variable message signs  
   d. Ambulances positioned downstream with the loading area doors angled away from moving traffic whenever possible  
   e. All emergency equipment parked on one side of the road  
   f. Effective placement of police cars for advance warning, traffic control and scene safety  
   g. Effective use of any available safety service patrol apparatus  
   h. Resources:  
      i. [http://tinyurl.com/5oz8nk](http://tinyurl.com/5oz8nk) - SOP/SOG Template For Your Fire Department “Safe Positioning While Operating or Near Moving Traffic”
6) **Emergency vehicle enhanced visibility design features.**

   a. Emergency warning lights designed for on-scene protection
      i. Effective lighting when unit parked at an angle
         1. Mounted high with 360 degree capability
         2. Side-mounted traffic direction lights (arrow devices)
   b. NFPA 1901 (2008) compliant high-visibility (reflective and florescent) chevrons on the rear of fire apparatus, road cones and PPE
   c. Resources:
      i. [http://tinyurl.com/9h5gd8l](http://tinyurl.com/9h5gd8l) - NFPA 1901: Standard for Automotive Fire Apparatus
      ii. USFA Emergency Vehicle Visibility and Conspicuity Study - [http://www.usfa.dhs.gov/fireservice/research/safety/vehicle.shtm#f](http://www.usfa.dhs.gov/fireservice/research/safety/vehicle.shtm#f)
      iii. USFA Study of Emergency Vehicle Warning Lighting [http://www.usfa.dhs.gov/fireservice/research/safety/vehicle.shtm#c](http://www.usfa.dhs.gov/fireservice/research/safety/vehicle.shtm#c)

Provided by:

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Traffic Incident Management & Responder Safety

Learning Objectives

- Review Traffic Incident Management (TIM)
  - Strategies & tactics
- Understand the Manual of Uniform Traffic Control Devices (MUTCD) and Chapter 6-I
- Understand the National Unified Goal
- Understand standards and regulations for “High-Visibility” personal protective equipment
  - ANSI Standards (ANSI 107 & ANSI 207)
  - OSHA, MUTCD 2009 edition
  - NFPA 1500 & 1901
- Understand the benefits of proper positioning of emergency vehicles and traffic control equipment
  - Cones, flares, signs etc.
- Understand the benefits and proper application and use of proactive emergency vehicle safety features for on-scene safety
  - Emergency warning lights
  - High-visibility markings and graphics
- Use and benefits of tabletop exercises
  - Students demonstrate an understanding of scene safety strategies and tactics

Responder Safety

- Traffic speeds and congestion are continually increasing
- An increase in responder struck-bys
- Coordinated Strategies to improve responder safety and the quick clearance of roadway incidents

Impact of Roadway Incidents

- Congestion
- Clearance time
- Secondary events
- Responder struck-bys

Who will be involved?

- Law Enforcement
- Fire/Rescue
- EMS
- DOT/Public Works
- HAZMAT (Public/Private)
- Towing & Recovery
- Medical Examiner
- Media
- Other Motorists

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www.ResponderSafety.com
National Unified Goal

- The National Unified Goal for Traffic Incident Management is:
  - **Responder Safety**
  - **Safe, Quick Clearance**
  - **Prompt, Reliable, Interoperable Communications**
  - 18 strategies for implementation

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)

Multi-Agency Response

The Three C’s

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

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

TIM Committees

- TIM committees are key to achieving the National Unified Goal for traffic incident management
- A means of communication between agencies before the incident
  - Provide for safe operations and coordination
  - Multi-agency training and collaboration
  - Build working relationships that enhance preparedness for managing roadway incidents

TIM

When properly implemented TIM:

- Provides for responder safety
- Promotes quick clearance
- Allows agencies to conduct assigned tasks/operations

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National Unified Goal

Objective 1: Responder Safety

- Recommended Practices for Responder Safety
- Move over/Slow down laws
- Driver Training and Awareness

Policies and Procedures

- Follow Agency guidelines to establish Policies and Procedures
- Essential Components
  - Terminology
  - Incident Command
  - Safety of Personnel
  - Vehicle Placement
  - Operations
    - Roadways
    - Highways (high-speeds!)
    - Bridges & Tunnels

National Unified Goal

Objective 1: Responder Safety

- Recommended Practices for Responder Safety
- Move over/Slow down laws
- Driver Training and Awareness

Objective 2: Safe, Quick Clearance

- Multidisciplinary TIM Procedures
- Response & Clearance Time Goals
- 24/7 Availability of Resources

National Initiatives and Standards

Manual on Uniform Traffic Control Devices – MUTCD
- Defines the standards used by road managers nationwide to install and maintain traffic control devices on all streets and highways
- Section 6D.03 Worker Safety Considerations
- Section 6-I: Temporary Traffic Control

National Initiatives and Standards

NFPA 1500, 2007 Edition

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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Loss Control Innovations & www.ResponderSafety.com
Traffic Incident Management & Responder Safety

NFPA 1901 - 2009
- 5 Cones for traffic control
- High-visibility vest for each seating position
- High-visibility graphics
- Guidance for emergency lighting equipment

Keeping Responders Safe
- Develop and use policies & procedures
- Train all personnel
- Provide and use appropriate PPE
- Apparatus/Equipment markings
- Safety considerations at roadway incidents
- TIM / TTC
- ICS / NIMS

Responder Training
- Establish Policies and Procedures
- Initial/Orientation Training
- Review Strategies and Tactics
- Annual Refresher Training
- Table-top Exercises or Computer-based Simulations

Responder Training
- Hazards Present on the Roadway
- Terminology
- Tactics for Survival
- PPE Use
- Basic Strategy and Tactics

Traffic Incident Scene Size-up

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Responder Training
- Proper positioning of apparatus
- Appropriate units dispatched
- Units angled at 30-45 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

Blocking Vehicle Positioning
Guard the scene, guard the crew and the victims
Park apparatus at an angle & turn the wheels away from work area

Blocking
- Positioning of all responder vehicles
- Positioning of ambulances for loading
- Buffer zone provided by the blocking units
- Will they provide enough protection?

Safety Considerations
Driver/Operator issues
- The Driver may have to disembark to the traffic side, use caution and possibly a spotter
- In Block Left position the operator will be between traffic and the apparatus

National Initiatives and Standards
Manual on Uniform Traffic Control Devices – MUTCD
- Defines the standards used by road managers nationwide to install and maintain traffic control devices on all streets and highways
- Section 6-I: Temporary Traffic Control

Presented By: Jack Sullivan, CSP, CFPS
Loss Control Innovations &
www.ResponderSafety.com
MUTCD 6-I: Traffic Incidents

- **Major**
  Expected duration of more than 2 hours

- **Intermediate**
  Duration of 30 minutes to 2 hours

- **Minor**
  Duration under 30 minutes

Temporary Traffic Control (TTC)

Temporary traffic control
- Traffic cones
- Warning signs
- Flares
- Paddles
- Flags
- Flashlights
- Arrow and Variable Message Signs

Strategy and Tactics

Use signs and traffic cones and/or cones illuminated by flares for sustained highway incident traffic control and direction

NFPA 1901 Revision – Road Cones

- A minimum of five (5) cones will be required for each new motorized fire apparatus
- Recommend that cones meet MUTCD requirements
  - Orange!
  - Minimum 28”, suggest 36”
  - Two Reflective bands

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

Benefits of table top exercises

- To train and familiarize responders with their roles and responsibilities at incidents or planned special events
- To test procedures or plans before the incident or event
- To determine how responders will react to unexpected conditions and events
- Review and critique an actual incident

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www.ResponderSafety.com
Custom Table Top Scenarios

- Develop local scenarios
- Use previous incidents to look at improvements to TIM
- Use resources that would be typical to the area
- Start easy and increase complexity
- Invite other agencies to participate
- Identify and address issues noted during the exercise
- Learn before the actual incident

Google Earth could be a source for your table top layout

Traffic Control

- Who is responsible for traffic control?
- Create a traffic control unit?

Vehicle / Equipment Marking

- Vehicle graphics and warning lights are important factors in responder safety
- Applicable Standards
  - Federal and state regulations
    - Warning light color and usage
  - NFPA 1901-2009 (Fire apparatus)
  - Ambulance markings and lighting (KKK-A-1822F - August 1, 2007)
  - New NFPA standard in development
  - MUTCD and DOT standards

Apparatus Marking

Apparatus should be marked so that it is easily recognized as an emergency vehicle
- Chevrons or a “Vertical Panel” on rear of vehicle
- Effective emergency lighting

Personal Protective Equipment (PPE)

ANSI high-visibility garments
- High Visibility = Fluorescent + Retroreflective
- FHA requirements for use of high visibility garments on federal roadways
- ANSI 107-2010 garments
- ANSI 207-2006 vests are an option
- ANSI 207 in revision

The Emergency Responder Safety Institute

www.ResponderSafety.com
The resource for responder safety training and information

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Temporary Traffic Control (TTC)

- Cones used to indicate transition and work areas
- Cones used to indicate taper
- Signs at spaced to provide advanced warning to traffic

Minor Incident

Disabled Vehicle on Shoulder

- Incident lasting < 30 mins.
Minor Incident

Minor Incident

(Incident lasting < 30 mins.)

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Intermediate Incident

Intermediate Incident

(Incident lasting < 2 hrs.)

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Intermediate Incident
Three Vehicle Accident Upstream of Intersection (< 2 hrs.)

Major Incident
Single Vehicle Accident with Hazmat Spill and Injuries

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www.ResponderSafety.com
Estimated Stopping Distances

<table>
<thead>
<tr>
<th>Speed</th>
<th>Distance (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 mph</td>
<td>155</td>
</tr>
<tr>
<td>35 mph</td>
<td>250</td>
</tr>
<tr>
<td>40 mph</td>
<td>305</td>
</tr>
<tr>
<td>45 mph</td>
<td>360</td>
</tr>
<tr>
<td>50 mph</td>
<td>425</td>
</tr>
<tr>
<td>55 mph</td>
<td>495</td>
</tr>
<tr>
<td>65 mph</td>
<td>645</td>
</tr>
<tr>
<td>70 mph</td>
<td>730</td>
</tr>
</tbody>
</table>

Advanced Warning

<table>
<thead>
<tr>
<th>Road Type</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban (low speed)</td>
<td>100 feet</td>
</tr>
<tr>
<td>Urban (high speed)</td>
<td>350 feet</td>
</tr>
<tr>
<td>Rural</td>
<td>500 feet</td>
</tr>
<tr>
<td>Highway</td>
<td>1000 feet</td>
</tr>
</tbody>
</table>

Estimating Distances

- Distance between utility poles: Approx. 75 ft to 100 ft
- Roadway skip lines:
  - Line = 10 ft
  - Break = 30 ft
- Normal pace (step):
  - Approx. 3 ft

Example

Distance from Transition to Advanced Warning sign on a rural roadway with a typical speed of 50 mph:
- Stopping dist = 425 ft
- Adv Warning = 500 ft
- 5 to 6 pole sections
- 12 skip lines
- 165 paces
Photo by Ron Moore, McKinney (TX) Fire Dept.
Highway Lane Designations and Terminology

Traffic incident responders use plain English where possible to identify incident location and lane designations. On roadways with 3 or less lanes, they are named left, center, and right when facing in the direction of traffic flow.

- When roadways have more than 3 lanes in any one direction, the lanes shall be identified and labeled with numbers, starting with the far left lane.

- When using lane numbers, the far left lane shall be called “Lane 1”. Each lane to the right is numbered sequentially 2 through n.

- Shoulders should be identified using “right/left” and/or “inside/outside” and the term “shoulder”; The left shoulder is the inside shoulder and the right shoulder is the outside shoulder. (i.e. inside (or left) shoulder, southbound interstate 75)

- Responders should also indicate the relative direction of travel (e.g. northbound or southbound) along with other incident location detail and any specific position assignments. For example an incoming unit might be told to safe park or “block upstream of the incident in Northbound (NB) Highway 75 Lane 3 and right shoulder”.

- Separated, high occupancy vehicle (HOV) or high occupancy toll (HOT), car pool, or bus only lanes that are physically separated shall be designated as HOV1 northbound (NB), HOV2, HOT1, HOT2, etc. as appropriate.

- The term “upstream” is defined as before the incident point or area. The term “downstream” is defined as past or beyond the incident point or area when facing in the direction of traffic flow.

Provided by the Emergency Responder Safety Institute, a Committee of the Cumberland Valley Volunteer Fireman’s Assoc. www.respondersafety.com
**Incident Magnitude**

<table>
<thead>
<tr>
<th>Magnitude</th>
<th>Duration</th>
<th>Steps to Take</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor</td>
<td>&lt;30 Minutes</td>
<td>• Notify TOC if incident is on roadway where a minor delay can create significant traffic impact</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Establish Advance Warning Area and other TTC Components as time/personnel permits</td>
</tr>
<tr>
<td>Intermediate</td>
<td>30 minutes - 2 hours</td>
<td>• Notify Transportation Operations Center (TOC)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Establish TTC Components</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Consider DOT Response</td>
</tr>
<tr>
<td>Major</td>
<td>2+ hours</td>
<td>• Notify Transportation Operations Center (TOC)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Request DOT Response Early</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Establish Full Work Zone (Same as Non-Emergency)</td>
</tr>
</tbody>
</table>

**Rules of Thumb:**
1. Travel lanes numbered from left-to-right.
2. Skip line is 10 ft. long with 30 ft. between skips. Taper cones at start of each skip line (40 ft.).
3. Length of Advance Warning Area = 8 x Roadway MPH. Use 12x factor for rural roads due to limited sight distance. Sign distance is from start of taper/transition.

**Advance Warning Area**

<table>
<thead>
<tr>
<th>Advance Warning Area</th>
<th>Transition Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPEED</td>
<td>SIGN</td>
</tr>
<tr>
<td>40</td>
<td>A</td>
</tr>
<tr>
<td>55</td>
<td>A</td>
</tr>
<tr>
<td>65</td>
<td>A/B</td>
</tr>
</tbody>
</table>

**Considerations:**
- Time of the incident and amount of traffic congestion
- Can vehicles be moved from roadway? Steer it. Clear it.
- Can all lanes remain open?
  - For Limited Access Highways:
  - 1 minute of lane closure = 1 mile of backup
- Determine emergency vehicle access route(s)
- Will closures create backups on other roadways?
- How quickly can lanes reopen? Minimize on-scene time.
  - Post incident Recovery:
  - 1 minute of initial delay = 8 minutes to return to normal traffic
- How can we avoid secondary accidents?
- What can we do to make the scene SAFER?
- Update TOC periodically and as incident changes (escalation, termination, etc.)

**INITIAL ACTION ITEMS:** (Within first 15 minutes)
- Estimate magnitude/expected duration of incident
- Estimate vehicle queue (backup) length
- Establish Incident Command/Unified Command Post
  - Assign Traffic Control Officer
- Identify the need for and request secondary response agencies: TOC, HazMat, Towing/Recovery, DPW, DOT, Accident Reconstruction, Medical Examiner, etc.
- Set-up appropriate TTC Components based on estimates. Upgrade TTC every 15 minutes.
- Set initial taper in direction of traffic travel
  - Remove taper in opposite direction of traffic travel

**VEHICLES:**
- Limit number of responding vehicles
- Stage unnecessary vehicles off roadway
- Park ALL vehicles on same side of roadway
- Position apparatus to protect responders
- Minimize emergency lighting
- Create work area large enough to accommodate apparatus and responders SAFELY!

**PERSONNEL:**
- ALL responders Identifiable & in High Visibility Apparel
- Always: Be alert - Minimize exposure - Face traffic
- Place spotter at incident scene

**Safe and Effective Traffic Control is the Responsibility of On-Scene Responders:**
Communicate-Coordinate-Cooperate

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**Emergency Responder Safety Institute**

**Cumberland Valley Volunteer Firemen’s Association**

**www.cvvfa.org**

**www.respondersafety.com**

**As of: 1/19/11**
The Emergency Responder Safety Institute (ERSI)
http://www.respondersafety.com

(ERSI) ResponderSafety.com - Learning Network (New! Free!)
http://learning.respondersafety.com/Promo.aspx - Video explaining the Learning Network

ERSI Model Safe Parking SOP - Safe Positioning While Operating in or Near Moving Traffic

ERSI Model SOG Cone & Flare Deployment at Roadway Incidents

The Emergency Responder Safety Institute - News and Incident Reports

NIOSH Safety and Health Topic: Highway Work Zone Safety
http://www.cdc.gov/niosh/topics/highwayworkzones/

National Law Enforcement Officers Memorial

www.bls.gov/iif/

United States Fire Administration - Emergency Vehicle Safety
http://www.usfa.dhs.gov/fireservice/research/safety/vehicle.shtm

United States Fire Administration - Roadway Operations Safety
http://www.usfa.dhs.gov/fireservice/research/safety/roadway.shtm

USFA/FHWA/IFSTA – “Traffic Incident Management” for fire and emergency service providers.
http://www.usfa.dhs.gov/fireservice/research/safety/roadway.shtm#B

http://ops.fhwa.dot.gov/eto_tim_pse/about/tim.htm

Federal Highway Administration – Managing Travel for Planned Special Events
http://ops.fhwa.dot.gov/publications/fhwaop04010/toc.htm

National Fire Protection Association (NFPA)
NFPA 1500, 1901, 1091 & other related standards available at – www.nfpa.org

American National Standard for High Visibility Public Safety Vests

American National Standard for High-Visibility Safety Apparel & Headwear

The Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition
Chapter 6-I. - Control of Traffic through Traffic Incident Management Areas

The Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition
Examples of Traffic Incident Management Area Signs

2011 Virginia Work Area Protection Manual
http://www.virginiadot.org/business/trafficeng-WZS.asp

Evaluation of Chemical and Electric Flares (US Dept of Justice)

NIOSH - Building Safer Highway Work Zones: Measures to Prevent Worker Injuries
From Vehicles and Equipment (DHHS/NIOSH Pub. No. 2001-128):
http://www.cdc.gov/niosh/docs/2001-128/

NIOSH - Traffic Hazards to Fire Fighters While Working Along Roadways
http://www.cdc.gov/niosh/docs/2001-143/

NIOSH Firefighter Fatality Investigations and Prevention Program
Investigations Involving "Struck-By" Incidents:
http://www.cdc.gov/niosh/fire/

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

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

Assistant chief is struck and killed at road construction site

NIOSH Report F2003-16 - Feb 23, 2003 Incident in New Jersey
Fire police captain dies from injury-related complications after being struck by motor vehicle

Firefighter killed while walking across an Interstate highway

NIOSH Report F2002-38 - Jul 01, 2002 Incident in Minnesota
Fire captain killed, two fire fighters and police officer injured when struck by a motor vehicle
Off-duty career fire fighter dies and another fire fighter is injured after being struck by a truck

NIOSH Report F2002-18 - Apr 11, 2002 Incident in Kansas
Fire chief dies after being struck by a fire truck at a motor-vehicle incident

Fire Fighter Dies When Struck By a Bus While Working Along an Interstate Highway

NIOSH Report F2010-06 - Feb 12, 2010 Incident in Pennsylvania
Fire Police Captain Dies After Being Struck by a Motor Vehicle at a Controlled Roadway

NIOSH Report F2010-36 – November 13, 2010 Incident in South Carolina
Fire Fighter Killed, Another Seriously Injured When Struck By a Vehicle at Grass Fire Along Interstate

International Association of Chiefs of Police - Traffic Incident Management (TIM)

I-95 Corridor Coalition Incident Management Core Competencies Online Training
http://www.i95vim.com/

I-95 Corridor Coalition Incident Management Clearinghouse
http://www.i95coalition.org/i95/Library/IncidentMgmtClearinghouse/tabid/86/Default.aspx

The I-95 Corridor Coalition Quick Clearance Toolkit
http://www.i95coalition.org/i95/Library/IncidentMgmtClearinghouse/tabid/86/agentType/View/PropertyID/89/Default.aspx

Improving Apparatus Response and Roadway Operations Safety in the Career Fire Service
by the Div. of Occupational Health, Safety and Medicine of the International Assoc. of Fire Fighters (IAFF)
http://www.iaff.org/hs/EVSP/home.html