# Lesson 1: Introduction

**Lesson Objective 1.1 - Describe the purpose of the Strategic Highway Research Program 2 (SHRP2) National TIM Responder Training Program**

The National TIM Responder Training Program was created as part of SHRP2, which was authorized by Congress in 2005 to investigate the underlying causes of highway crashes and congestion in a short-term program of focused research. The TIM training program was designed to establish the foundation for and to promote consistent training of all responders to achieve the three objectives of the TIM National Unified Goal (NUG):

- Responder Safety
- Safe, Quick Clearance
- Prompt, Reliable, Interoperable Communications

The National TIM Responder Training Program was developed and reviewed by professionals from all responder disciplines and those disciplines are the target audience for the training.

**Lesson Objective 1.2 - Recognize the dangers encountered by emergency responders working in or near traffic**

Responder Struck-By Fatalities:

- According to data from the *2015 Law Enforcement Officers Killed and Assaulted Report*, an average of ten officers are killed each year in struck-by incidents.
- A report completed by the National Fire Protection Association in 2014 found that, on average, four firefighters are struck and killed each year.
- It is estimated that between 40 and 60 towing and recovery professionals are struck and killed each year.
- Aside from work zone deaths, transportation and public works professionals, including Safety Service Patrol operators, are also killed at incident scenes, though exact numbers are not readily available.




*Examples of Responder Struck-By Crashes*

At the core of many responder deaths and injuries are drivers who are inattentive, impaired, or make poor driving decisions. According to the National Safety Council, using a mobile phone while driving is equivalent to driving impaired and texting while driving is equivalent to driving blindfolded.



**D · Drivers**

- ✓ **Drunk,**
- ✓ **Drugged,**
- ✓ **Drowsy,**
- ✓ **Distracted, or**
- ✓ **Just plain...Dangerous**

**Secondary Crashes** – are those crashes that occur within the incident scene or within the queue or backup, including the opposite direction, resulting from an original incident.

Responders are not the only victims of secondary crashes. Motorists struck in traffic backups are also innocent victims.

## Lesson Objective 1.3 - Define traffic incident management (TIM)

*TIM consists of a planned and coordinated multi-disciplinary process to detect, respond to, and clear traffic incidents so that traffic flow may be restored as safely and quickly as possible.*

Effective TIM improves the safety of emergency responders, crash victims, and motorists, and reduces the duration and impacts of traffic incidents. TIM concepts apply to all roadways, both urban and rural, where traffic incidents might occur.

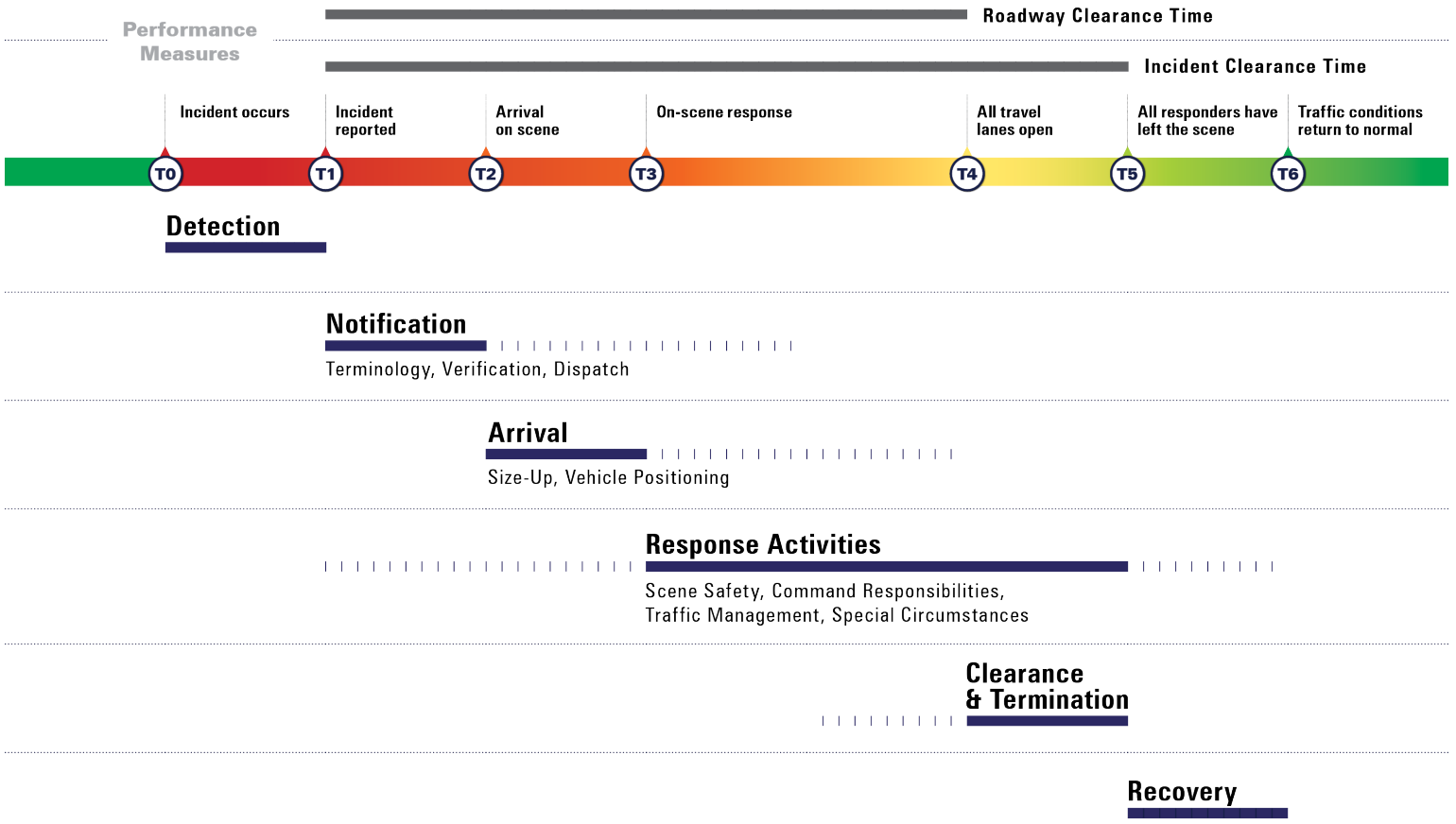
The TIM timeline lays out the events and activities that occur from the time when an incident happens to when traffic conditions return to normal. The goal of TIM is to shorten the time duration between T0 and T6, recognizing that incremental improvements during each phase are typically easier to accomplish than drastically re-working any one aspect of TIM.

The top section of the TIM timeline illustrates two standard TIM performance measures:

- **Roadway Clearance Time (T1-T4)** – the time between the first recordable awareness of an incident by a responsible agency and first confirmation that all travel lanes are open.
- **Incident Clearance Time (T1-T5)** – the time between the first recordable awareness and the time at which the last responder has left the scene.

The number of secondary crashes is the third standard TIM performance measure identified by the Federal Highway Administration (FHWA).

## TIM Timeline



# Lesson 2: TIM Fundamentals and Terminology

### Lesson Objective 2.1 - Define safe, quick clearance

Safe, quick clearance is the practice of rapidly, safely, and aggressively removing temporary obstructions from the roadway to:

- Enhance the safety of responders and motorists
- Minimize motorist delay through traffic control and opening of lanes
- Restore the roadway to its pre-incident capacity as safely and quickly as possible

Safe, quick clearance and responder safety are NOT mutually exclusive, as a matter of fact, they complement each other. Quick clearance reduces both the exposure of responders to safety hazards and the potential for secondary crashes.

### Lesson Objective 2.2 - List the principal laws that relate to responder safety and safe, quick clearance

Nationally, there are three types of laws that facilitate TIM:

- **Move Over Laws** – require drivers approaching a scene where emergency responders are present to either change lanes when possible and/or reduce vehicle speed.

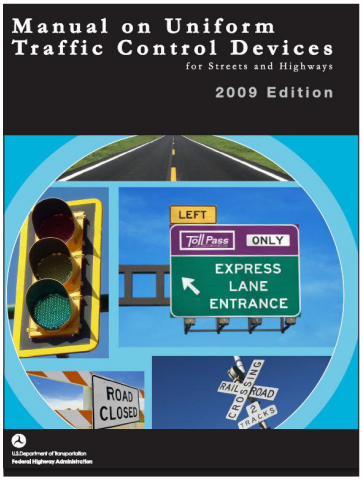



*Move Over Law Compliance*

- **Driver Removal Laws** – require motorists involved in minor crashes (where there are no serious injuries and the vehicle can be driven) to move their vehicles out of the travel lanes to the shoulder or other safe area.
- **Authority Removal Laws** – provide authority (and immunity from liability in general) for designated public agencies to remove vehicles and/or spilled cargo from the roadway to restore traffic flow.

Not all states have all three laws, and the exact language of the laws varies among the states that do, so it is important to become educated about your state's laws.

### Lesson Objective 2.3 - Describe how the Manual on Uniform Traffic Control Devices (MUTCD) relates to TIM



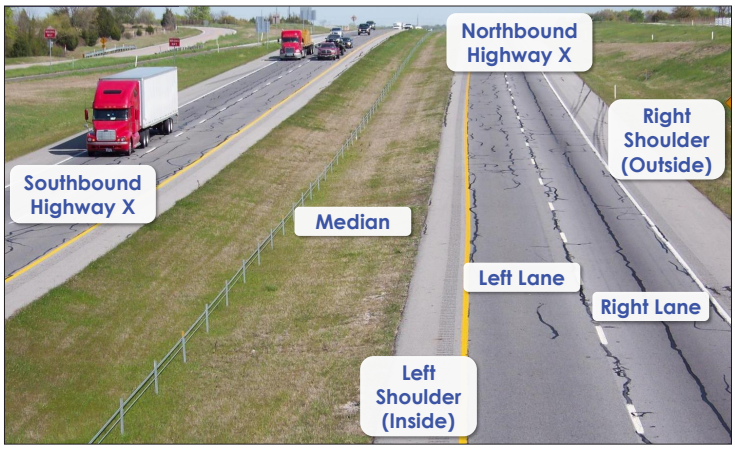

The MUTCD is a national standard that is maintained by FHWA. The manual, which is revised periodically, promotes the uniformity of traffic control signs, signals, and markings from state to state. This uniformity improves safety and driver expectancy. Practitioners from transportation and public safety are involved in developing and evaluating the content of the MUTCD. States may adopt the document as is, add a state supplement, or create a state version, but the content remains mostly uniform.

Part 6 of the MUTCD covers temporary traffic control (TTC) zones, commonly known as highway construction or work zones. A subset of Part 6 is Chapter 6I, which specifically addresses traffic incidents and Traffic Incident Management Areas. The requirements of the MUTCD as they apply to TIM are addressed throughout the National TIM Responder Training.

## Lesson Objective 2.4 - Recall common response terminology, lane designations, and incident scene terminology

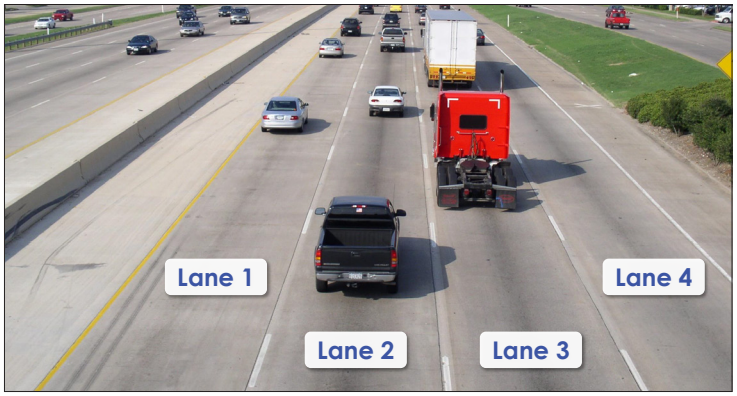
The MUTCD highlights the required use of the Incident Command System (ICS) at traffic incident scenes. In turn, ICS requires the use of uniform terminology and plain English in incident communication so that all responders and responder disciplines easily understand them. The following standardized roadway and incident scene terminology is intended to facilitate incident communications.

**Common Response Terminology using Plain English** – when describing highway lanes, left and right are determined from the perspective of the flow of traffic.



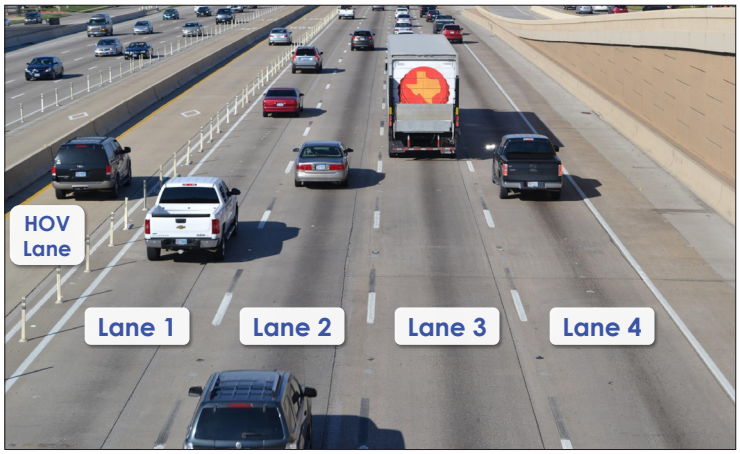

*Common Response Terminology using Plain English*

**Lane Designation Terminology: Lane Numbering** – as an alternative, a numbering system that assigns numbers 1, 2, 3, etc. from the left to right lane, again from the perspective of the flow of traffic, can be used.




*Lane Designation Terminology: Lane Numbering*

Note that a special use or managed lane, such as a high-occupancy vehicle (HOV) or express lane, is referred to as such and is not a numbered lane.




*Lane Designation Terminology: HOV Lanes*

Either plain English or numbering are acceptable, provided area responders train to both.

Also, TIM terminology is not just applicable to urban roads and freeways. The techniques apply to local streets and rural roadways too.

**Upstream/Downstream** – traffic that is entering or approaching the incident scene is considered upstream traffic and traffic that is departing or past the incident is considered downstream traffic.




*Upstream/Downstream*

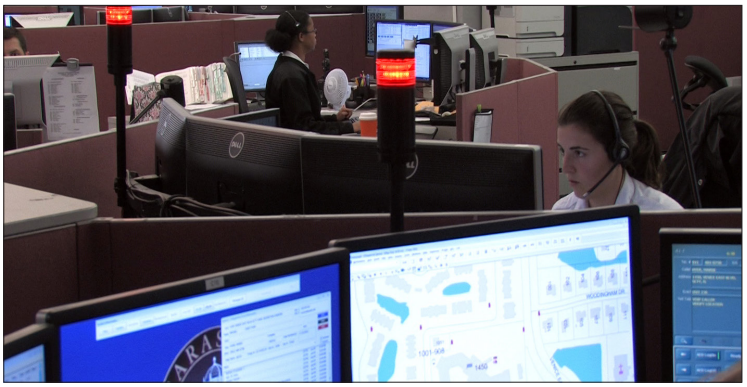
**Queue** – a traffic queue (pronounced "Q") is the backup of traffic that results from an incident or blocked lanes. A queue may form in either direction of travel because of rubberneckers.

# Lesson 3: Notification and Scene Size-Up

**Lesson Objective 3.1 - Recognize the important role public safety communications centers play in incident response**

Telecommunicators working at public safety communications centers are typically the first to be alerted to an incident and are responsible for:

- Providing a basic assessment of the situation
- Dispatching an appropriate response based on their knowledge of available resources



*Public Safety Communications Center*

As a conduit or connection between responders, agencies, and other resources, the accuracy, timeliness, and overall quality of information received by the communications center has a significant impact on effective TIM.

**Lesson Objective 3.2 - Describe the notification and verification process**

**Detection** – is the discovery of an incident and the first step in the TIM process. Incident detection can be a call from the parties involved in the incident, a call from a passing motorist, or by responders who happen upon them.

**Verification** – involves collecting as much information as possible from the individual(s) reporting the incident including the exact location, the make, model, and color of the involved vehicles, and a call back number in case more information is needed.

**Notification** – occurs when the communications center dispatches the appropriate response.

Notification and verification often occur concurrently. It is also worth noting that motorists may have traveled past the incident by the time they talk to the communications center, so it is not uncommon for them to give a location that is downstream of the actual incident.

*A simple TIM strategy for states that have a Driver Removal Law is to have telecommunicators direct motorists to move vehicles off the roadway if there are no injuries and the vehicles are drivable.*

**Lesson Objective 3.3 - Recall the typical responsibilities of a Transportation Management Center (TMC)**



*Regional TMC*

TMCs, also referred to as Traffic Operations Centers (TOCs), may be operated at the local, regional, or state level, and they serve as the hub for the collection and dissemination of incident information. TMCs are typically responsible for:

- Monitoring traffic conditions using:
  - » Closed-circuit television (CCTV) cameras
  - » Roadway detectors and congestion maps
  - » Public safety contacts via phone and/or Computer-Aided Dispatch (CAD) links

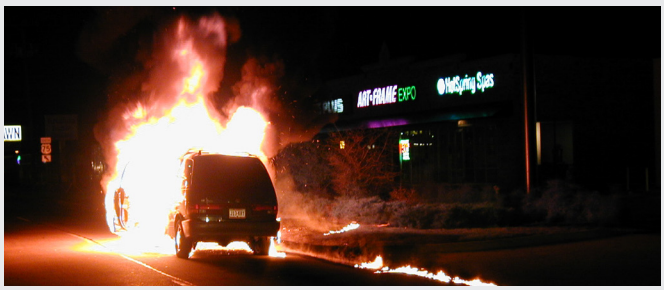
- Providing real-time traveler information using:
  - » 511 – phone systems and websites
  - » Social media platforms, such as Twitter
  - » Changeable message signs (CMS)
  - » Highway advisory radio (HAR)
- Providing traffic and incident information notification to other traffic management/communication centers, public safety partners, and the news media
- Controlling traffic management devices, such as ramp meters and/or traffic signal systems
- Monitoring traffic management devices to ensure they are functioning properly

**Lesson Objective 3.4 - List the key information that should be included in a scene size-up report**

Upon first arriving on-scene, an initial or windshield size-up report should be given to the communications center that includes:

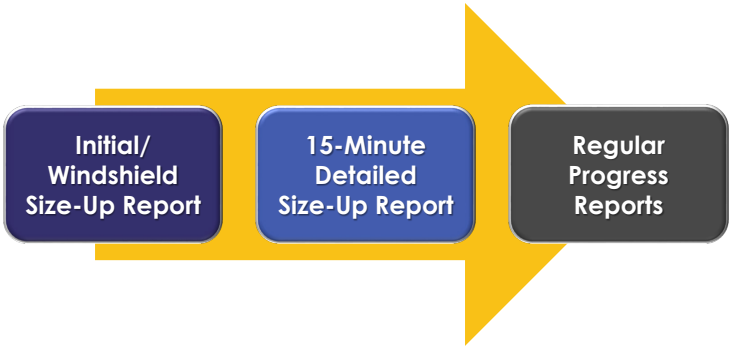
- Unit identification
- Exact location of incident
- Number and type of vehicles involved
- Degree of damage
- Number of lanes closed
- Hazards or unique safety concerns
- Establishment of Command

## Windshield Size-Up Report



Unit one on-scene… location confirmed as Main Street westbound between 2nd and 3rd Ave… Minivan fire, fully involved in the right lane, impacting adjacent sidewalk… Vehicle is leaking fuel… Assuming Main Street command.

A more detailed and accurate size-up should be provided within 15 minutes of arrival at the scene. Additional progress reports should be provided at regular intervals or whenever significant changes occur.




The following information should be provided during the detailed size-up report and/or during subsequent progress reports:

- On-scene safety concerns – dangerous location, limited visibility, presence of hazardous materials
- Traffic conditions – length of traffic queue, traffic control needs, detour/alternate route needs
- Injured persons – number and extent of injuries, need for extrication
- Additional resources
  - » Towing and Recovery
  - » Helicopter EMS services
  - » Crash investigation/reconstruction
  - » Medical Examiner/Coroner

Even if additional resources are not needed immediately, the resource request should be made as soon as possible to enable a timely response.

An important component of the detailed size-up report is the incident duration classification. MUTCD Chapter 6I divides traffic incidents into three general incident classes based on the anticipated duration:

- **Minor:** < 30 minutes
- **Intermediate:** 30 minutes to 2 hours
- **Major:** > 2 hours

If the expected duration is bordering between two classifications, it is recommended that the higher (longer) classification be used to ensure that adequate resources are requested and mobilized.

# Lesson 4: Safe Vehicle Positioning

**Lesson Objective 4.1 - Differentiate between Move It and Work It incidents**

The initial assessment, or windshield size-up, sets the stage for early decisions that need to be made at traffic incidents. One of the first decisions that responders make is whether to Move It or to Work It.

**Move It** – refers to moving vehicles involved in an incident to a safer location before being worked.

**Work It** – refers to a situation where the vehicles involved cannot be moved before being worked.

When possible, moving the incident is preferred since it clears the roadway and reduces responder exposure.

**Lesson Objective 4.2 - State the MUTCD definition of safe-positioned and describe blocking**

Positioning emergency vehicles to establish a safe work area is a foundational decision for responders arriving at an incident scene, and a critical element to protecting both emergency responders and motorists. Safe-positioned, as defined by the MUTCD, is the positioning of emergency vehicles at an incident in a manner that attempts to:

- Protect the responders performing their duties
- Protect road users traveling through the incident scene
- Minimize, to the extent practical, disruption of the adjacent traffic flow

The first emergency vehicle that arrives at an incident scene is responsible for positioning their vehicle as an initial block.

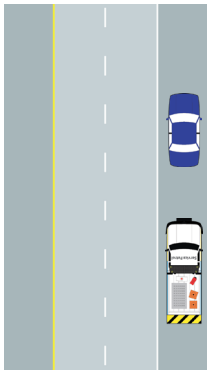
*Blocking is the act of positioning a responder vehicle upstream of an incident to obstruct the flow of moving traffic in one or more lanes, and/or the shoulder.*

Blocking vehicles should be positioned upstream of the incident scene so that:

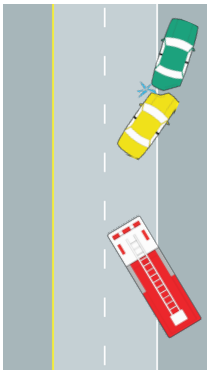
- There will be sufficient distance for the vehicle to roll-ahead without hitting the incident area should it get struck
- But not so much so that errant vehicles will travel around the blocking vehicle and strike responders

Blocking begins with just those lanes that are involved in the incident, including the shoulder, and can be accomplished with the responder vehicle positioned parallel to travel lanes or angled.

**Parallel Blocking**



**Angled Blocking**



A block can be to the left, as illustrated in the angled blocking example above, or to the right. Blocking towards available lanes provides a visual cue to approaching traffic. However, a block should provide maximum protection for responders, as is the case when a fire apparatus blocks to the right to protect the pump operator at a vehicle fire. Any responder vehicle can provide a block, but large, heavy vehicles typically provide the best blocks.




*Angled Blocking*

When positioning a response vehicle, drivers should work on the assumption that the unit may be hit by a vehicle approaching from upstream. Turning a vehicle's wheels so that they are not facing the incident space is a recommended practice referred to as critical wheel angle. Using the critical wheel angle may help divert a responder vehicle, which is struck from the rear, away from downstream responders.



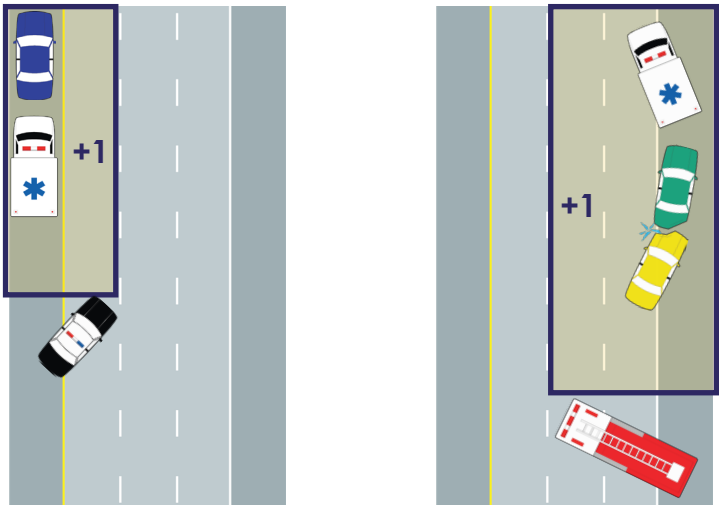
*Critical Wheel Angle*

During incident response, it is preferred that law enforcement, fire/rescue, and department of transportation or Safety Service Patrol vehicles position upstream. Similarly, it is preferred that ambulances, tow trucks, and other support units position downstream.

The order of vehicle arrival will not be the same for every incident, which can make it difficult to always achieve the preferred vehicle positioning. Allowing space for later arriving vehicles and/or a willingness to reposition vehicles as needed is important to creating a safe scene.

**Lesson Objective 4.3 - Define Lane +1 blocking and describe the need for it**

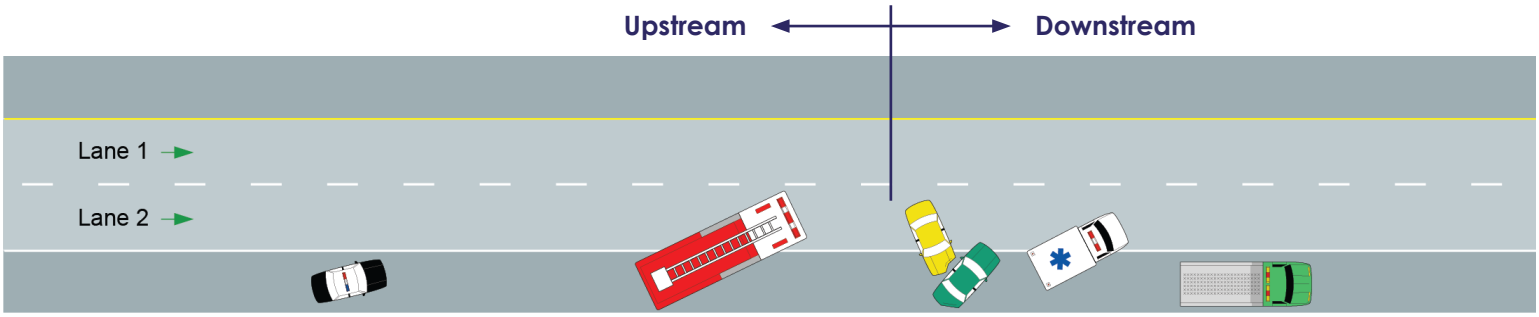
In order to protect responders and motorists at an incident scene, it may be necessary to close additional lanes for a short time. This protocol is referred to as Lane +1 blocking and occurs when responders block the involved lane(s), including the shoulder, plus one additional lane to provide a protected lateral space for safety. Patient treatment and movement, extrication, firefighting, crash investigations, and recovery operations are all examples of situations that may require Lane +1 blocking.




*Lane +1 Blocking*

Once response activities no longer require the extra space for safety, blocking should be reduced to the involved lanes only. A good rule of thumb is to take only as many lanes as you need for as long as you need them and then give them back as soon as safely possible.

## Preferred Vehicle Positioning



# Lesson 5: Scene Safety

### Lesson Objective 5.1 - Describe how emergency vehicle markings can improve scene safety

Making responder vehicles more visible improves safety by reducing the chances they will be hit at incident scenes.

**Conspicuity** – refers to the ability of a vehicle to draw attention to its presence, even when other road users are not actively looking for it.

Vehicle markings are passive treatments that complement emergency lighting by using:

- Contrasting colors that make the vehicle stand out
- Fluorescent colors to increase daytime visibility
- Retro-reflective materials to maximize nighttime visibility

National Fire Protection Association (NFPA) *1901 Standard for Automotive Fire Apparatus* and *1917 Standard for Automotive Ambulances* governs the application of retro-reflective markings on fire apparatus and ambulances respectively. The standards include requirements for retro-reflective markings on the front, rear, and sides of the vehicles, as well as on the inside of any doors.

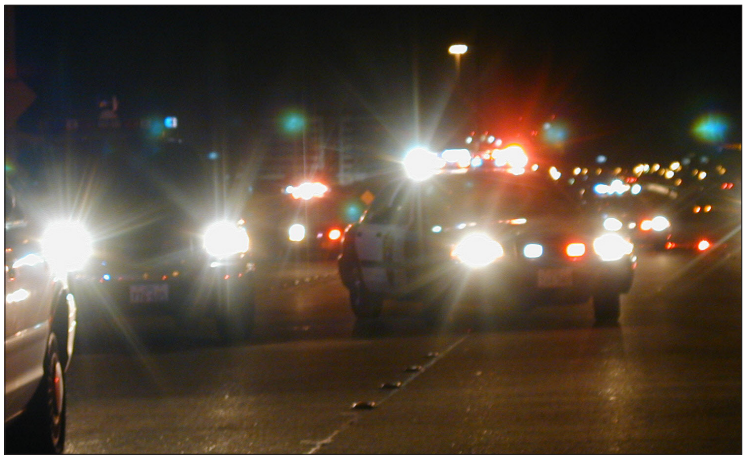



*Examples of NFPA Compliant Emergency Vehicle Markings*

Unlike fire apparatus and ambulances, there is no standard in the United States for emergency vehicle markings for any other responder disciplines. However, other responder disciplines are increasingly using high-visibility markings, such as chevrons on the rear of their vehicle, to promote conspicuity and enhance safety.

### Lesson Objective 5.2 - Describe recommendations for emergency-vehicle lighting as set forth in the MUTCD

Section 6I.05 of the MUTCD specifically covers the use of emergency-vehicle lighting and recognizes that the use of emergency-vehicle lighting is essential, especially in the initial stages of a traffic incident, for the safety of responders and motorists approaching the incident. However, while an important tool for warning drivers, most emergency-vehicle lighting does little to augment traffic control or guide drivers, therefore more is not always better where emergency-vehicle lighting is concerned. The use of too many lights at an incident scene can be distracting and can create confusion for approaching road users (and other responders), especially at night.



*Potentially Distracting Forward-Facing Emergency-Vehicle Lighting*

The MUTCD recommends that the use of emergency-vehicle lighting be reduced if good traffic control has been established at a traffic incident scene. When multiple responder vehicles are present, only the rear-most (upstream) vehicles and blocking vehicles should continue the use of emergency (warning) lights after appropriate traffic control is in place. Reducing forward-facing lights is an important part of TIM as it minimizes distractions to motorists approaching from the opposite direction. Additionally, any floodlights or vehicle headlights that are not needed for illumination should be turned off at night.

**Lesson Objective 5.3 - Describe high-visibility safety apparel requirements for incident responders**

MUTCD Section 6D.03 states:

> *"All workers, including emergency responders, within the right-of-way of a roadway who are exposed either to traffic (vehicles using the highway for purposes of travel) or to work vehicles and construction equipment **SHALL** wear high-visibility safety apparel (HVSA)… "*

HVSA worn by incident responders must meet, and be labeled as meeting, the ANSI/ISEA 107-2015 standard. Responders must wear a Type R (Roadway) or Type P (Public Safety), Class 2 or Class 3 vest. Vests labeled with previous ANSI/ISEA standards, including 107-2004, 207-2006, 107-2010, and 207-2011, are still considered compliant until replaced. As revisions are made to the ANSI/ISEA standard, they are made compliant with the MUTCD by memorandum from FHWA.



*Type R, Class 2 (left) and Class 3 (right) Work Vests*



*Type P, Class 2 Vest*

Type P is specifically for emergency responders and provides additional options for responders who have competing hazards or require access to special equipment. Type P vests also have a five-point breakaway function available as an additional safety feature.

MUTCD Section 6D.03 specifically addresses the use of HSVA by law enforcement and states that when uniformed law enforcement personnel are used to direct traffic, to investigate crashes, or to handle lane closures, obstructed roadways, and disasters, HSVA shall be worn. The MUTCD does not require the use of HVSA for law enforcement activities such as traffic stops. Firefighters and other responders are exempt from MUTCD HVSA requirements when they are engaged in emergency operations that directly expose them to flame, fire, heat, and/or hazardous materials.

**Lesson Objective 5.4 - Describe safe practices for working around or avoiding the Zero Buffer**

A Zero Buffer occurs when there is limited or no buffer space between on-scene vehicles and any active lane of traffic. Responders who are required to enter a Zero Buffer should do so with great caution and immediately seek a safer place away from moving traffic.




*Zero Buffer*

All repsonders are encouraged to remain on the non-traffic side of response vehicles as much as possible.

## General Safety Considerations

- ✓ **Always wear your seat belt**
- ✓ **Never trust approaching traffic in either direction**
- ✓ **Never turn your back to approaching traffic**
- ✓ **Maintain an awareness of:**
  - **Where you are**
  - **Where you can go (escape route)**
  - **Where you can't go (bridges, on-coming traffic, etc.)**
- ✓ **Never stand between vehicles**
- ✓ **Instruct civilians where to stay, out of harm's way**

# Lesson 6: Command Responsibilities

**Lesson Objective 6.1 - Describe both the need and the requirements for establishing and participating in the Incident Command System (ICS)**

Clearing incidents safely and quickly depends on developing coordinated, multi-agency operations that are supported by integrated communications. Coordination results when all responders from all disciplines are trained and can effectively operate under ICS at highway incidents.

ICS is a standardized, on-scene, all-hazards incident management concept that allows users to adopt an organizational structure for handling an incident without being hindered by jurisdictional boundaries. The goals of ICS are:

- Safety of responders and others
- Achievement of tactical objectives
- Efficient use of resources

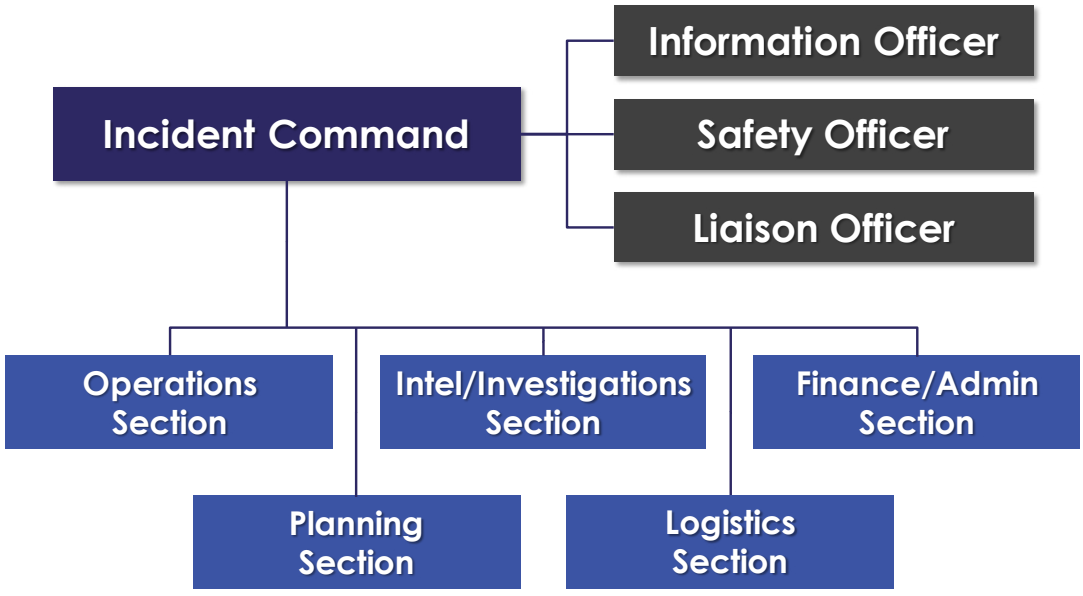
In Section 6I.01 of the MUTCD, it is emphasized that the National Incident Management System (NIMS) requires the use of ICS at traffic incident scenes.

Within ICS, the Command function is carried out by an Incident Commander or Unified Command, and is supported by Command Staff and General Staff. The Command Staff includes:

- **Public Information Officer** – responsible for serving as the go-between for Command and the media, and for relaying information on the incident and response efforts.
- **Safety Officer** – responsible for monitoring scene safety and developing preventative safety measures. The Safety Officer has the ability to immediately stop any action that is deemed unsafe or too high a risk. The Incident Commander can over-ride the orders after consultation with the Safety Officer and involved personnel.
- **Liaison Officer** – responsible for coordinating with representatives from cooperating and assisting agencies and organizations.

The leaders of the individual sections are know as the General Staff and individually as Section Chiefs. For most incidents, all on-scene responders typically fall under the Operations Section.

## ICS General and Command Staff



## Lesson Objective 6.2 - Describe when it is appropriate to implement Unified Command

**Single Command** – when one individual is designated as Incident Commander and has complete responsibility for incident management.

**Unified Command** – a joint management and authority structure in which two or more individuals share the role of Command.

Unified Command typically is fulfilled by a team of individuals already having authority within their discipline or responding agency. Unified Command allows agencies to:

- Work together without affecting authority, responsibility, or accountability
- Manage an incident together by establishing a common set of incident objectives and strategies

Unified Command is most appropriate for major incidents involving multiple agencies.




*Unified Command*

## Lesson Objective 6.3 - Identify the need for and use of Staging Areas

Large-scale traffic incidents may require an Incident Command Post and/or a staging area.

**Incident Command Post** – the field location at which the primary tactical-level, on-scene incident command functions are performed.

**Staging Area** – the location established where resources can be placed while awaiting a tactical assignment.




*Staging Area*

Staging areas allow for the organization of personnel and equipment to be readied for immediate use at the incident scene. Staging areas also allow for resources and/or personnel that are ready, but ultimately not needed, to immediately depart and return to service.

### After-Action Reviews (AARs)

**PURPOSE**

*To evaluate the decisions made and actions taken during an incident and to identify both best practices and opportunities for improvement*

**TYPICAL FORMAT**

1. Review basic incident details
   - » Utilize pictures, maps, and/or video to illustrate incident scene
   - » Consider utilizing tabletop exercise materials to reenact incident
2. Roundtable discussion – agency perspectives
   - » Discuss issues and/or areas of concern
   - » Identify solutions/enhancements
   - » Avoid finger pointing
3. Identify at least one action item per AAR

# Lesson 7: Traffic Management

**Lesson Objective 7.1 - Describe the four main components of a Traffic Incident Management Area**

A Traffic Incident Management Area is a type of temporary traffic control zone that is described in MUTCD Part 6. While there are similarities between a highway work zone and a Traffic Incident Management Area, the time available to plan and the availability of resources results in significant differences between the two. Despite differences, the four main components of a Traffic Incident Management Area are the same as any temporary traffic control zone:

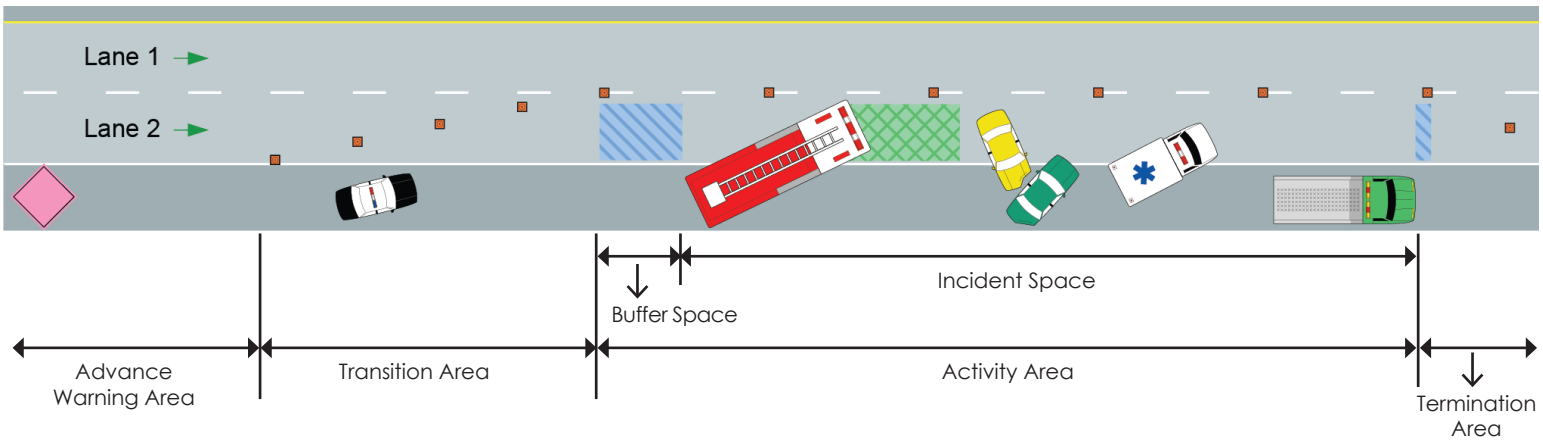
- **Advance Warning Area** – established upstream of the incident to alert drivers of the upcoming incident scene. All advance warning devices should also be upstream of any traffic queues so that warning is given to road users before encountering stopped traffic.
- **Transition Area** – section of roadway where drivers are redirected out of their normal path. Transition Areas usually involve the strategic use of tapers, which can be set up using cones or flares.
- **Activity Area** – section of the roadway where incident response activities take place and is comprised of the:
  - » **Upstream (Longitudinal) Buffer Space** – separates the Transition Area from the Incident Space and provides a recovery area for errant vehicles. No vehicles should be positioned within the Upstream Buffer Space.
  - » **Incident Space** – location where the incident has occurred and emergency responders are working. A blocking vehicle should be positioned at the upstream end of the Incident Space to protect workers from impacts by errant vehicles.
- **Termination Area** – used to notify drivers that the Traffic Incident Management Area is ending and they may resume normal driving. The Termination Area includes the downstream buffer space and taper, which is in place to protect emergency responders working at the end of the Incident Space.

**Lesson Objective 7.2 - Identify conditions at an incident scene that would require the Advance Warning Area be extended**

Wet roads can double the average motorist's stopping distance over that for dry road conditions and poor visibility can lengthen driver reaction time. Therefore, additional or extended advance warning may be necessary during adverse conditions, such as rain, snow, ice, smoke, fog, or darkness.

Additional or earlier advance warning may also be necessary due to limited sight distances created by roadway geometries, such as hills, curves, bridges, or inter-

## Traffic Incident Management Area



sections. A well-positioned responder vehicle, upstream of the incident scene, can serve as advance warning until signs or other traffic control devices are in place.

### Lesson Objective 7.3 - Describe the need for, and how to set up, a taper

Tapers are used in Transition Areas to redirect drivers out of their normal path. Tapers can be set up using cones, flares, reflectors, or other channelizing devices. Channelizing devices used to establish a taper are typically placed no further apart in feet than the speed limit (i.e., in a 35 mph zone the cones would be placed 35 feet apart). However, responders can also use roadway skip lines or 10 walking paces to establish uniform spacing when setting up a taper.

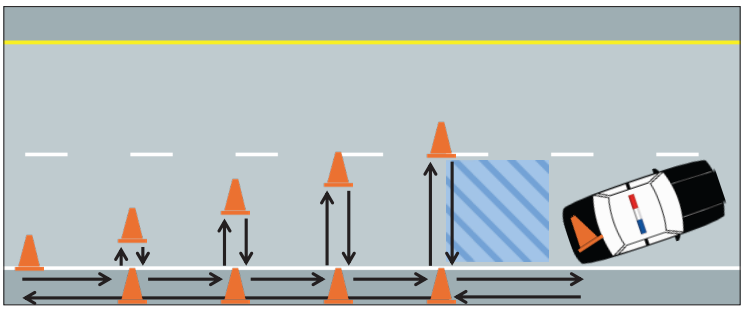


*Traffic Cones*

#### Taper Setup Methodology

1. **The responder retrieves available cones from the trunk placing one a reasonable distance from the responder vehicle on the edge line, allowing for a buffer**
2. **Walking along the shoulder, facing traffic, a cone is subsequently placed on the edge line at each skip line (alternatively, they can be placed every 10 paces)**
3. **When the last cone has been placed on the edge line, the responder begins walking backwards until the next cone is reached**
4. **The responder takes one lateral step into the travel lane and places the cone, immediately returning to the shoulder – facing traffic**
5. **The responder again walks backwards until the next cone is reached and then takes two lateral steps into the travel lane to place the cone, immediately returning to the shoulder**
6. **The steps are repeated until all cones are deployed**

Using this methodology while maintaining situational awareness and following personal safety best practices, like never turning your back on traffic, helps minimize the exposure of the responder. One emerging concept to consider, when possible, is to use an upstream responder vehicle to provide a protective block while tapers are being setup or taken down.



*Taper Setup*

### Lesson Objective 7.4 - Identify and describe the two types of buffers that may be established at an incident scene

At an incident scene, the two types of buffers that may be established as part of the Traffic Incident Management Area are longitudinal buffer spaces and lateral buffer spaces. The Upstream (Longitudinal) Buffer Space covers the distance between the Transition Area and the Incident Space. By definition, it is a recovery area for errant vehicles, so no responder vehicles should be parked in the Upstream Buffer Space.

In work zone settings, the length of the longitudinal buffer is based on the stopping sight distance of a vehicle traveling at the posted speed limit. However, the Upstream Buffer Space in TIM applications will typically be fairly short due to the limited availability of channelizing devices. When additional resources are available, the buffer should be expanded to better accommodate errant vehicles. The Traffic Incident Management Area may also include a downstream buffer space in the Termination Area.

Lateral buffer space is the area between the Incident Space and the adjacent travel lanes, and can be beneficial because it allows more room for responders to work. The lateral buffer space can be increased through the use of Lane +1 blocking when necessary. When lateral buffer spaces are used it is recommended that the entire lane be closed and that partial lane closures be avoided.

# Lesson 8: Special Circumstances

**Lesson Objective 8.1 - Identify the safety concerns related to responding to an incident involving a vehicle fire**

A vehicle fire presents a danger zone that specifically includes the area directly in front of and behind the burning vehicle where projectiles, like pistons, may launch from the vehicle. Non-firefighting responders should remain clear of all sides of a burning vehicle, and remain uphill and upwind of the incident. Additionally, the smoke created by a vehicle fire and the steam created while extinguishing the fire can affect both responder and motorist visibility at the incident scene. It is sometimes necessary to close additional lanes while a fire is burning or being extinguished.

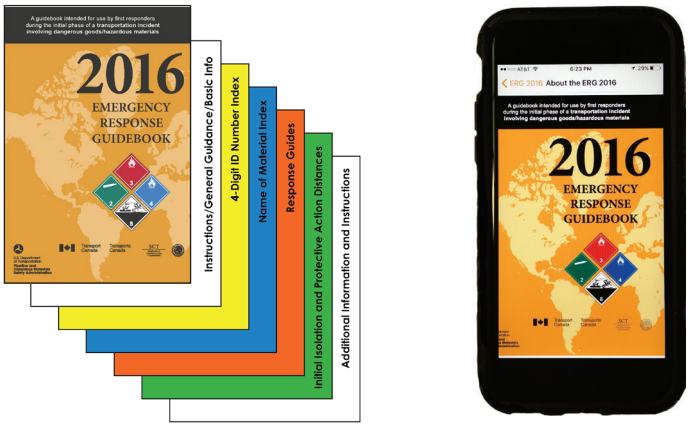


*Projectile Dangers at Vehicle Fires*

**Lesson Objective 8.2 - Describe how to identify what hazardous material is being transported**

Hazardous materials (hazmat) can be identified through labels, markings, or placards. Labels are placed on the actual item or the individual package containing the material. Markings are placed on the boxes that the materials are transported in. Placards are placed on the outside of the trucks (or other vehicles) transporting the material. If available, the vehicle's bill of lading, or shipping papers, can also be referenced to identify the type of material(s) being transported.

Placards, which should be placed on each side and each end of the transport vehicle, are color-coded based on the class of hazardous material being transported. The placard, or an orange panel placed below the placard, should include a four-digit number that can be referenced to identify the hazardous material using the Emergency Response Guidebook (ERG). The ERG is an excellent resource for all incident responders and, in addition to the printed version, electronic versions are now available for computers and mobile devices.




*Emergency Response Guidebook and App*

## How to Use the ERG

1. **Identify the material using either the:**
   - **ID number (4-digit) from the placard, orange panel, shipping document, or package**
   - **Name of the material from a shipping document or package**
2. **Identify 3-digit guide number**
   - **ID Number Index (yellow)**
   - **Name of Material Index (blue)**
3. **Turn to the numbered guide (orange) and read carefully**

Agencies should be capable of the following actions when hazardous materials are involved in a traffic incident:

- Identify reportable quantities
- Determine what response is required
- Understand the capabilities of local responders

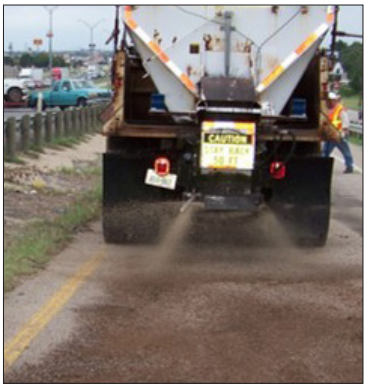
Individual responders should limit themselves to only working on spills or leaks of a magnitude that are within their capabilities, training, and equipment. Dedicated hazmat teams should be used to deal with those incidents which fall outside of the capabilities of on-scene responders.

**Lesson Objective 8.3 - Recount good practices for responding to an incident involving a vehicle fluid spill**

Common small vehicle fluid spills can be mitigated following these steps as long as responders are following their state's related policies and procedures:

1. Stop leaking material at the source
2. Contain and limit the spill from spreading
3. Apply available absorbents
4. Remove material from travel lanes
5. Gradually restore traffic flow





*Spill Response for Vehicle Fluids*

It is important to make every effort to stop the spill from reaching any type of waterway, including catch basins, sewers, and/or storm drains. Additionally, many tow companies carry absorbent and other equipment that may assist with spill mitigation. It is recommended that responders maintain an understanding of the capabilities of local tow providers.

**Lesson Objective 8.4 - Describe the primary goal of a crash investigation and the importance of preserving short-lived evidence**

The foundation of traffic crash investigations involves the collection of information that ultimately helps understand when, where, and why crashes occur. Investigations also help to identify who is at fault, enabling vehicle repairs and other compensation. Additonally, crash investigations ensure that individuals who might have committed a crime through their driving actions can be brought to justice.

It is the responsibility of all incident responders to ensure that the incident scene is preserved by refraining from removing, moving, or eradicating physical evidence. Responders should take only those actions needed to complete their own area of responsibility with minimal disturbance of the scene unless authorized or assigned. Remember, all debris should be considered evidence until law enforcement personnel indicates otherwise.

**Short-Lived Evidence** – evidence that will most likely be lost, destroyed, or compromised once the scene has been cleared. Examples of short-lived evidence include tire marks, debris fields, gouges, scrapes, fluid trails, blood, hair, and fibers. Critical short-lived evidence can disappear when walked on by responders, driven over, flushed away with water, or unintentionally swept away with a broom.





*Short-Lived Evidence – Tire Print and Hair*

To assist with evidence preservation, responders should:

- Document occupant seating location/position, seat belt usage, and air bag deployment
- Note the presence of drugs, open containers, or other suspicious substances or activities
- Remove and turn over ignition keys to the investigator

# Lesson 9: Clearance and Termination

**Lesson Objective 9.1 - Describe quick clearance strategies for both minor incidents and incidents that involve tractor trailers and/or spilled cargo**

For minor incidents, if an involved vehicle is still functional, having the driver move it out of travel lanes is a simple quick clearance strategy. If the vehicle is not operational or is damaged, a responder vehicle with a push bumper can clear it out of the roadway. When a tow truck is required, the request must be made as soon as possible, even if the vehicle has been relocated to the shoulder.





*Quick Clearance – Push, Pull, Drag, or Drive*

Typically, when a commercial vehicle has spilled cargo, the trucking company and/or insurance provider must be contacted, and they may request that the cargo be salvaged. However, salvage operations can result in significant clearance and traffic delays. If authority removal legislation is in place, determine if the vehicle and/or spilled cargo can be pushed to the shoulder to open travel lanes more quickly.





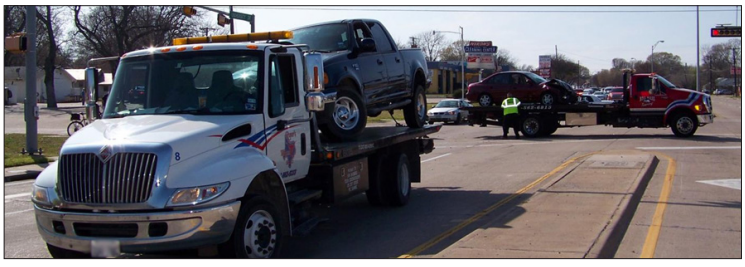
*Spilled Cargo*

## Safe, Quick Clearance Strategies

- ✓ **Working with a sense of urgency to reduce the exposure to risks for both responders and motorists**
- ✓ **Utilizing Unified Command and incorporating safe, quick clearance into the incident objectives**
- ✓ **Completing tasks concurrently whenever possible**
- ✓ **Regularly assessing traffic control and on-scene activities to determine if additional lanes can be opened**
- ✓ **Utilizing all available resources for clearance activities**
- ✓ **Thinking outside of the box and considering how things could be done differently**

**Lesson Objective 9.2 - List the type of information that needs to be provided to towing and recovery to facilitate their response**

During incident response, tow operators play an invaluable role in promoting quick clearance by removing damaged vehicles. Tow operator responsibilities include loading vehicles and departing the scene as quickly as possible, transporting occupants from towed vehicles to a safe location away from the incident, and handling financial negotiations off-site.



*Towing and Recovery*

Tow operators depend on getting timely, accurate information from those on the scene. The Towing and Recovery Association of America (TRAA) has devel-

oped a Vehicle Identification Guide to assist non-towing responders who are responsible for requesting tow services. The guide lists the information that towing dispatchers need to secure the appropriate towing vehicle, including:

- Year, make, and model of vehicle
- DOT classification
- Location and scene access
- Reason for tow
- Additional vehicle or crash details

The towing industry is supportive of realistic training standards and supports several training programs nationwide. In addition to the TIM training, joint training provides an opportunity for other responders to better understand the capabilities of their towing and recovery partners.

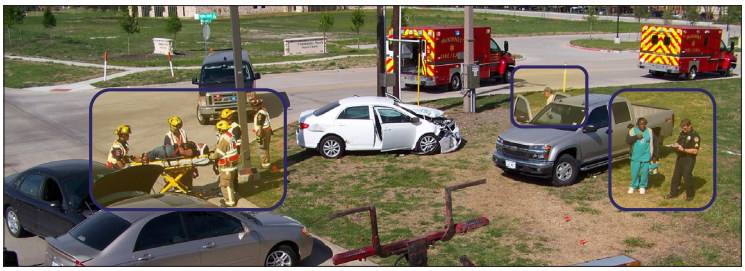


*Joint Training*

**Lesson Objective 9.3 - Describe the importance of performing response tasks concurrently as it relates to safe, quick clearance**

It is important for responders to communicate and coordinate their individual activities on the scene, and to perform them concurrently, not sequentially, whenever possible. Like the analogy of an auto racing pit crew, every team member works simultaneously to accomplish the overall goal of the team. Each discipline can work cooperatively to achieve their respective tasks, in many cases at the same time.

Concurrently completing tasks includes requests for additional resources. Resource requests should be made as soon as possible, even if the resources are not needed immediately, to enable a timely response. For example, even if a crash investigation is required at the scene, the towing and recovery provider should still be notified early so that they can plan their response accordingly.



*Concurrent Response Activities*

**Lesson Objective 9.4 - Describe the major activities that take place during termination and identify safety related considerations for scene breakdown**

Termination is the final stage of incident response and includes demobilizing and removing all equipment, personnel and response vehicles, and restoring traffic flow to normal.

It is recommended that responder vehicles that are no longer required leave the scene as soon as practical to minimize exposure to traffic and distraction to passing motorists. However, it is critical that the remaining responder vehicles reassess the scene and reposition their vehicles as necessary to keep the scene protected, as well as to open travel lanes when it is safe to do so.

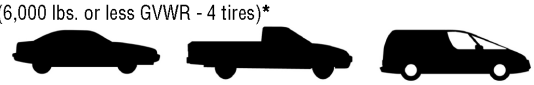
During demobilization, it is important to dismantle the scene from the Termination Area backwards to the Advance Warning Area. Responders also need to maintain an awareness of the potential for frustrated motorists that may be particularly aggressive and drive at high speeds.

**Termination Checklist**

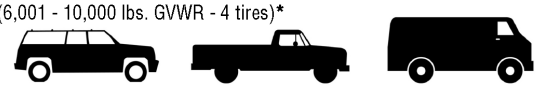
- ✓ **Protect towers while they finish up**
- ✓ **Remove temporary traffic control devices**
- ✓ **Lift the detour or alternate route**
- ✓ **Let communications centers and TMC know that lanes are open**
- ✓ **Make sure all personnel are accounted for**
- ✓ **Check with Incident Commander prior to leaving**

# LAW ENFORCEMENT VEHICLE IDENTIFICATION GUIDE

## CLASS 1 - LIGHT-DUTY
(6,000 lbs. or less GVWR - 4 tires)*



## CLASS 2 - LIGHT-DUTY
(6,001 - 10,000 lbs. GVWR - 4 tires)*



Class 1 through 2 include passenger cars, light trucks and mini vans, full size pickups, sport utility vehicles, full size vans

## CLASS 1 AND 2 - LIGHT-DUTY TOW
Gross Vehicle Weight Rating (6,000 to 10,000 lbs.)
Passenger cars, small SUVs and pickup trucks

- ☐ Year, make and model?
- ☐ Number of occupants?
- ☐ Full-size pickup or van?
- ☐ Is it loaded?
- ☐ 4x4 or AWD?
- ☐ Keys?
- ☐ Trailer?
- ☐ What is the load?

**VEHICLES IN THESE CLASSES USUALLY HAVE FOUR TIRES.**

## CLASS 3 - LIGHT- OR MEDIUM-DUTY
(10,001 - 14,000 lbs. GVWR - 6 tires or more)*



## CLASS 4 - MEDIUM-DUTY
(14,001 - 16,000 lbs. GVWR - 6 tires or more)*



## CLASS 5 - MEDIUM-DUTY
(16,001 - 19,500 lbs. GVWR - 6 tires or more)*



## CLASS 6 - MEDIUM-DUTY
(19,501 - 26,000 lbs. GVWR - 6 tires or more)*



Class 3 through 6 include a range of mid-sized to larger vehicles including delivery trucks, utility vehicles, motor homes, package parcel trucks, ambulances, small dump trucks, landscape vehicles, small flatbed and stake-type trucks, refrigerated and box trucks, small and medium-duty buses (school and local transit buses.)

## CLASS 3, 4, 5 & 6 - LIGHT- OR MEDIUM-DUTY TOW
Gross Vehicle Weight Rating (10,001 up to 26,000 lbs.)

- ☐ Year, make and model?
- ☐ Body type – pickup truck, box truck, flatbed, step van
- ☐ What is the load and is it damaged?
- ☐ Pickup, van, shuttle bus or motor home?
- ☐ Number of occupants?
- ☐ Keys?
- ☐ Vehicle description is critical to determine the proper tow vehicle

**VEHICLES IN THESE CLASSES USUALLY HAVE SIX TIRES.**

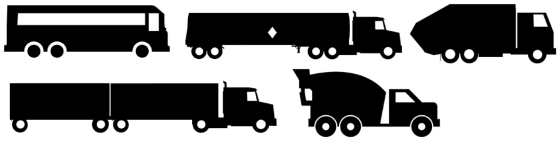
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## CLASS 7 - HEAVY-DUTY
(26,001 - 33,000 lbs. GVWR - 6 tires or more)*



## CLASS 8 - HEAVY-DUTY
(33,001 lbs. and over GVWR - 10 tires or more)*



Class 7 and 8 include a range of heavier vehicles including large delivery trucks, motor coaches, all tractor-trailer combinations, refuse trucks, construction vehicles, etc.

## CLASS 7 AND 8 - HEAVY-DUTY TOW
Gross Vehicle Weight Rating
(Class 7 - 26,001 to 33,000 lbs.)
(Class 8 - 33,001 and up to state limit)

- ☐ Year, make and model?
- ☐ Bus or motor home?
- ☐ Number of occupants?
- ☐ Two or three axle truck or tractor-trailer?
- ☐ What is the load and is it damaged?
- ☐ Keys?

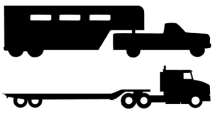
**STRAIGHT TRUCKS, BUSES OR MOTOR HOMES IN THESE CLASSES WILL USUALLY HAVE SIX TO TEN TIRES. TRACTOR AND TRAILER COMBINATIONS WILL HAVE FOURTEEN OR MORE TIRES.**

## MOTORCYCLES - LIGHT-DUTY TOW
Sports motorcycle – off road/basic street type
Performance motorcycle – "racing" model type
Touring motorcycle – large, heavy road touring type
Custom or 3-wheel motorcycle



## TRAILERS - LIGHT-, MEDIUM- OR HEAVY-DUTY TOW

- ☐ Is it a truck and trailer to tow or just a trailer to tow?
- ☐ Number of axles and what is it hauling or is it designed to haul?
- ☐ Type of load or weight of load?
- ☐ If a tow, does the trailer have a ball, pintle or a fifth wheel hitch?



## MOTOR HOMES - LIGHT-, MEDIUM- OR HEAVY-DUTY TOW
**Class C** – usually built on a van or pickup type truck chassis
**Class A** – usually built on a medium to large truck or bus chassis



## LOCATION:
All locations are considered to be on the right hand shoulder unless advised the incident is in a lane of travel, in the center divider or off the road.
Locations should always be given so the tow truck can access the scene safely.
Freeway locations should always be given going in one direction, such as southbound south of a specific landmark or intersection.

## REASON FOR THE TOW: Service call, storage, wreck or recovery
**Service call:** Specify the reason, fuel, tire, etc.
**Tow:** Specify the reason
**Storage:** Arrest or impound tow
- ☐ Is the vehicle stripped, burned, flat tires or no wheels?

**Wreck:** Condition of the vehicle
- ☐ Is the vehicle/truck overturned?
- ☐ Are lanes blocked?
- ☐ Is the vehicle off the road?
- ☐ How far?
- ☐ Any special problems at the scene or special equipment needed?

tdf1904

*** Note:** The Gross Vehicle Weight Rating (GVWR) of the vehicle to be towed or recovered can be found on the identification label on the vehicle's driver's side doorframe. The number of pounds listed on the label can then be compared with the DOT Classification Vehicle Type Chart for the correct DOT class.

*Vehicle Identification Guide provided courtesy of the Towing and Recovery Association of America*

# Post-Course Assessment Tool

FHWA invites you to participate in an assessment of the National TIM Responder Training Program. Participation is quite simple and involves the use of an online survey tool to take a pre-test before the class, and after the training is complete, an online post-test and course evaluation. Then, approximately three months after you complete the training, you will have an opportunity to take a survey focused on how the training has impacted your daily work as an incident responder. Note, individuals that were not able to take the pre-test are still strongly encouraged to participate in the remaining surveys, and, please remember, the surveys are intended to assess the training product, not your individual performance.

To participate in the assessment, access the tool at *https://timtrainingevalassesstool.com* and follow the steps below.

1. **Register for an Account**: Complete the registration form, which includes creating a password.
2. **Confirm Account**: A confirmation email will be sent to the email address you provided. Activate the account by clicking the link in the confirmation email.
3. **Log In to the Site**: You will be given the option to have the site remember your email and password.
4. **Select Training Session**: A list of training sessions for your state will be auto-populated. If the training session does not already exist in the tool, you can click on 'Add a Training Session' to add it.
5. **Complete Available Surveys**:
   - Pre-Test – Can be taken up to the start of the training session.
   - Post-Test and Course Evaluation – Available the day of the training.
   - Implementation Survey – An email reminder will be distributed three months after the course. Your supervisor will also receive a request to take this survey if their contact information was provided.

# Web-Based Training (WBT) Options

### National Highway Institute (NHI)

NHI provides a free online version of the National TIM Responder Training course. The course includes an overview and nine lessons and takes approximately four hours to complete. The lessons are narrated and include knowledge check questions. To receive a completion certificate, students are required to score 70% or higher on the 20 question final exam. Students are also prompted to complete a course evaluation prior to being able to print their course certificate.

1. Register for an NHI account: *https://www.nhi.fhwa.dot.gov/*
2. Search for course FHWA-NHI-133126A and add it to your cart
3. Complete all nine lessons
4. Pass the final exam
5. Complete the course evaluation
6. Print/download your course completion certificate

### ResponderSafety.com Learning Network

FHWA worked closely with the Emergency Responder Safety Institute (ERSI) to review the training modules they have available through the Responder Safety Learning Network (RSLN). Ultimately, FHWA and ERSI identified ten modules that cover all 33 lesson objectives of the National TIM Responder Training course. Once an individual completes all ten modules, which are free to take, they are able to download a special certificate that is equivalent to completing the National TIM Responder Training course.

1. Register for an RSLN account: h*ttps://learning.respondersafety.com*
2. Click on National TIM Training
3. Complete and pass the skills challenges for all ten modules
4. Obtain an RSLN certificate for each module
5. Obtain a National TIM Certificate for successful completion of all ten modules