Lesson 1: Introduction

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

The National TIM Responder Training Program was created as part of SHRP 2, which was authorized by Congress in 2005. SHRP 2 has four areas of focus -- safety, renewal, reliability, and capacity -- and the National TIM Responder Training Program was developed under the reliability focus area. 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 the National Law Enforcement Officers Memorial, over the past 24 years, an average of 12 officers were killed each year in struck-by incidents.
- The National Fallen Firefighters Memorial in Emmitsburg, MD indicated that statistics from 2010 are typical for firefighter struck-by deaths, about 5 per year.
- The International Towing and Recovery Hall of Fame and Museum in Chattanooga, TN tells us that about 60 tow operators are struck and killed each year.
- Aside from work zone deaths, transportation professionals are also killed at incidents, though the exact numbers are difficult to pin down.

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...Dumb**

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 reduces the duration and impacts of traffic incidents and improves the safety of motorists, crash victims, and emergency responders.

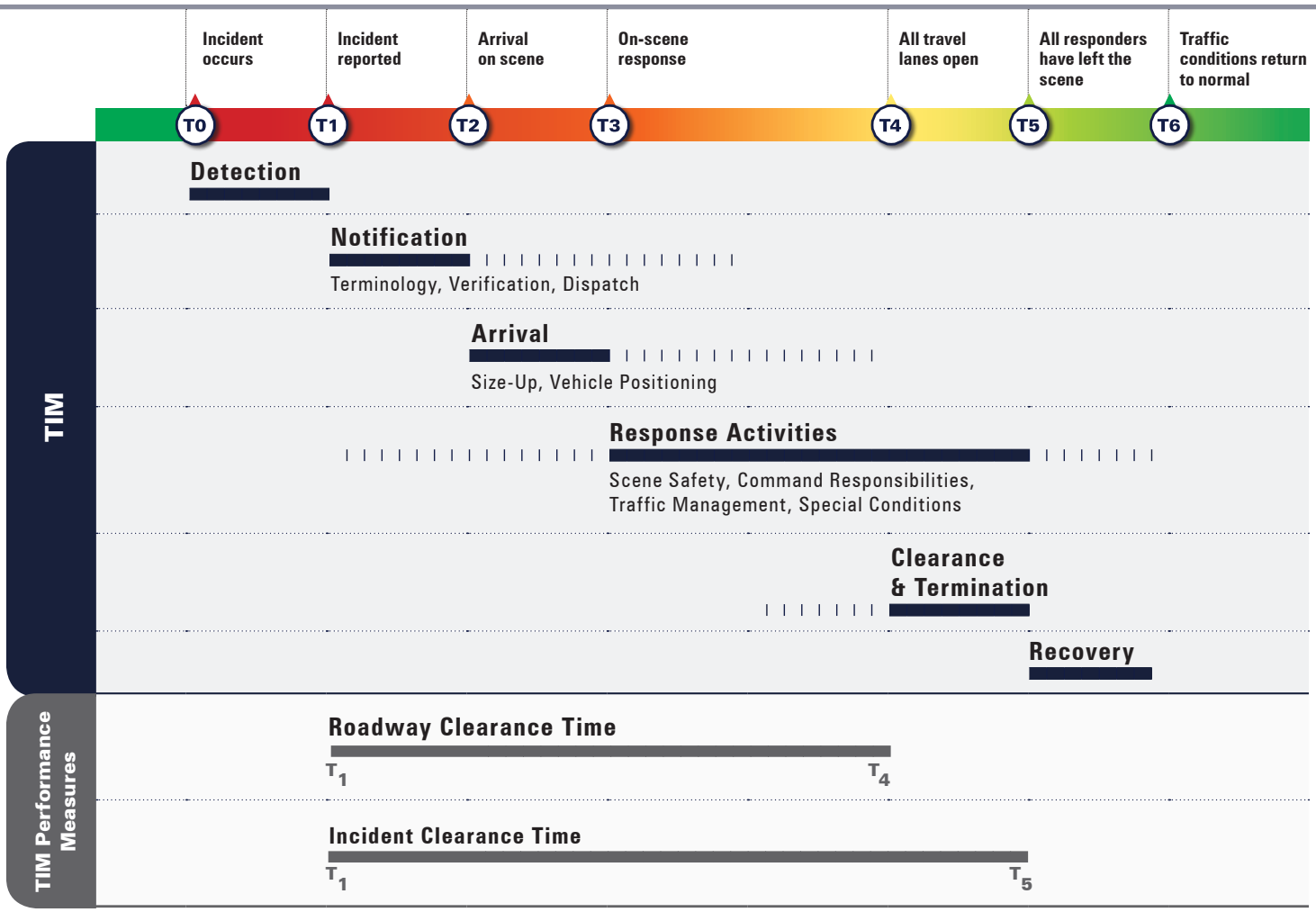
The TIM timeline lays out the events and activities that occur from the time when an incident happens to when traffic conditions return to normal. The color bar at the top of the chart represents potential traffic congestion along the timeline. The goal of TIM is to shorten the time duration between 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 bottom section of the TIM timeline illustrates two standard TIM performance measures:

- **Roadway Clearance Time (T4-T1)** – 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 (T5-T1)** – 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:

- Increase the safety of incident responders by minimizing their exposure to adjacent passing traffic
- Reduce the probability of secondary crashes
- Relieve overall congestion and delay

What is Safe, Quick Clearance?

- ✓ **Working with a sense of urgency**
- ✓ **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**

Safe, quick clearance and responder safety are NOT mutually exclusive, as a matter of fact they complement each other.

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

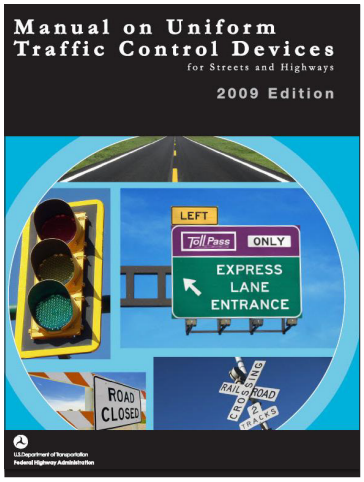
Nationally, there are three types of laws that facilitate TIM:

- **Move Over Laws** – require drivers approaching a scene where emergency responders are present to either change lanes when possible and/or reduce vehicle speed.
- **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 was first published in 1935, and it has been maintained by FHWA since 1971. 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 in the National TIM Responder Training.

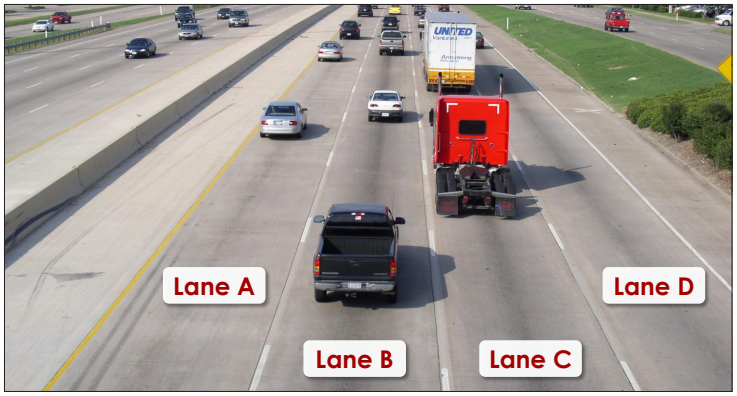
Lesson Objective 2.4 - Recall common response terminology, lane designations, and incident scene terminology

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.

Lane Designation Terminology: Plain English – when describing highway lanes, left is analogous with inside and right with outside, from the perspective of the flow of traffic.

Lane Designation Terminology: Plain English

Lane Designation Terminology: Lane Lettering – as an alternative, a lettering system that assigns letters A, B, C, etc. from the left to right lane, again from the perspective of the flow of traffic, can be used.



Lane Designation Terminology: Lane Lettering

Either plain English or lettering are acceptable, provided area responders train to both. Note that a special or unique use lane, such as a high-occupancy vehicle (HOV) lane is not a lettered lane.

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

Rural Road Response Terminology

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

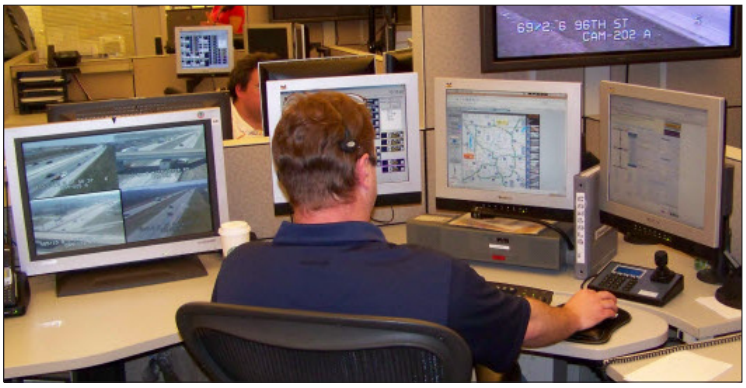
Queue – a traffic queue (pronounced "Q") is the backup of traffic that results from an incident or blocked lanes. A queue may form in either direction of travel because of rubberneckers.

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 receive notification of an incident and are responsible for:

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



Telecommunicator Working at a 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 – once verification is complete, the communications center will dispatch the appropriate response.

It is 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 remove vehicles from travel lanes if the vehicles are drivable.

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

ODOT Transportation Operations Center

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, websites and social media
  - » Dynamic message signs (DMS)
  - » Portable changeable message signs (PCMS)
  - » Highway advisory radio (HAR)
- Providing traffic and incident information notification to other traffic management/communication centers, public safety partners and the news media
- Monitoring traffic management devices to ensure they are functioning properly
- Controlling traffic management devices, including ramp meters, traffic signal systems, etc.

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

Upon first arriving on-scene, an immediate arrival report should be given to the communications center to confirm the geographical location and approach specifics for later-arriving units. This initial arrival/windshield size-up report should include:

- Unit identification
- Exact location of incident
- Number and type of vehicles involved
- Degree of damage
- Number of lanes closed
- Hazards or problems
- Establishment of command

Typical Windshield Size-Up Report

Unit one on-scene… Main Street… Minivan fully engulfed in flames in the right lane… The vehicle is leaking fuel… Assuming Main Street command

A more detailed and accurate size-up should be provided after the responder has more fully assessed the scene.

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

- Location – exact incident location
- Vehicles – number and type of vehicles involved
- Injured Persons – number and extent of injuries, and need for extrication
- Incident Duration Classification – Minor, Intermediate, or Major
- On-Scene Conditions – any conditions present that may affect the safety of responders
- Hazardous Materials – presence or potential presence at the scene
- Traffic Conditions – traffic queue length, detour/alternate route needs, etc.
- Towing and Recovery – accurate, detailed vehicle information
- Additional Resources Needed – crash reconstruction, medical examiner, etc.

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 secondary location before being worked.

Work It – describes a situation where the vehicles involved cannot be moved to a secondary location before being worked.

When possible, moving the incident is preferred since it obstructs traffic less and minimizes distractions for passing motorists – a very effective quick clearance strategy.

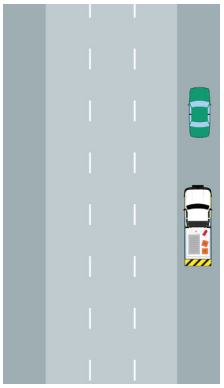
Lesson Objective 4.2 - State the MUTCD definition of safe-positioned and describe blocking

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:

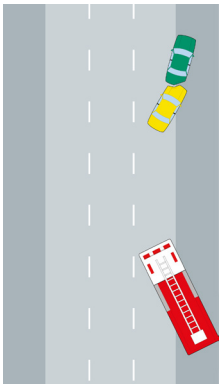
- Protect the responders performing their duties
- Protect road users traveling through the incident scene
- Minimize, to the extent practical, disruption of the adjacent traffic flow

The first emergency vehicle that arrives at an incident scene is generally responsible for positioning their vehicle to create a barrier between approaching traffic and the incident scene. The number of lanes that need to be blocked will vary based on the circumstances of the incident and the shoulder of a highway is considered a lane when establishing a block. A responder vehicle positioned to block a single lane or the shoulder is referred to as a linear block. When the responder vehicle is positioned to block multiple involved lanes it is called a multi-lane block.

Linear Blocking



Multi-Lane Blocking



There are also two ways a blocking vehicle can be positioned on the roadway:

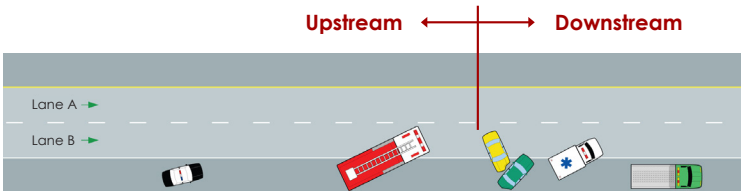
- **Angled** – meaning the vehicle is positioned at an angle with respect to the travel lanes
- **Parallel** – meaning the vehicle is positioned parallel to the travel lanes or the shoulder

Angled Multi-Lane Blocking

Parallel Linear 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 blocking 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.

During initial incident response, it is typical for law enforcement, fire, and DOT or Safety Service Patrol vehicles to position upstream, while ambulances, tow trucks, and other support units typically position downstream.



Typical Vehicle Positioning

It is important that vehicle positioning be reviewed and adjusted as the incident progresses.

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

Fire and EMS personnel need additional room to work during firefighting, extrication, patient treatment, and patient movement activities. To ensure responder and motorist safety, it may be necessary to close additional lanes for a short time, a practice referred to as Lane +1 blocking.

Lane +1 Blocking

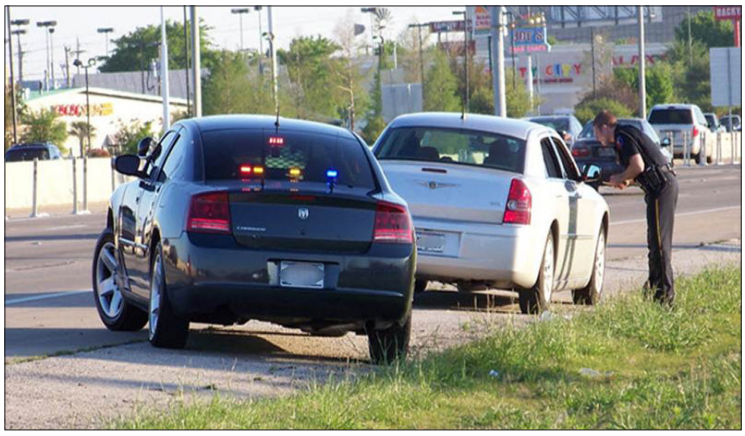
A good rule of thumb is to take only as many lanes as you need for only as long as you need them and then work together to give them back once the patient is loaded or other activities that necessitate the extra space are completed.

Lesson Objective 4.4 - Describe safe practices for working around or avoiding the zero buffer

Every block creates an area of danger between the blocking vehicle and moving traffic, commonly referred to as the zero buffer. Though not an official MUTCD term, the zero buffer requires responders to stop, check for traffic, proceed as close to the emergency vehicle as possible, and return to safety as quickly as possible.

Zero Buffer

The use of a non-traffic side approach during a traffic stop can reduce law enforcement exposure to the hazard of being in the zero buffer.



Avoiding the Zero Buffer

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

Markings on responder vehicles are passive treatments that complement emergency lighting by using:

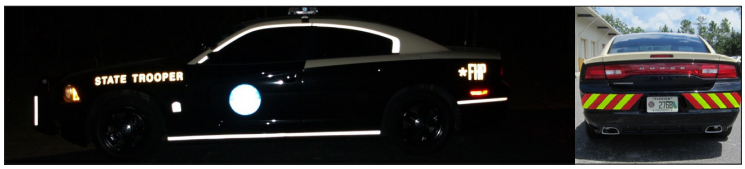
- Contrasting colors that make the vehicle stand out
- Fluorescent colors to increase daytime visibility
- Retroreflective materials to maximize nighttime visibility

National Fire Protection Association (NFPA) Standard 1901 for Automotive Fire Apparatus requires the application of retroreflective markings on fire apparatus built on or after January 2009. It specifies that 50% of the rear of the fire apparatus have 6 inch (minimum) retroreflective striping, alternating between red and either yellow or fluorescent yellow-green, in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees.

Emergency Vehicle Markings – Fire Apparatus

Emergency Vehicle Markings – Ambulance

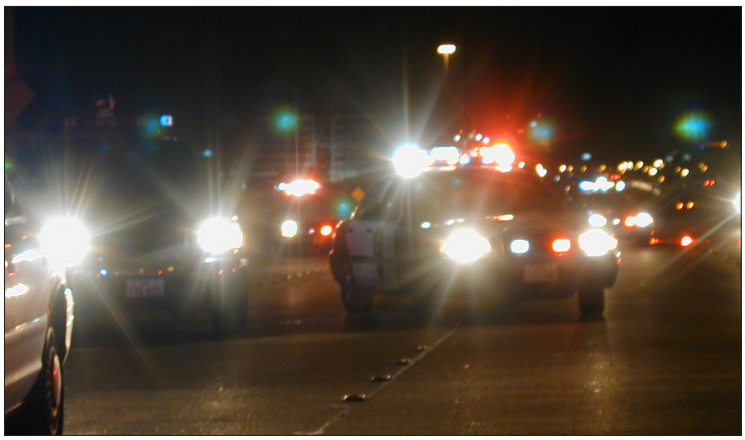
NFPA Standard 1917, released in 2013, includes similar retro-reflective striping requirements for ambulances, but there is no standard for vehicles used by other disciplines, including law enforcement, DOT, Safety Service Patrol, and towing and recovery. However, law enforcement agencies are increasingly using high-visibility markings on their vehicles, such as contour markings to silhouette the outline of the vehicle when viewed from the side, or the addition of chevrons on the rear bumper.



Emergency Vehicle Markings – Law Enforcement Vehicles

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 lighting is critical to the safety of responders and approaching motorists in the initial stages of an incident. However, while an important tool for warning drivers, most emergency lighting does little to augment traffic control or guide drivers, therefore more is not always better where emergency lighting is concerned.



Forward-Facing Emergency-Vehicle Lighting

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. 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… "*

The American National Standards Institute (ANSI) provides standards for the design and use of high-visibility safety apparel. The high-visibility safety apparel worn by incident responders must meet, and be labeled as meeting, one of two standards:

- ANSI/ISEA 107 Performance Class II or III
- ANSI/ISEA 207 Public Safety Vests

ANSI-compliant jackets and coats are also available and acceptable for use, but firefighter turnout gear does not meet these requirements.

Class II – 207 Public Safety Vest

Class II – 107 Vest

Class III – 107 Vest

Law enforcement personnel are exempt from MUTCD high-visibility safety apparel requirements when engaged in potentially confrontational law enforcement activities such as traffic stops and searches, but are required to wear high-visibility apparel any other time they are afoot near a roadway including directing traffic, investigating crashes, or assisting other officers. Firefighters are exempt from MUTCD high-visibility safety apparel requirements when they are engaged in any activity that directly exposes them to flame, fire, heat, and/or hazardous materials. Other firefighters on the scene are required to comply with the requirement.

MUTCD Section 6D.03 Exception – Exposure to Flames

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.

Goals of ICS

- ✓ **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.

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 responding agencies and/or jurisdictions with responsibility for the incident to share incident management. Unified Command is most appropriate for major incidents involving multiple agencies.

Unified Command

Unified Command works together to develop and implement an Incident Action Plan (IAP) that establishes tactical objectives and identifies:

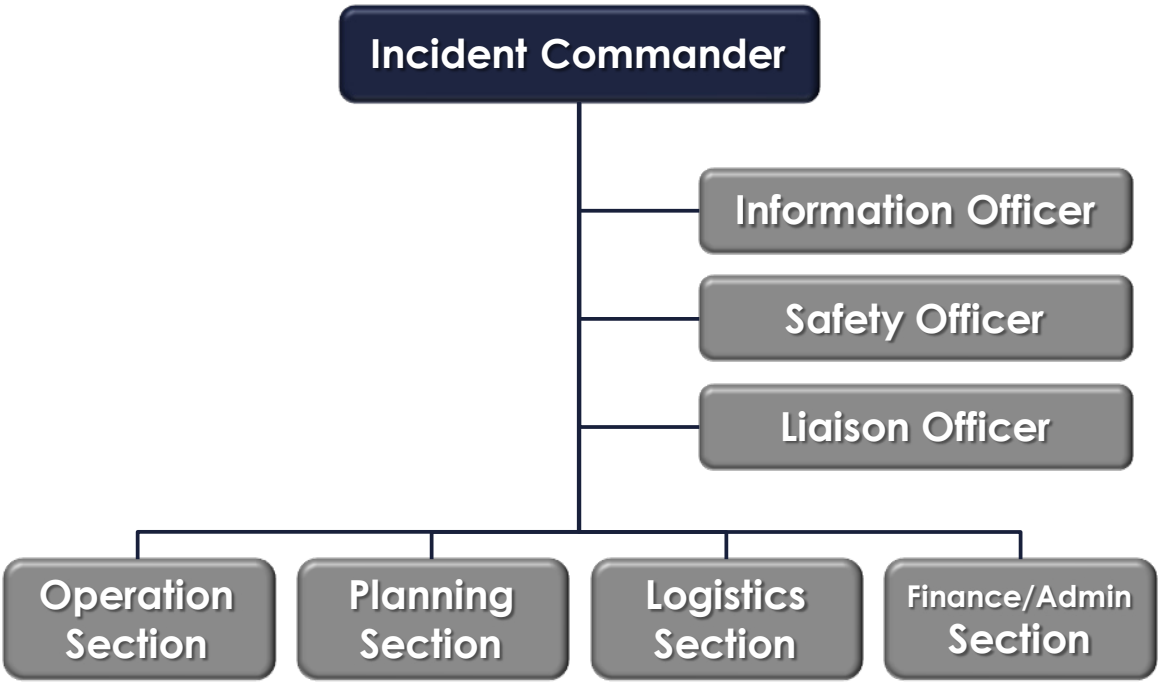
- How the objectives will be accomplished
- The resources needed to achieve those objectives

IAPs are often communicated verbally in small-scale incidents and recorded in writing during large-scale incidents.

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

For large-scale incidents, physical organization of a scene involves the establishment of a Traffic Incident Management Area, an Incident Command Post, Staging Area(s), and diversion routes if necessary. A Staging Area is a location where resources can be placed while awaiting tactical assignment. Staging Areas allow for the organization of personnel and equipment for immediate use at the incident scene as soon as they are needed.

ICS General and Command Staff



Lesson 7: Traffic Management

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

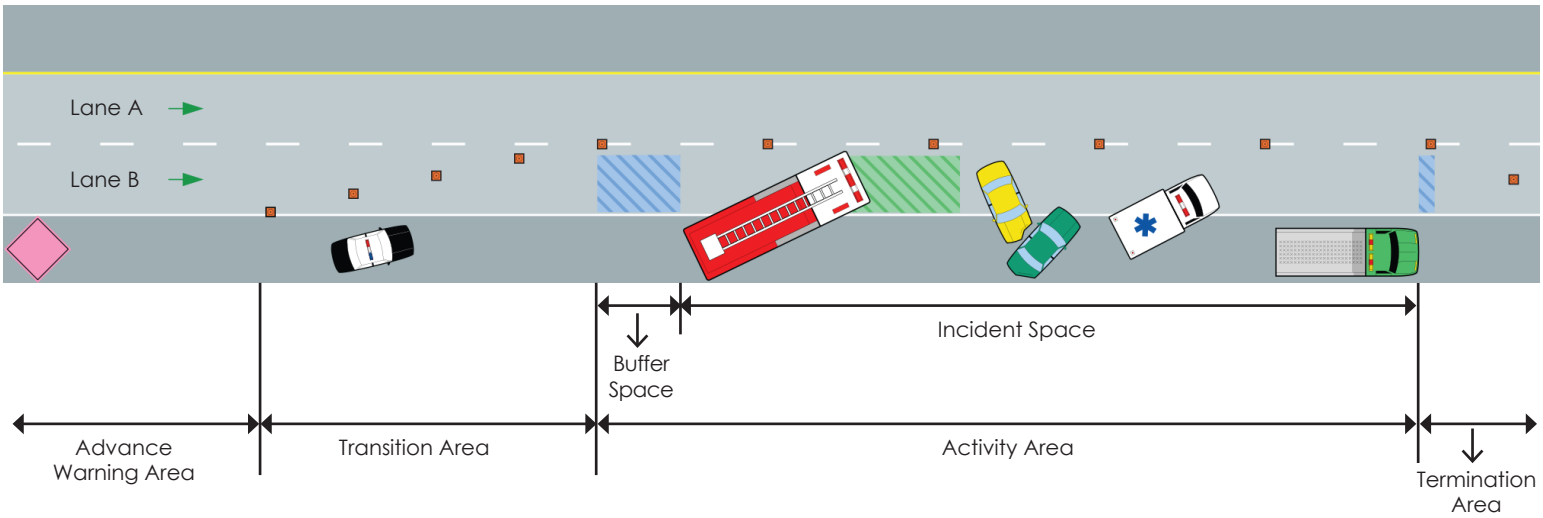
A Traffic Incident Management Area is a type of temporary traffic control zone that is described in MUTCD Chapter 6I. While there are similarities between a highway work zone and a Traffic Incident Management Area, the time available to plan and the availability of resources results in significant differences 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 be placed so that they will provide enough warning for vehicles to slow before reaching the incident and any traffic queue that might form.
- **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:
  - » **Buffer Space (Upstream)** – 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 perception-reaction time. Therefore, additional or extended advance warning may be necessary during adverse weather conditions, such as rain, fog, and/or snow.

Additionally, the placement of advance warning devices may need to be adjusted when sight distance is limited by hills, curves, bridges, intersections, or other driver view obstructions. Sight distance can also be reduced due to weather, smoke, fog, and/or darkness. 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.



Advanced Warning Considerations – Rain or Fog

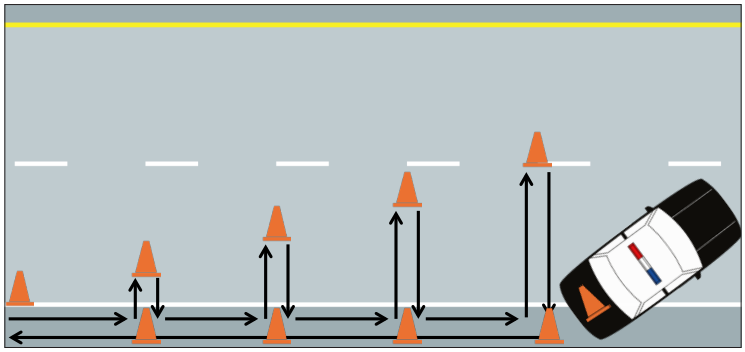
Lesson Objective 7.3 - Describe the need for, and how to set up, a taper

Transition Areas typically involve the strategic use of tapers 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.

Traffic Cone Deployment Technique

1. **The responder retrieves available cones from the trunk placing one at the rear of the responder vehicle on the edge line**
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 common practices, like never turning your back on traffic, helps minimize the exposure of the responder.



Traffic Cone Deployment

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, basically the space up to the blocking vehicle. By definition, it is a recovery area for errant vehicles, so no responder vehicles should be parked in the 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 Buffer Space in TIM applications will typically be fairly short due to the limited availability of channelizing devices, but speed and stopping distances should still be considered and the buffer should be extended as additional resources become available. 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

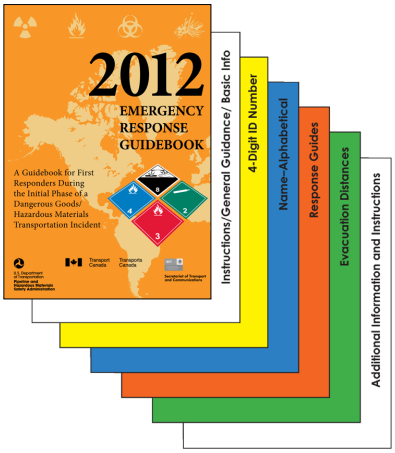
A vehicle fire presents a danger zone that specifically includes the area directly in front of and behind the burning vehicle where projectiles, like gas-charged struts and pistons, may launch from the vehicle. Non-firefighting responders should remain clear of all sides of a burning vehicle, and remain 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 close additional lanes while a fire is burning or being extinguished.

Vehicle Fire with Projectile

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

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**

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

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.

Once the spill has been identified as a vehicle fluid that does not meet reportable quantity thresholds:

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

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. Ultimately, individuals who might have committed a crime through their driving actions can be brought to justice with a competent investigation.

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 which will most likely be lost, destroyed, or compromised once the scene has been cleared. Critical short-lived evidence can disappear when walked on by responders, flushed away with water, or unintentionally swept away with a broom.

Short-Lived Evidence – Tire Print

Lesson Objective 8.5 - 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, but also 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.

Concurrent activities also apply to requests for additional resources. The travel time for a medical examiner or towing operator should be factored into the overall scene activities so that unnecessary delay does not result. Investigators should anticipate when their activities will be concluded and make requests for terminal resources like towing and recovery accordingly.

Fatality Investigation

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.

If a commercial vehicle has spilled cargo, it must be determined if the cargo is hazardous before initiating clearance. If Authority Removal Legislation is in place, determine if the vehicle and/or spilled cargo can be moved out of travel lanes. Unloading cargo versus dragging or pushing it out of travel lanes can impact clearance time significantly.

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 developed 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.

Lesson Objective 9.3 - 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. All responders must exercise care when demobilizing, particularly if other responders remain present at an incident scene. Major activities during termination include:

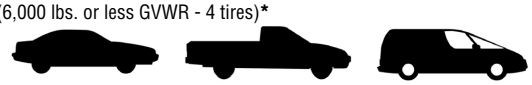
- Recovering the roadway from any damage caused by the incident
- Removing temporary traffic control devices from the incident scene
- Lifting the alternate route or detour restrictions
- Informing drivers of the return to normal traffic flow conditions
- Departure of the responders from the incident scene

Termination Checklist

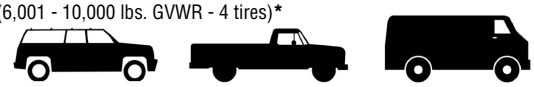
- ✓ **Let other responders know when you're leaving**
- ✓ **Protect towers while they finish up**
- ✓ **Check with Incident Commander prior to leaving**
- ✓ **Make sure all personnel are accounted for**
- ✓ **Let the TMC know that lanes are open**

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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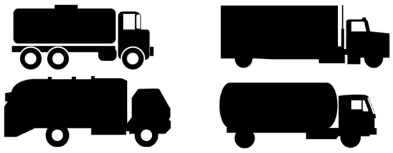
www.towserver.net • 800-728-0136

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)

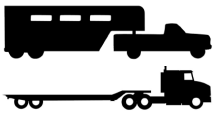
- ☐ Year, make and model?
- ☐ Bus or motor home?
- ☐ Number of occupants?
- ☐ Two or three axle truck or tractor-trailer?
- ☐ What is the load and is it damaged?
- ☐ Keys?

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?

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*** 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

California Laws

(See http://leginfo.legislature.ca.gov/faces/codes.xhtml for searchable California government codes)

MOVE OVER LAW (HIGHWAY RESPONDER/WORKER PROTECTION)

CALIFORNIA VEHICLE CODE SECTION 21809

(a) A person driving a vehicle on a freeway approaching a stationary authorized emergency vehicle that is displaying emergency lights, a stationary tow truck that is displaying flashing amber warning lights, or a stationary marked Department of Transportation vehicle that is displaying flashing amber warning lights, shall approach with due caution and, before passing in a lane immediately adjacent to the authorized emergency vehicle, tow truck, or Department of Transportation vehicle, absent other direction by a peace officer, proceed to do one of the following:

(1) Make a lane change into an available lane not immediately adjacent to the authorized emergency vehicle, tow truck, or Department of Transportation vehicle, with due regard for safety and traffic conditions, if practicable and not prohibited by law.

(2) If the maneuver described in paragraph (1) would be unsafe or impracticable, slow to a reasonable and prudent speed that is safe for existing weather, road, and vehicular or pedestrian traffic conditions.

(b) A violation of subdivision (a) is an infraction, punishable by a fine of not more than fifty dollars ($50).

(c) The requirements of subdivision (a) do not apply if the stationary authorized emergency vehicle that is displaying emergency lights, the stationary tow truck that is displaying flashing amber warning lights, or the stationary marked Department of Transportation vehicle that is displaying flashing amber warning lights is not adjacent to the freeway or is separated from the freeway by a protective physical barrier.

(Amended by Stats. 2009, Ch. 175, Sec. 1. Effective January 1, 2010.)

MOVE OVER OR SLOW
FOR STOPPED EMERGENCY
AND MAINTENANCE VEHICLES

XXXXXXXX

DRIVER REMOVAL LAW (STEER IT CLEAR/CLEAR THE WAY)

CALIFORNIA VEHICLE CODE SECTION 20002

(a) The driver of any vehicle involved in an accident resulting only in damage to any property, including vehicles, shall immediately stop the vehicle at the nearest location that will not impede traffic or otherwise jeopardize the safety of other motorists. Moving the vehicle in accordance with this subdivision does not affect the question of fault. The driver shall also immediately do either of the following:

(1) Locate and notify the owner or person in charge of that property of the name and address of the driver and owner of the vehicle involved and, upon locating the driver of any other vehicle involved or the owner or person in charge of any damaged property, upon being requested, present his or her driver's license, and vehicle registration, to the other driver, property owner, or person in charge of that property. The information presented shall include the current residence address of the driver and of the registered owner. If the registered owner of an involved vehicle is present at the scene, he or she shall also, upon request, present his or her driver's license information, if available, or other valid identification to the other involved parties.

(2) Leave in a conspicuous place on the vehicle or other property damaged a written notice giving the name and address of the driver and of the owner of the vehicle involved and a statement of the circumstances thereof and shall without unnecessary delay notify the police department of the city wherein the collision occurred or, if the collision occurred in unincorporated territory, the local headquarters of the Department of the California Highway Patrol.

(b) Any person who parks a vehicle which, prior to the vehicle again being driven, becomes a runaway vehicle and is involved in an accident resulting in damage to any property, attended or unattended, shall comply with the requirements of this section relating to notification and reporting and shall, upon conviction thereof, be liable to the penalties of this section for failure to comply with the requirements.

(c) Any person failing to comply with all the requirements of this section is guilty of a misdemeanor and, upon conviction thereof, shall be punished by imprisonment in the county jail not exceeding six months, or by a fine not exceeding one thousand dollars ($1,000), or by both that imprisonment and fine.

(Amended by Stats. 2001, Ch. 825, Sec. 16. Effective January 1, 2002.)

MINOR CRASH
NO INJURIES

SAFELY MOVE VEHICLES FROM TRAVEL LANES

SR61(CA)

AUTHORITY REMOVAL LAW (SPILLED LOADS CLEARANCE)

CALIFORNIA VEHICLE CODE SECTION 23113

(a) Any person who drops, dumps, deposits, places, or throws, or causes or permits to be dropped, dumped, deposited, placed, or thrown, upon any highway or street any material described in Section 23112 or in subdivision (d) of Section 23114 shall immediately remove the material or cause the material to be removed.

(b) If the person fails to comply with subdivision (a), the governmental agency responsible for the maintenance of the street or highway on which the material has been deposited may remove the material and collect, by civil action, if necessary, the actual cost of the removal operation in addition to any other damages authorized by law from the person made responsible under subdivision (a).

(c) A member of the Department of the California Highway Patrol may direct a responsible party to remove the aggregate material described in subdivision (d) of Section 23114 from a highway when that material has escaped or been released from a vehicle.

(d) Notwithstanding any other provision of law, a government agency described in subdivision (b), the Department of the California Highway Patrol, or the employees or officers of those agencies, may not be held liable for any damage to material, to cargo, or to personal property caused by a negligent act or omission of the employee or officer when the employee or officer is acting within the scope and purpose of subdivision (b) or (c). Nothing in this subdivision affects liability for purposes of establishing gross negligence or willful misconduct. This subdivision applies to the negligent performance of a ministerial act, and does not affect liability under any provision of law, including liability, if any, derived from the failure to preserve evidence in a civil or criminal action.

HARDOUS MATERIAL SPILL LAW

CALIFORNIA VEHICLE CODE SECTION 2410

(a) The authority for the management of the scene of an on-highway hazardous substance spill or disaster is vested in the appropriate law enforcement agency having primary traffic investigative authority on the highway where the spill or disaster occurs. Responsibility for managing the scene of an on-highway hazardous substance spill or disaster shall continue until all emergency operations at the scene have been completed and order has been restored.

(b) Notwithstanding subdivision (a), the local governing body of a city, whether general law or chartered, which has jurisdiction over the location where an on-highway hazardous substance spill or disaster occurs may assign the authority for management of the scene of an on-highway hazardous substance spill or disaster on local streets and roads, other than freeways, to either the local law enforcement agency or

the local fire protection agency. However, the Department [CHP] is responsible for the management of the scene of an on-highway hazardous substance spill or disaster on all highways where the Department [CHP] has primary traffic investigative authority. Any law enforcement agency having primary traffic investigative authority may enter into written agreements with other public agencies to facilitate management at the scene of an on-highway hazardous substance spill or disaster on local streets and roads other than freeways.

(c) For purposes of this section, "management of the scene of an on-highway hazardous substance spill or disaster" means coordination of operations which occur at the location of a hazardous substance spill or disaster. This coordinating function does not include how the specialized functions provided by the various other responding agencies are to be performed. The agency managing the scene of an on-highway hazardous spill or disaster shall consult with other response agencies at the scene to ensure that all appropriate resources are properly utilized. The agency managing the scene of an on-highway hazardous spill or disaster shall perform its coordinating function in a manner designed to minimize the risk of death or injury to other persons.

HIGHWAY CLOSURE AND AUTHORITY

CALIFORNIA VEHICLE CODE SECTION 2400

[CHP] has full responsibility and primary jurisdiction for the administration and enforcement of the laws, and for the investigation of traffic accidents, on all toll highways and state highways constructed as freeways, including transit-related facilities located on or along the rights-of-way of those toll highways or freeways, except facilities of the San Francisco Bay Area Rapid Transit District. However, city police officers while engaged primarily in general law enforcement duties may incidentally enforce state and local traffic laws and ordinances on toll highways and state freeways within incorporated areas of the state. In any city having either a population in excess of 2,000,000 or an area of more than 300 square miles, city police officers shall have full responsibility and primary jurisdiction for the administration and enforcement of those laws and ordinances, unless the city council of the city by resolution requests administration and enforcement of those laws by [CHP].

CALIFORNIA VEHICLE CODE SECTION 2410

Members of the California Highway Patrol are authorized to direct traffic according to law, and in the event of a fire or other emergency, or to expedite traffic or ensure safety, may direct traffic as conditions may require notwithstanding the provisions of this code

CALIFORNIA STREETS AND HIGHWAY CODE SECTION 90:

The department [Caltrans] shall have full possession and control of all state highways and all property and rights in property acquired for state highway purposes.

CALIFORNIA STREETS AND HIGHWAY CODE SECTION 92:

The department [Caltrans] may do any act necessary, convenient or proper for the construction, improvement, maintenance or use of all highways which are under its jurisdiction, possession or control.

CALIFORNIA STREETS AND HIGHWAY CODE SECTION 124:

The department [Caltrans] may restrict the use of, or close, any State highway whenever the department considers such closing or restriction of use necessary:

(a) For the protection of the public.

(b) For the protection of such highway from damage during storms or during construction, improvement or maintenance operations thereon.

CALIFORNIA STREETS AND HIGHWAY CODE SECTION 125:

To notify the public that a state highway is closed or its use restricted, the department [Caltrans] may:

(a) Erect suitable barriers or obstructions upon such highway.

(b) Post warnings and notices of the condition of any such highway.

(c) Post signs for the direction of traffic upon it, or to or upon any other highway or detour open to public travel.

(d) Place warning devices on such highway.

(e) Assign a flagman to warn, detour or direct traffic on such highway.

CALIFORNIA STREETS AND HIGHWAY CODE SECTION 127:

The California Highway Patrol shall cooperate with the department [Caltrans] in the enforcement of the closing, or restriction of use, of any State highway