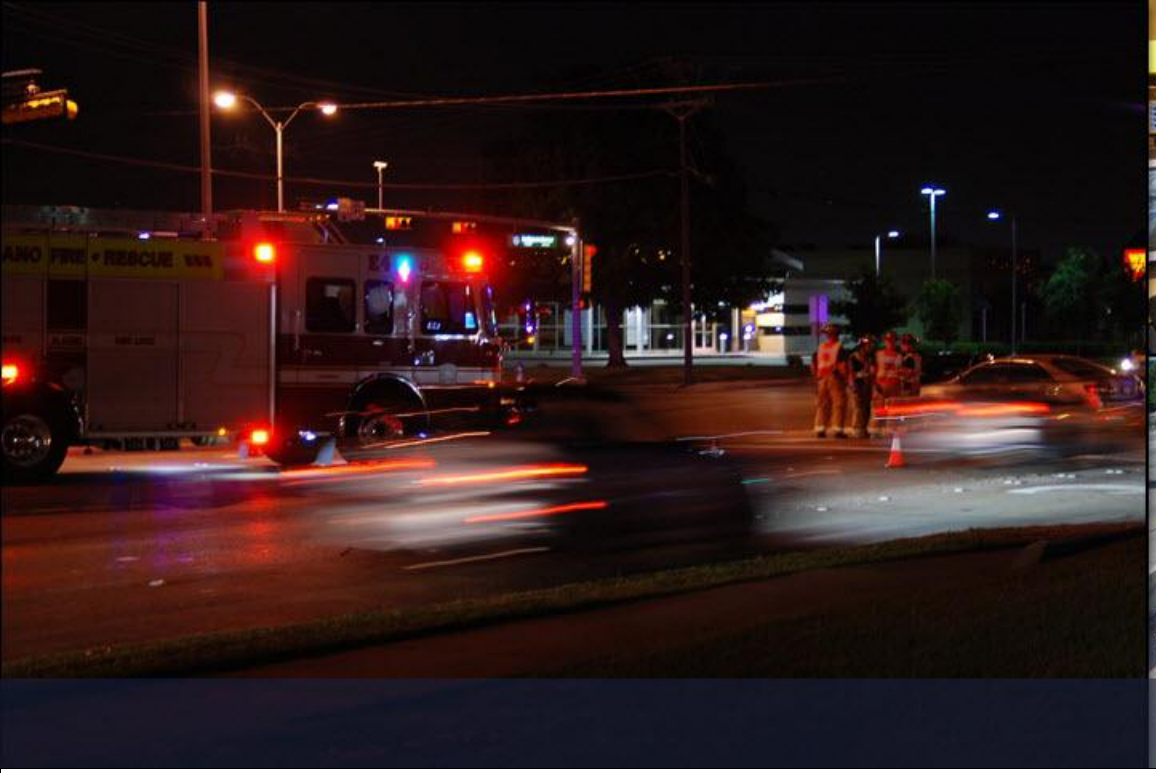
National Traffic Incident Management (TIM) Responder Training

LAW ENFORCEMENT | FIRE | EMS | TRANSPORTATION
TOWING & RECOVERY | COMMUNICATIONS

4-Hour Responder Format Instructor Guide



Course Introduction

Responder Safety

The overarching reason for clearing roadways quickly is YOUR SAFETY! *On average:*

- **Each year, about 5 firefighters are killed in struck by incidents.**
- **Each month, about one police officer is struck by a vehicle and killed somewhere in the US.**
- **Each week, a tow operator is killed doing their job on our roads.**
- **Every three days, a worker is struck and killed in a roadway work zone.**

Congestion & Travel Reliability

- Traffic congestion costs American motorists $87.2 billion per year in wasted time and fuel costs—**more than $757 for every U.S. traveler.**
- The total amount of wasted fuel topped 2.8 billion gallons **24 gallons of gas for every traveler.**
- Americans spend 4.2 billion hours a year stuck in traffic.
- Nationally, in 2007, the average driver languished in rush-hour traffic for 36 hours—
  nearly one full work week for every traveler.

Congestion & Travel Reliability

- **Crashes**, **disabled vehicles**, and **debris** on the road cause roughly half of non-recurring congestion and are the most important factors affecting travel time reliability.
  - In the Los Angeles region, for example, the number of incidents that occur daily can exceed 1000.

- Incidents impose significant **economic costs.**

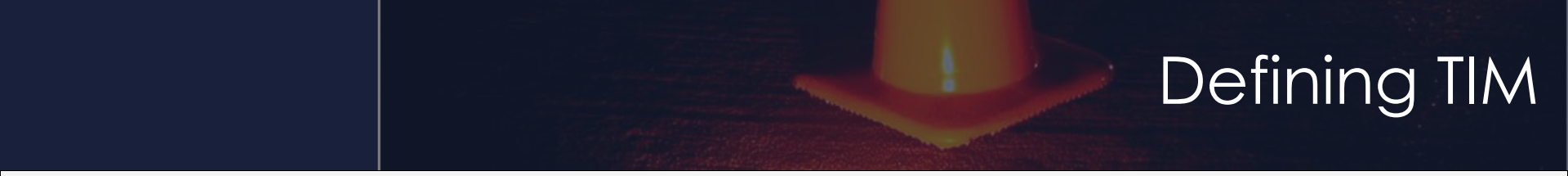
- Incidents negatively impact businesses that depend on **timely deliveries**.

Congestion & Travel Reliability

- Unplanned incidents pose two major challenges that need to be addressed without sacrificing one or the other:
  1) Protecting the **safety** of the motoring public and the **safety** of incident responders plus
  2) Minimizing the **impact on traffic flow**.

- A significant number of responders are **killed** or **seriously injured** every year while dealing with unplanned incidents.

- **Secondary collisions** occur due to motorists coming upon an incident that is already affecting traffic.



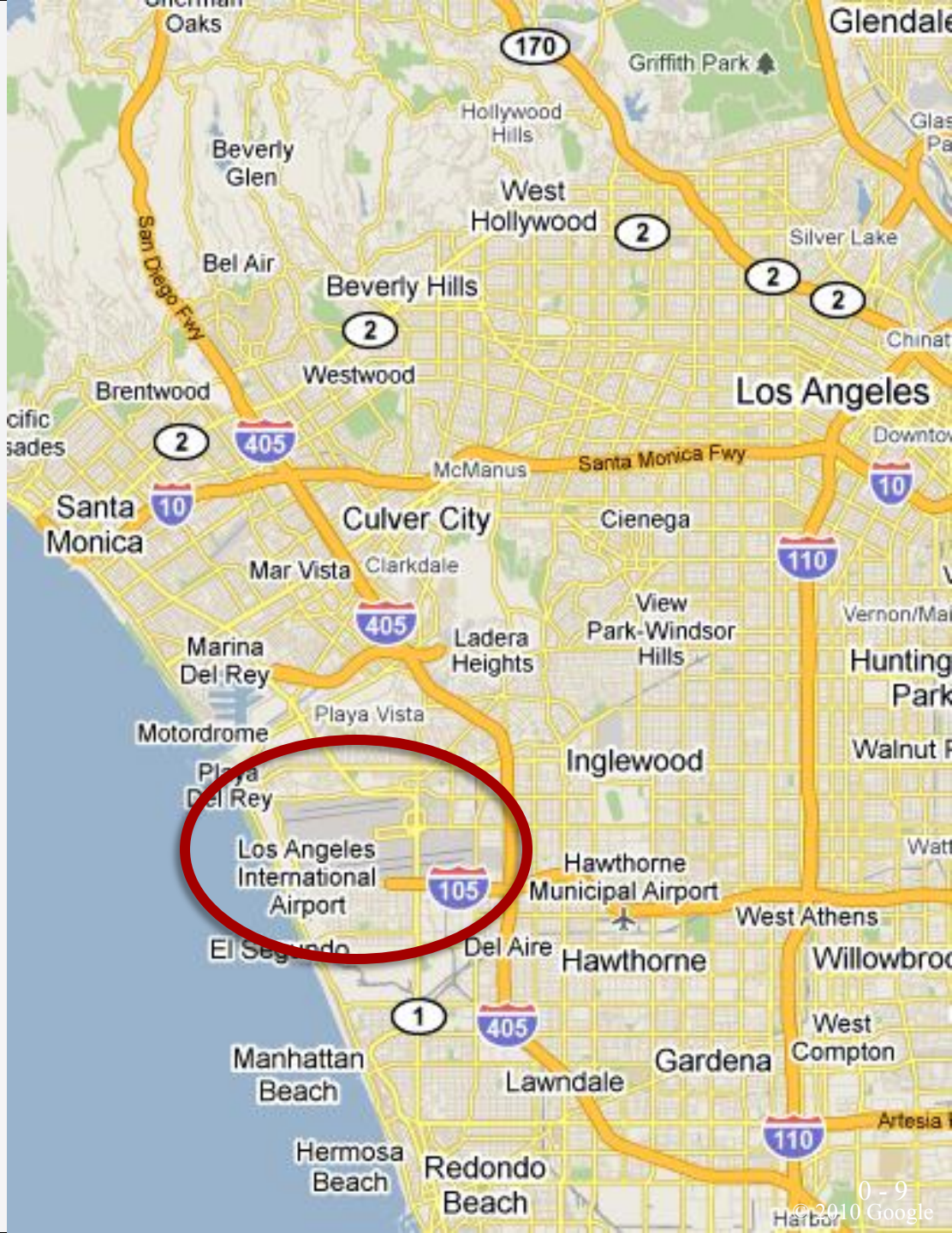
Defining TIM

- 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**

Safe, Quick Clearance

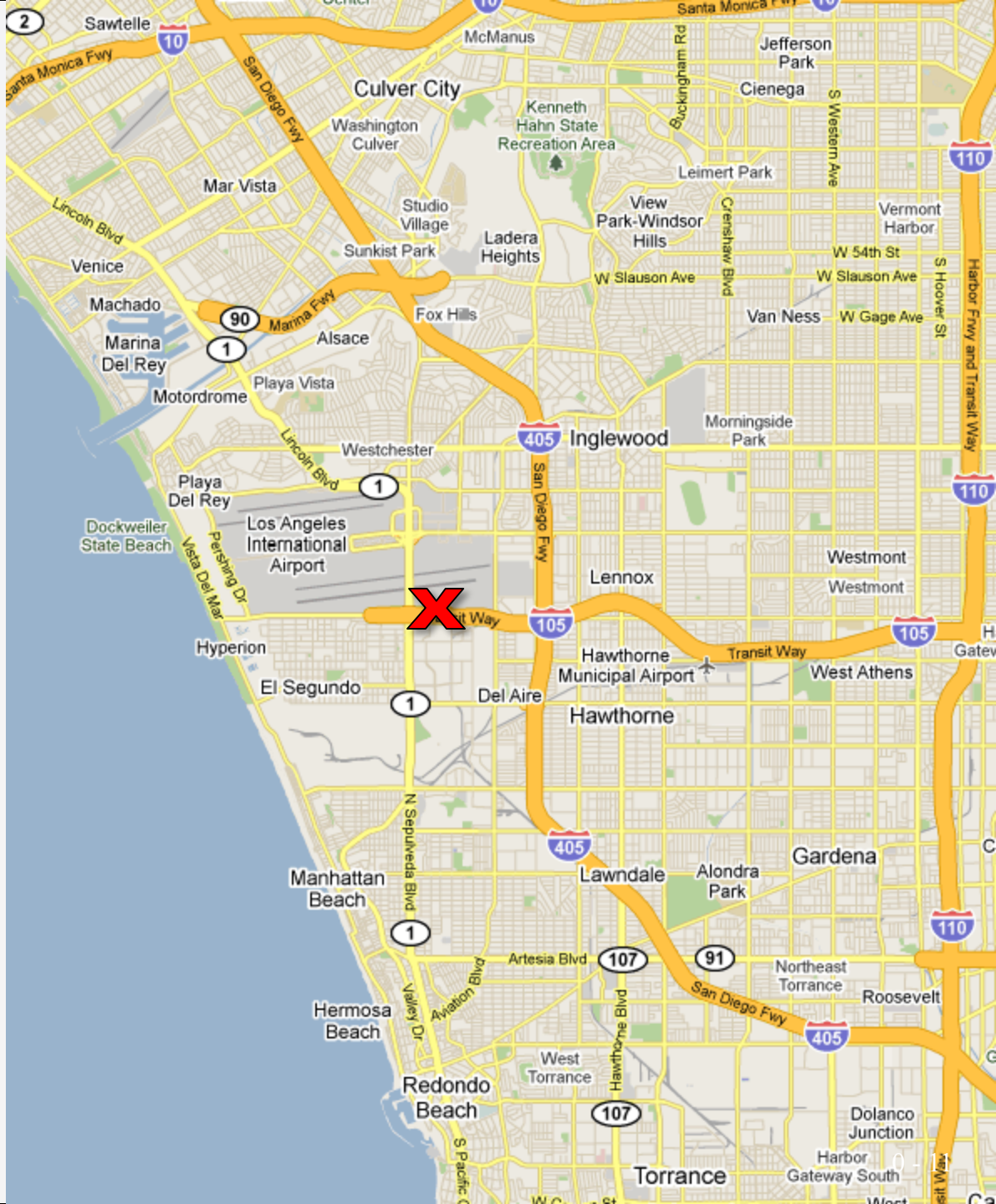
All of the specific strategies, principles, practices, tactics and techniques taught in this course are to facilitate **Safe**, **Quick Clearance** and have a positive impact on these statistics.

10:00 a.m. truck rollover with hazardous materials cargo spill near LAX airport…
55 gallon drums of acetone and rubbing alcohol.
Who does an incident like this impact?




A true Hazmat incident can shut down a roadway for an extended period of time

Who & what could be affected by this roadway shutdown?



The tanker was carrying gasoline which spilled onto a Brazos County highway.

The roadway remained closed for 10 hours as crews worked to clean up the spill.

In comparison with the LAX incident, the wider impact is significantly less.

Imagine A Future Where . . .

- Traffic backups from crashes are cleared quickly and efficiently;
- Workers who respond to traffic crashes are never injured or killed at the scene; and
- Inter-agency incident communications are prompt, reliable and coordinated.

Imagine A Future Where . . .

Traffic incident responders from all disciplines:

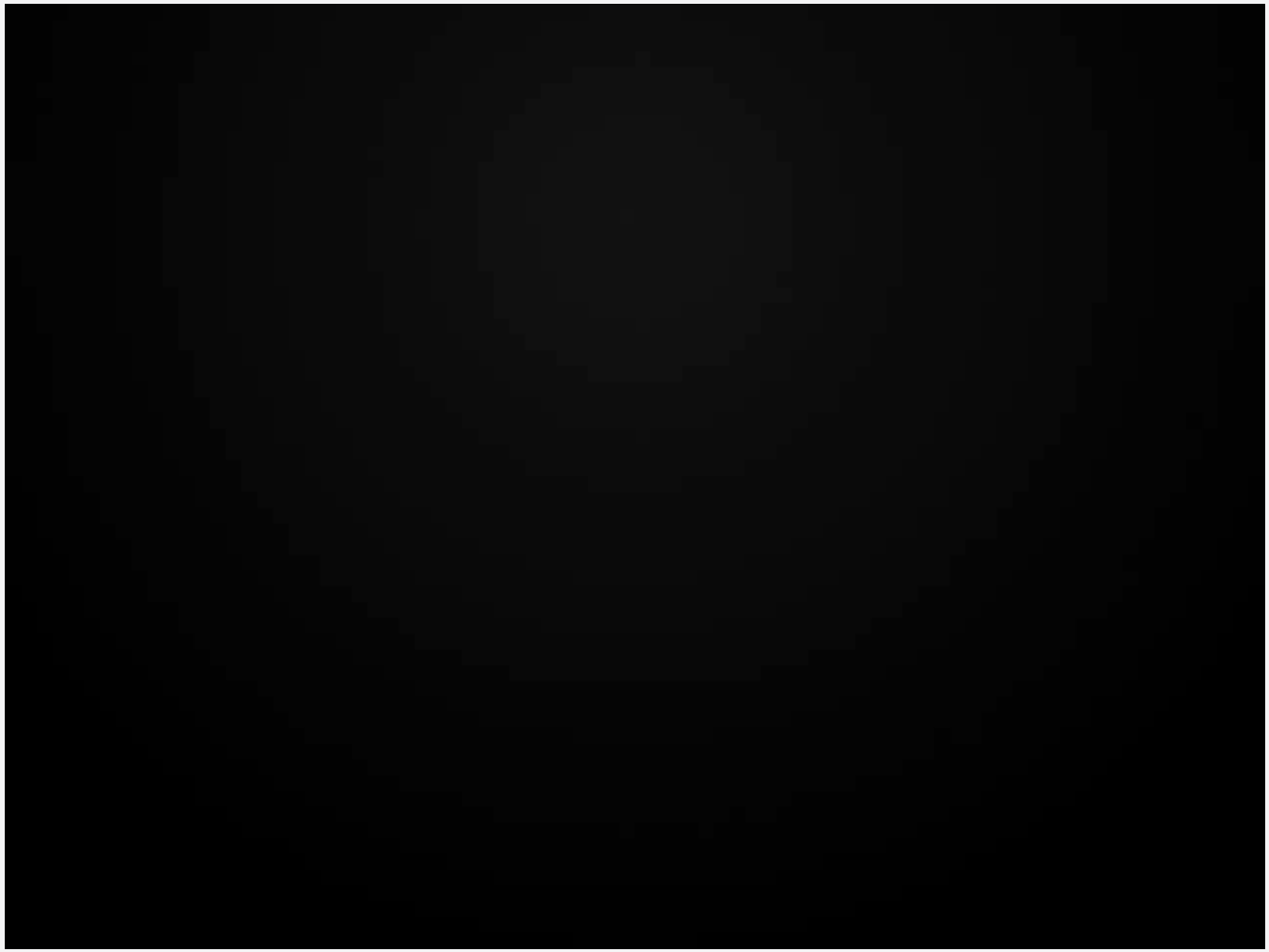
- Follow agreed upon multi-disciplinary procedures
- Routinely train and exercise together
- Build partnerships to support multi-disciplinary on-scene missions
- Work together to achieve multi-disciplinary performance goals.

Imagine A Future Where . . .

Drivers have the information and education necessary to:

- Easily avoid incident-related delays
- Always slow down and move over when approaching crash scenes
- Safely move vehicles involved in non-injury crashes out of the roadway

TIM Team



The NASCAR Pit Stop—TIM Analogy

- NASCAR: Quicker pit stops = the difference between winning and losing
- 1960: 45 seconds (4-prong lug wrench)
- 1963: 25 seconds (air/impact wrench)

Training – Practice – Technology

- 1990s/Today: 12 seconds

"Have we gotten stuck at 25 seconds?"

NUG Strategies

CROSSCUTTING

- TIM Partnerships and Programs
- [illegible]
- [illegible]
- [illegible]
- Effective TIM Policies
- Awareness and Education Partnerships

RESPONDER SAFETY

- Recommended Practices for Responder Safety
- Move Over/Slow Down Laws
- Driver Training and Awareness

SAFE, QUICK CLEARANCE

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

PROMPT, RELIABLE COMMUNICATIONS

- Multidisciplinary Communications Practices and Procedures
- Prompt, Reliable Responder Notification
- Interoperable Voice and Data Networks
- Broadband Emergency Communications Systems
- Prompt, Reliable Traveler Information Systems
- Partnerships with News Media and Information Providers

The following NTIMC member organizations have fully ratified the NUG.

AASHTO American Association of State Highway and Transportation Officials

[illegible] Association of Public Safety Communications Officials

CVVFA/ERSI Cumberland Valley Volunteer Fire Association/Emergency Responder Safety Institute

I-95 CORRIDOR COALITION

IAFC International Association of Fire Chiefs

IFSTA International Fire Service Training Association

ITE Institute of Transportation Engineers

ITS AMERICA Intelligent Transportation Society of America

NASEMSO National Association of State EMS Officials

NENA National Emergency Number Association

NVFC National Volunteer Fire Council

TRAA Towing and Recovery Association of America

The following NTIMC member organizations have endorsed the NUG at a policy committee level; full ratification was pending as we went to press in the summer of 2007.

AAA American Automobile Association

IACP International Association of Chiefs of Police

National Traffic Incident Management Coalition

National Unified Goal

Working Together for Improved Safety, Clearance and Communication

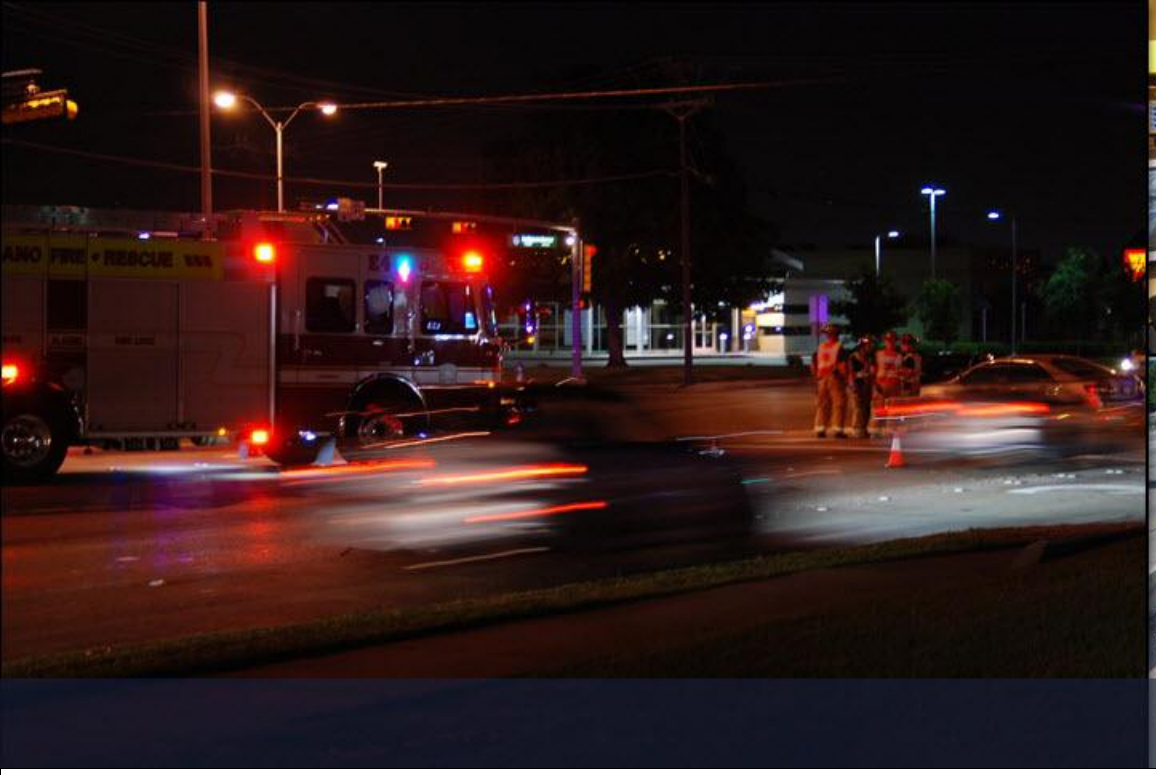
ntimc
National Traffic Incident Management Coalition

www.timcoalition.org

Termed the National Unified Goal or the NUG

Course Lessons

0. Course Introduction
1. Statistics, Terminology, and Standards
2. Notification and Response
3. Arrival
4. Initial Size-Up
5. Command Responsibilities
6. Safety and Investigation
7. Traffic Management
8. Removal
9. Termination
10. Hands-On Activity
11. Situational Awareness

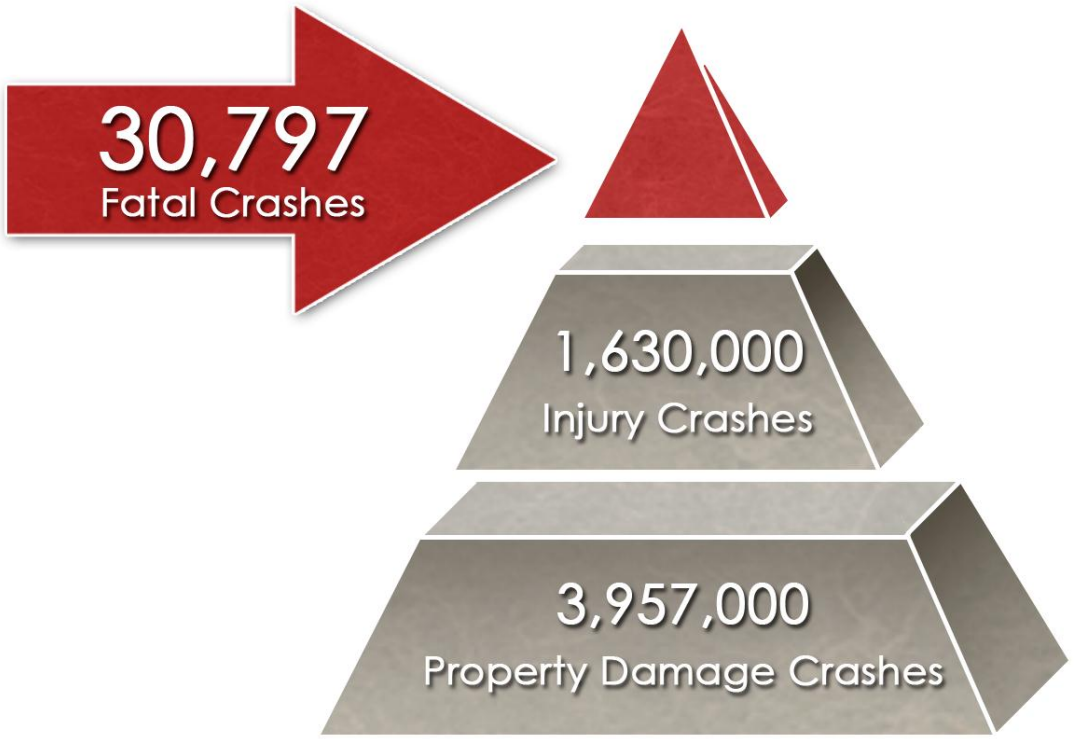


Lesson 1: Statistics, Terminology, and Standards

Lesson Objectives

- Recognize incident statistics
- Restate NIMS-compliant core industry terminology for each discipline group
- List the principle laws that relate to Quick Clearance
- Recall the terminology used to describe roadways
- Identify the principles discussed in the MUTCD
- Arrange the phases of incident response or duties in chronological order as taught in the course

The Crash Pyramid



Three injury crashes every minute, 24/7.

Injury Crash

Each injury crash can require…

- ✓ 2 LE
- ✓ 4 F/R
- ✓ 2 EMS
- ✓ 1 T&R

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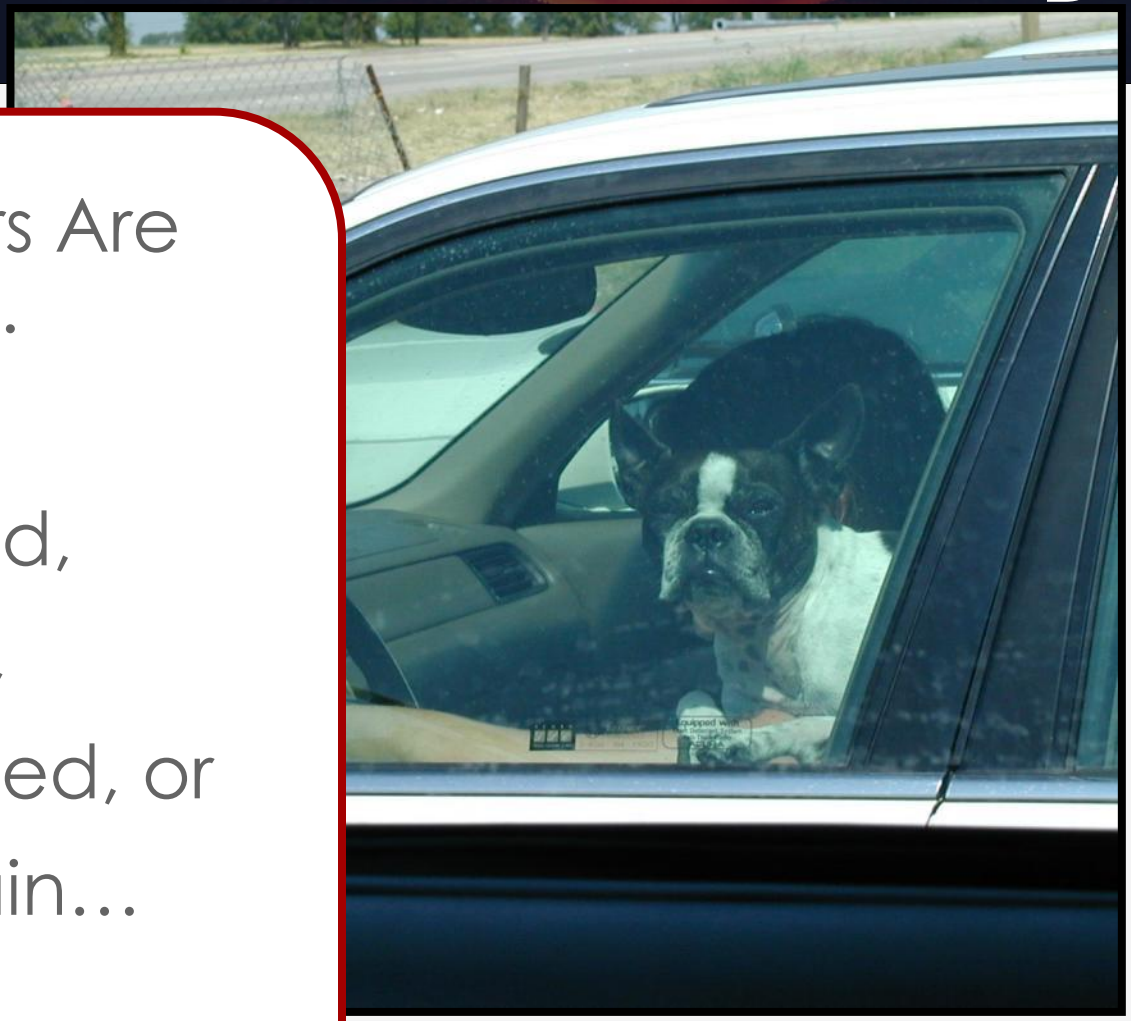
9 Responders

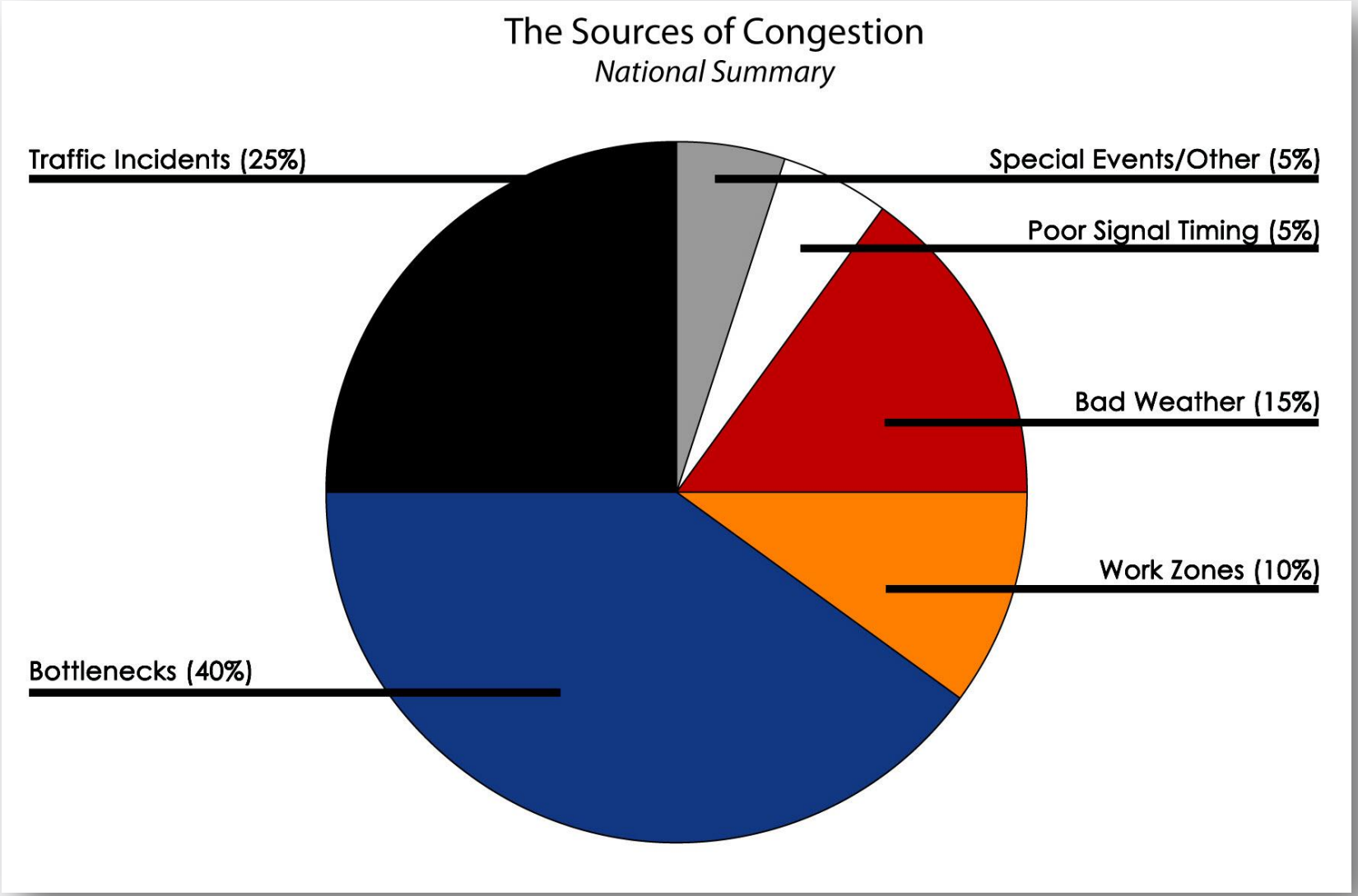
“D” Drivers



“D” Drivers Are Killing Us…

- ✓ Drunk,
- ✓ Drugged,
- ✓ Drowsy,
- ✓ Distracted, or
- ✓ Just plain… Dumb

Sources of Congestion



Safe, Quick Clearance…

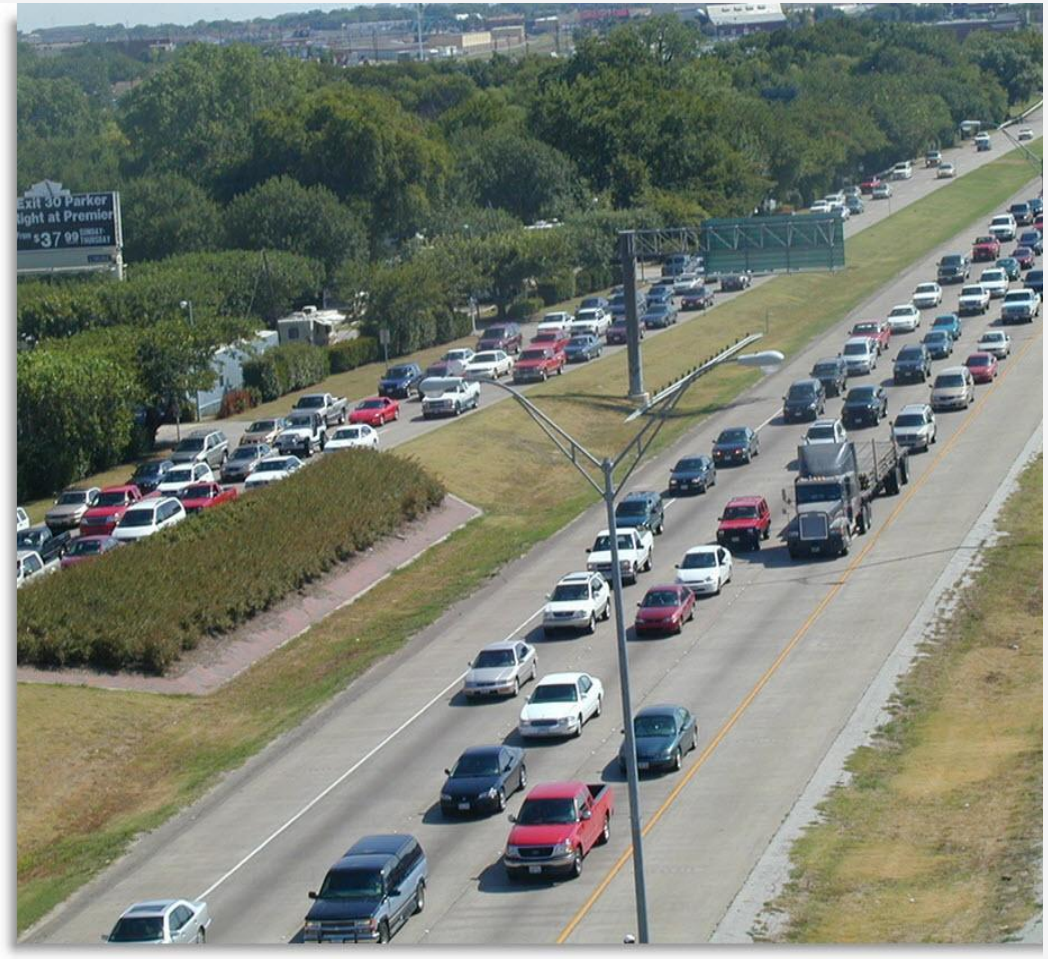
Second of the three main NUG objectives, it is the practice of rapidly, safely, and aggressively removing temporary obstructions from the roadway.

- Disabled vehicles
- Wrecked vehicles
- Debris
- Spilled cargo

Safe, Quick Clearance

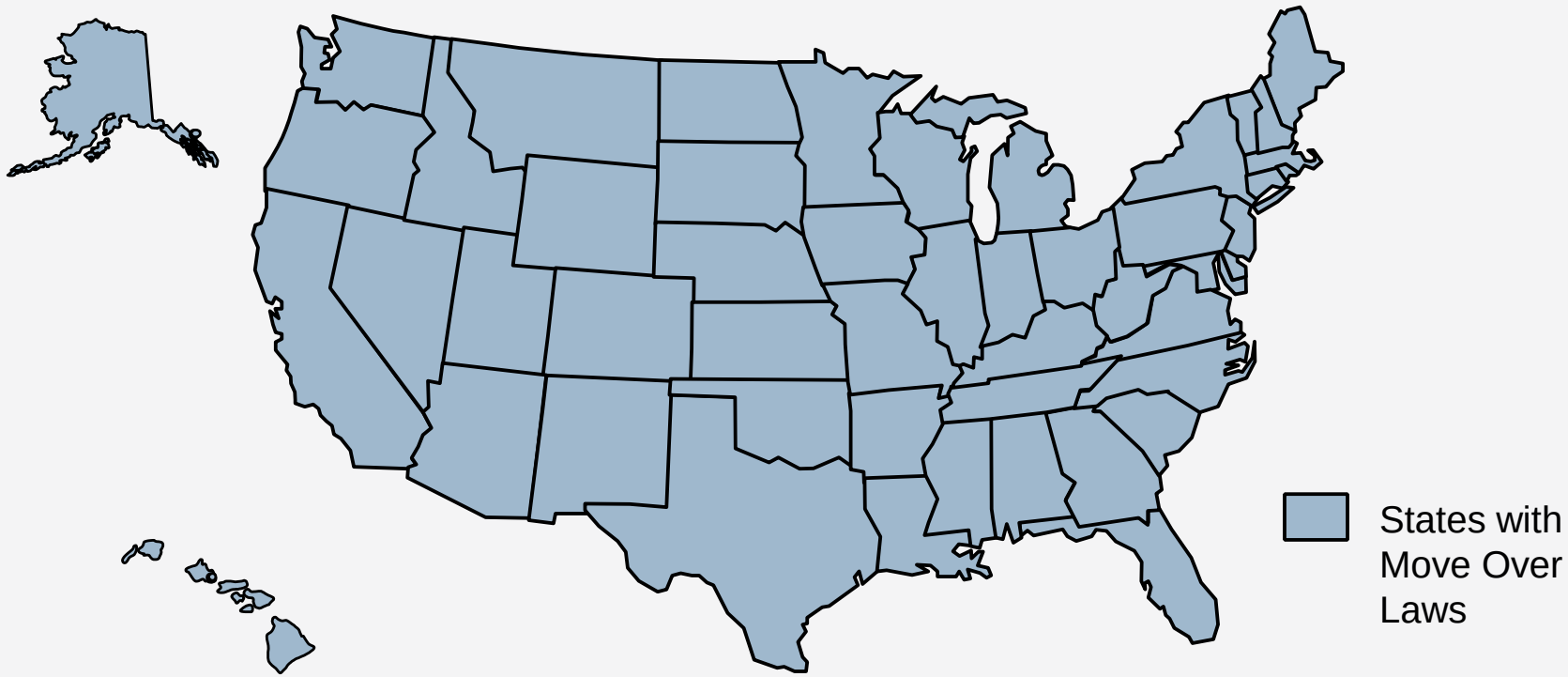
Goals

- Restore the roadway to its pre-incident capacity as quickly and safely as possible
- Minimize motorists delays though traffic control, lighting, and opening of lanes
- Make effective use of all clearance resources
- Enhance the safety of responders and motorists
- Protect the roadway system and private property from unnecessary damage during the removal process



Move Over Laws

Designed to protect incident responders and stranded motorists alike, "Move Over" laws require motorists approaching incident responders and vehicles to slow down and move over to an adjacent lane, when possible, to provide an increased safety buffer



Driver Removal

- Fender Bender, Move It, Steer Clear, Steer It, Clear It
- **Minor**, **non-injury** crashes, **drivers** exchange information, and **move vehicles** from travel lanes
- Often contain a Hold Harmless clause
- **Dispatch** should **encourage motorists** to **move** the vehicles

Authority Removal

- Public agencies **may clear** damaged or disabled vehicles and spilled cargo from the roadway
- Serious injury or fatality **does not** always preclude removal
- Often contain a Hold Harmless clause
- Implemented in half of U.S. states

Lane Designation Terminology

TRAFFIC INCIDENT RESPONSE
LANE DESIGNATION TERMINOLOGY

ntimc
National Traffic Incident Management Coalition

Objective

State, regional, and local responders often use distinct terminology when communicating the location of crashes or response vehicles on roadways. Disparate terminology in communications could potentially lead to confusion on the scene, impact responder and victim safety, and adversely affect emergency response and traffic clearance times. The goal of this document is to provide a common terminology for adoption as needed by responding agencies during traffic incidents to identify incident location and the preferred position for arriving response vehicles and equipment. The National Traffic Incident Management Coalition and the TIM Network support adoption of this terminology to coordinate multidisciplinary response to incidents.

Terminology[1]:

- Traffic incident responders use plain English where possible to identify incident location and lane designations. On roadways with 3 or less lanes, they are named left, center, and right when facing in the direction of traffic flow.
- When roadways have more than 3 lanes in any one direction, the lanes shall be identified and labeled with numbers, starting with the far left lane.
- When using lane numbers, the far left lane shall be called "Lane 1". Each lane to the right is numbered sequentially 2 through n.
- Shoulders should be identified using "right/left" and/or "inside/outside" and the term "shoulder". The left shoulder is the inside shoulder and the right shoulder is the outside shoulder. ie. inside (or left) shoulder, southbound interstate 75.
- Responders should also indicate the relative direction of travel (e.g. northbound or southbound) along with other incident location detail and any specific position assignments. For example an incoming unit might be told to safe park or "block upstream of the incident in Northbound (NB) Highway 75 Lane 3 and right shoulder".
- Separated, high occupancy vehicle (HOV) or high occupancy toll (HOT), car pool, or bus only lanes that are physically separated shall be designated as HOV1 northbound (NB), HOV2, HOT1, HOT2, etc. as appropriate.
- If the incident is located before the merge point it shall be considered a separate roadway and identified as such, ie. left hand exit ramp.
- The term "upstream" is defined as before the incident point or area. The term "downstream" is defined as past or beyond the incident point or area when facing in the direction of traffic flow.

1 Terminology is adapted from The California Highway Patrol system to communicate regarding incidents on roadways was used as the primary source during terminology and recommendation of this system.

Related National Unified Goal Strategies

Objective 1:
Responder Safety

Strategy 7. Recommended Practices for Responder Safety.
Recommended Practices for Traffic Incident Management Responder Safety and for traffic control at incident scenes should be developed, and widely published, distributed and adopted.

Objective 2:
Safe, Quick Clearance

Strategy 10. Multidisciplinary TIM Procedures.
Traffic Incident Management partners at the state, regional and local levels should develop and adopt multidisciplinary procedures for coordination of Traffic Incident Management operations, based on national recommended practices and procedures.

Objective 3:
Prompt, Reliable Incident Communications

Strategy 13. Multidisciplinary Communications Practices and Procedures.
Traffic incident responders should develop and implement standardized multidisciplinary traffic incident communications practices and procedures.

U.S. Department of Transportation
Federal Highway Administration

the tim NETWORK

for MORE INFORMATION CONTACT

TERMINOLOGY DEVELOPMENT PROCESS

The Lane Designation Terminology was developed with input from and coordination with the TIM Network and the National Traffic Incident Management Coalition (NTIMC). Initially the California Highway Patrol system to communicate regarding incidents on roadways was used as the primary source during terminology and recommendation of this system; many other locations also use a similar system to communicate. Members of the NTIMC Practices and Procedures assembled and refined the initial version of the terminology; with input from the responder practitioners on the TIM Network and the NTIMC providing further comments and suggestions. A draft final version of the terminology was vetted among NTIMC member representatives for approval in September 2010; the group recommended publication of the terminology as a resource for multidisciplinary responders looking to adopt a common terminology for lane designation during response to traffic incidents

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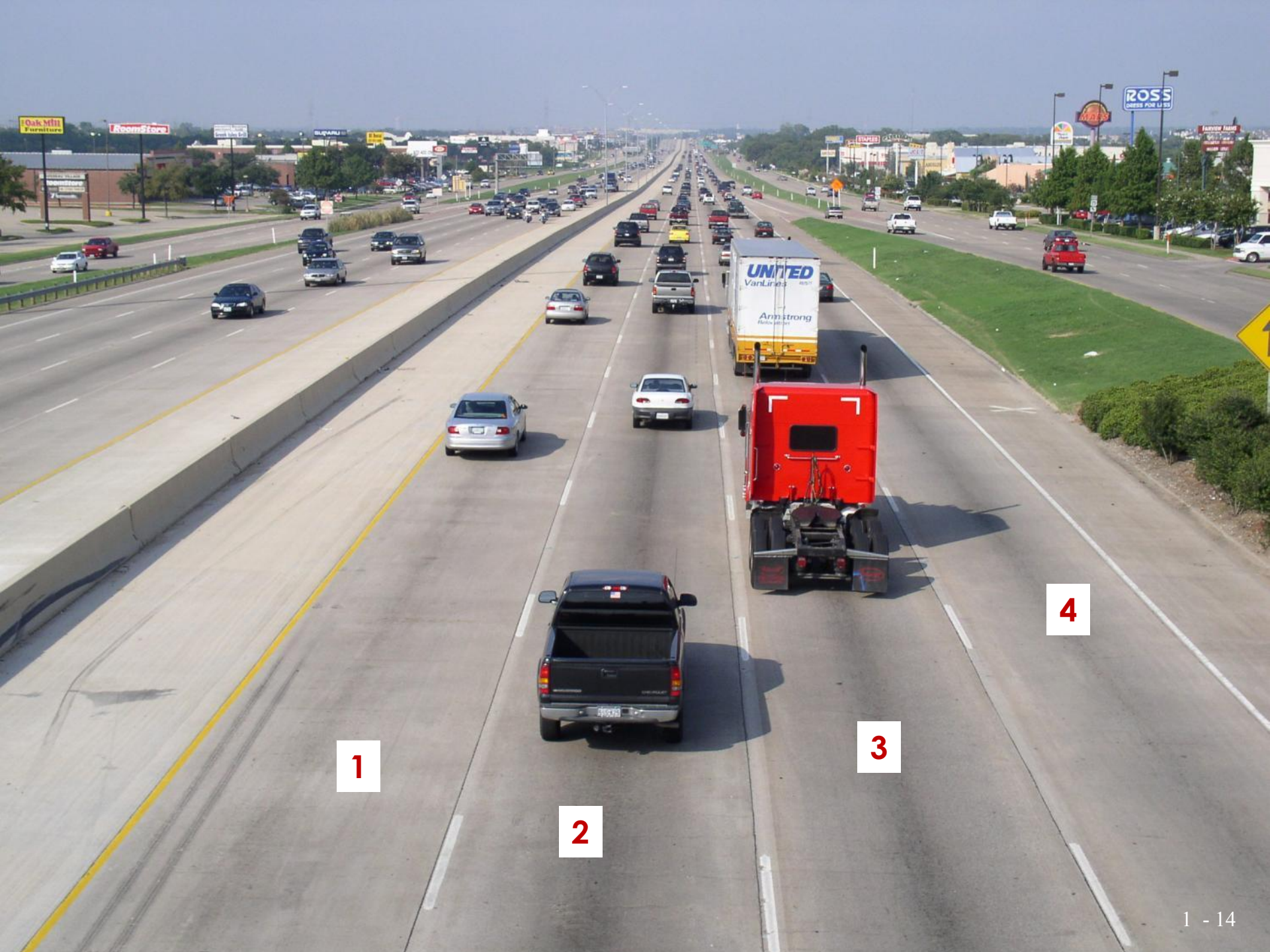
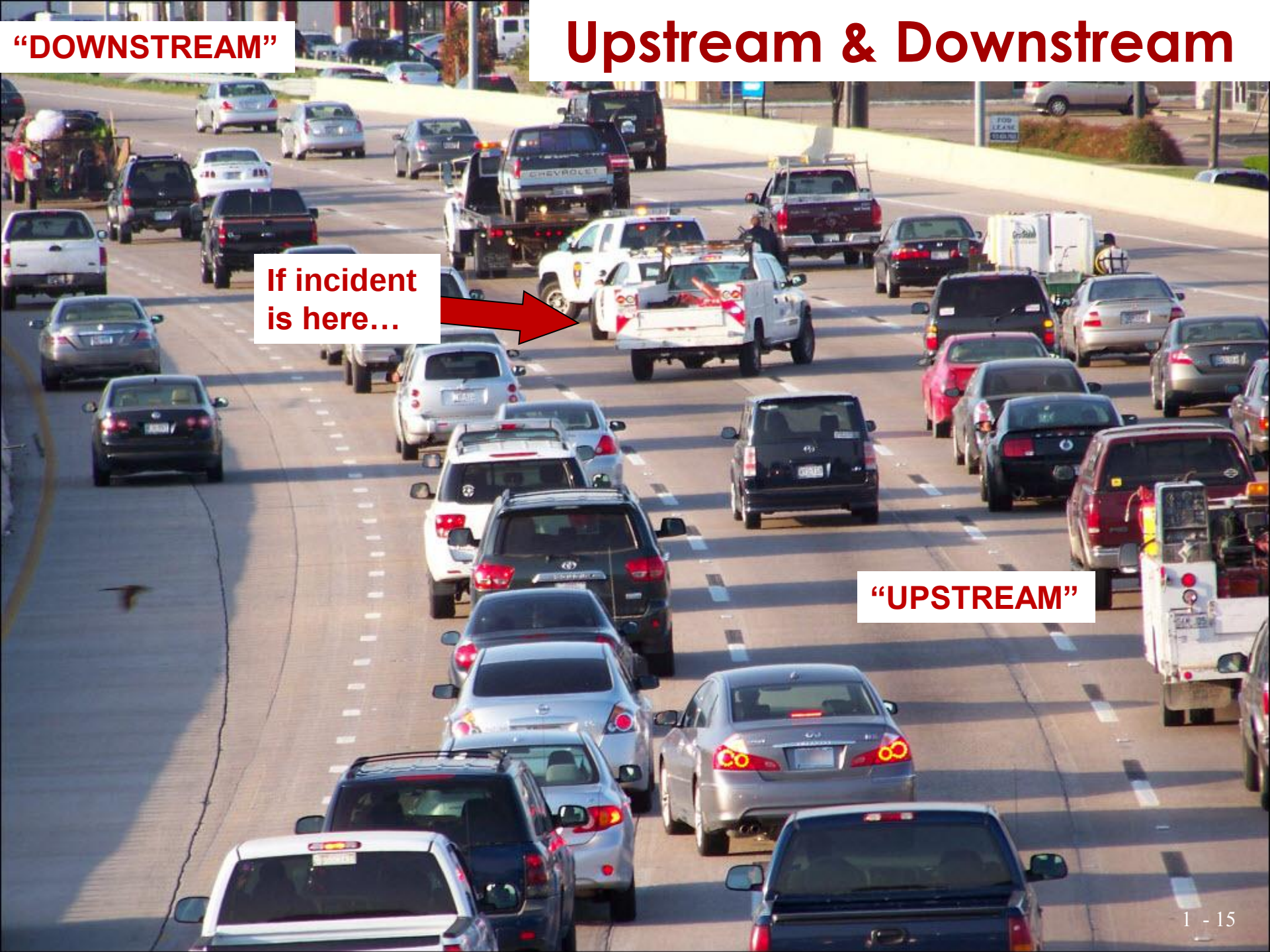
ntimc
National Traffic Incident Management Coalition

Visit timcoalition.org to access the formal General Membership Meeting minutes


Left shoulder
'Inside'
Left Lane
Left Center Lane
Right Center Lane
Right Lane
'Outside'
Right shoulder


Oak Mill Furniture
RoomStore
SUBARU
ROSS
UNITED
VanLines
Armstrong
1
2
3
4

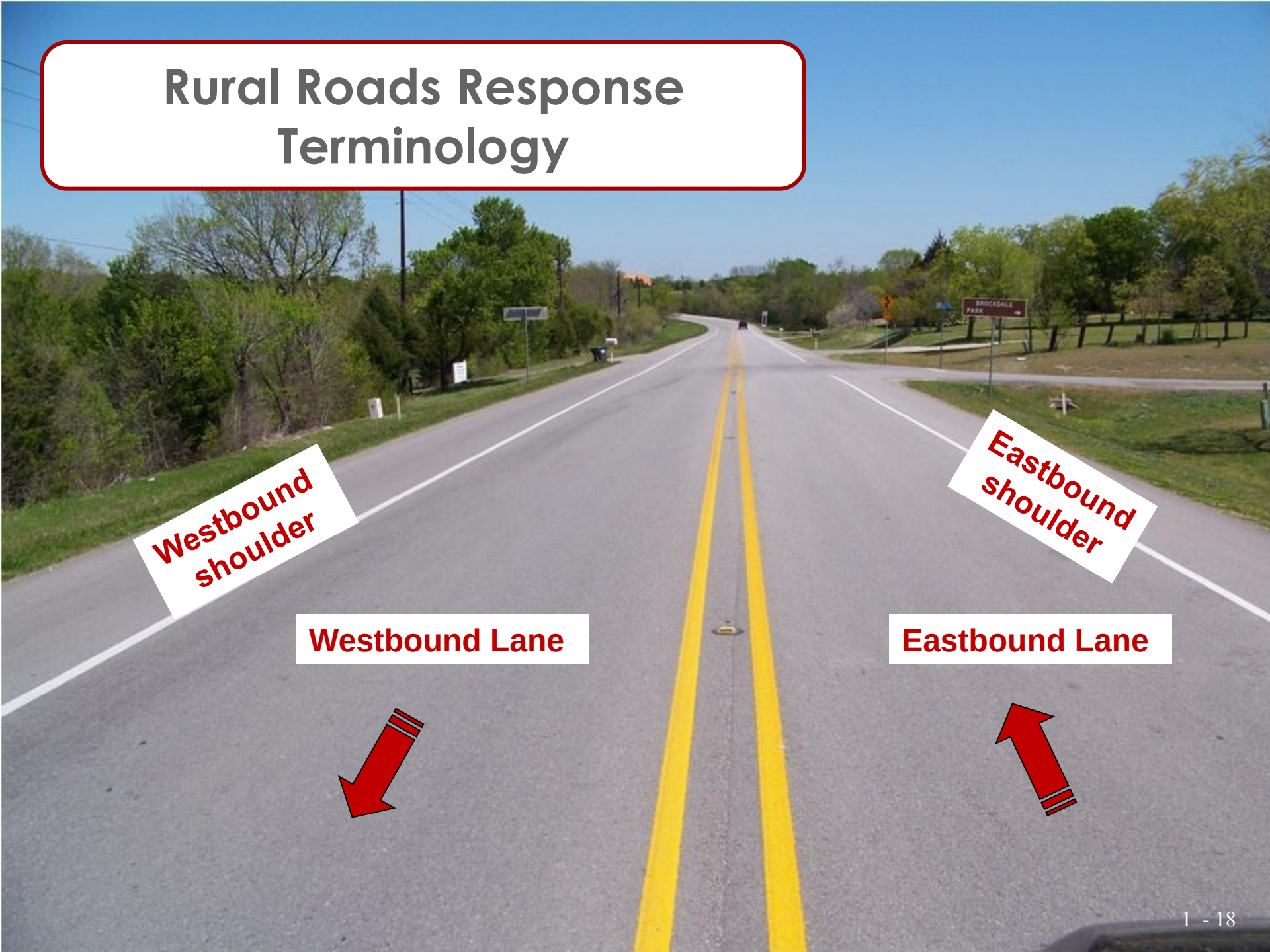
Upstream & Downstream




Describe this location
INCIDENT HERE
EAST
Highway "Y"
NORTH
WEST
Highway "X"
SOUTH


INCIDENT HERE
EAST
Highway "Y"
WEST
Highway "X"
SOUTH

Rural Roads Response Terminology

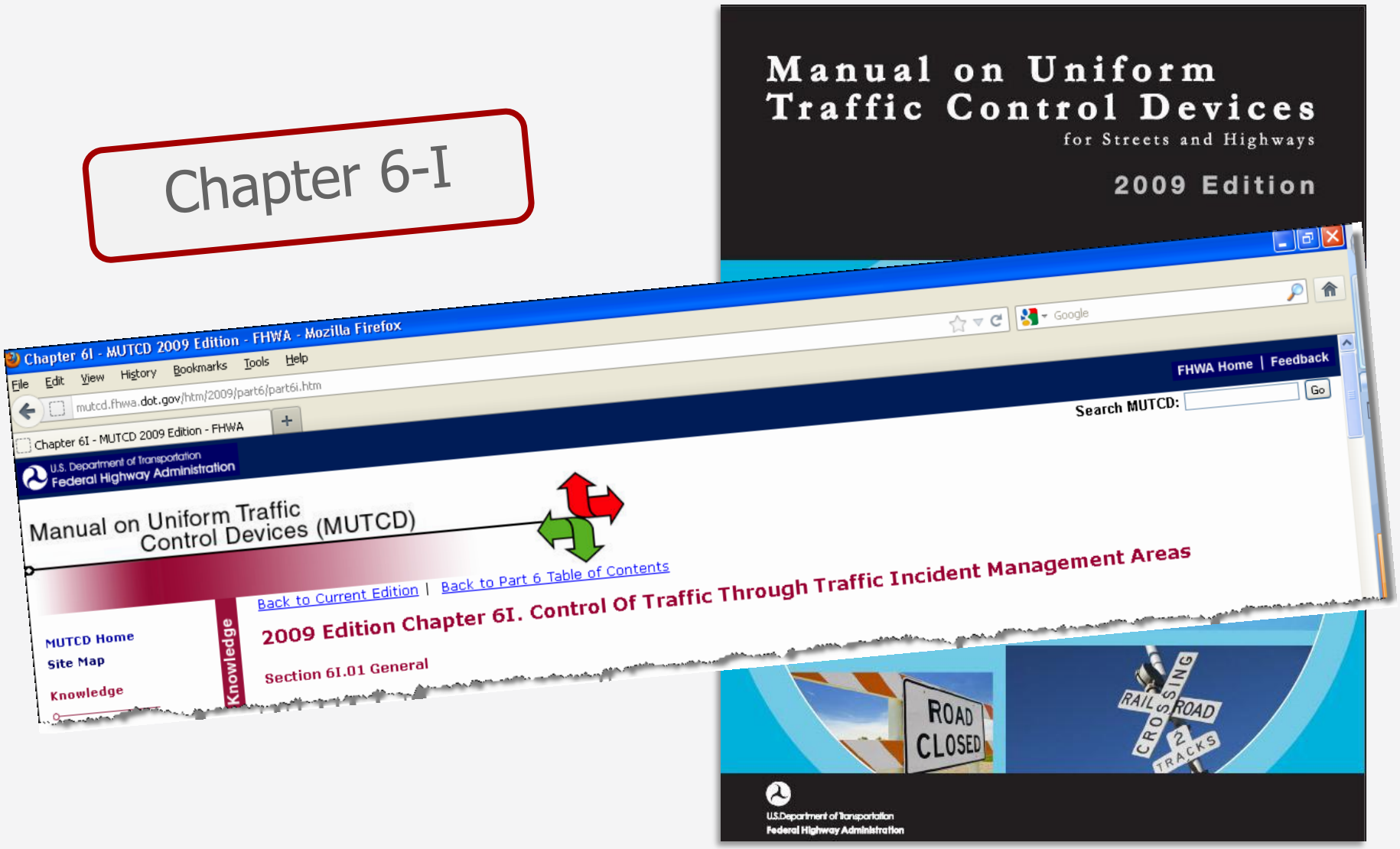


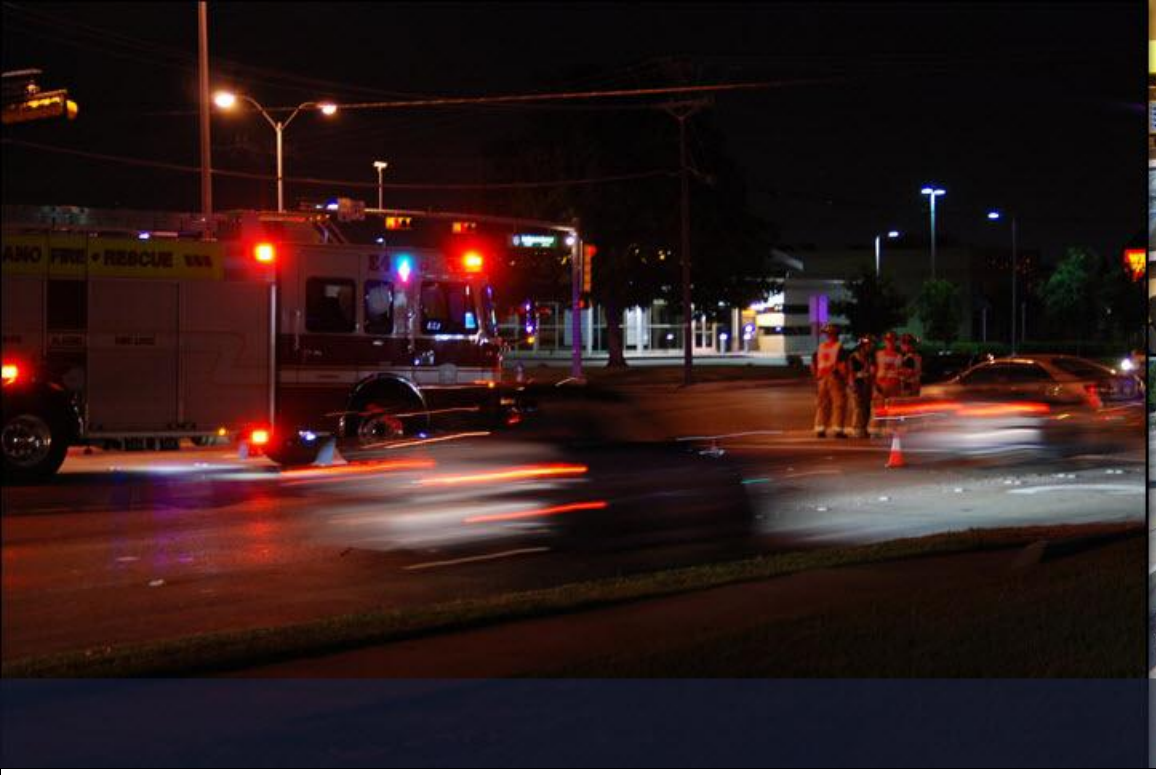
Communication

Accurate, clear **communication**, means responders arrive at the scene sooner and **clear** the incident **sooner** meeting **quick clearance** goals and improving **safety** for themselves and accident victims.

Manual on Uniform Traffic Control Devices (MUTCD)

Chapter 6-I

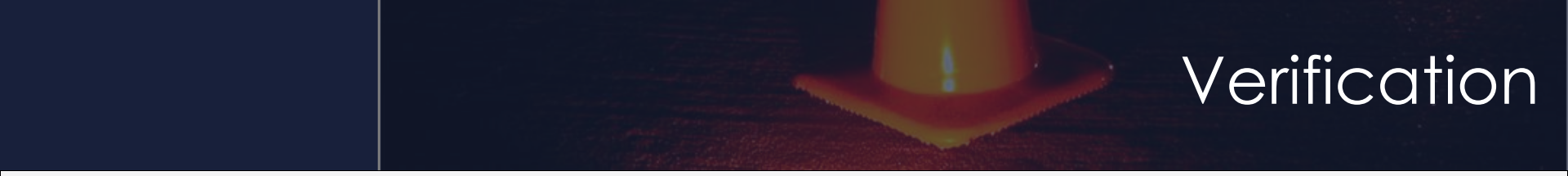




Lesson 2:
Notification & Response

Lesson Objectives

- List the sequence of events that occur up to the point when responders first arrive at the incident scene
- Recognize the importance of the role that Dispatchers or traffic control center operators play in the Notification process



Verification

Verification involves collecting sufficient information on the nature of the incident including identifying:

- Type and level of incident
- Exact physical location
- Number of vehicles involved
- Lanes affected
- Injuries, entrapment
- Color and type of vehicles involved

Determining the Incident Location

- Passing motorists frequently report a location that is **downstream** of the actual incident on a limited access highway.
- When an incident is reported by a citizen caller, knowing the **color and type** of the vehicles is valuable.

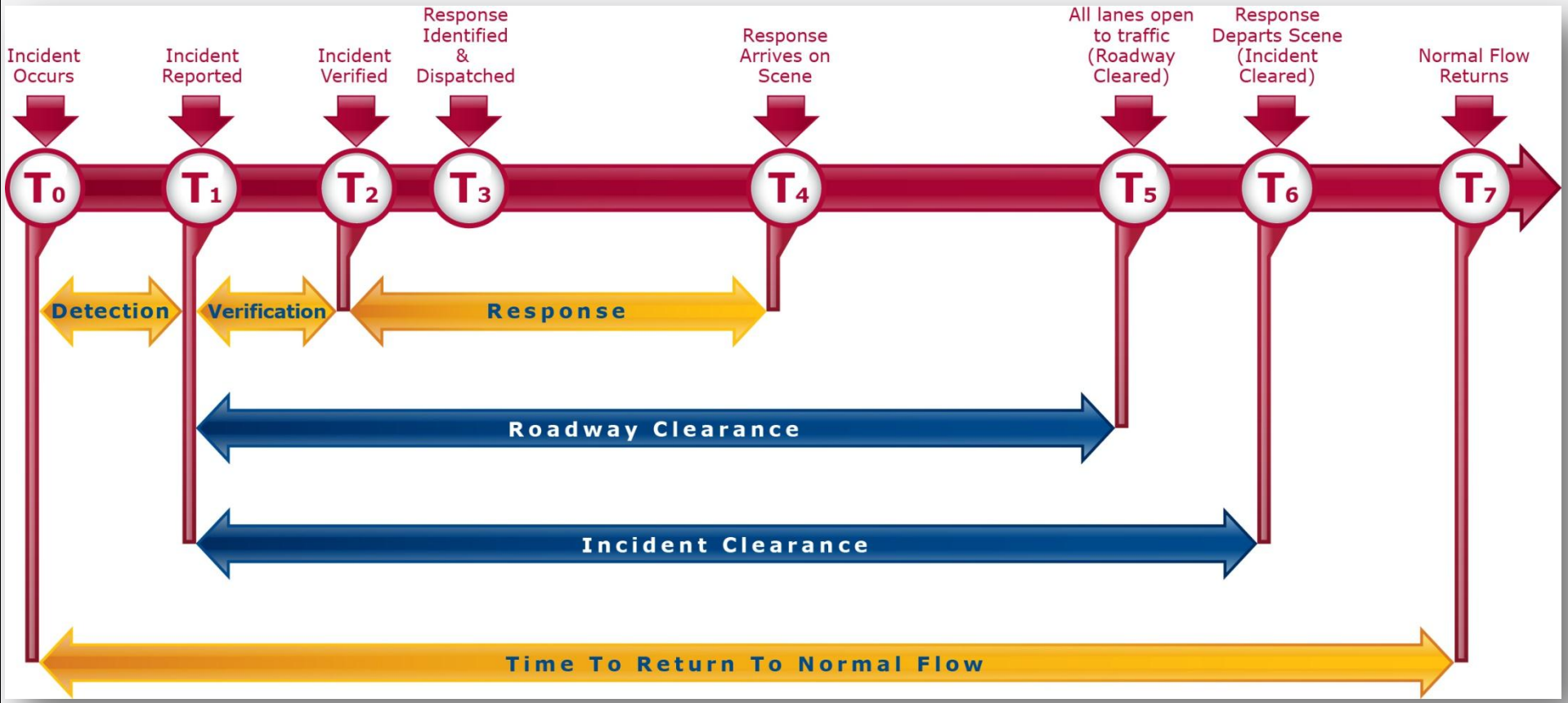
Determining the Incident Location

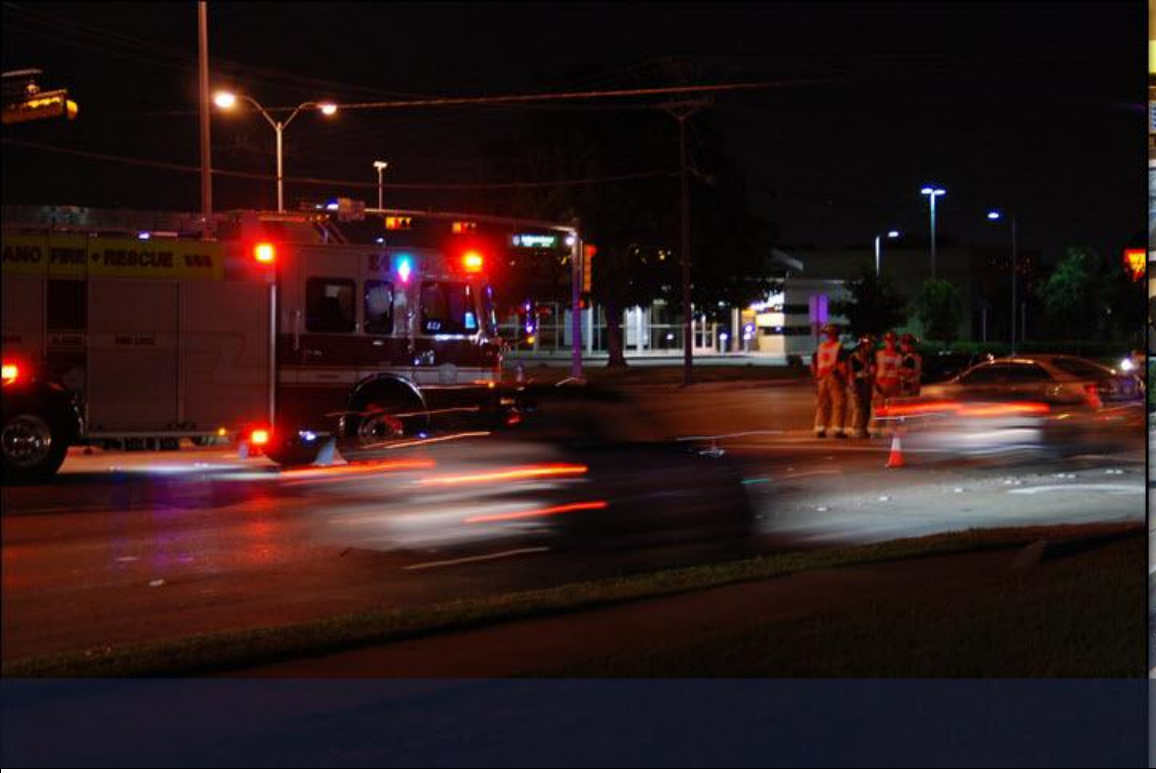
- On limited access highways, query the calling party to identify the **specific geographic location** of the incident referencing highway mile markers, nearest exit/entrance ramp signs, etc.
- Instruct motorists to **move vehicles off the roadway** if there are no injuries.
- Once verified, responders receive **notification to respond**.

Accuracy and Detail

The more **accurate** and **detailed** the information obtained, the **faster** the **response** and **quicker** the **clearance**.

TIM Timeline





Lesson 3: Arrival

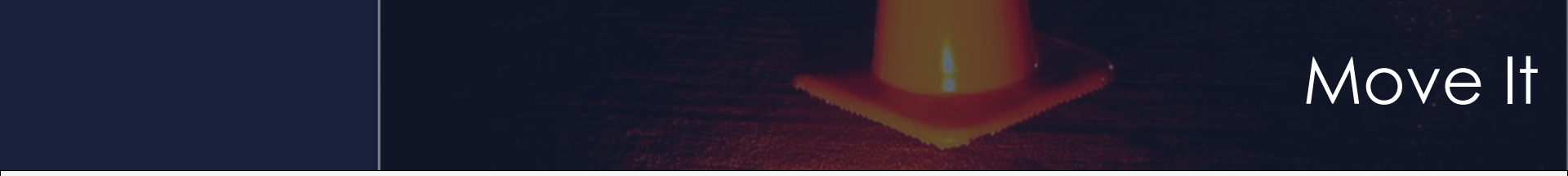
Lesson Objectives

- Differentiate between ‘Move It’ and ‘Work It’ incidents
- Restate the steps required to achieve vehicle positioning that complies with MUTCD standards
- Restate the correct approach methods when arriving at a scene, including safely parking the responder unit and use of emergency lighting
- Summarize communications that may occur during the Arrival phase of incident response
- Describe the characteristics of the three classes of ANSI 107 standard highway safety vests (PPE) and describe characteristics of ANSI 207 standard highway safety vests
- Enumerate the ways in which responders can retain situational awareness when exiting their vehicle and approaching the incident

Move It or Work It?

Move It: This refers to moving vehicles involved in an incident to a secondary location before being worked.

Work It: This refers to a situation where the vehicles involved cannot be moved to a secondary location before being worked.



Move It

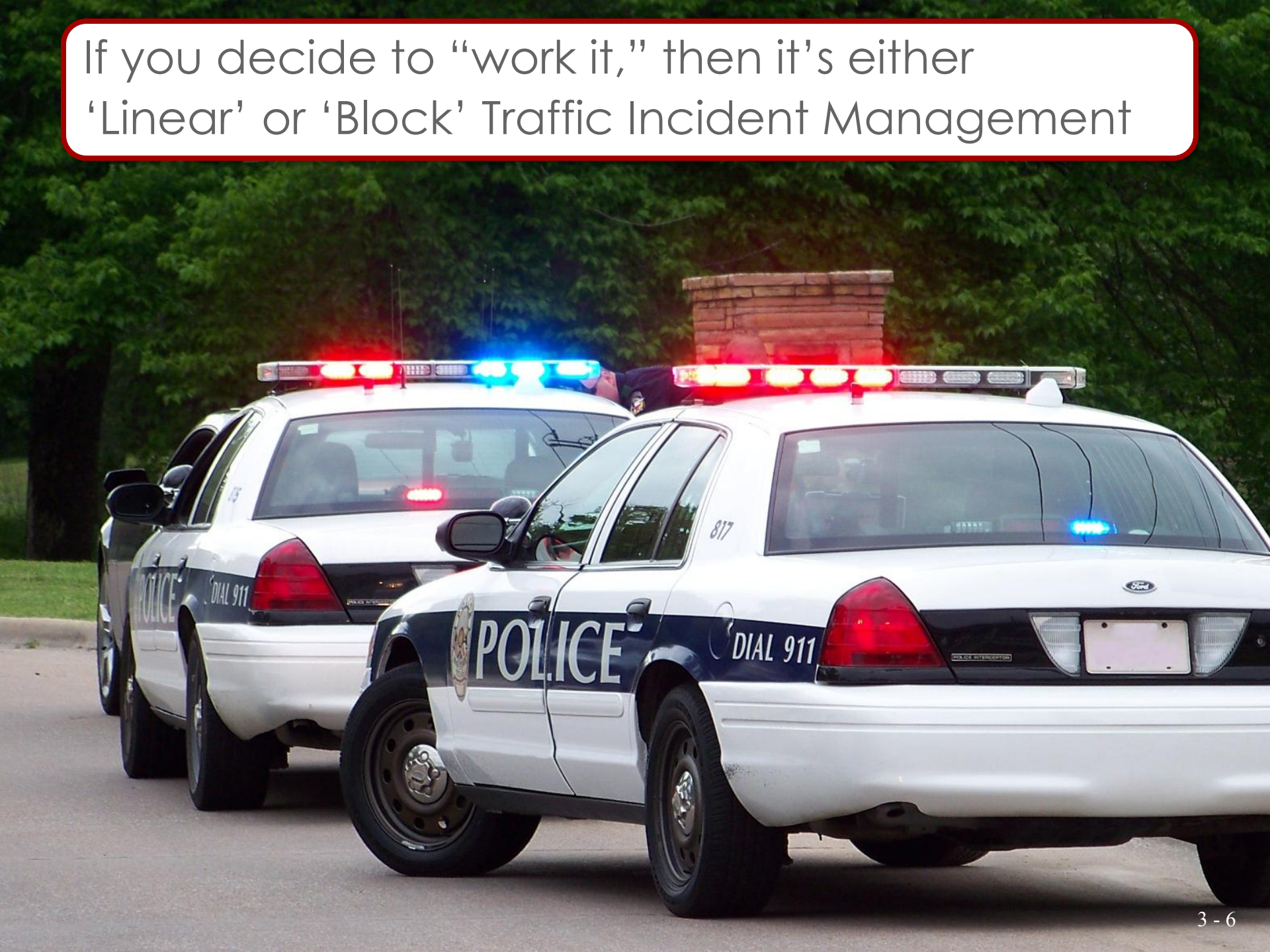
When possible, **moving** the incident is preferred since it **clears** the incident from the roadway and obstructs traffic less—a very effective **quick clearance** strategy.

Linear/Block Tactical Positioning

Linear Positioning: This means that incident responder vehicles are positioned in a straight line at the incident scene.

Block Positioning: This means that incident responder vehicles are positioned at angles that create a protected work area for responders and vehicle occupants.

If you decide to "work it," then it's either 'Linear' or 'Block' Traffic Incident Management



A ‘Linear’ truck tire repair call

A ‘Linear’ tow truck service call

“Linear” Service Patrol

A ‘Linear’ EMS call in a residential neighborhood

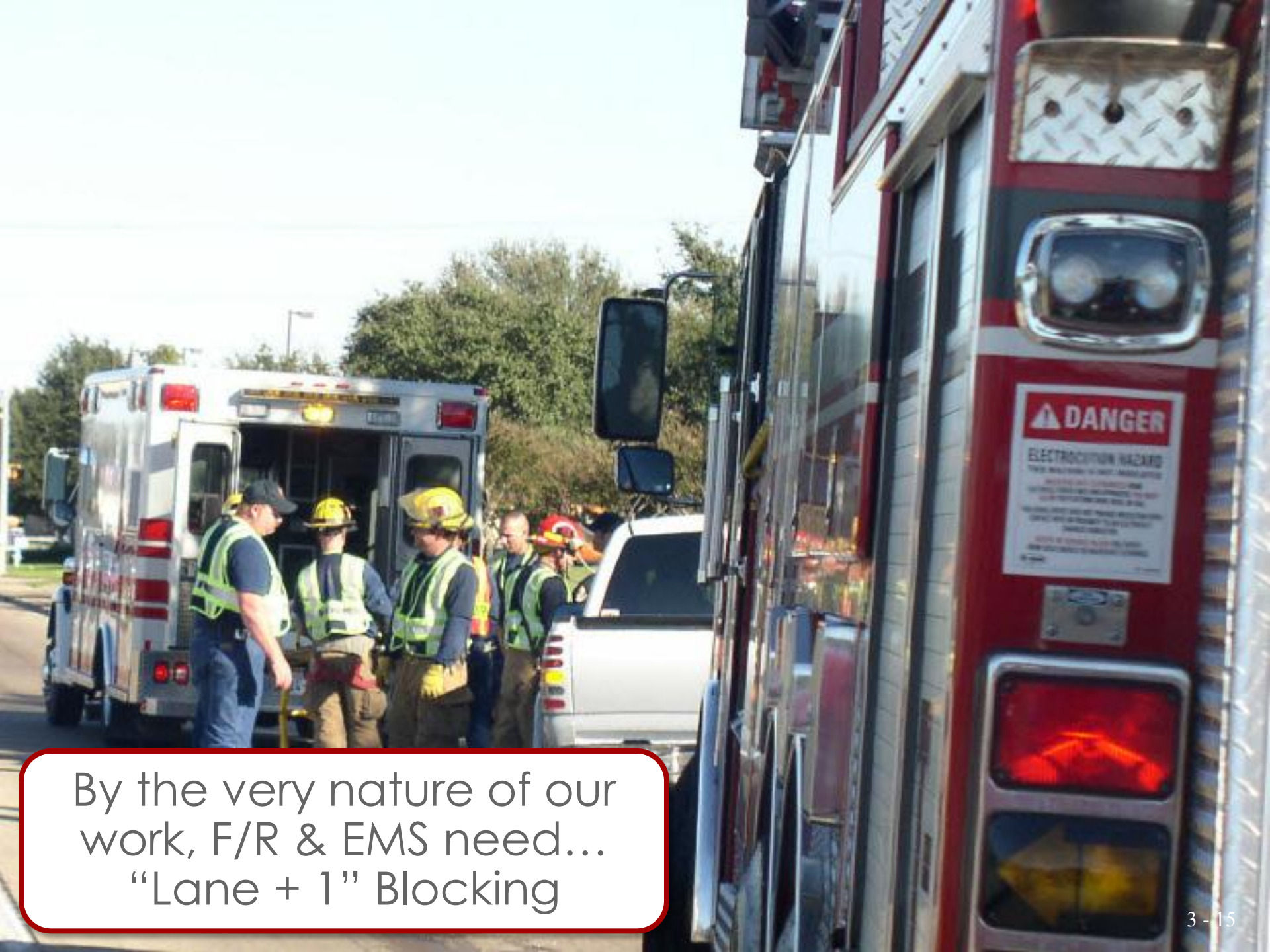
A very dangerous 'Linear' EMS incident

Taking one lane is dangerous and can **triple** the time needed to complete clearance.

Ambulance Linear Crash Scene

Lane +1 Blocking

To increase safety, use the "Lane + 1" Blocking Protocol **initially** to create an adequate "buffer" for responders



By the very nature of our work, F/R & EMS need…
"Lane + 1" Blocking


Fire Apparatus
Safe Positioning
Vehicle firefighting also requires "Lane + 1" Blocking

Progressively Re-open Lanes

Take only **as many lanes as you need**, for **only as long as you need them**. As the incident is cleared, lanes can progressively be **re-opened**.

Minivan Fuel Tank Failure

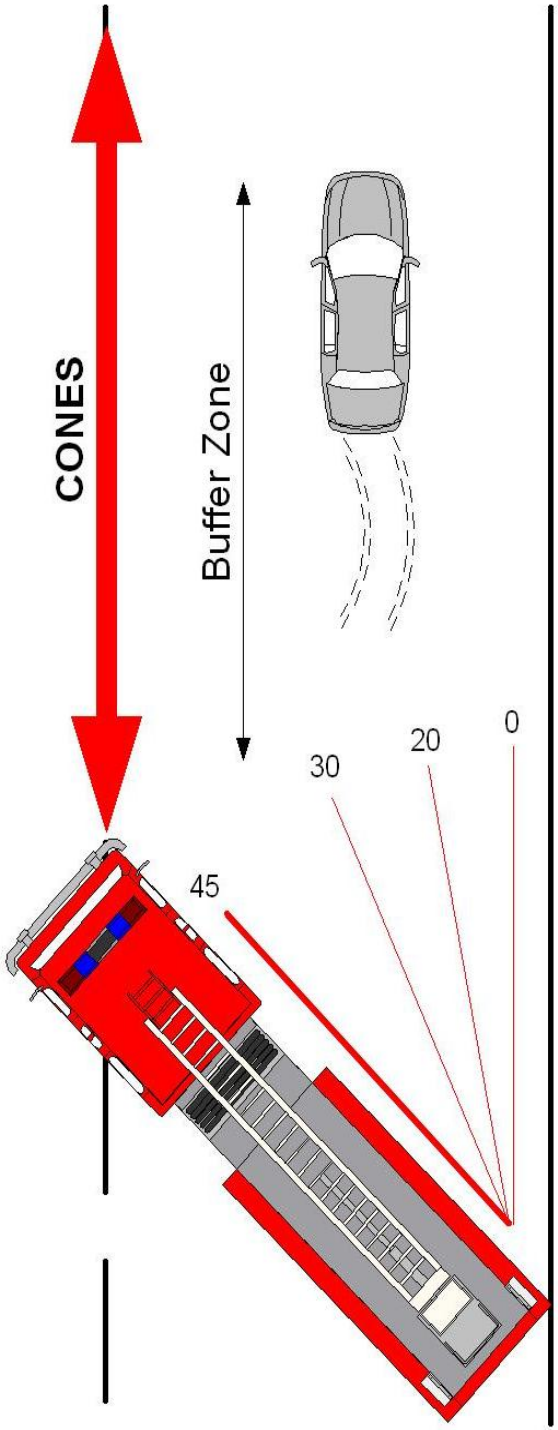
Safe Positioning begins with a ‘Block’

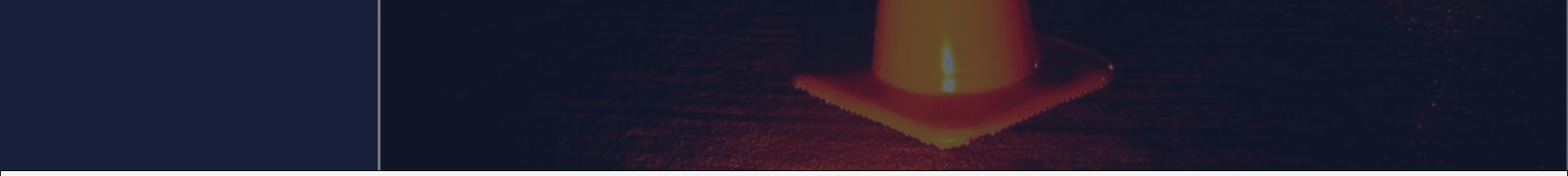
"Blocking " is the action of positioning

a vehicle

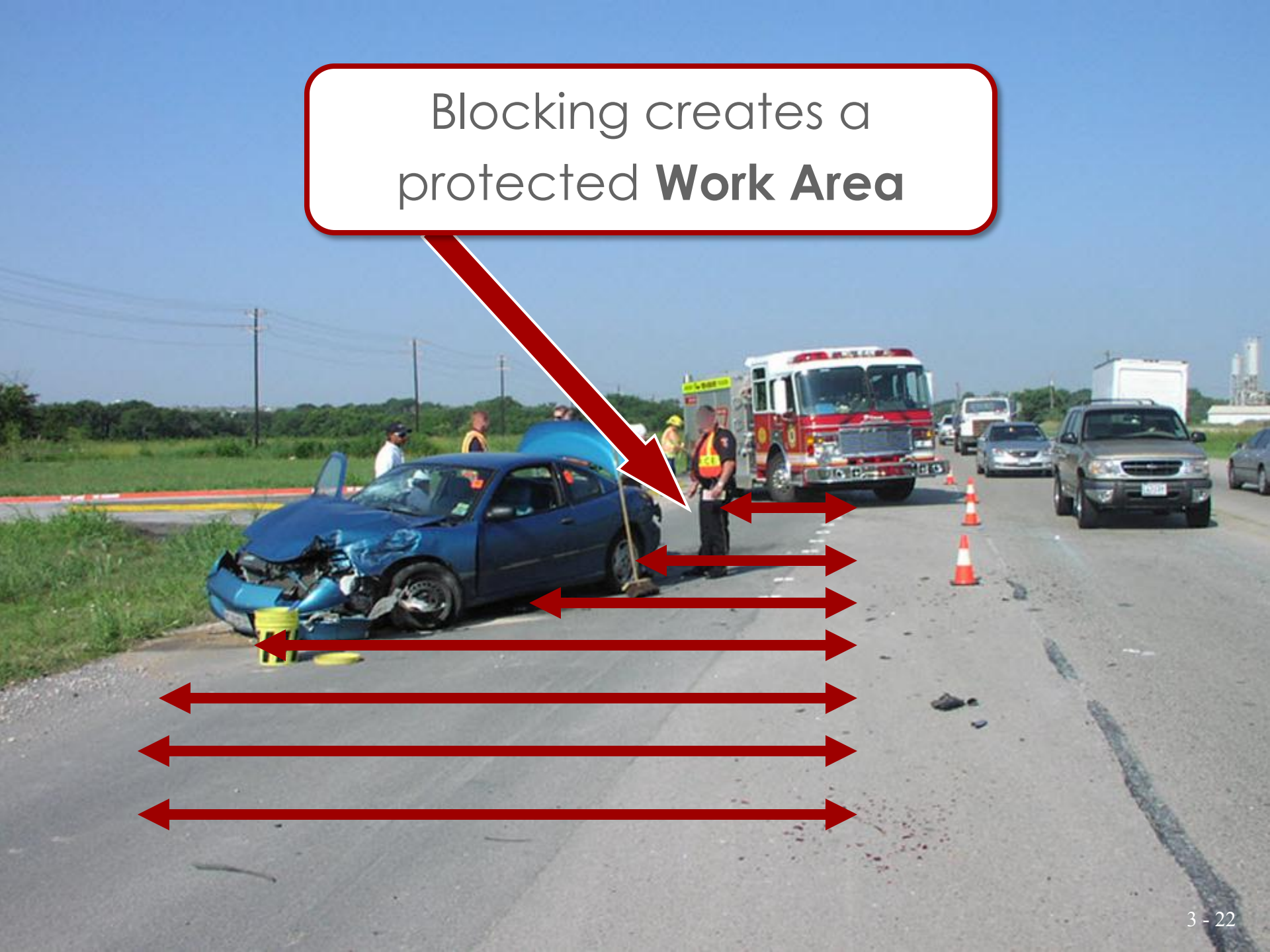
at an angle to halt the flow

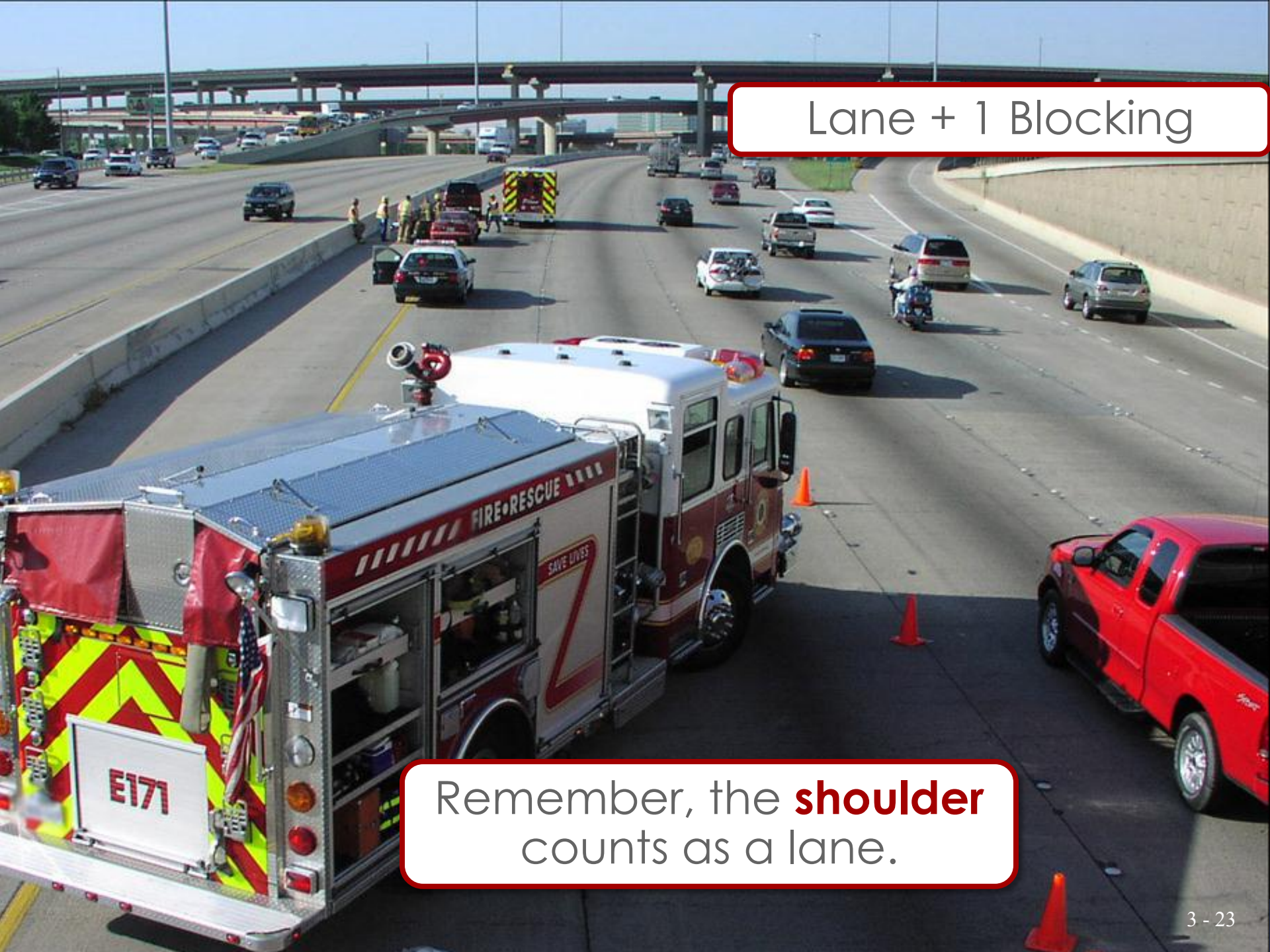
of moving traffic in one or more lanes.



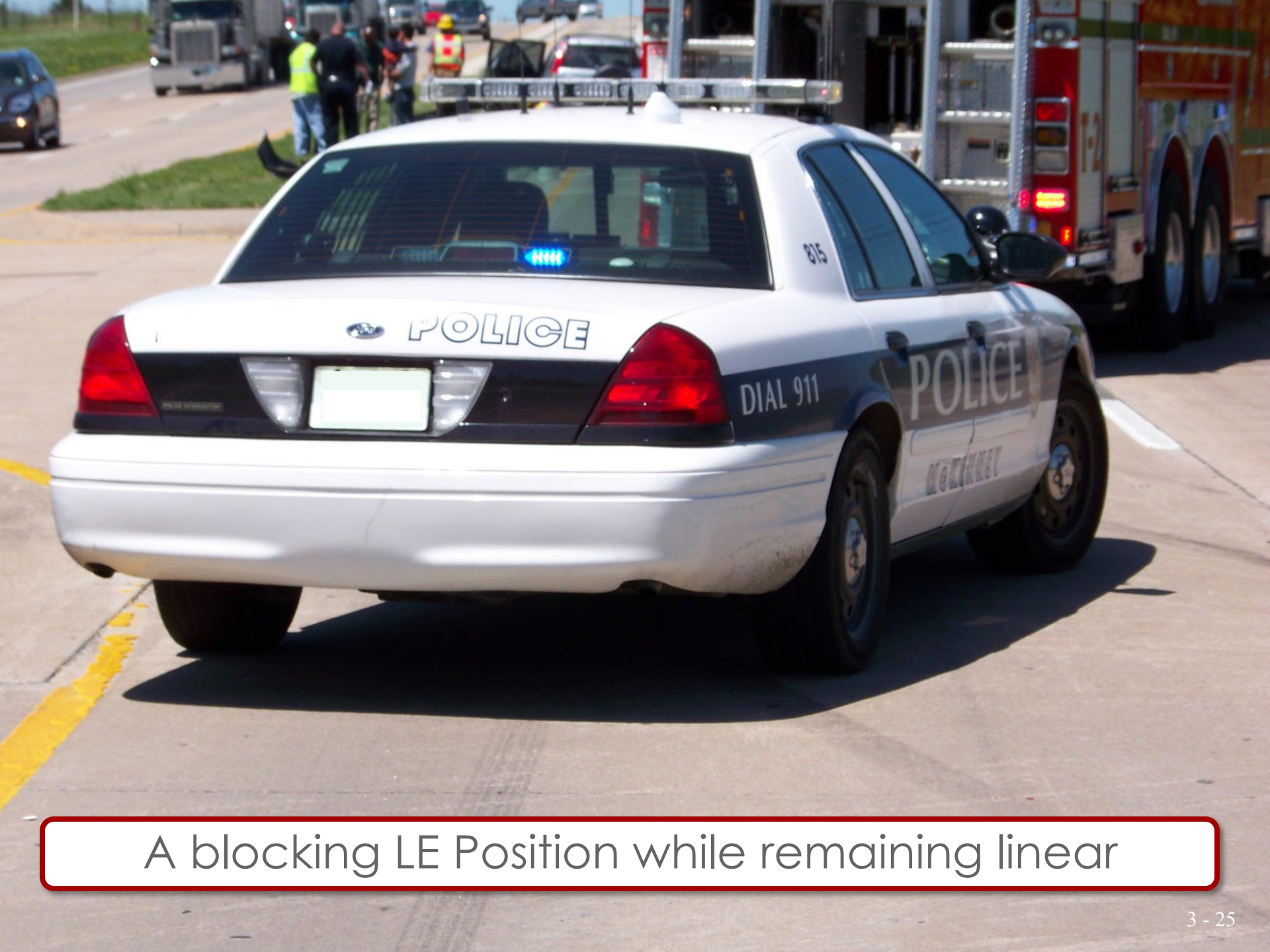


Large, heavy fire apparatus provide the best ‘Blocks’


Blocking creates a protected **Work Area**


Lane + 1 Blocking
FIRE•RESCUE
SAVE LIVES
E171
Remember, the **shoulder** counts as a lane.

Example of MUTCD-recommended blocking



A blocking LE Position while remaining linear


This **Block to the Right** is effective even though traffic must move to the left.

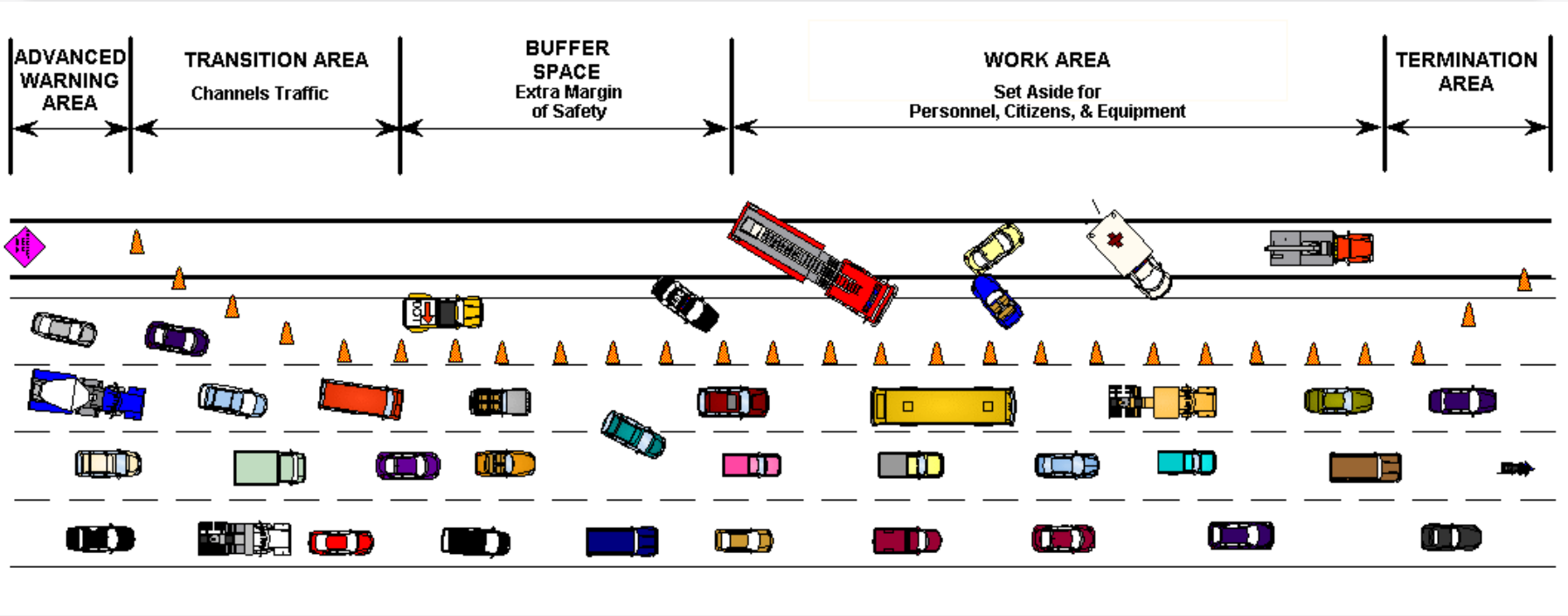
LE Unit "Safe Positioning"

Although still within one travel lane, this Block angle of LE vehicle increases warning to motorists

Ambulance "Safe Positioning"

- Park downstream in protected work area
- Block your loading zone away from moving traffic

Blocking is the foundation of a temporary TIM area. MUTCD recognizes five components of a TIM



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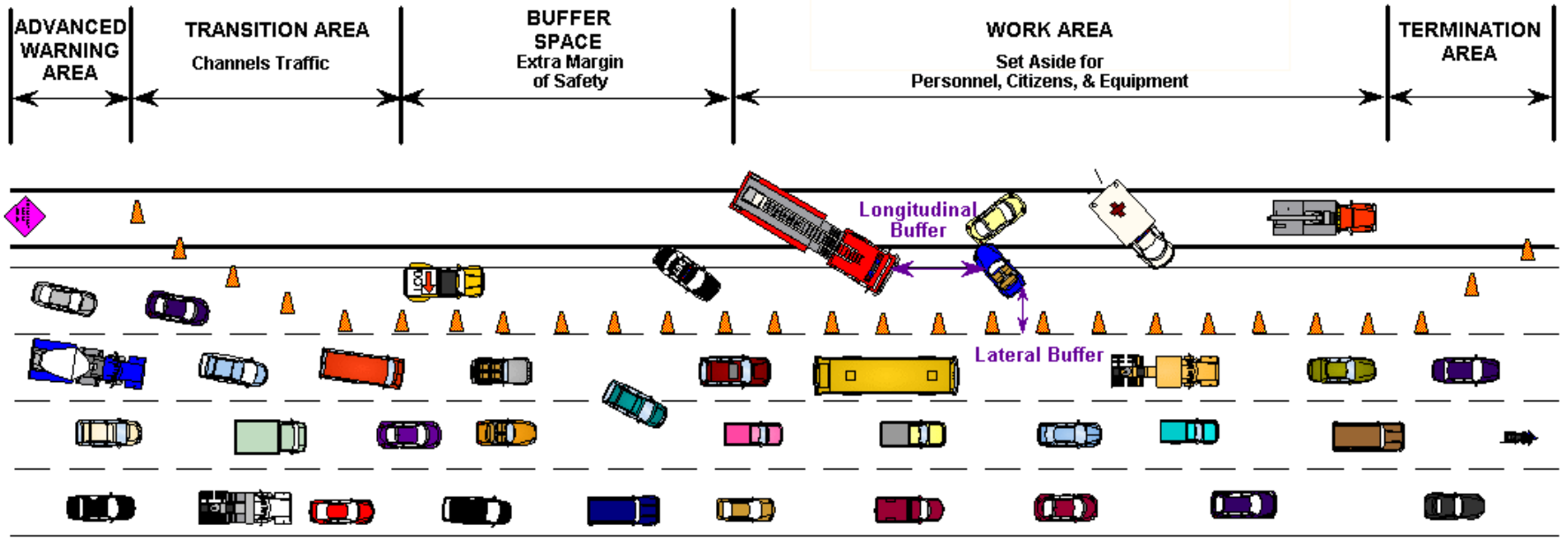


The TIM area has two buffer spaces:

One Longitudinal Buffer
One Lateral Buffer

Zero Buffer

There is a ‘Zero’ Buffer with almost every block

Avoiding the Zero Buffer Area

LE traffic stop with non-traffic side occupant contact to avoid the Zero Buffer hazard area

The ‘Zero Buffer’ Zone

A ‘Zero Buffer’ Struck-By


02135 4:20 HWYPD 2910
01/01/2006 LTS01:35:59
M1

Communications Upon Arrival

- Notify the Communications Center you have arrived on-scene
- Confirm geographical location, approach specifics, and any other pertinent information that would be helpful to later-arriving units

On-Scene Emergency Lighting

- Though essential for safety, use of too many lights at an incident scene can be distracting and can create confusion for approaching road users
- Once good traffic control is established, MUTCD Chapter 6-I recommends reducing the amount of lighting

National Unified Goal…
'Responder Safety'

Responder Safety

ntimc
National Traffic Incident Management Coalition

NATIONAL UNIFIED GOAL (NUG) FOR TRAFFIC INCIDENT MANAGEMENT

The opportunity to enhance the safety of incident scenes is a key motivator for law enforcement, fire, emergency medical services (EMS), and towing and recovery to participate with transportation responders in traffic incident management programs.

While secondary incidents involving emergency responders can take many forms, they often occur when emergency responders are struck by passing vehicles while they are working at a traffic incident scene. For example, a

Personnel Visibility

safety at traffic incidents. Transportation agencies and private sector responders are equally concerned for the safety of their traffic incident responders.

The concerns are borne out by National Institute for Occupational Safety and Health (NIOSH) data showing an upward trend in numbers of workers of all types killed as a result of being struck by vehicles. In 2005, NIOSH reported 390 workers killed in struck-by incidents, up from 278 in 2004, and up from an annual average of 365 over the 2000-2004 time period. In 2005, struck-by incidents accounted for 7 percent of the total number of fatal occupational injuries. (Figure 1)

	2000-2004 AVERAGE	2004 NUMBER	2005 NUMBER
Worker Struck by Vehicle (All Occupations)	365	378	390 (7 percent)

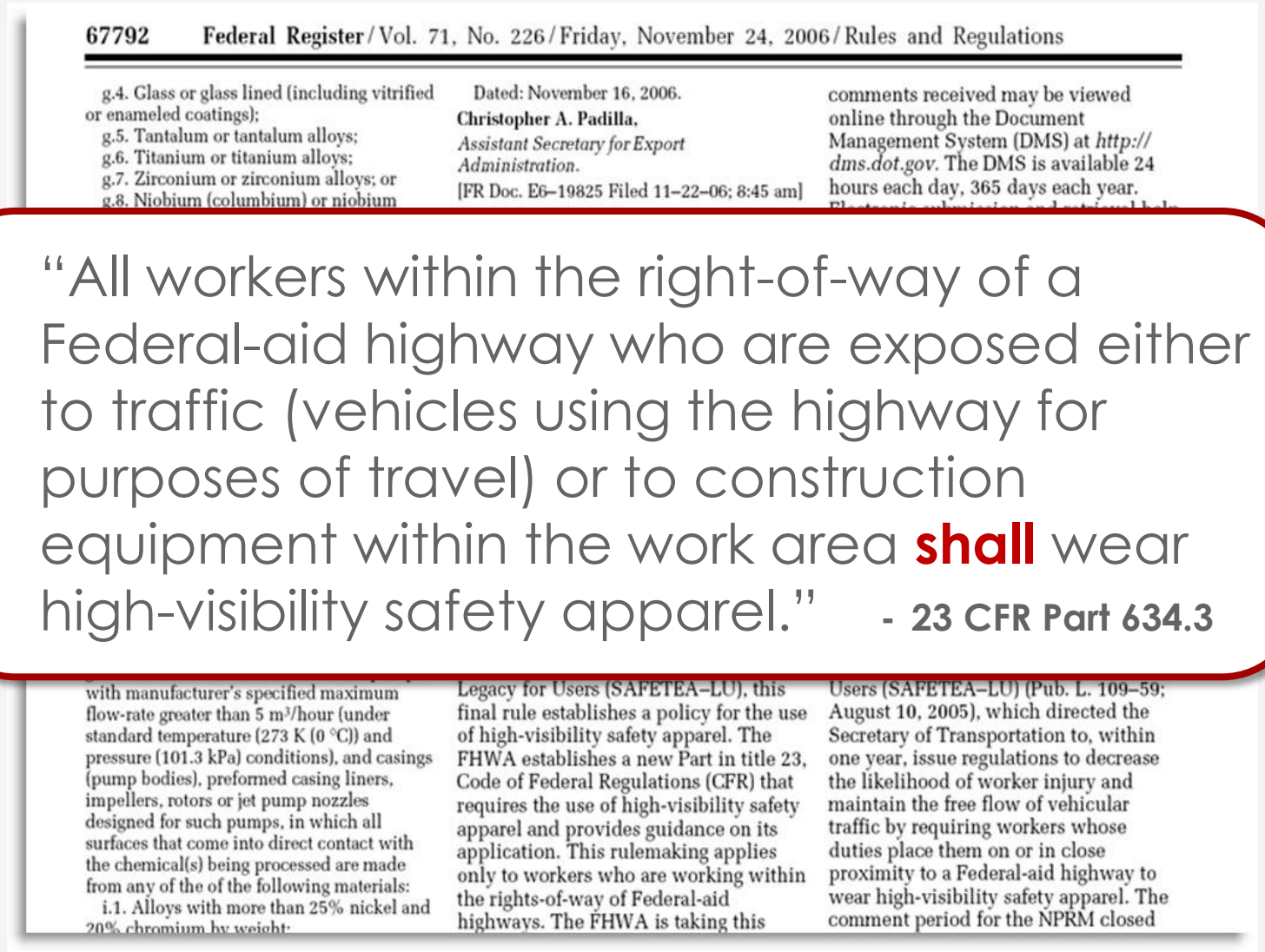
Figure 1. Struck-by incidents accounted for 7 percent of fatal occupational injuries in 2005.[1]

Fire Services

As dangerous as firefighting is, transportation-related incidents claim about 20 percent of the roughly 105 firefighter on-duty deaths each year, and struck-by deaths account for a growing proportion. In June 2001, NIOSH reported that the number of firefighters struck and killed by motor vehicles had increased by 89 percent in the previous five years. Seventeen firefighters had been struck and killed between 1995 and 1999, compared to 9 between 1990 and 1994. The report, *Traffic Hazards to Fire Fighters While Working Along Roadways,*[2] states:

"… Motorists accustomed to a clear, unobstructed roadway may not recognize and avoid closed lanes or emergency workers on or near the roadway. In some cases, conditions can reduce a motorist's ability to see and avoid firefighters and apparatus. Some examples include weather, time of day, scene lighting (i.e., area lighting and optical warning devices, traffic speed and volume), and road configuration (i.e., hills, curves and other obstructions that limit visibility). These hazards are not limited to the fire service alone. Other emergency service providers such as

23 CFR, Part 634



67792 **Federal Register** / Vol. 71, No. 226 / Friday, November 24, 2006 / Rules and Regulations

g.4. Glass or glass lined (including vitrified or enameled coatings);
g.5. Tantalum or tantalum alloys;
g.6. Titanium or titanium alloys;
g.7. Zirconium or zirconium alloys; or
g.8. Niobium (columbium) or niobium

Dated: November 16, 2006.
Christopher A. Padilla,
Assistant Secretary for Export Administration.
[FR Doc. E6–19825 Filed 11–22–06; 8:45 am]

comments received may be viewed online through the Document Management System (DMS) at *http://dms.dot.gov*. The DMS is available 24 hours each day, 365 days each year.

"All workers within the right-of-way of a Federal-aid highway who are exposed either to traffic (vehicles using the highway for purposes of travel) or to construction equipment within the work area **shall** wear high-visibility safety apparel." **- 23 CFR Part 634.3**

with manufacturer's specified maximum flow-rate greater than 5 m³/hour (under standard temperature (273 K (0 °C)) and pressure (101.3 kPa) conditions), and casings (pump bodies), preformed casing liners, impellers, rotors or jet pump nozzles designed for such pumps, in which all surfaces that come into direct contact with the chemical(s) being processed are made from any of the of the following materials:
i.1. Alloys with more than 25% nickel and 20% chromium by weight;

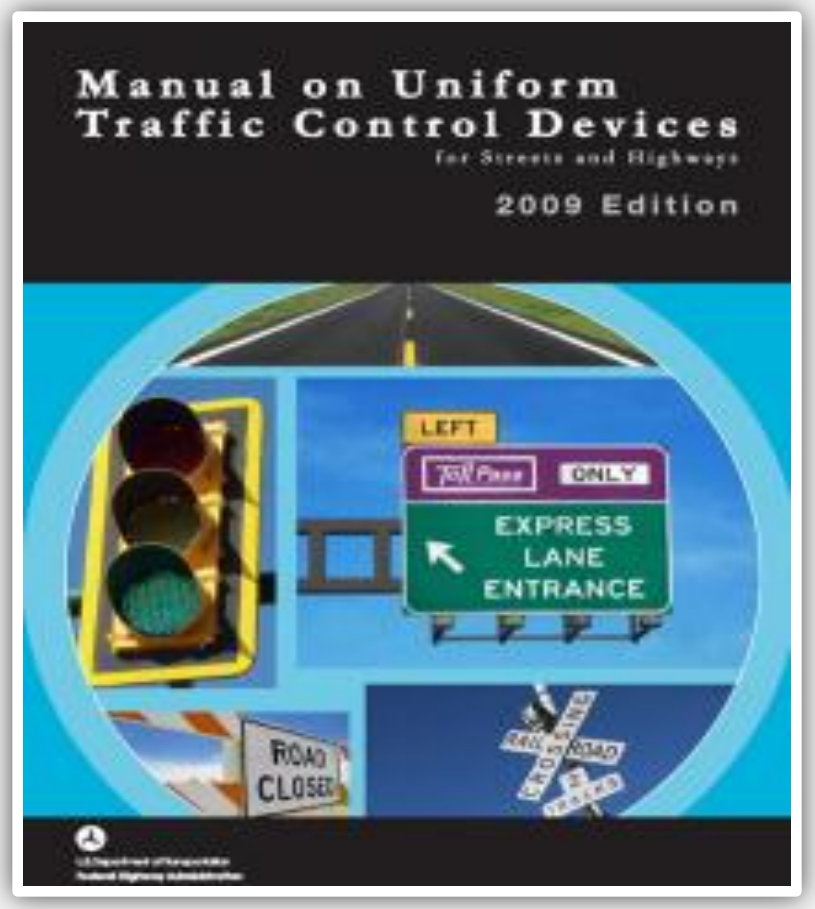
Legacy for Users (SAFETEA–LU), this final rule establishes a policy for the use of high-visibility safety apparel. The FHWA establishes a new Part in title 23, Code of Federal Regulations (CFR) that requires the use of high-visibility safety apparel and provides guidance on its application. This rulemaking applies only to workers who are working within the rights-of-way of Federal-aid highways. The FHWA is taking this

Users (SAFETEA–LU) (Pub. L. 109–59; August 10, 2005), which directed the Secretary of Transportation to, within one year, issue regulations to decrease the likelihood of worker injury and maintain the free flow of vehicular traffic by requiring workers whose duties place them on or in close proximity to a Federal-aid highway to wear high-visibility safety apparel. The comment period for the NPRM closed

23 CFR, Part 634

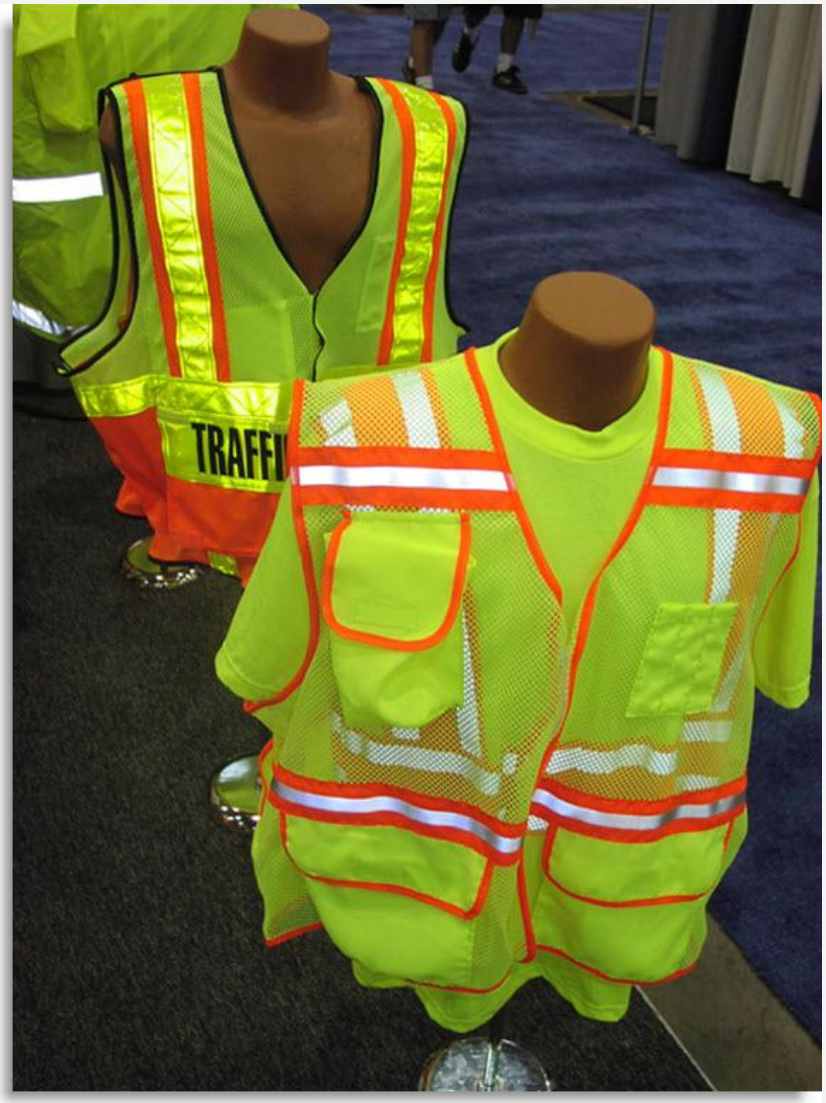
- **Worker** means people on foot whose duties place them within the right-of-way of a Federal-aid highway:
- **Maintenance** forces, **responders to incidents** within the highway right-of-way, and **law enforcement** personnel
- **Directing traffic**, **investigating crashes**, and **handling lane closures, obstructed roadways**, and **disasters**

MUTCD 2009



- Required for all workers in public right of way
- Applies to all roads, not just on Federal-aid system
- Option for law enforcement and first responders to use new ANSI "public safety vests"

Highway Safety Vests (PPE)



Highway Safety Vests

Class I

Class II

Class III

ANSI 107 Standard

Class II Safety Vest

ANSI 107 Class II vests with
high-visibility red/orange body with green trim


A “Class III” garment
has sleeves

...and the shortcoming of wearing NO Vest!

Part 634: Revised Final Rule

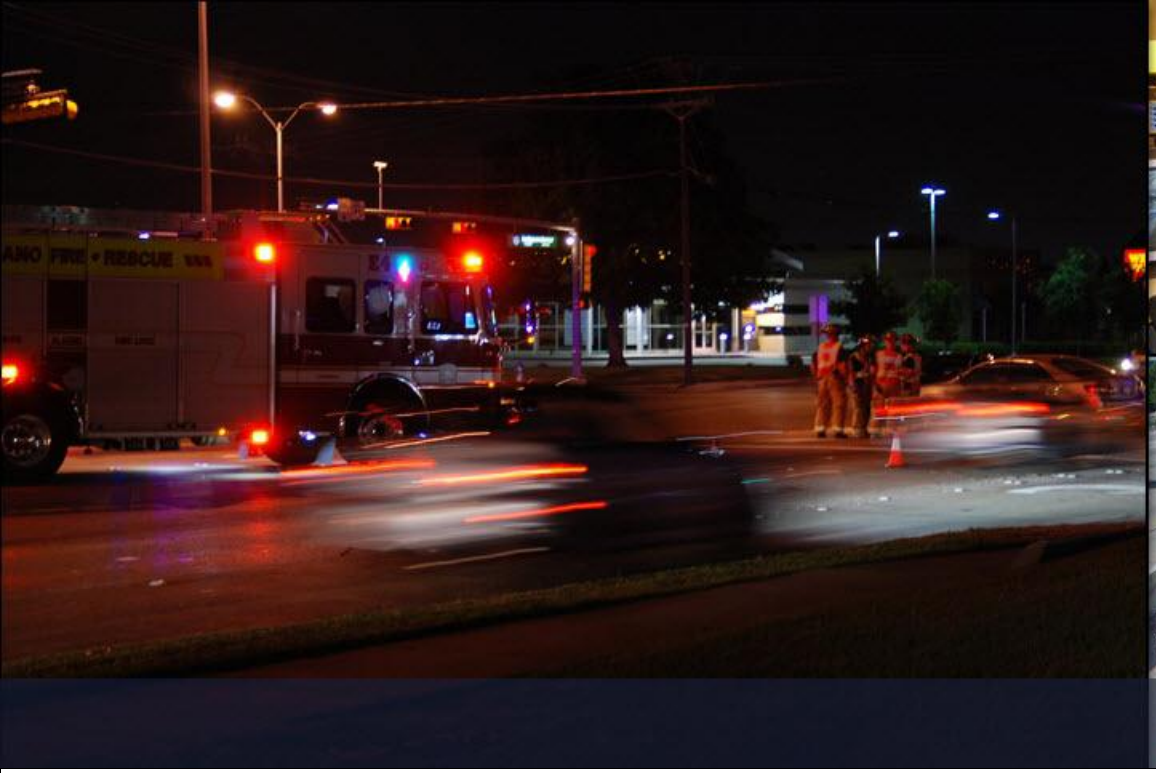
- Firefighters … engaged in emergency operations that directly expose them to flame, fire, heat, and/or hazardous materials may wear retro-reflective turnout gear …
- Firefighters …engaged in any other types of operations shall wear high-visibility safety apparel.

Exemption for Tactical Operations

Police officers are exempt from wearing a high visibility safety apparel during tactical operations

Exiting Responder Vehicles

- Watch for debris on the roadway
- Don ANSI-compliant high-visibility vests
- Exit on the non-traffic side when possible
- If moving around a corner or the ‘zero’ buffer, stop and watch for traffic



Lesson 4: Initial Size-Up

Lesson Objectives

- Describe the core factors to review when performing an Initial Size-up of the scene
- Recall the importance of determining if Hazmat responder involvement is required

What is Initial Size-Up?

How often do you update your Size-Up report?

What is Initial Size-Up?

- Preliminary or **windshield** analysis of the current situation, the **actions** that will be required to mitigate the situation, and the **resources** that will be required to support those actions
- Should take into consideration the **safety** situation encountered by responders, **quick clearance strategies**, and the **impact on traffic**

The 15-Minute Size-Up Rule

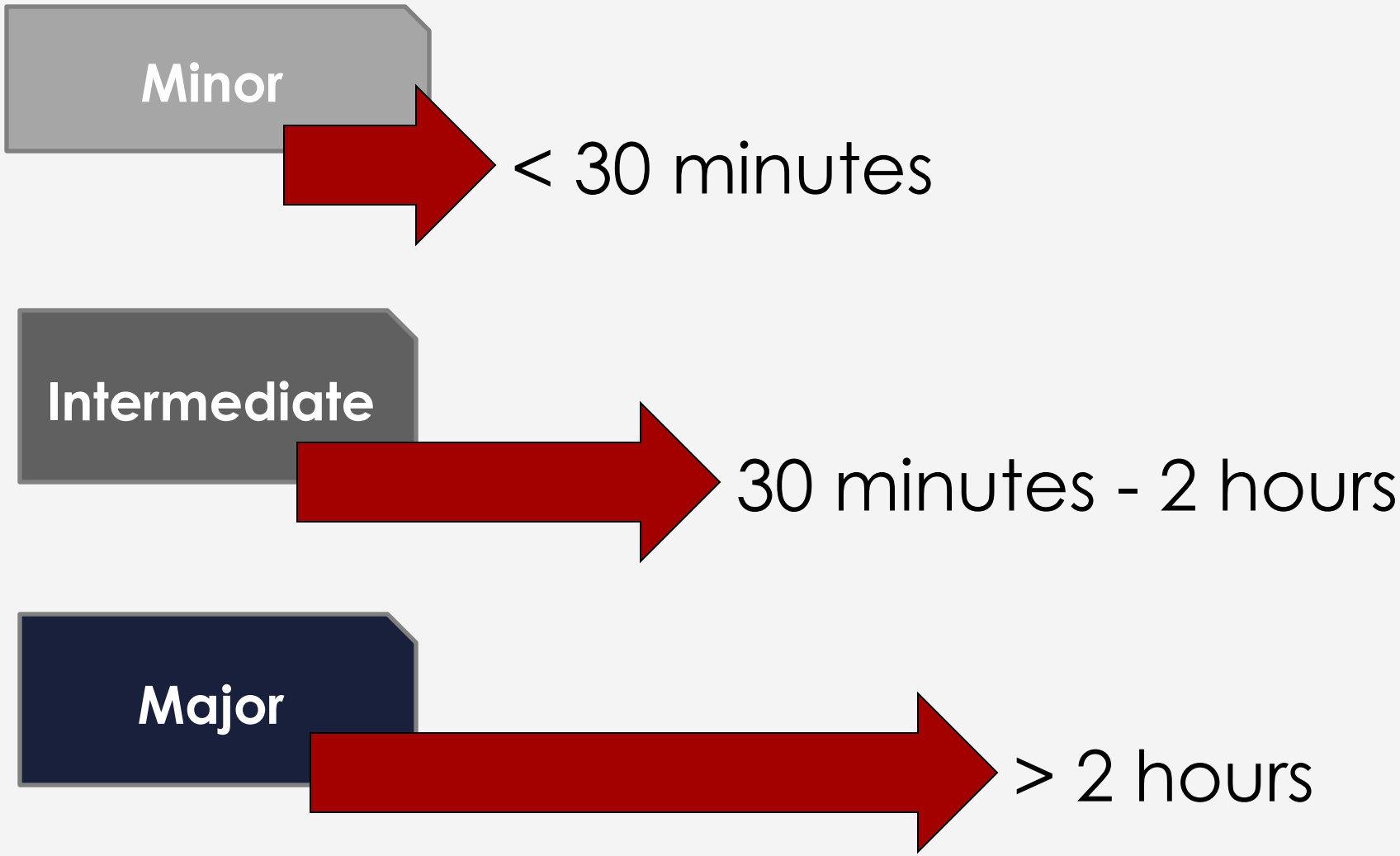
Within **15 minutes** of arrival, responders should:

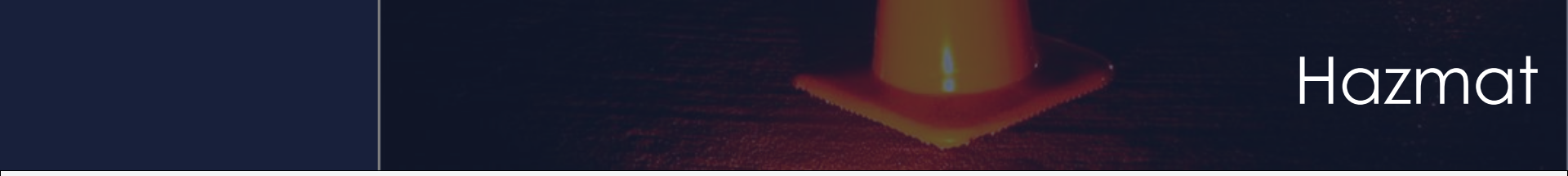
- Estimate the number of vehicles and injuries
- Estimate the magnitude of the accident
- Estimate the expected time duration of the incident
- Estimate the expected vehicle queue length
- Set up appropriate traffic control
- Establish "Unified Command", if applicable
- Assess whether there is evidence of criminal activity

Safe, Quick Clearance

The **sooner** and more **accurate** the Initial-Size-Up, the better the chance that the incident can be **cleared quickly**. Since the likelihood of a secondary crash occurring increases by **2.8% each minute**, a **quicker clearance** means a **reduced likelihood of secondary crashes** occurring.

Duration of the Incident





Hazmat

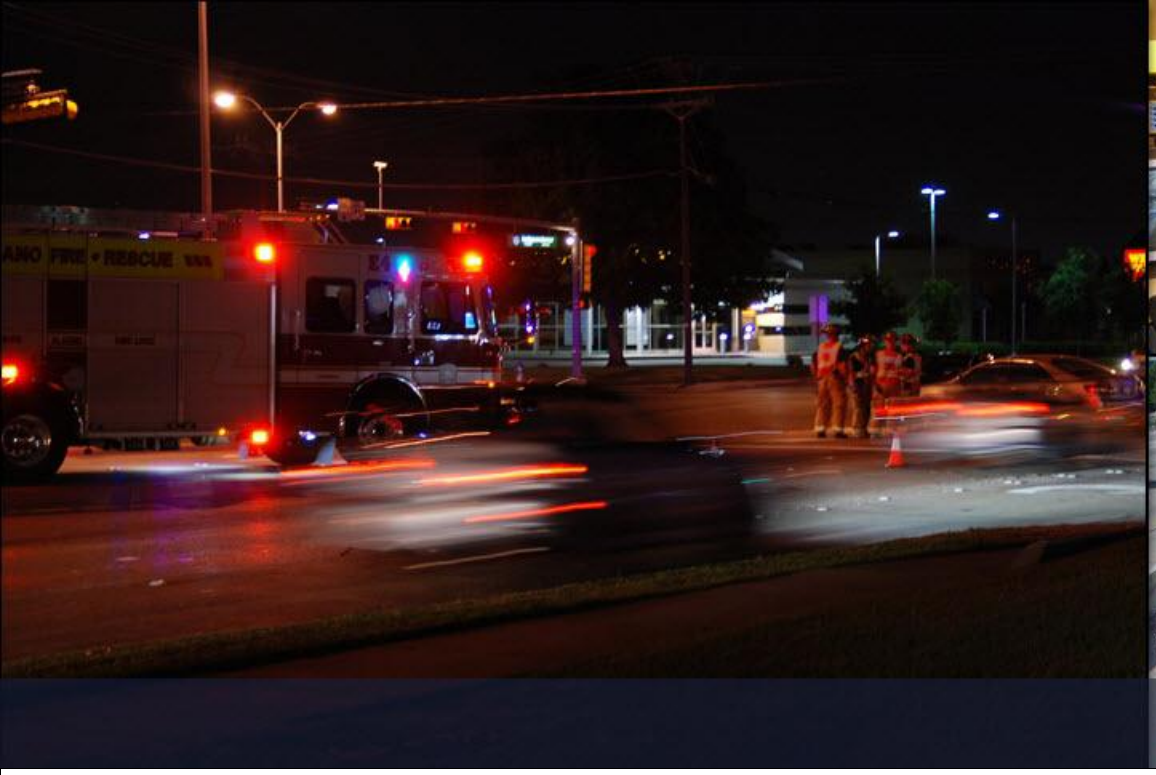
- Presence of **Hazmat** may be detected for the first time during Size-Up
- Incorrectly judging whether spills require a hazmat response is one of the **single** biggest **causes** of lane **closures**
- Be aware of what **does** and **does not** require a **Hazmat response**, what the reportable amounts are, and what response is required

Accurate identification of **what requires a Hazmat response** can dramatically **improve clearance times**.

Initial Size-Up Report

Typical Size-Up Report

- ☑ Unit Identification
- ☑ Exact Location of the Incident
- ☑ Number and Type of Vehicles Involved
- ☑ Number of Lanes Closed
- ☑ Degree of Damage
- ☑ Hazards or Problems
- ☑ Establishment of Command



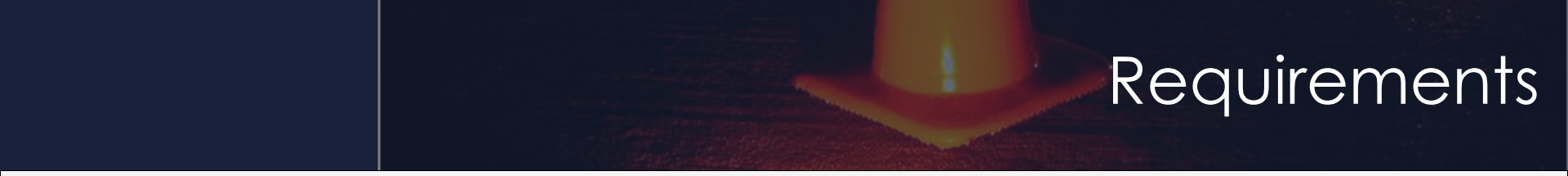
Lesson 5:
Command Responsibilities

Lesson Objectives

- Recall the importance of establishing and participating in the ICS
- Discuss the communications that should occur with Command, Public Information Officer (PIO), and Dispatch
- Discuss how to plan for physical organization of scene and describe the need for diversion routes or staging areas
- Describe how to designate the staging area location for additional resources/ responders
- Recount when to proceed to the staging area

Unified Command

Practice of Unified Command means **quicker clearance** times.



Requirements

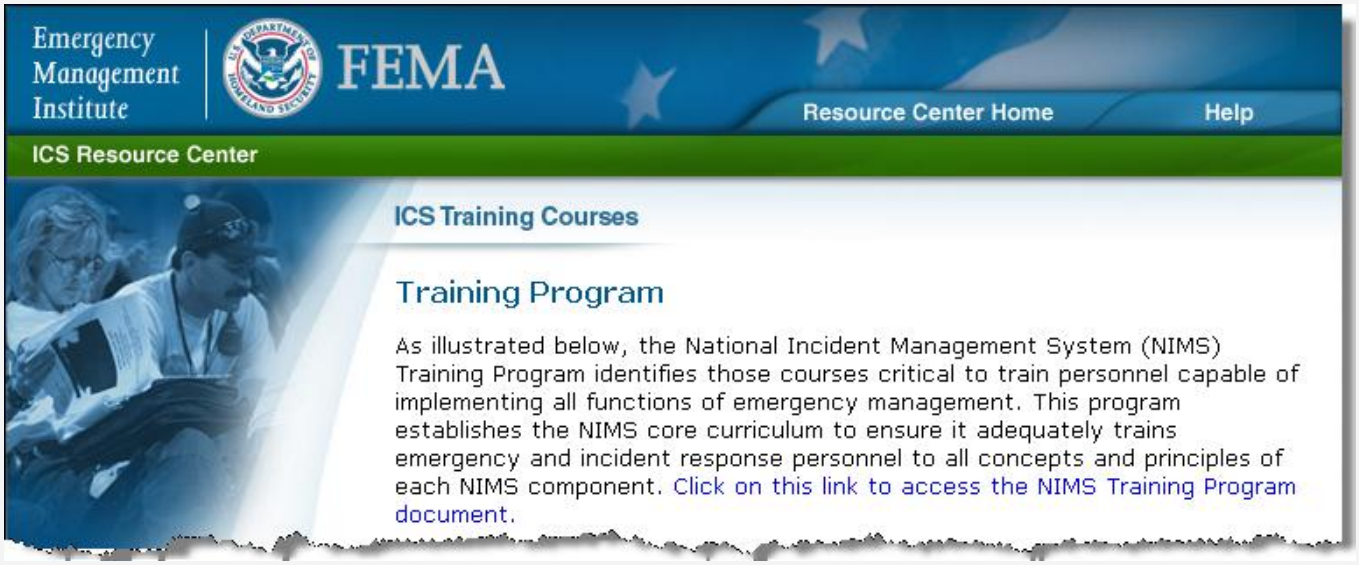
The following require ICS use and training:

- National Incident Management System (NIMS)
- Superfund Amendments and Reauthorization Act (SARA) – 1986
- Occupational Safety and Health Administration (OSHA) Rule 1910.120
- State and Local Regulations

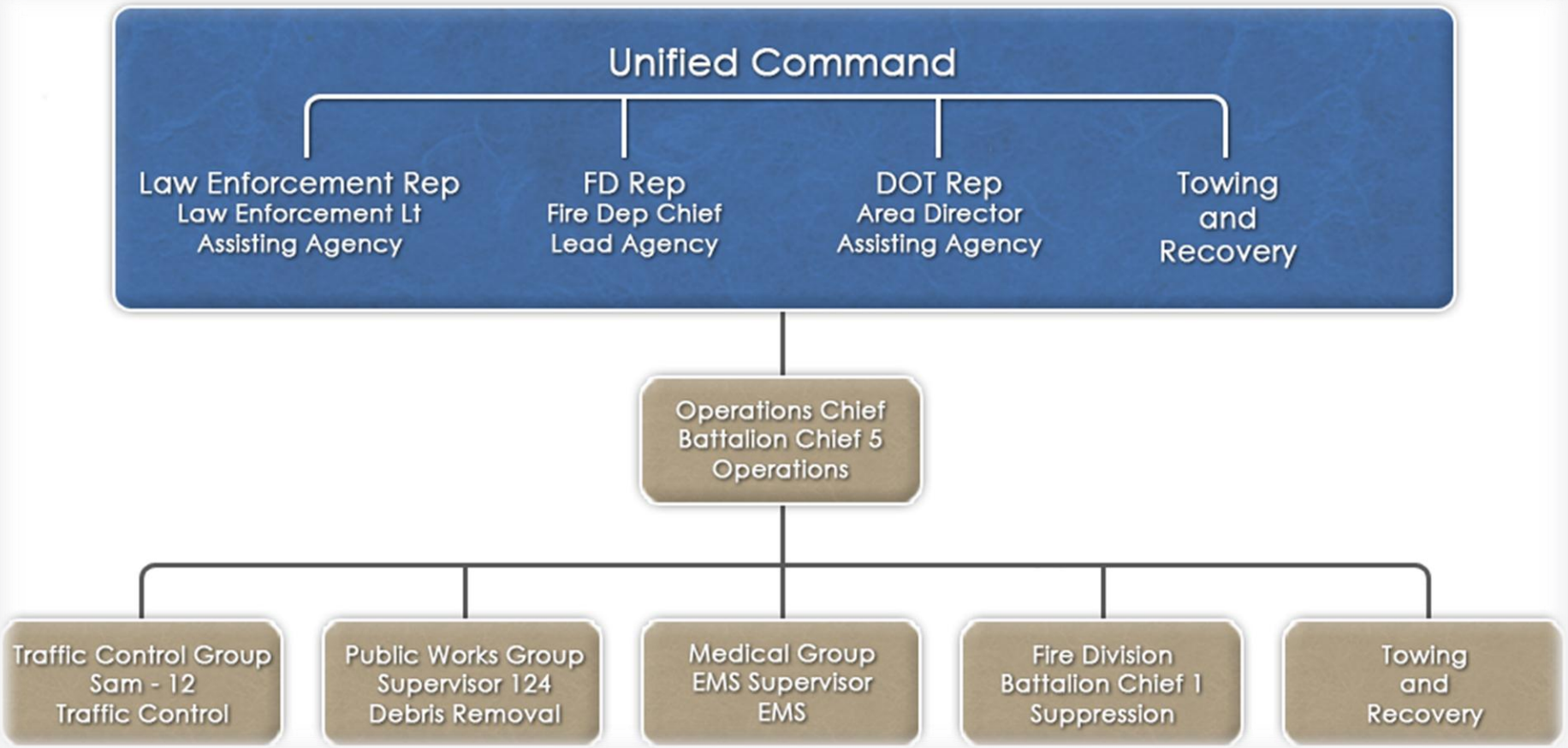
NIMS ICS 100, 200, and 700 training

Goals of Incident Command System (ICS)

- The safety of responders and others
- The achievement of tactical objectives
- The efficient use of resources



Unified Command



Incident Action Plan

Unified Command must work together to implement an Incident Action Plan

Physical Organization

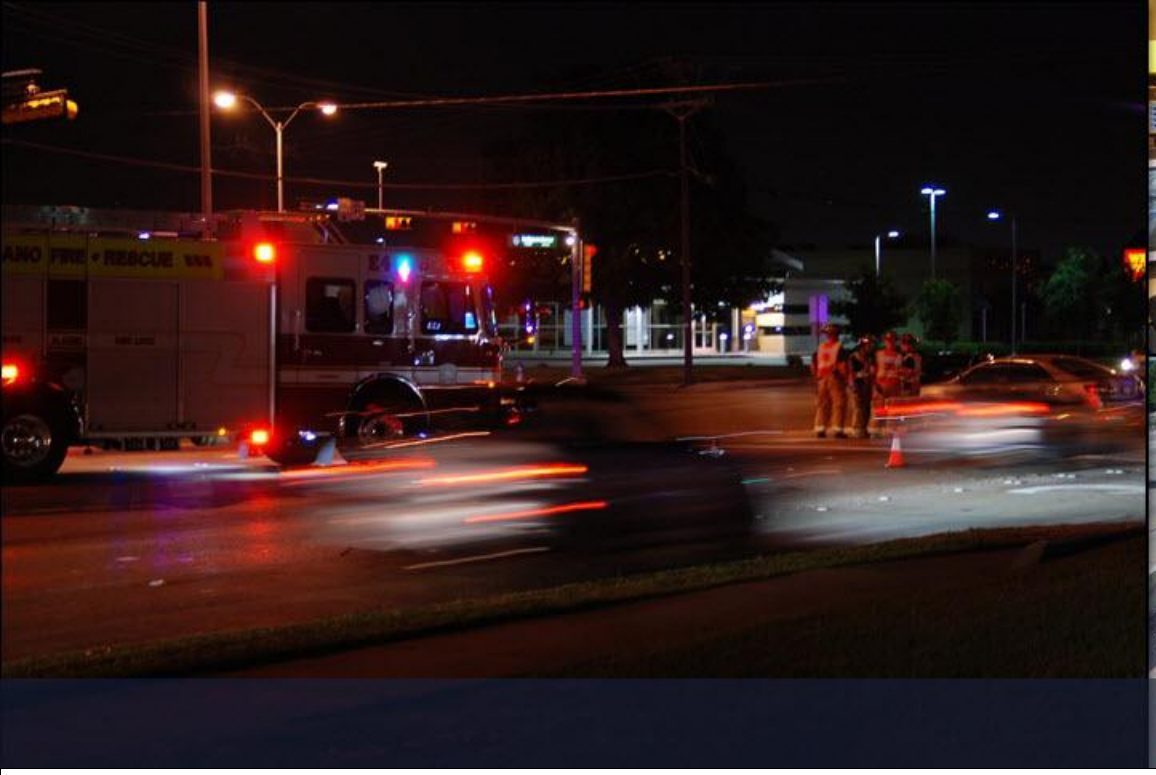
As part of the physical organization of a traffic incident scene, the Incident Commander(IC) may establish:

Incident Command Post (ICP)

The field location at which the primary tactical-level, on-scene incident command functions are performed.

Staging Area

Location established where resources can be placed while awaiting a tactical assignment.



Lesson 6:
Safety, Patient Care, and Investigation

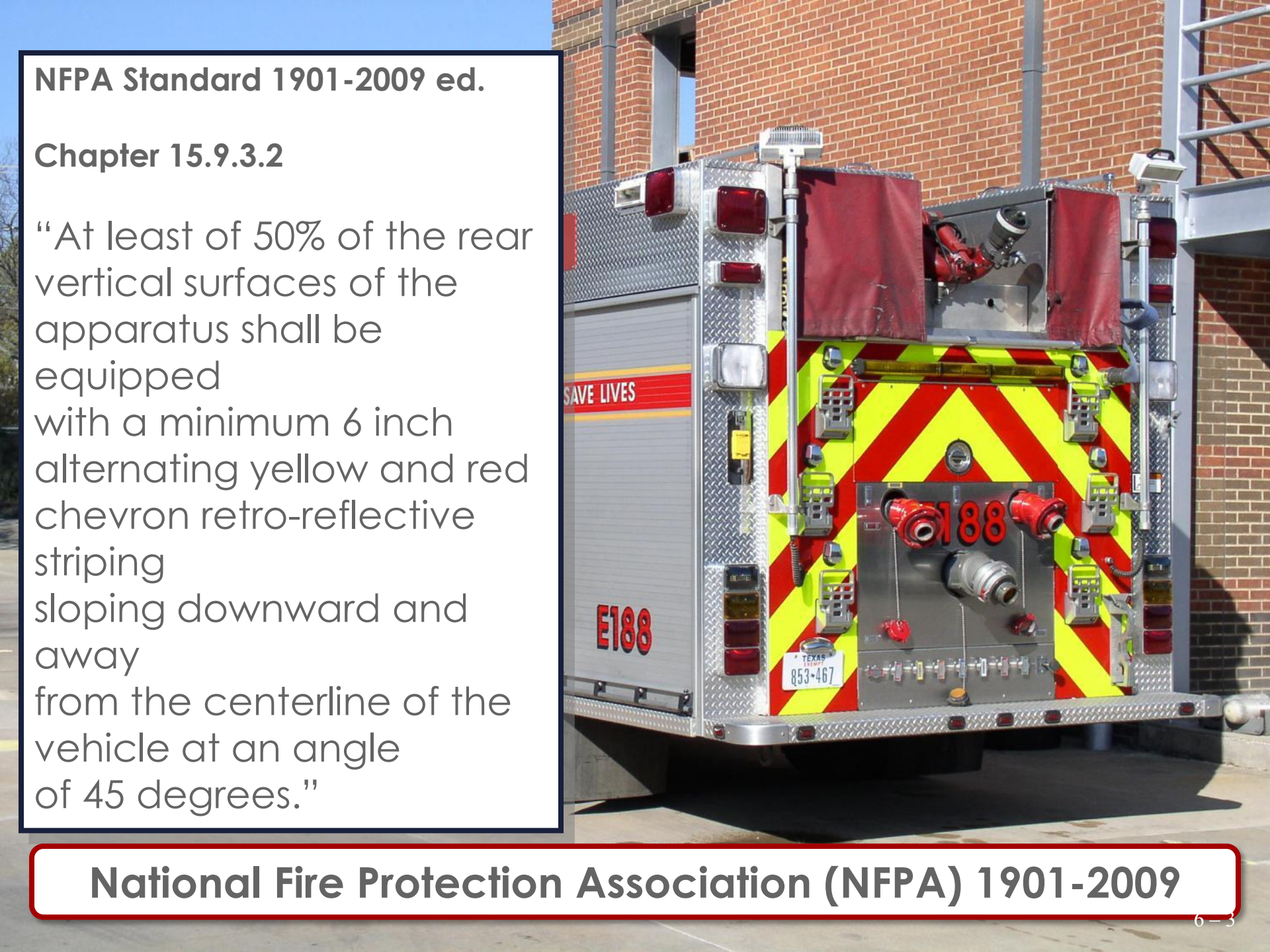
Lesson Objectives

- List the types of high-visibility markings on responder vehicles
- Recount best practices for working with Hazmat and non-hazmat spills at an incident scene
- Identify the concerns of responding to an incident that involves vehicular fire
- List the concerns of responding to incidents involving hybrid electric and electric vehicles
- Restate responsibilities of responders not involved in extrication while extrication tasks are being performed.
- Restate the protocols that should be followed before and during a medical helicopter on-scene arrival
- Identify the primary investigation goal at an accident scene and how each discipline can contribute to an efficient and effective investigation

NFPA Standard 1901-2009 ed.

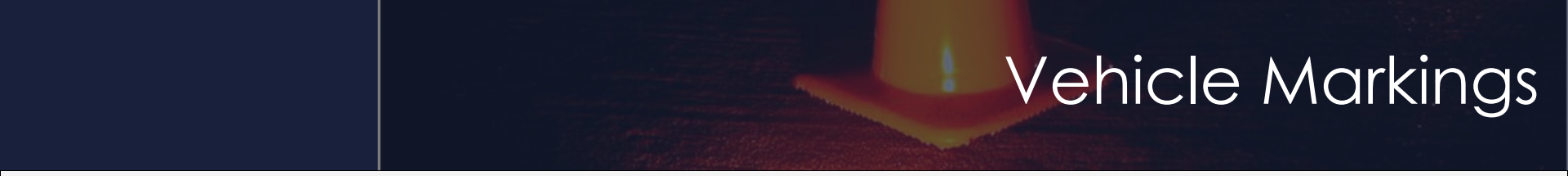
Chapter 15.9.3.2

"At least of 50% of the rear vertical surfaces of the apparatus shall be equipped
with a minimum 6 inch alternating yellow and red chevron retro-reflective striping
sloping downward and away
from the centerline of the vehicle at an angle
of 45 degrees."



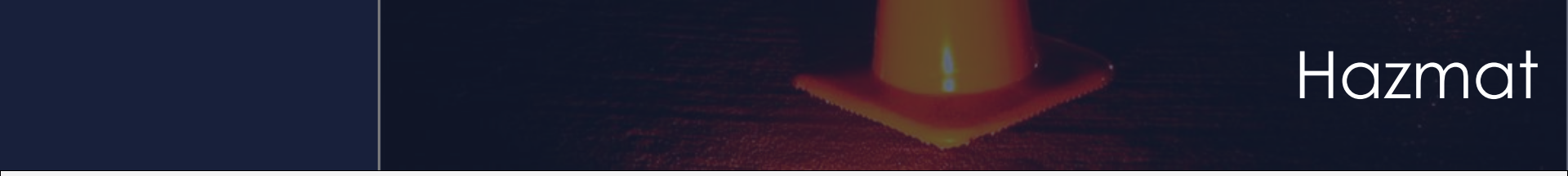
National Fire Protection Association (NFPA) 1901-2009


HIGHWAY PATROL
HIGHWAY
PATROL



Vehicle Markings

How are more visible vehicle markings an example of a **quick clearance** strategy?



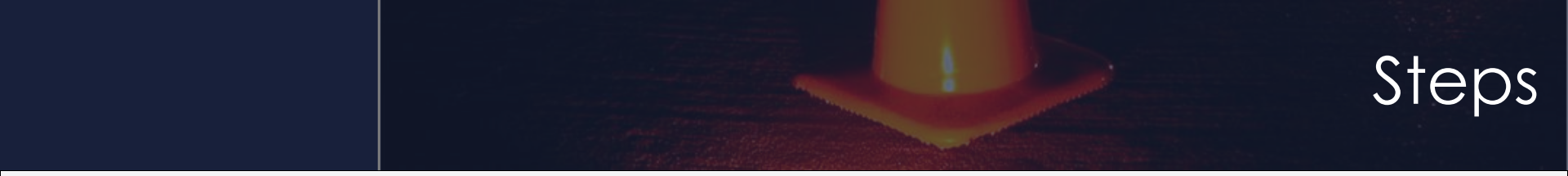
Hazmat

Not all spills or leaks require a **Hazmat team response**—take prompt action to **stop** the spill at its source or to **contain** and **limit the size** of the spill, **limit the damage** to the pavement surface, and **prevent** any flammable material from catching fire

Hazardous Materials or Not?

Hazmat not inclusive of liquids used to power a vehicle

Check your state protocol!

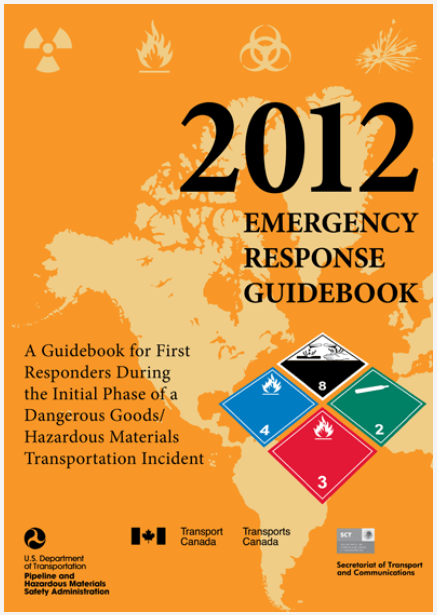


Steps

- Identify the spill as a vehicle fluid
- **Stop leaking** material at the source
- **Contain and limit** the spill from spreading
- Apply available **absorbents**
- **Sweep** material off travel lanes
- Gradually **restore traffic flow**
- ID the responsible party and mark location of material
- Ensure proper **notification** made to appropriate warning point

Hazmat Placard Review Activity

- Using the DOT Guidebook, describe what the 4-digit numbers on the placard would mean if you came upon them at an incident

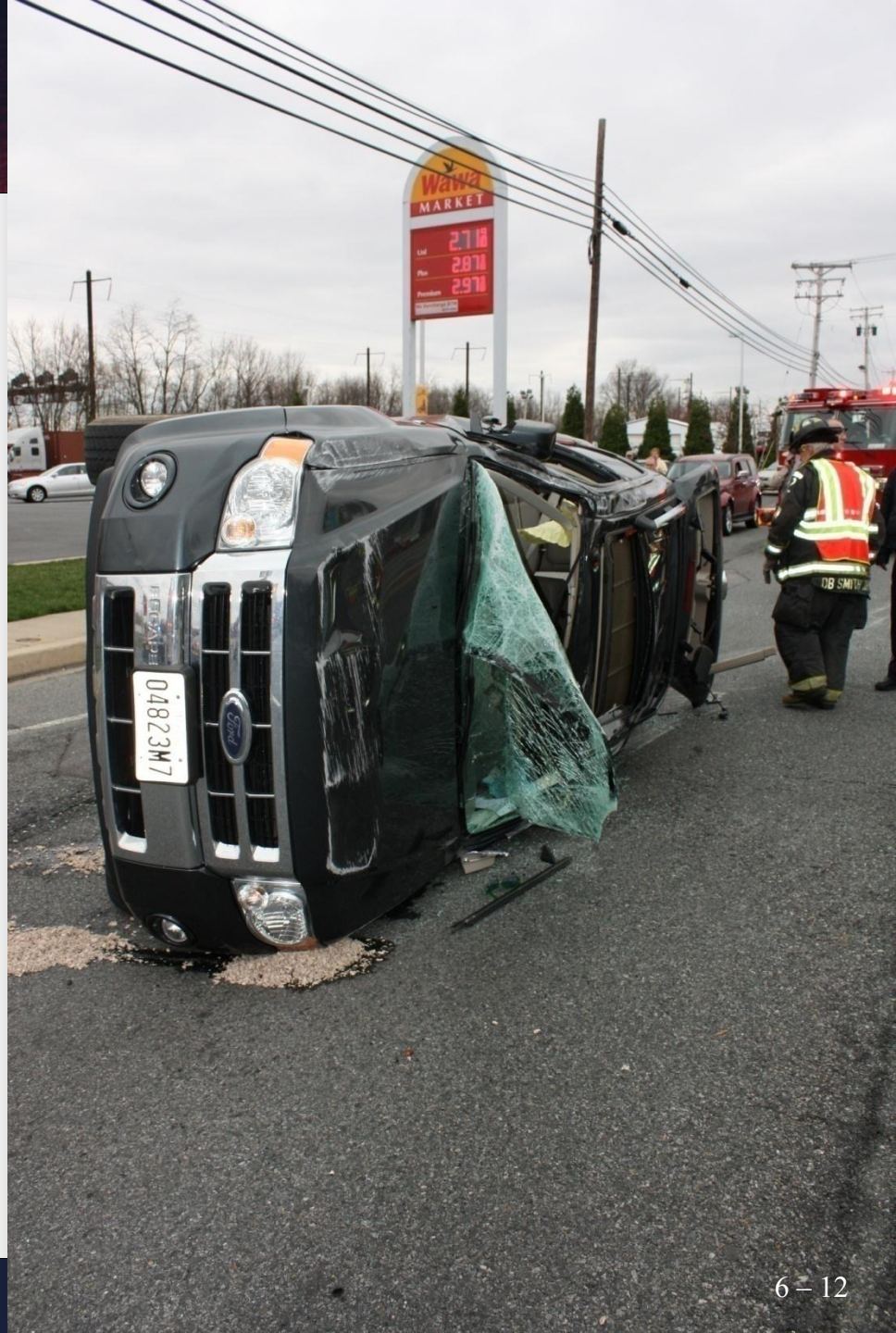


Stay clear of the danger zone that surrounds a burning vehicle

Preferred approach is uphill, upwind, and off-angle

HEV & EV


SERVICE SHIPPING
NO VOLTAGE
HIGH VOLTAGE SERVICE DISCONNECT
UNLOCK
LOCK
FOR OPERATION
HIGH VOLTAGE


WaWa
MARKET
0482AM7

Safety: Fire and Rescue

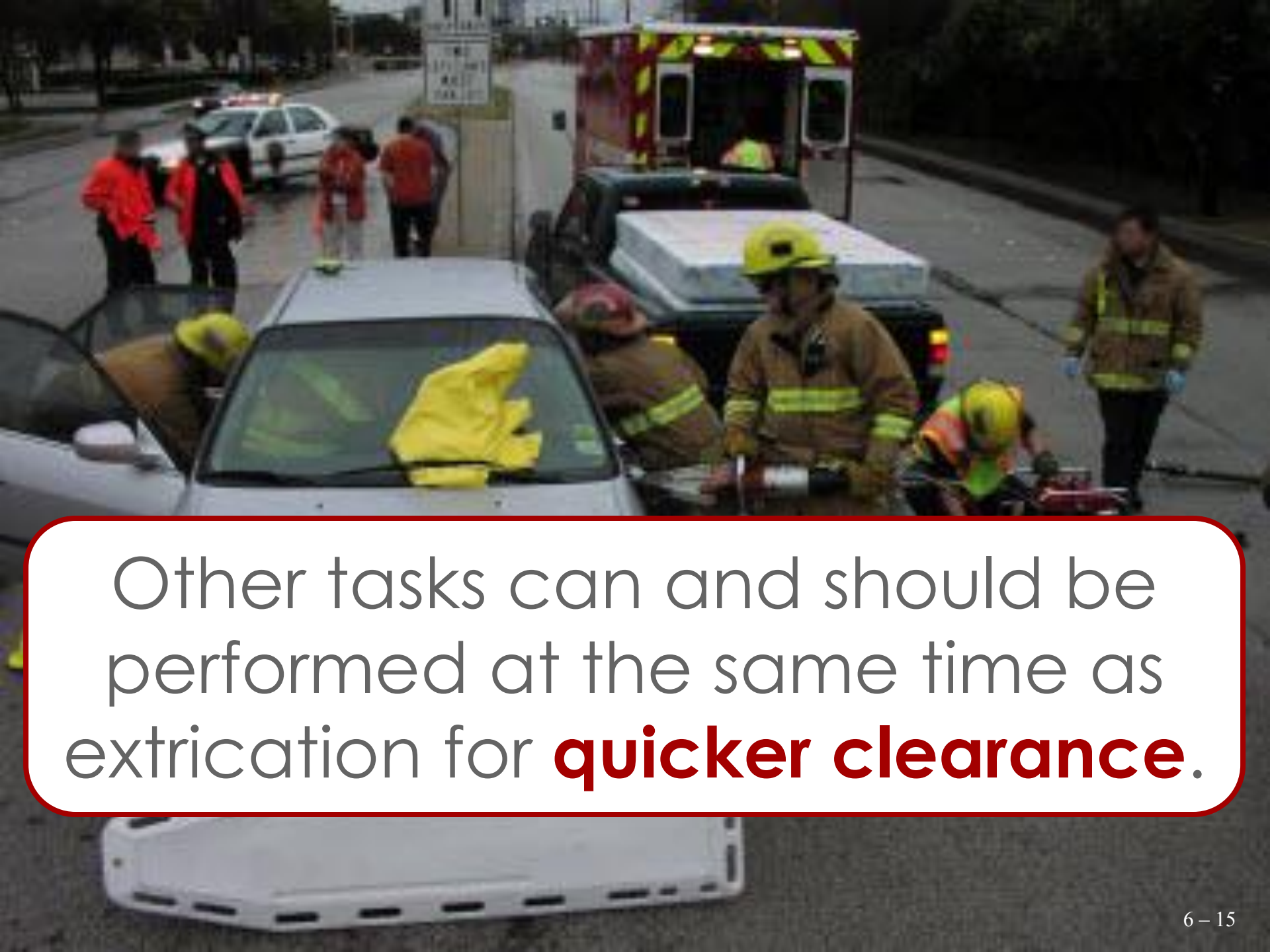
- Fire suppression
- Extrication
- Incident Commander and/or Unified Command
- HAZMAT, fuel spills, and leaks

Extrication

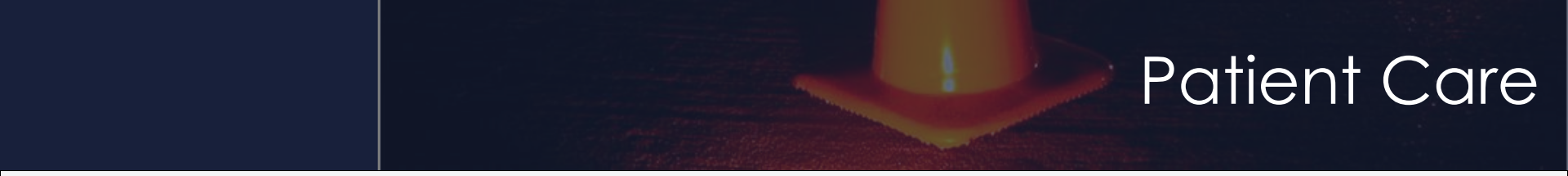
Determine whether there appears to be anyone trapped in the involved vehicles

If so, report that "extrication capability" may be required and should be dispatched

Assist responding EMS and F/R in extrication activities only as directed by them



Other tasks can and should be performed at the same time as extrication for **quicker clearance**.



Patient Care

- If possible, approach the scene to determine the number of injured and the general extent of injury.
- Provide medical care at your level of training
- Move non-ambulatory patients only if they are in immediate danger.
- Assist responding EMS and F/R in extrication activities as directed by them.

Approaching an Injured Motorist

Look for elements which would expose you to risk of injury, contamination or other ill-effect

SAFE

Determine number of injured and general extent of injury (Triage)

UNSAFE

Do not approach scene until EMS or F/R professionals arrive

Landing on highway is high risk

Primary Goals of Investigation

Primary Goal

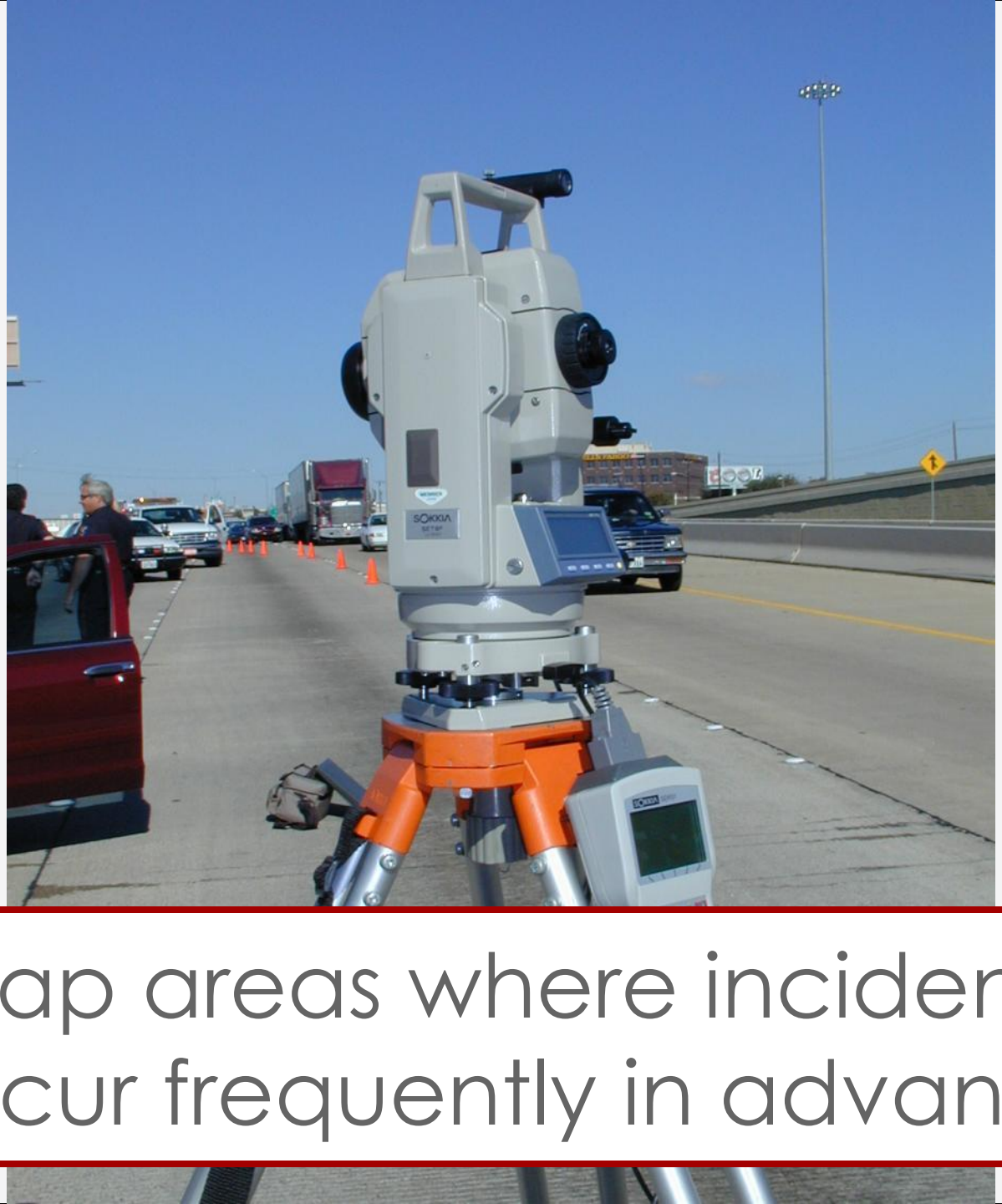
Conduct a thorough crash investigation by collecting the 107 required data elements in a standardized Police Accident Report (PAR), as specified in the Minimum Model Uniform Crash Criteria (MMUCC).

Plays a key role in:

- Properly documenting findings for presentation in a court of law
- Determining crash causation
- Taking appropriate enforcement action as the result of this determination

Point of impact—determine speed of vehicle

Evidence or debris? It's all evidence until LE says it's not. **Always Ask**.

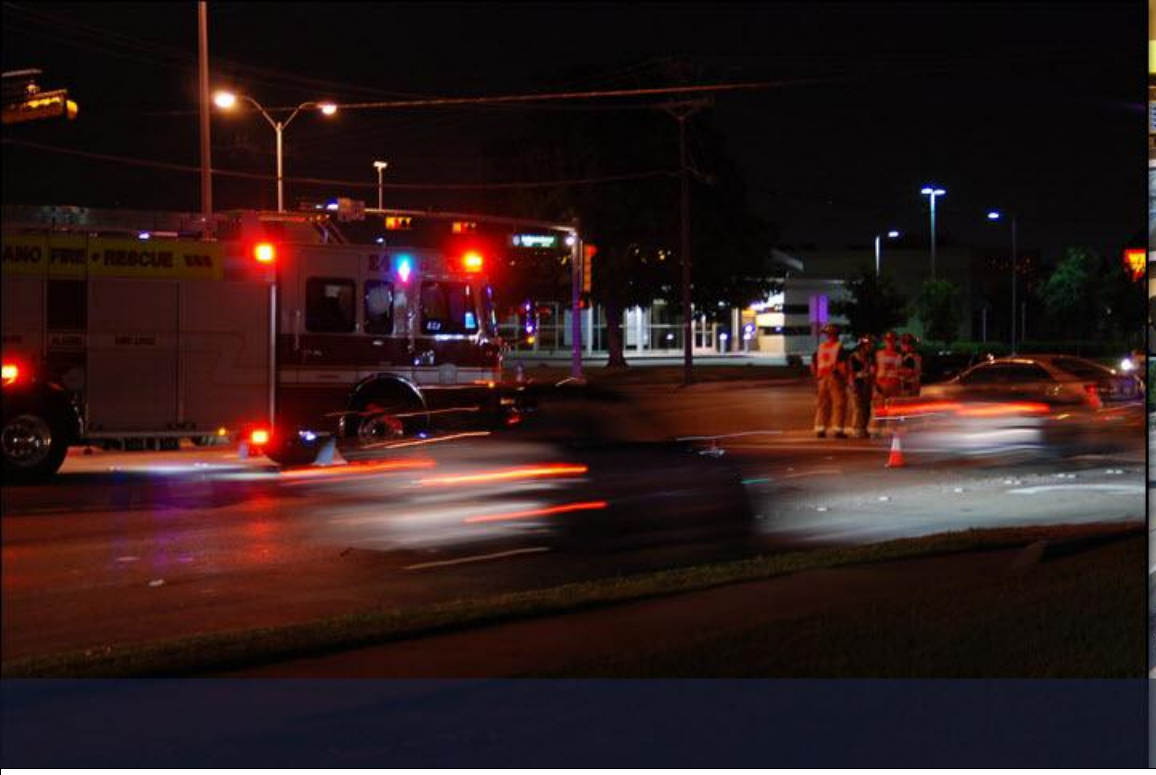


Map areas where incidents occur frequently in advance

Photogrammetry

Scene takes only 20 to 30 minutes to map—**clearance** & **safety** implications

Fatality Investigation



Lesson 7:
Traffic Management

Lesson Objectives

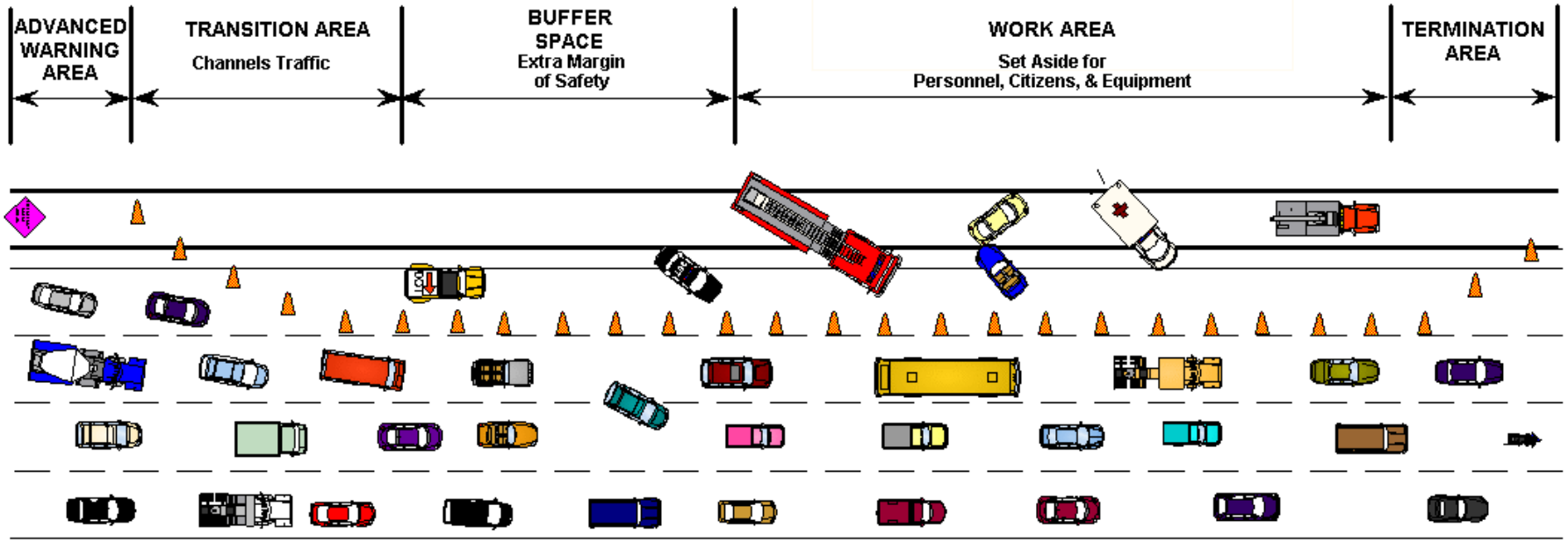
- Describe the proper use and monitoring of traffic control devices at used at an incident scene
- Recognize the components of a Traffic Control Zones during an incident
- Recognize circumstances at an incident scene that would require the advanced warning area to be extended
- List best practices of light management upon scene arrival and during the course of the incident
- Recall the traffic management elements that need to be communicated and monitored during an incident

Secondary Collisions

Traffic Control Devices

Appropriate use of traffic control devices **lessens** the likelihood of **secondary incidents**.

TIM Traffic Areas

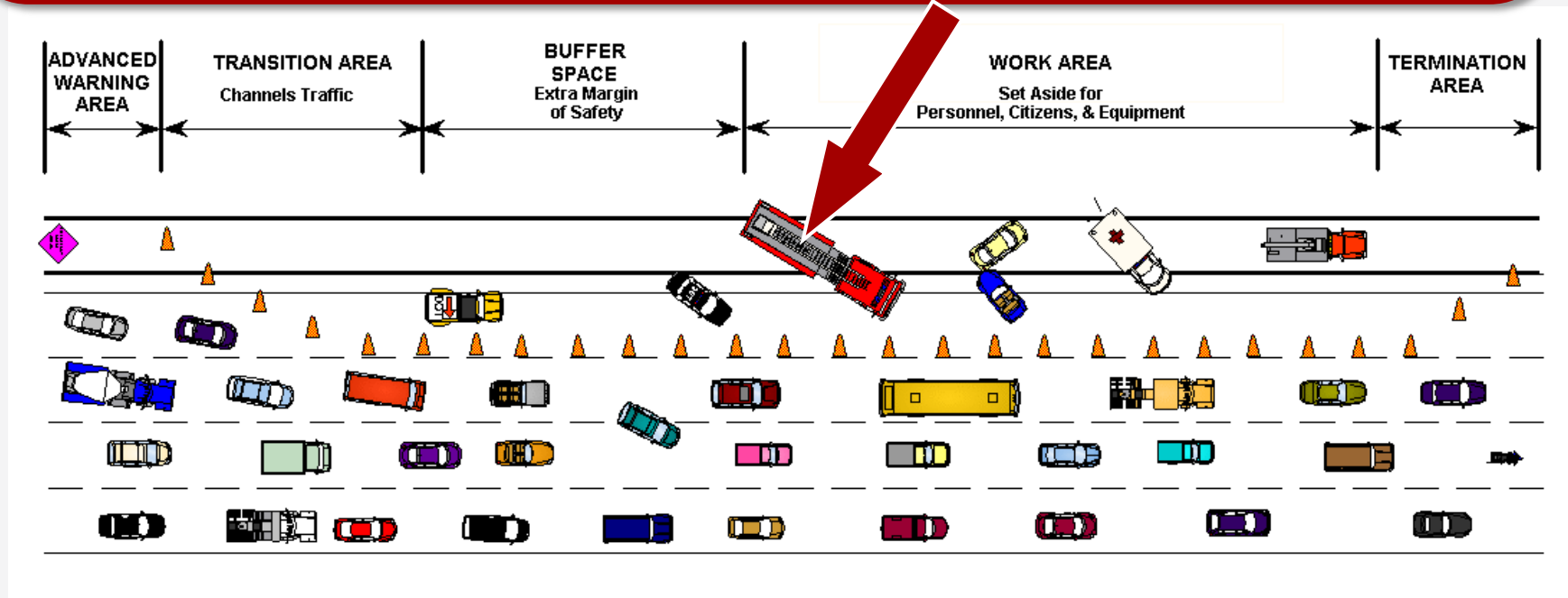


Not to scale

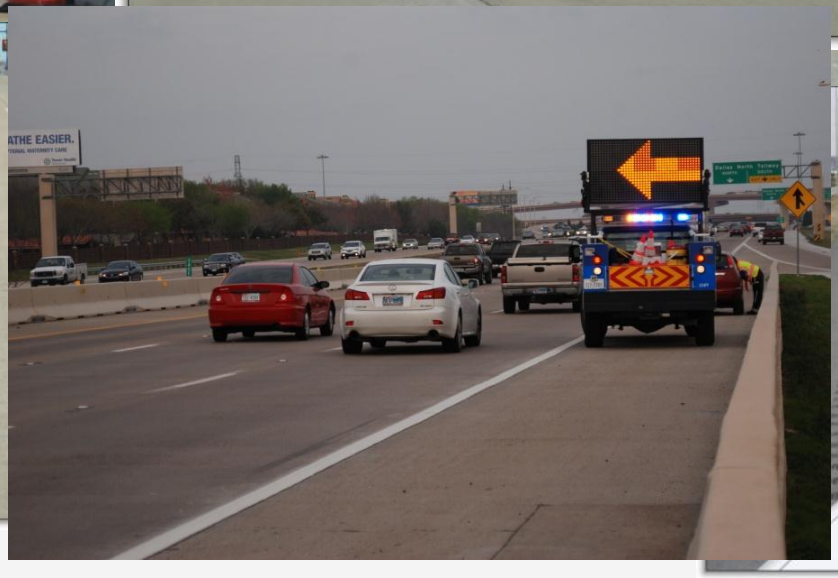

FIRE•RESCUE
SAVE LIVES
E171

Blocking & Traffic Management

"Blocking" is the foundation of a temporary Traffic Incident Management (TIM) area, creating a "shadow area" downstream that protects responders.



Temporary Traffic Control Devices

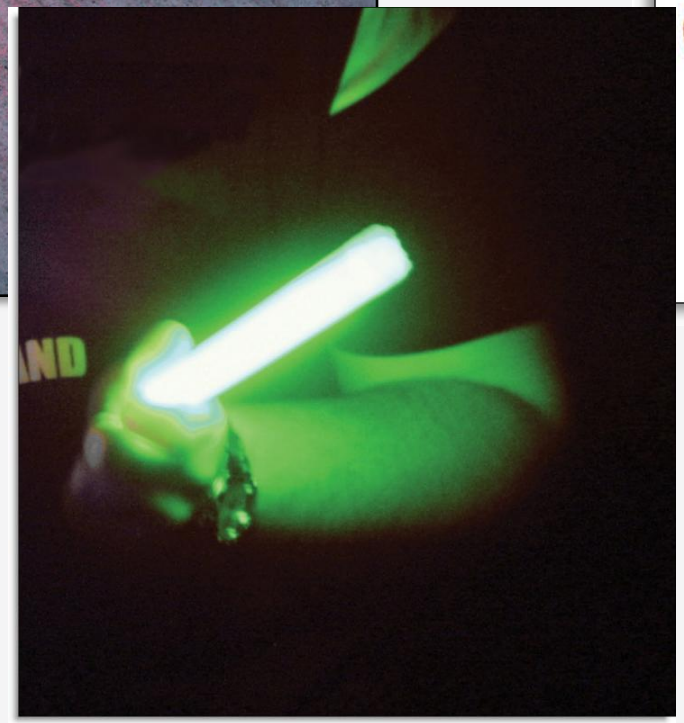


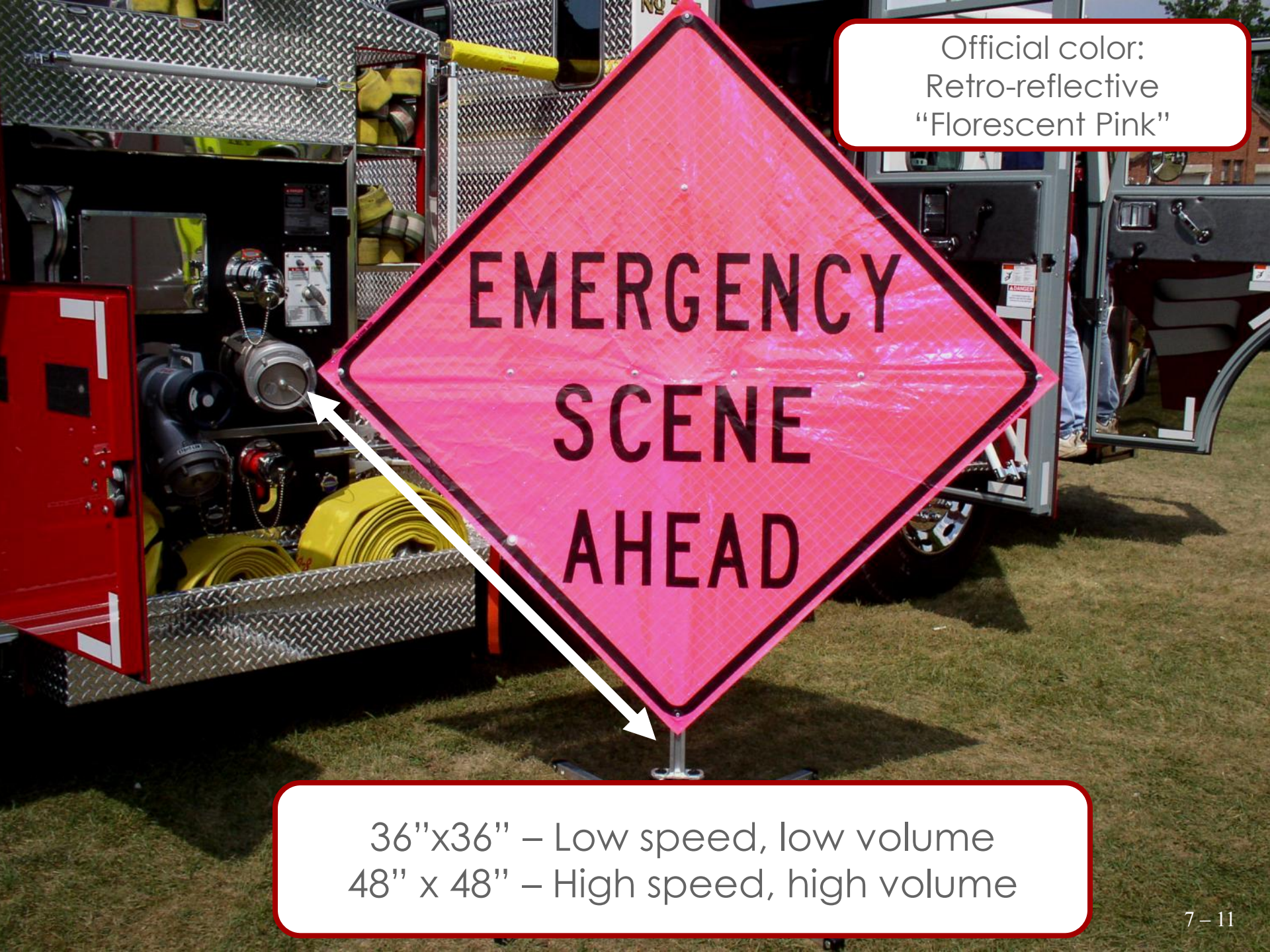
Traffic Cones

Per MUTCD 6 I requirements, cones that are used at night or on highways with a posted speed limit over 45mph have to be

28 inches tall with two reflective stripes.

Flares & Light Sticks





Official color:
Retro-reflective
"Florescent Pink"

36"x36" – Low speed, low volume
48" x 48" – High speed, high volume

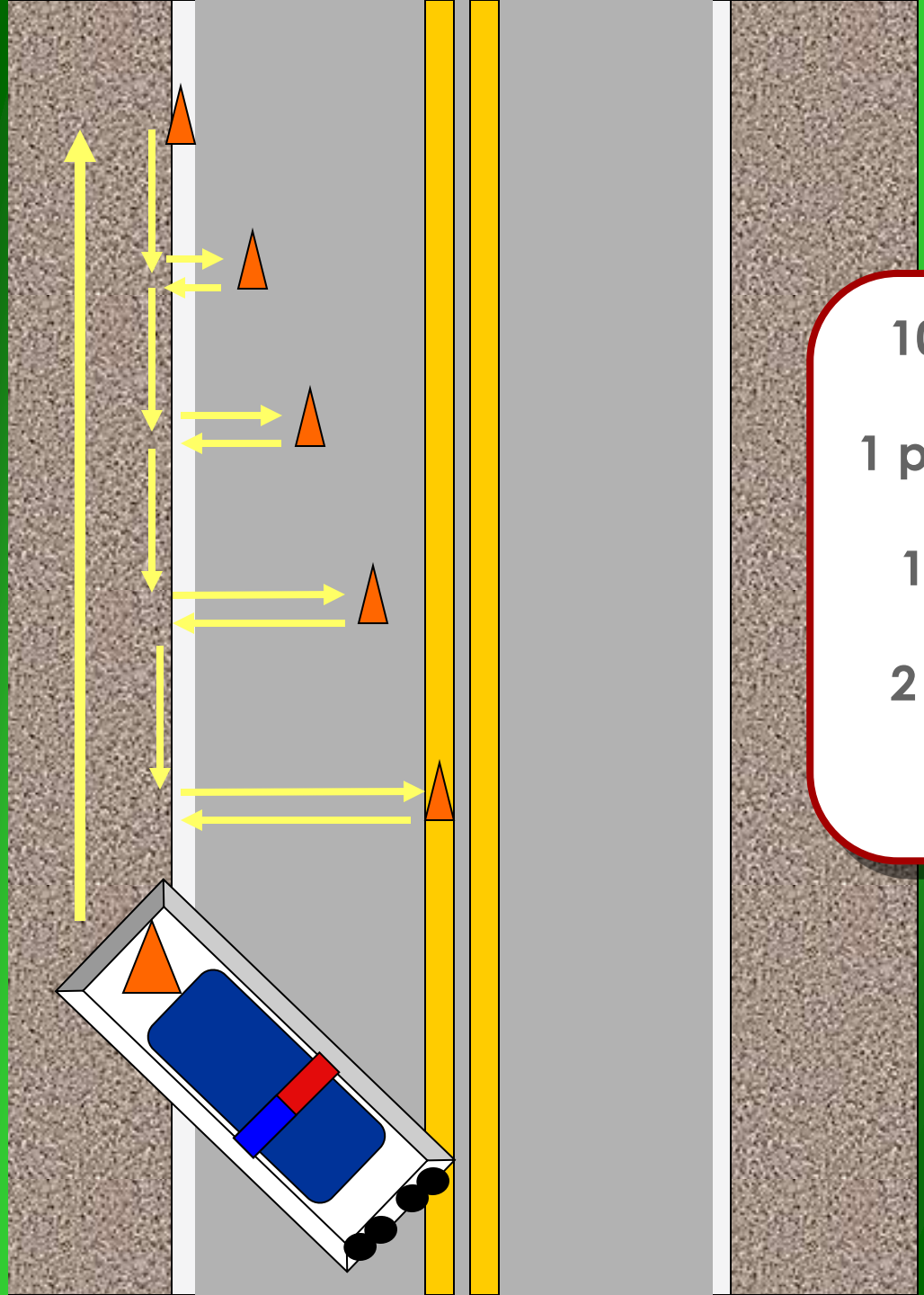
Cone Tapers

Work Zone
CONE or FLARE placement
for a "taper" of one lane

25mph = 125' taper	4
35mph = 245' taper	7
45mph = 540' taper	14
55mph = 660' taper	17
65mph = 780' taper	20

Typical paint markings have 40' spacing

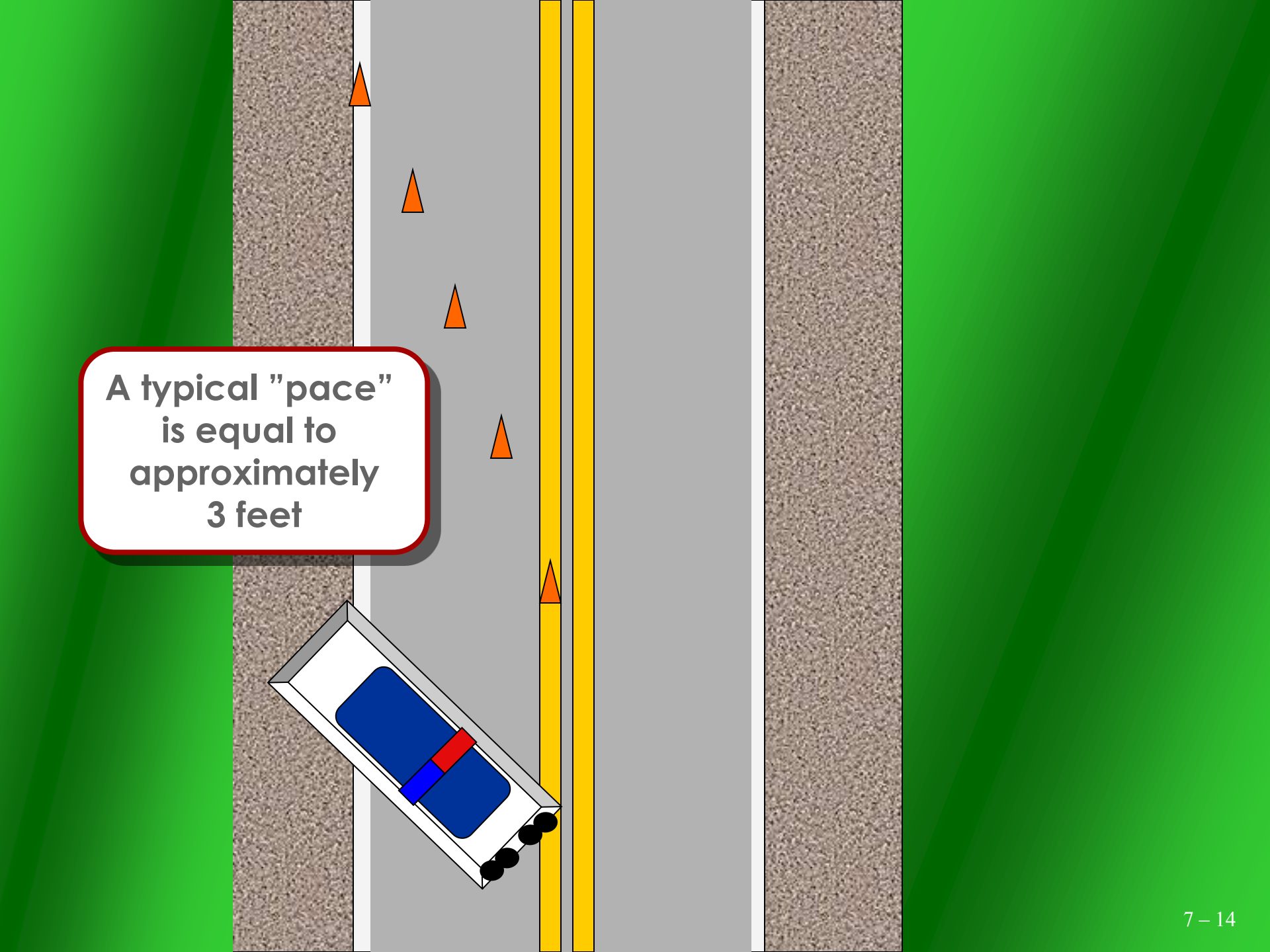
Number of cones required @ 40' SPACING

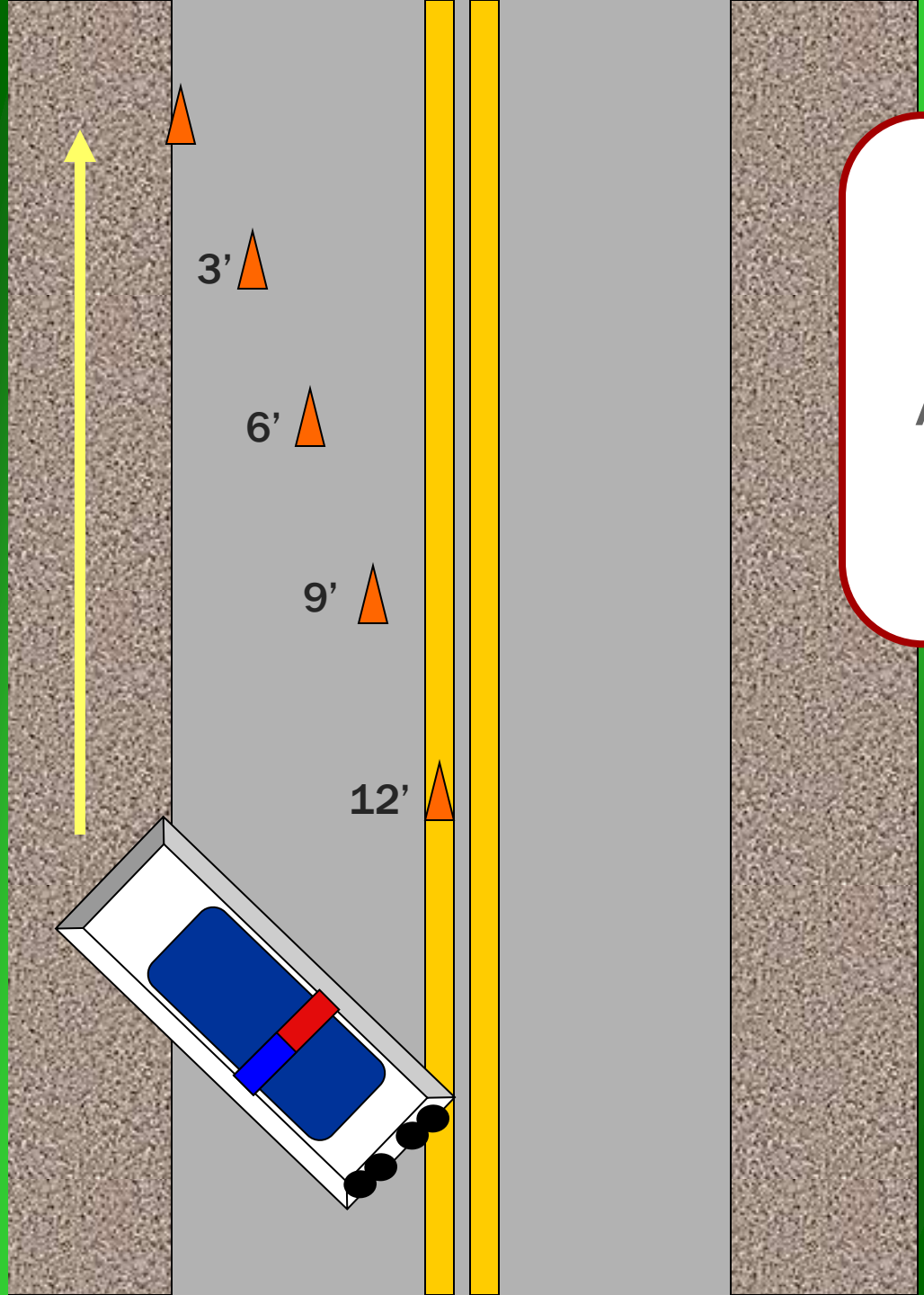


10 paces linear;
then
1 pace to the side,

10 more paces
then
2 paces to side,

etc…


A typical "pace" is equal to approximately 3 feet



Example of a “Responder” 5-Cone Taper

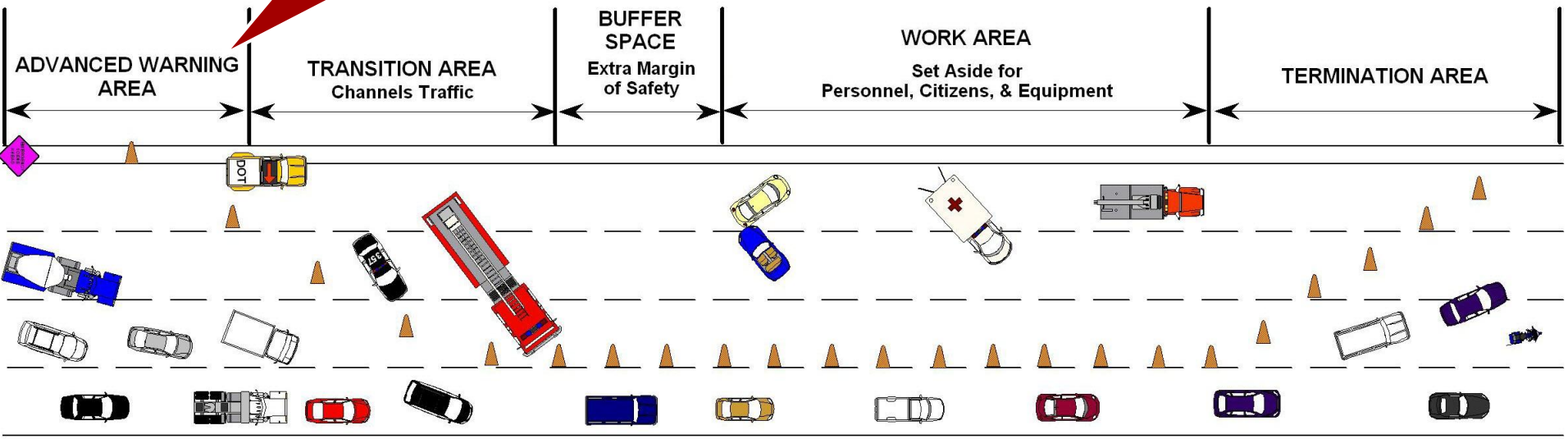
Approximately 120 feet upstream for 1st cone

Arrow board placement

‘Light Shedding’ & Lighting Management

Advanced Warning Adjustments

The **Advanced Warning** component of your Traffic Management Area is a top priority



Advanced Warning Considerations

Bad Weather

- Wet roads double the average motorist stopping distance over that for dry road conditions
- Poor visibility can lengthen driver reaction time
- Increases responder's degree of risk

Limited Sight Distances

Hills, Curves, Bridges, & Intersections

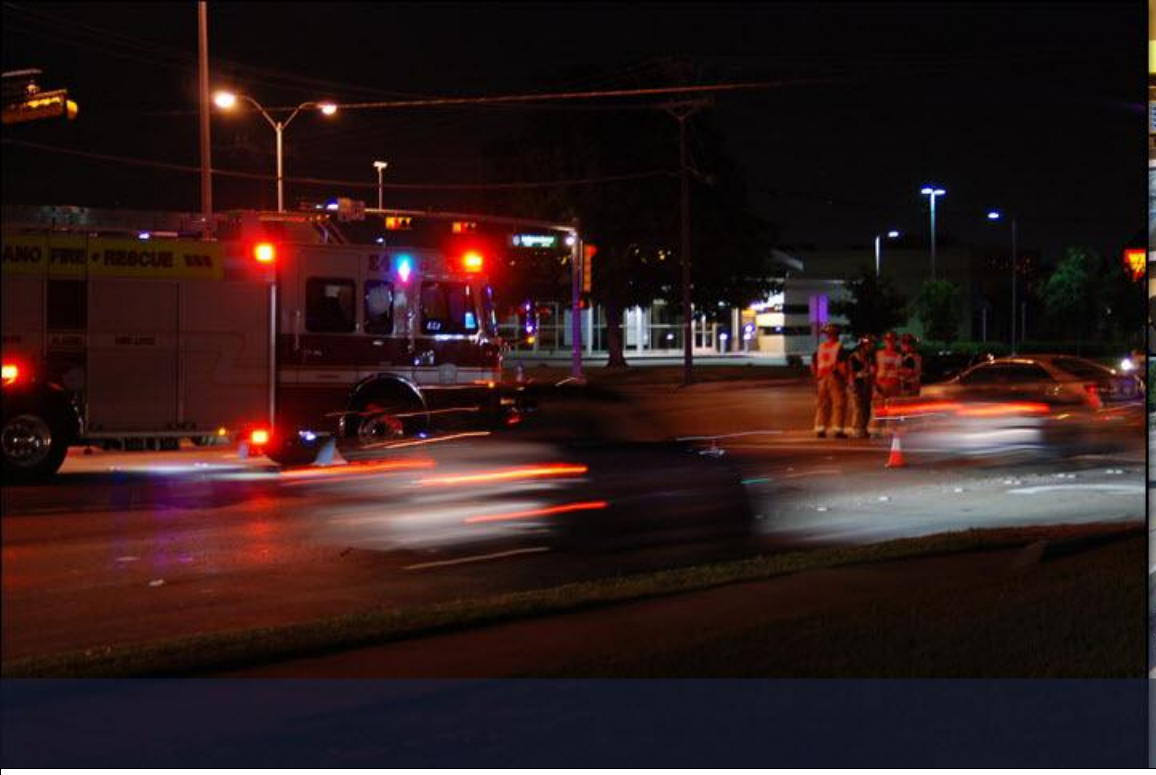
Communications and Monitoring

Communications

- Establish incident command with Dispatch
- Request or notify Incident Commander of any special equipment needs
- Notify Dispatch of need for traffic diversion/designated staging area, if necessary
- Coordinate TMC, LE on any additional lane closures
- Notify Dispatch as traffic control devices, lane closings/openings change

Monitoring

- Monitor traffic flow throughout incident and request traffic flow/queue update from TMC
- Request TMC update on traffic queue



Lesson 8: Removal

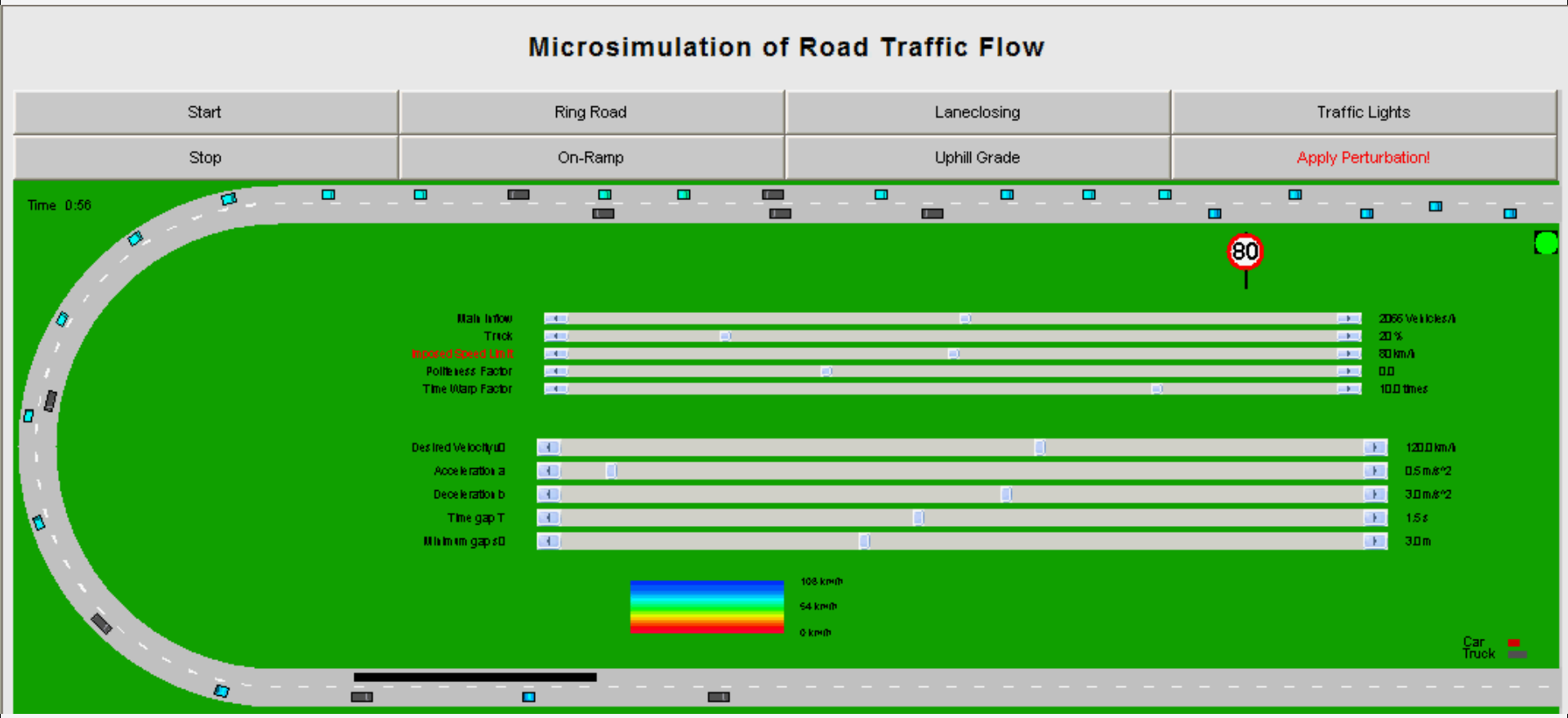
Lesson Objectives

- List the principle laws that relate to Quick Clearance
- Identify the procedures for removing cargo and cleaning up spilled liquid or debris from the accident scene
- Describe best practices for ensuring that the appropriate towing vehicle for the damaged vehicle is dispatched
- Recount the necessary communications for a successful scene clearance egress and wrap up

Remaining Capacity Statistics

Number of Lanes	If Shoulder Blocked	Lanes Blocked		
		1	2	3
2	81%	35%	0%	N/A
3	**83%**	49%	17%	0%
4	85%	**58%**	25%	13%
5	87%	69%	40%	20%
6	89%	71%	50%	26%

Effect of Blocked Lane



Source: http://www.traffic-simulation.de/

Quick Clearance Decisions

- If the vehicle is still functional, have **motorist move it out of the roadway** onto shoulder, if possible.
- If the vehicle is not functional, an **appropriate-sized** tow truck must be called.
- If the disabled vehicle is commercial and has spilled cargo, it must be **determined if the cargo is hazardous** before initiating clearance.
- If it is determined that spilled cargo is hazardous, the appropriate responders must be contacted.


PRO-GARD

As part of **safe**, **quick clearance**, relocate to the shoulder before off loading or up righting—incident cleared in **55 minutes.**

Quick Clearance Extrications

Extrications should be completed and **cleared** within the **shortest** timeframe possible


Opened almost **8 hours** sooner than if extrication had occurred at the scene

Cargo Removal

- How cargo is handled depends on local or regional procedures
- Trucking company and/or insurance provider must be contacted
- Usually is it requested that cargo is salvaged, but this means traffic delays
- Some insurance companies "total" the cargo to avoid traffic delays that result in secondary collisions and cargo recovery expenses
- An **aggressive method** that allows for responder **safety** and **quick clearance** should be used

Debris Removal

In many states, towing and recovery service providers are responsible for the removal of debris. In the interest of **safe**, **quick clearance** and responder **safety**, other responders can assist, as well.

Work **together** to clear the debris—the sooner it's done, the **sooner** everyone gets to **leave**.

Towers depend on **timely** and **accurate** information


Towers must be aware of **safe**, **quick clearance** goals

TRAA Vehicle Identification Guide

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 minivans, 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 cable-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.

This card is produced and distributed by the Towing and Recovery Association of America.

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 includes 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?

* **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.

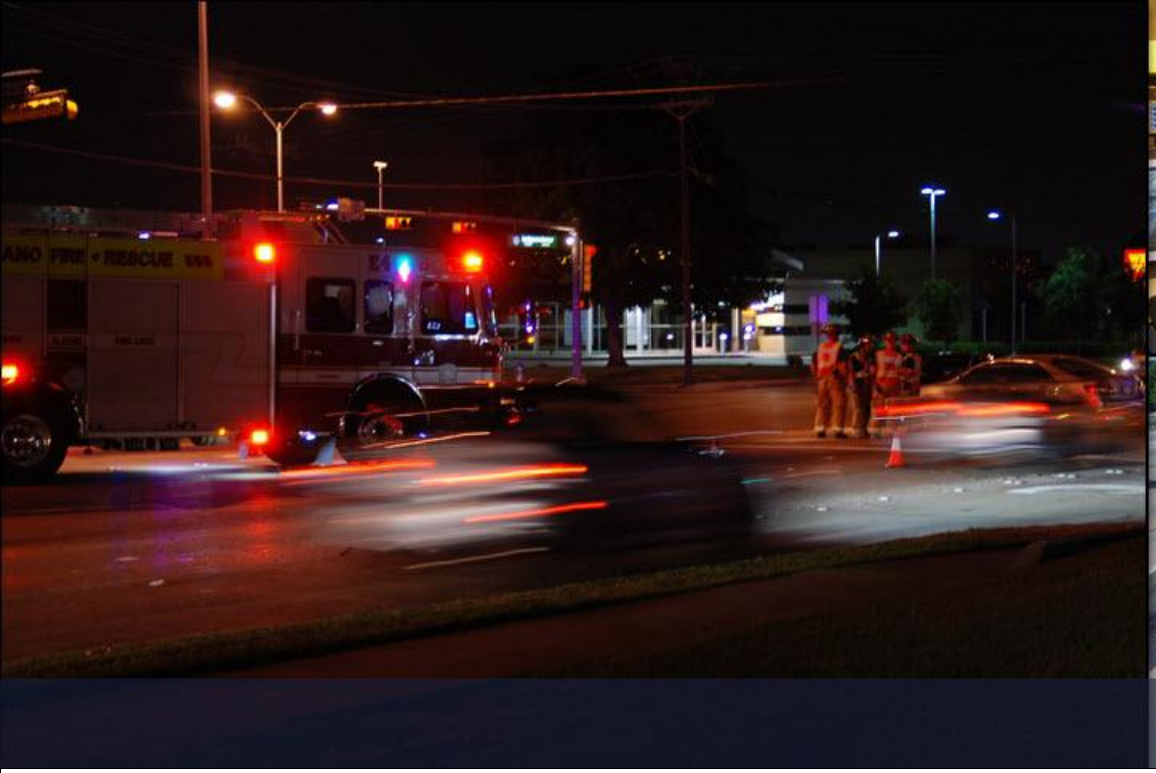
External Communications

- Inform Dispatch of unexpected delays

- Notify Command if assistance is needed to create a clear area to position recovery vehicles for removal

Clearance Communications

- Request assistance in scene egress as necessary



Lesson 9: Termination

Lesson Objectives

- Name the clean-up procedures necessary for proper scene termination
- Explain the procedure for re-opening traffic lanes
- Summarize the procedure for communicating traffic restoration, including the appropriate parties who should be notified

Termination Checklist

- ☑ Let other responders know when you're leaving
- ☑ Protect towers while they finish up
- ☑ Check with incident commanders when they leave
- ☑ Make sure all personnel are accounted for
- ☑ Let TMC know that lanes are open

Termination

Termination is the final stage of incident response. It is the process of restoring traffic flow to normal or close to normal.

Major activities:

- 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 condition
- Departure of the responders from the incident scene

Reopening Travel Lanes

Reposition responder vehicles to **reopen lanes**

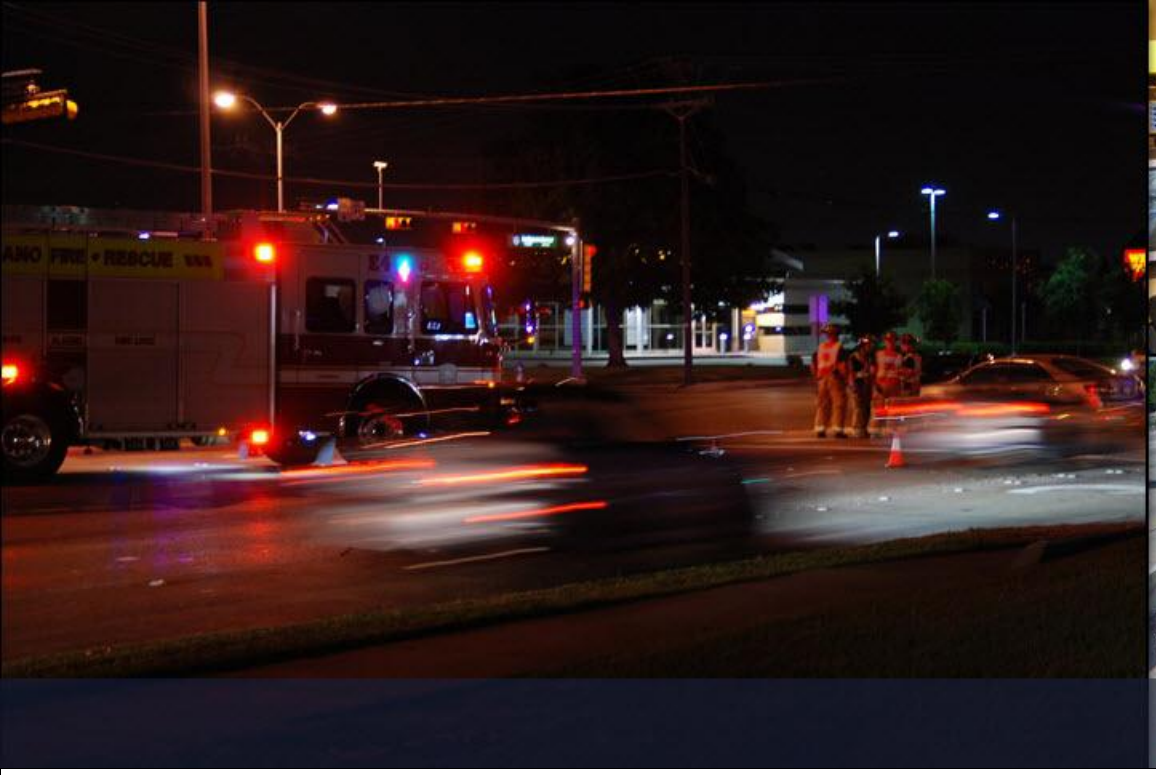
Safe, Quick Clearance

This "sweeping" technique promotes **safe**, **quick clearance** as it opens the roadway faster.

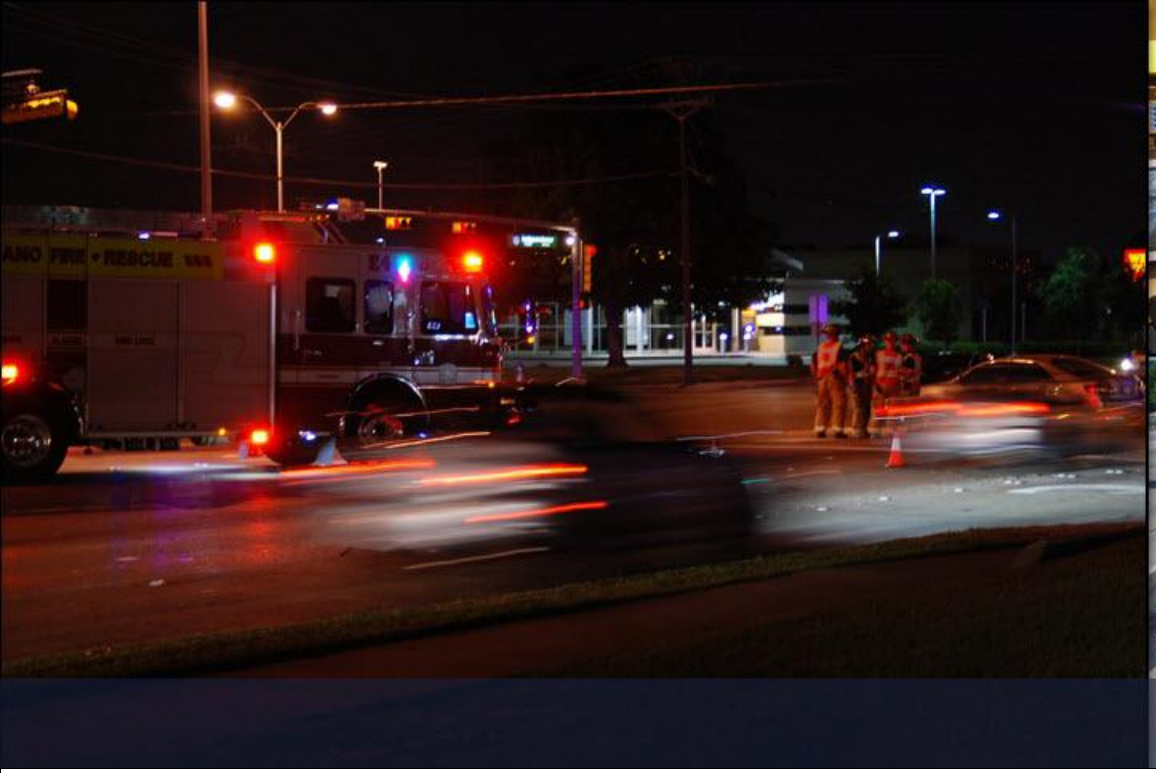
Termination Communication

Effective termination communication includes:

- Coordinating with responders still on-scene about incident egress
- Notifying Dispatch as lane closings/openings change
- Coordinate with Law Enforcement to restore traffic



Lesson 10: Hands-On Activity



Lesson 11: Situational Awareness

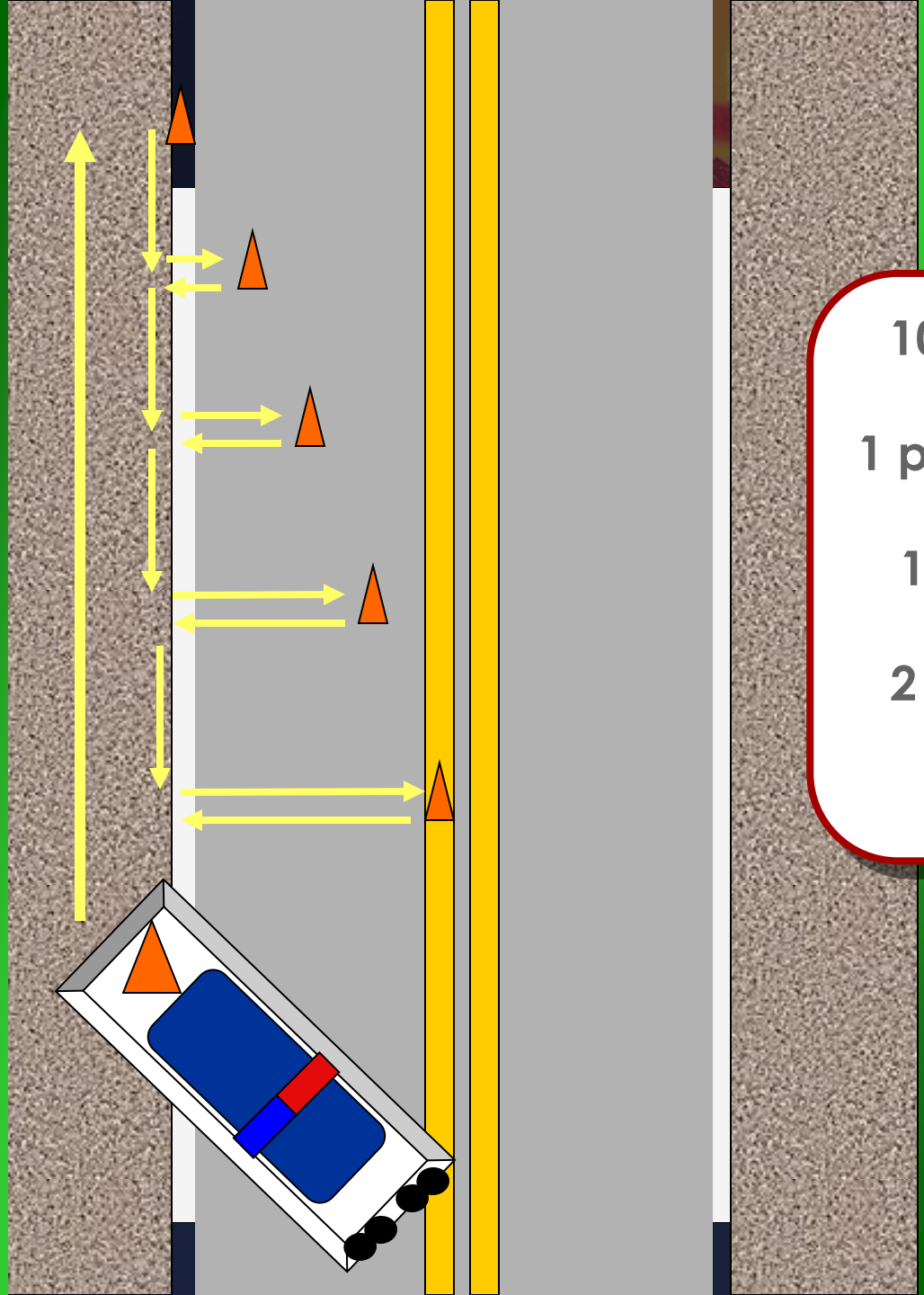
Lesson Objectives

- Visualize reinforcement of selected competencies involved in incident response to increase responder situational awareness

Safe Positioning begins with a ‘Block’

Exiting Responder Vehicles

- Watch for debris on the roadway
- Don ANSI-compliant high-visibility vests
- Exit on the non-traffic side when possible
- If moving around a corner or the ‘zero’ buffer, stop and watch for traffic



10 paces linear;
then
1 pace to the side,

10 more paces
then
2 paces to side,

etc…

National Traffic Incident Management (TIM) Responder Training

FHWA TRB SHRP2 AASHTO
The Voice of Transportation

the tim NETWORK

Network with other responders

www.timnetwork.org