National Traffic Incident Management Responder Training Program

Train-the-Trainer Guide

August 2013

U.S. Department of Transportation
Federal Highway Administration

SHRP2 SOLUTIONS
STRATEGIC HIGHWAY RESEARCH PROGRAM

American Association of State Highway and Transportation Officials
AASHTO
The Voice of Transportation

TRB

TABLE OF CONTENTS

APPENDICES

ACRONYMS

ANSI	–	American National Standards Institute
ATSSA	–	American Traffic Safety Services Association
CAD	–	Computer-Aided Dispatch
CCTV	–	Closed-Circuit Television
CFR	–	Code of Federal Regulations
DMS	–	Dynamic Message Signs
DOJ	–	Department of Justice
DOT	–	Department of Transportation
EMS	–	Emergency Medical Services
ERG	–	Emergency Response Guidebook
EV	–	Electric Vehicles
FEMA	–	Federal Emergency Management Agency
FHWA	–	Federal Highway Administration
FMCSA	–	Federal Motor Carrier Safety Administration
F/R	–	Fire/Rescue
GIS	–	Geographic Information System
GPS	–	Global Positioning System
HAR	–	Highway Advisory Radio
Hazmat	–	Hazardous Materials
HEV	–	Hybrid-Electric Vehicles
HOV	–	High-Occupancy Vehicle
HV	–	High Voltage
IACP	–	International Association of Chiefs of Police
IAP	–	Incident Action Plan
ICP	–	Incident Command Post
ICS	–	Incident Command System
ISEA	–	International Safety Equipment Association
LE	–	Law Enforcement
MMUCC	–	Minimum Model Uniform Crash Criteria
MUTCD	–	Manual on Uniform Traffic Control Devices
NFPA	–	National Fire Protection Association
NHTSA	–	National Highway Traffic Safety Administration

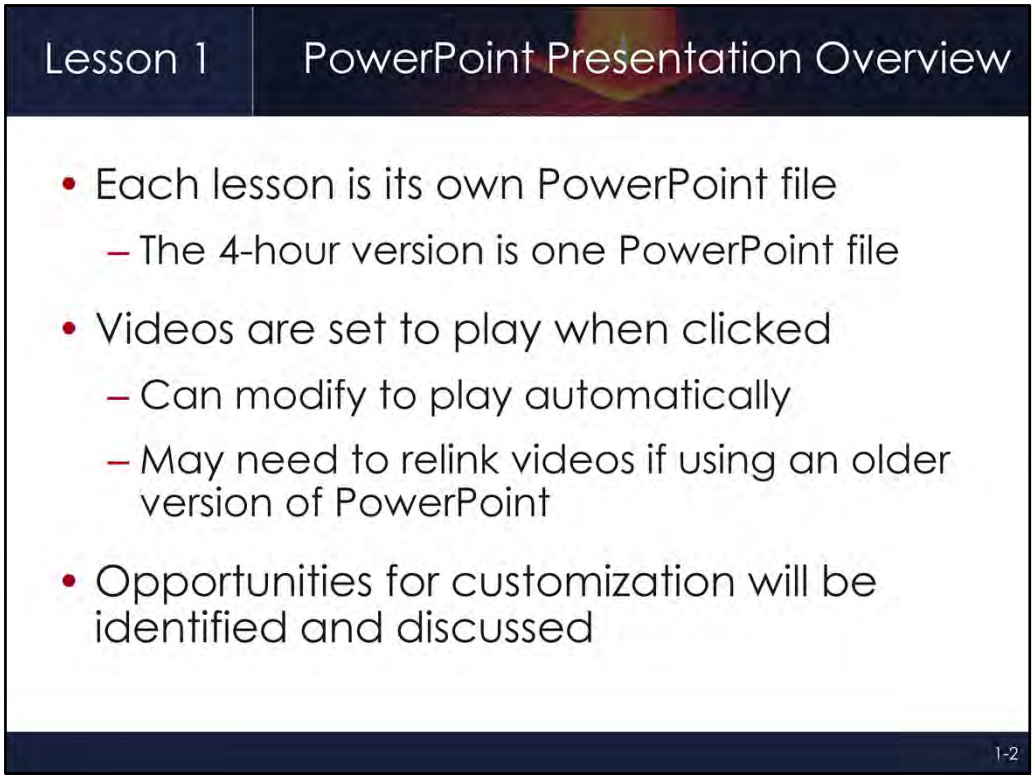
NIJ	–	National Institute of Justice
NIMS	–	National Incident Management System
NTIMC	–	National Traffic Incident Management Coalition
NUG	–	National Unified Goal
OSHA	–	Occupational Safety and Health Administration
PCMS	–	Portable Changeable Message Signs
PPE	–	Personal Protective Equipment
SHRP 2	–	Strategic Highway Research Program 2
SOP	–	Standard Operating Procedure
TIM	–	Traffic Incident Management
TMC	–	Transportation Management Center
TOC	–	Traffic Operations Center
T&R	–	Towing and Recovery
TRAA	–	Towing and Recovery Association of America
TTC	–	Temporary Traffic Control
USFA	–	U.S. Fire Administration
VMS	–	Variable Message Signs

Welcoming Remarks

- Welcome students to the class and have the trainers introduce themselves, including name, agency, and years on the job
- Cover the following information about the training facility:
  - Exits
  - Bathroom locations
  - Policy for food and drink in the classroom
  - Locations for drinks, snacks and meals
  - Smoking rules for the facility
  - Policy for cell phones, text messages, pagers, and portable radios
  - Signing the class roster

Introduction of Materials

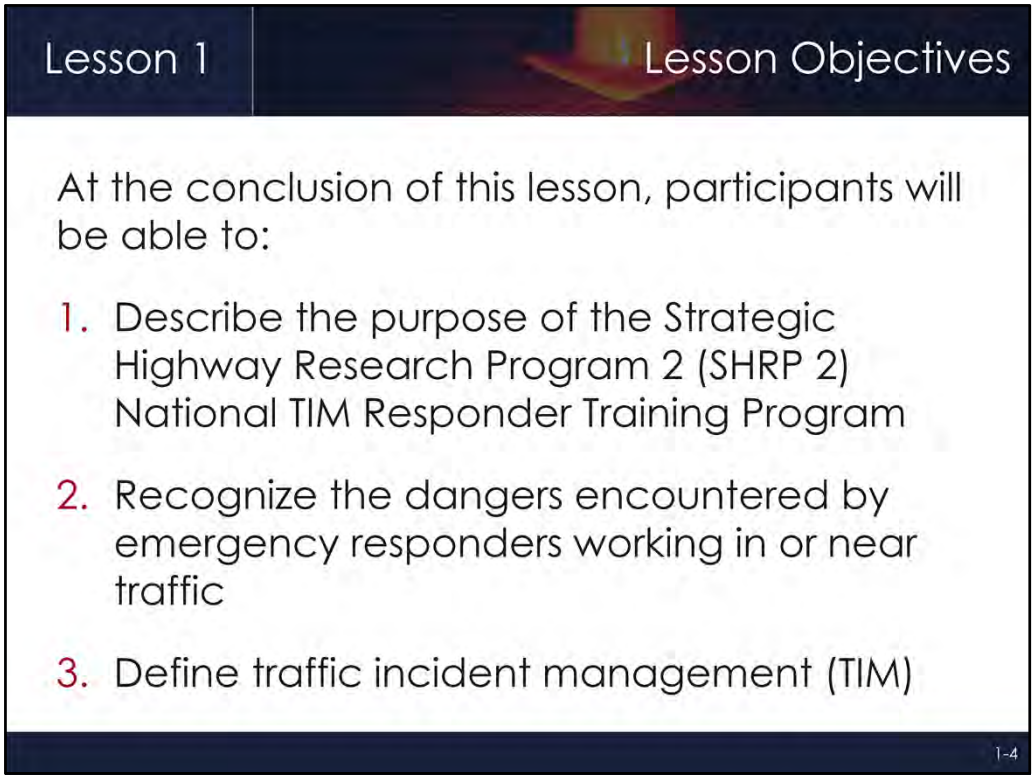
- This slide is specific to the Train-the-Trainer course and can be omitted when teaching this lesson to responders
- Materials provided to each participant include:
  - The Train-the-Trainer Guide
  - A copy of the state's laws that relate to TIM
  - A list of Federal Highway Administration (FHWA) publications related to TIM
- The materials are for participants to keep and it is encouraged that they be used for note-taking throughout program
- Cover the sample publications provided by and available from FHWA
  - Some of the items on the FHWA publications list are available for participant viewing
  - Many are also available as PDF on the Internet
  - Samples are on display for the first day; at then end of day one, samples are available to participants on a first come basis



PowerPoint Presentation Overview

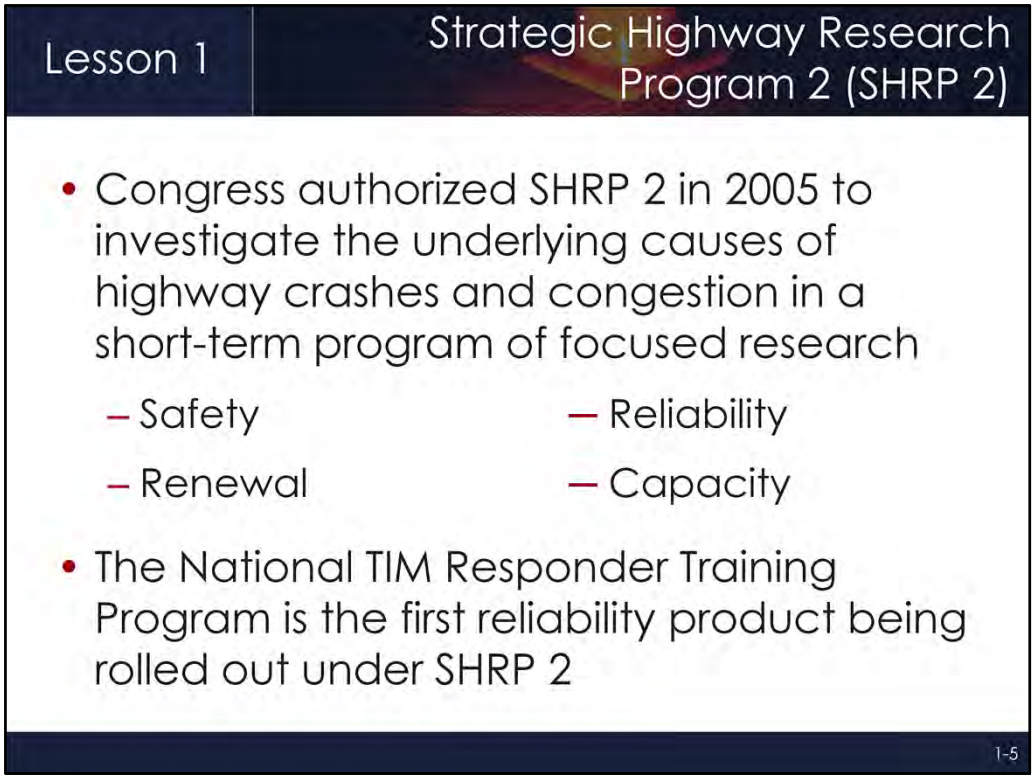
- This slide is specific to the Train-the-Trainer course and can be omitted when teaching this lesson to responders

Lesson 1	4-Hour Version Slide: 4H-1



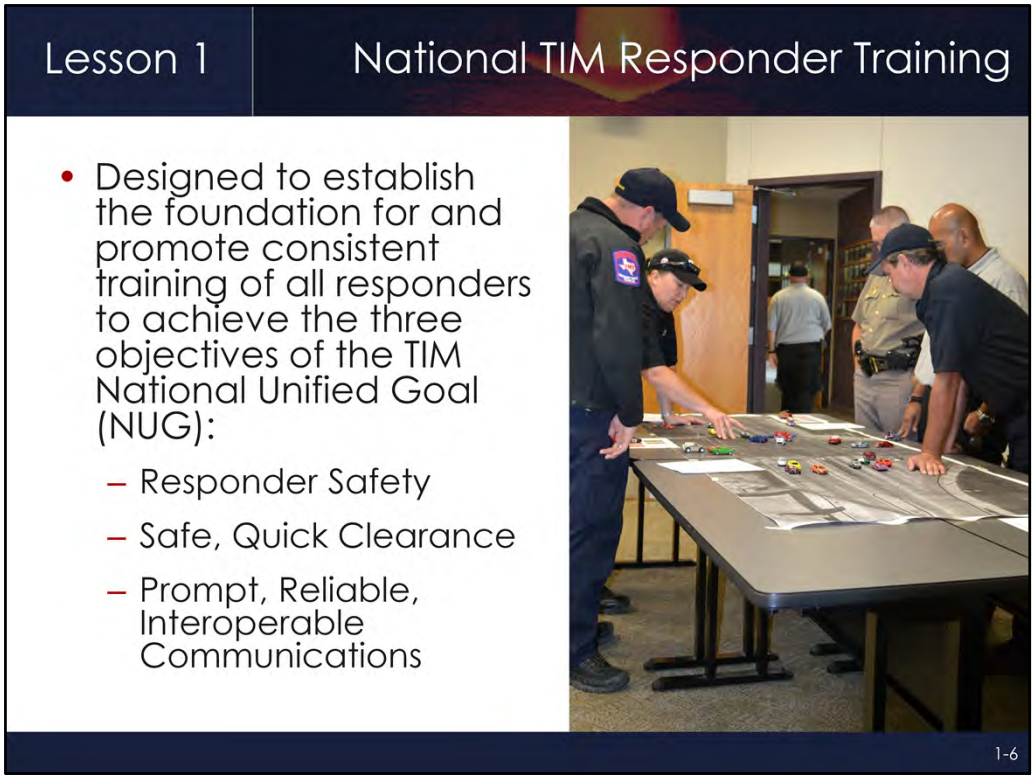
Lesson Objectives	4-Hour Version Slide: 4H-2

- Describe that each lesson starts with a set of lesson objectives
- Emphasize that lesson objectives ensures necessary material is covered
- In the Train-the-Trainer program, each lesson begins and ends with the objectives
- In the 4-hour Responder Training format of the program, the objectives are only covered at the start of each lesson
- Review Lesson 1 objectives



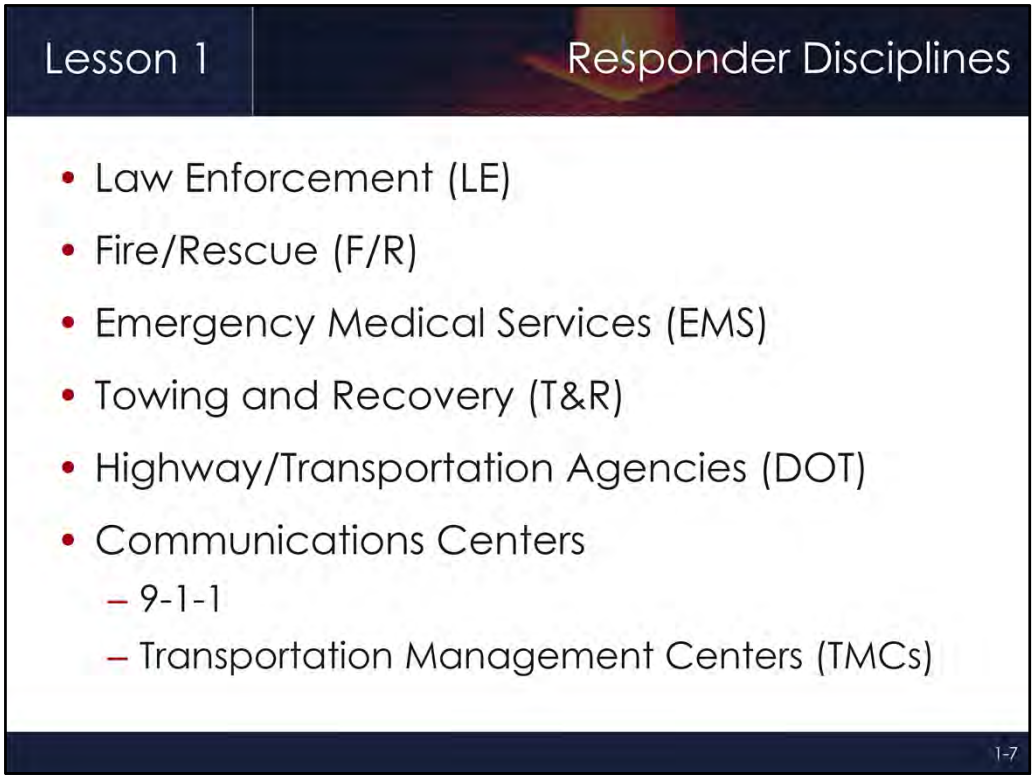
Lesson Objective: 1.1 | 4-Hour Version Slide: 4H-3

- The National TIM Responder Training Program was created as part of the second Strategic Highway Research Program (SHRP 2)
- SHRP 2 was authorized by Congress in 2005
- SHRP 2 has four areas of focus: safety, renewal, reliability, and capacity
- Dozens of research projects are either underway or completed within each focus area
- The National TIM Responder Training Program was developed under the focus of reliability, but it also impacts safety



Lesson Objective: 1.1	4-Hour Version Slide: 4H-4

- In 2006, organizations representing TIM stakeholders formed the National Traffic Incident Management Coalition (NTIMC)
- The group developed a document referred to as the National Unified Goal (NUG) for TIM
  - Represents a unified national vision that this SHRP 2 program addresses
- The NUG has three main objectives and 18 related strategies – the objectives are:
  1. Responder Safety
  2. Safe, Quick Clearance
  3. Prompt, Reliable, Interoperable Communications
- To promote the vision of the NUG, this course was developed and reviewed by professionals from all disciplines
- The course was successfully pilot tested in four cities and subsequently adopted by the FHWA for national rollout in 2012



Lesson Objective: 1.1

- The target audience for the National TIM Responder Training Program includes all responder disciplines

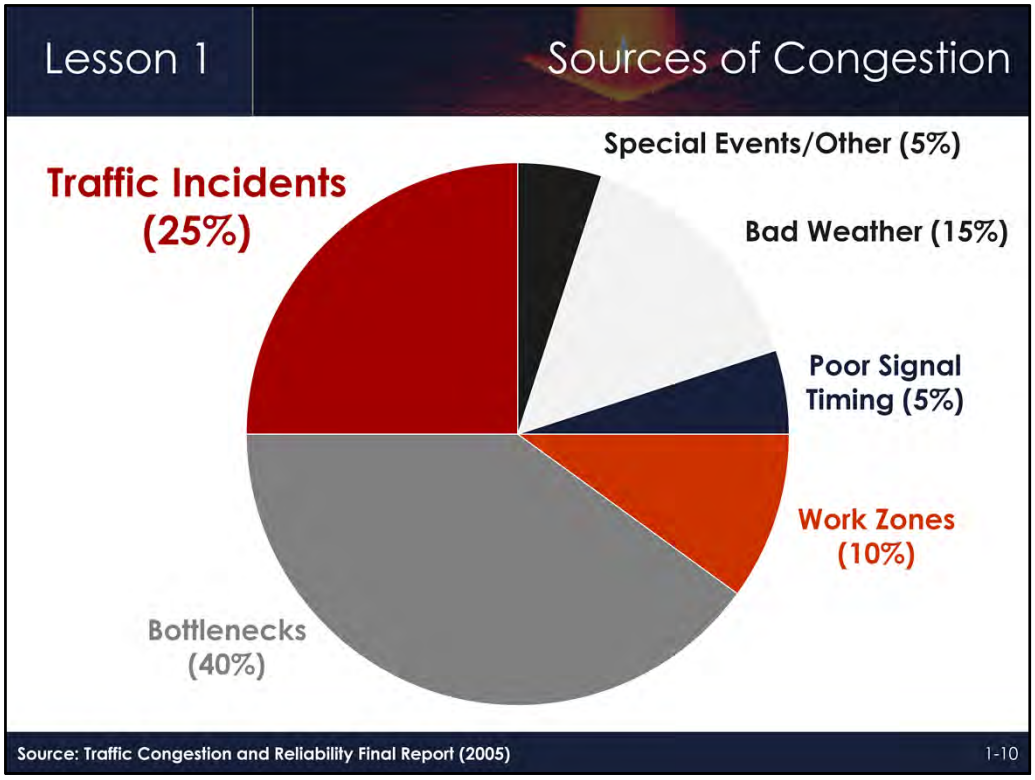
Lesson Objective: 1.1

- **Animation:** First click reveals middle level (Local-Level Trainers) of pyramid and second click reveals top level (Nation's Responder Community)

- FHWA has a core group of master instructors that are traveling around the country and delivering the National TIM Responder Train-the-Trainer course
- The Train-the-Trainer course is intended to provide local-level trainers with the ability to conduct a 4-hour version for responders in their area or state **[First click]**
- The ultimate goal of this approach is to train the entire nation's responder community **[Second click]**
- An e-learning version of the product is in the development stage and will fill gaps where classroom training and direct delivery would not be practical or possible

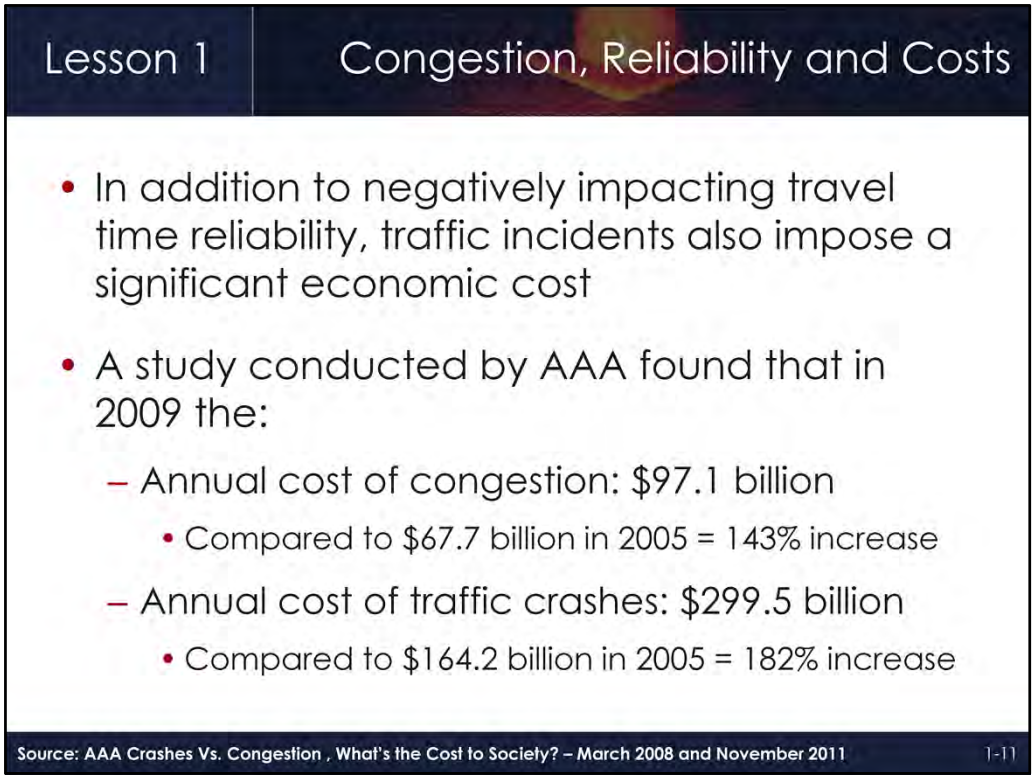
Lesson Objective: --	4-Hour Version Slide: 4H-5

- Review the structure of the course and the anticipated times for breaks
- Emphasize that the course lessons are similar to the chronological sequence of real-world incidents



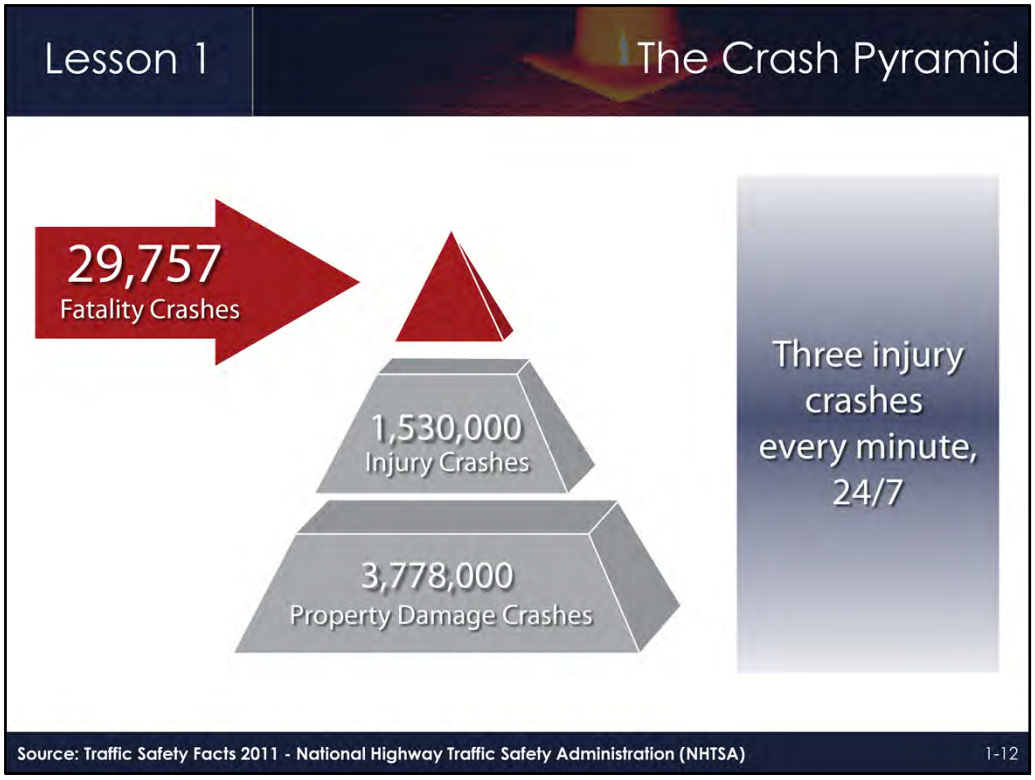
Lesson Objective: --

- About 60% of all congestion is attributed to non-recurring events like special events, weather, work zones, and incidents
- Traffic incidents make up about 25% percent of all congestion and are therefore a significant part of congestion
- If we handle traffic incidents more efficiently, we can impact overall congestion in a meaningful way
- This training program specifically addresses the 25% of congestion due to traffic crashes, vehicle breakdowns, roadway debris, etc.



Lesson Objective: --

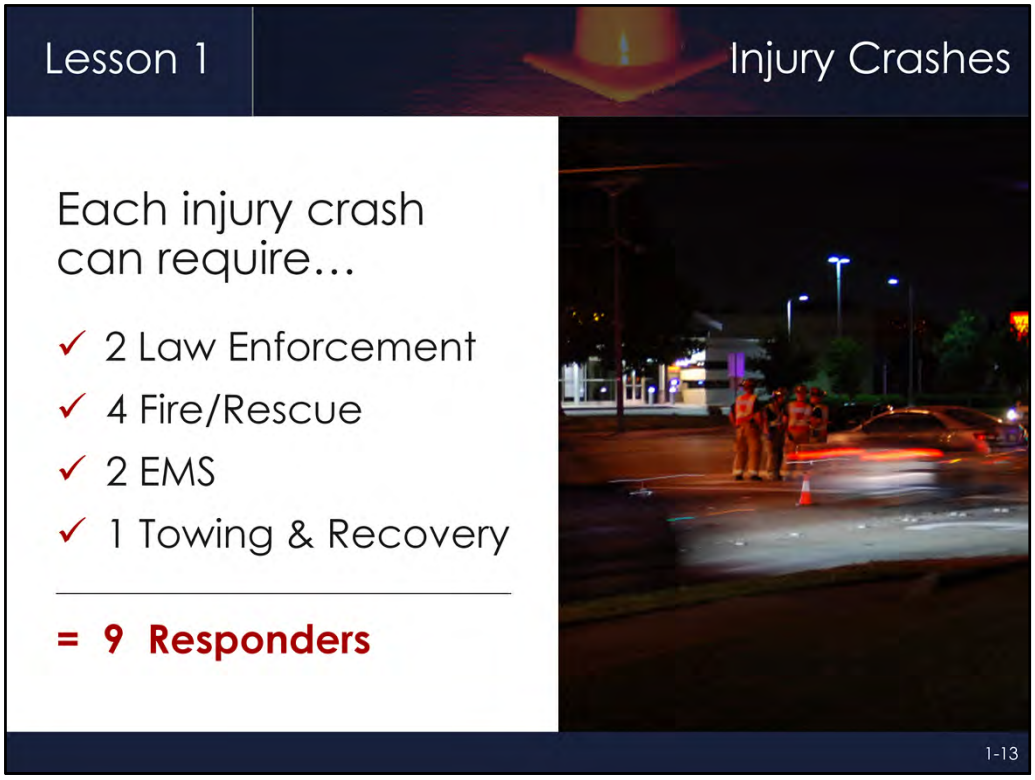
- Sitting in traffic costs everyone time, money, and fuel
- Consider that every traffic crash also has a cost attributed to it; medical costs, emergency services, property damage, lost productivity, etc.
- Where the costs of incidents and the costs of crashes intersect is the preventable secondary crashes that occur at or near incident scenes, which will be covered later



Lesson Objective: 1.2

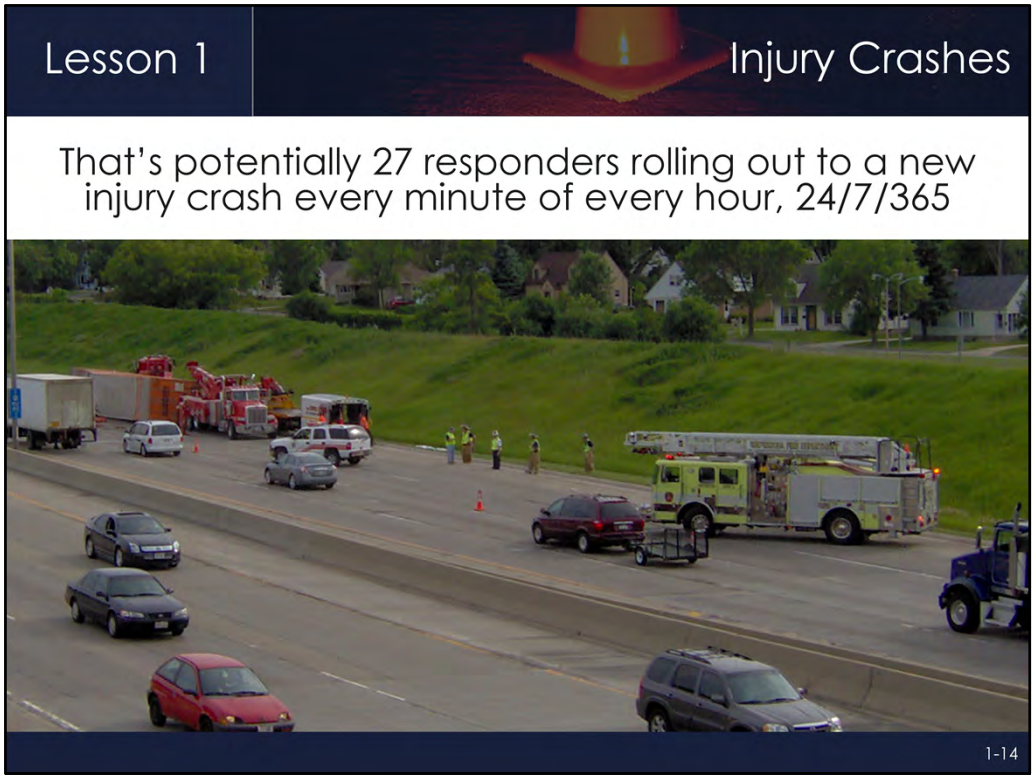
- **Animation:** Click forward to make blue box on right appear

- Not all motor vehicle collisions are reported – only about 5.5 million of them come to the attention of law enforcement, the remainder are minor, unreported events
- Of the 5.5 million reported crashes, some involve only property damage, some injuries, and obviously some fatalities
- Some combination of responders are responding to all of these events
- For illustration, just focus on the fatal and injury crashes
- Doing the math, on average, there are three injury crashes occurring every minute of every day, 365 days a year **[Click]**



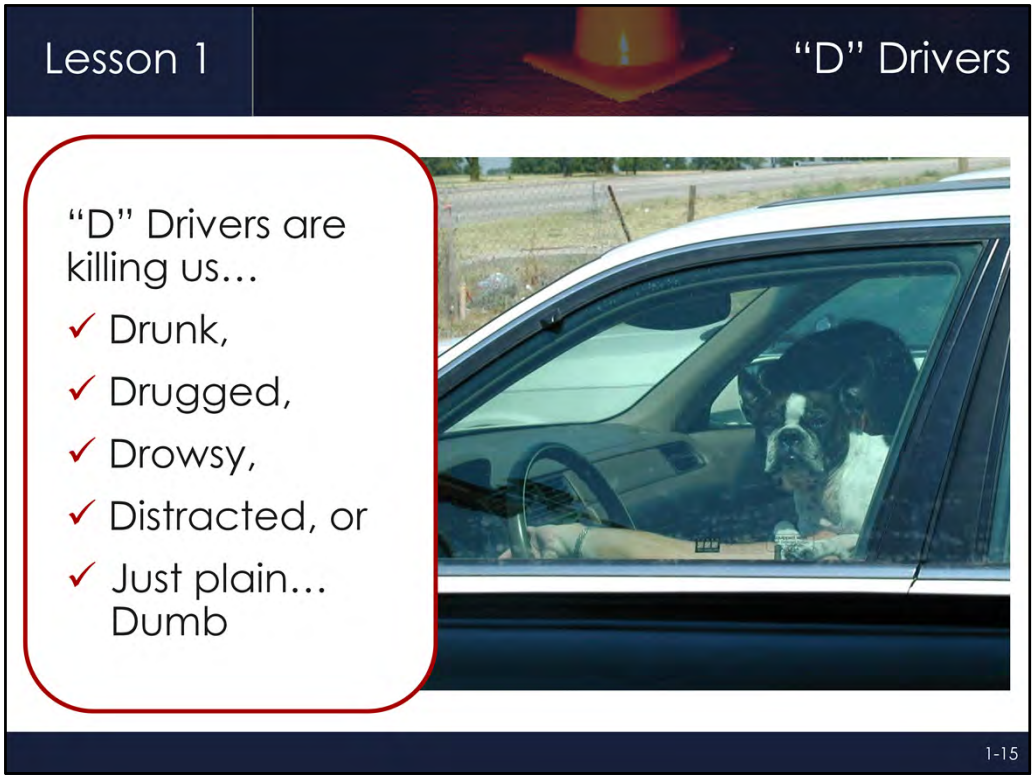
Lesson Objective: 1.2	4-Hour Version Slide: 4H-6

- Injury crash response might vary from place to place, but lets assume 2 law enforcement, 4 fire, 2 EMS, and 1 tow operator typically respond to an injury crash
- That is a total of nine responders potentially in harm's way at each incident



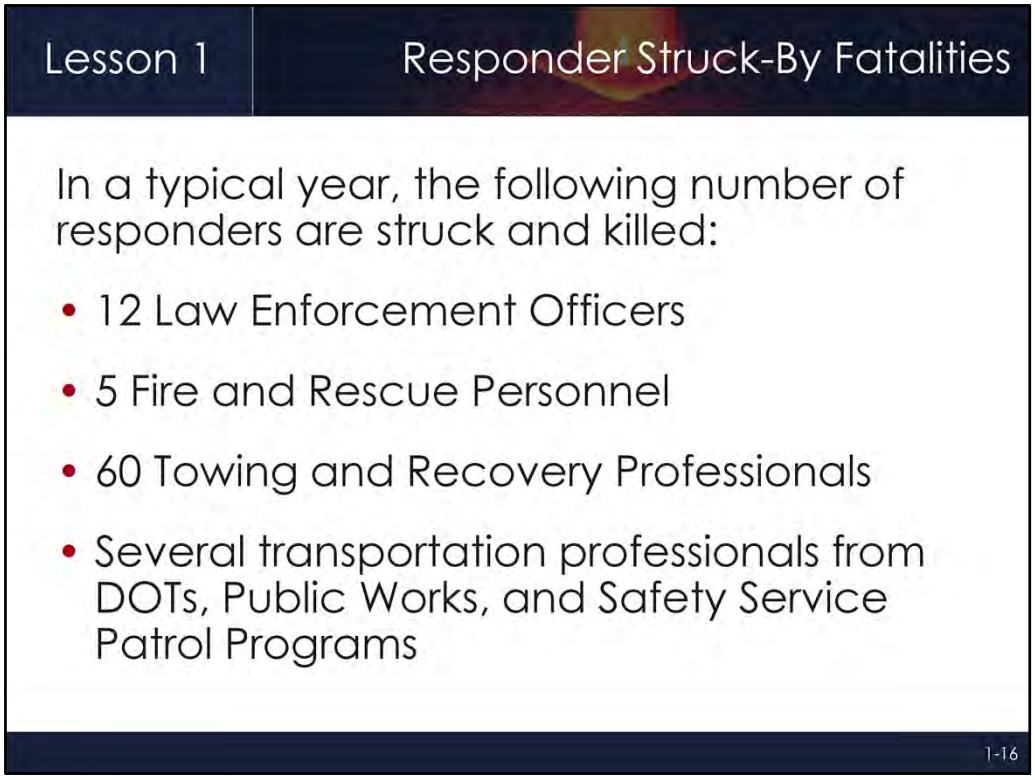
Lesson Objective: 1.2 | 4-Hour Version Slide: 4H-7

- With three injury crashes occurring every minute on average across the U.S., there is the potential for:
  - 27 new responders to arrive at new injury crashes every minute
  - 1,620 responders working at traffic-related crashes every hour
  - 38,880 responders in a 24-hour period
- The numbers represent a picture of responder exposure at injury traffic crashes; the degree of risk
- Recall that this does not include the nearly 4 million property damage only crashes where fewer responders are needed
- It also does not include other types of incidents like vehicle breakdowns, roadway debris, or even police traffic stops



Lesson Objective: 1.2	4-Hour Version Slide: 4H-8

- "D" Drivers is a phrase that has been coined to describe a type of driver who is inattentive, impaired, or makes poor driving decisions
- According to the National Safety Council:
  - Using a mobile phone while driving is equivalent to driving impaired
  - Texting while driving is equivalent to driving blindfolded
- These are the type of drivers who cause crashes and kill responders in the line of duty



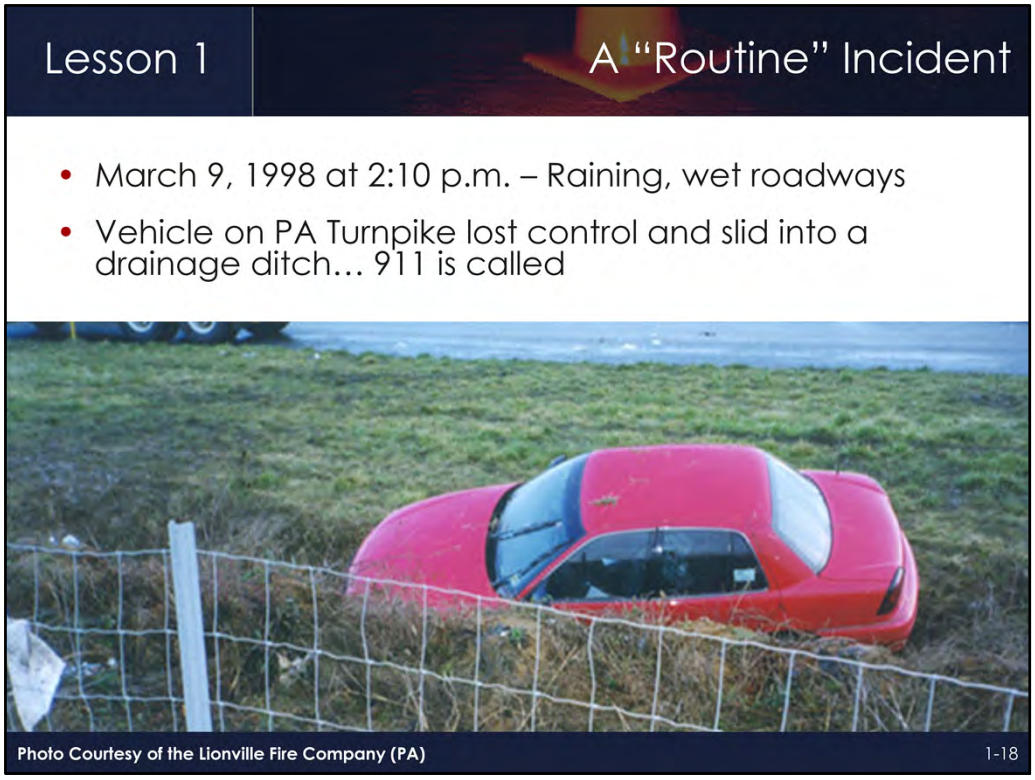
Lesson Objective: 1.2 | 4-Hour Version Slide: 4H-9

- According to the National Law Enforcement Officers Memorial, over the past 24 years, an average of 12 officers are 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 workers are also killed at incidents, though the exact numbers are difficult to pin down

Lesson Objective: 1.2	4-Hour Version Slide: 4H-10

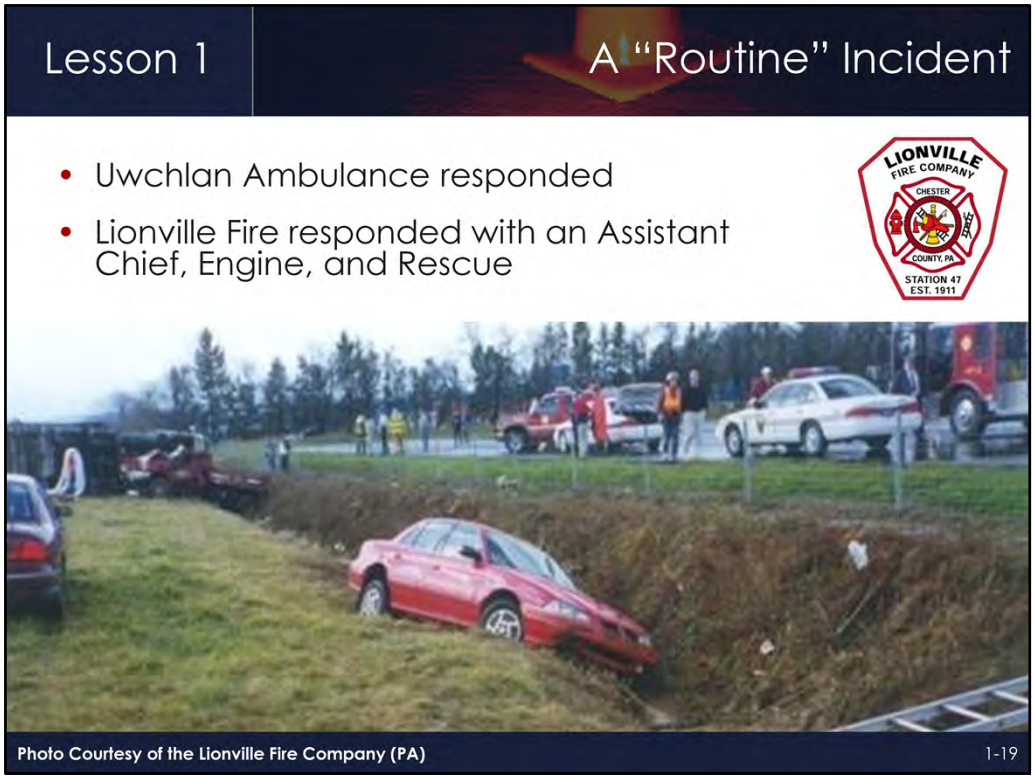
- Responder deaths and injuries are a significant reason for TIM
- Several examples of responder deaths are highlighted in this lesson to reinforce responder safety
- The value in the accounts are the activities of the responders and actions of “D” drivers, not wrong or right

- **Transition:** The following slides show examples of line-of-duty-deaths from several disciplines



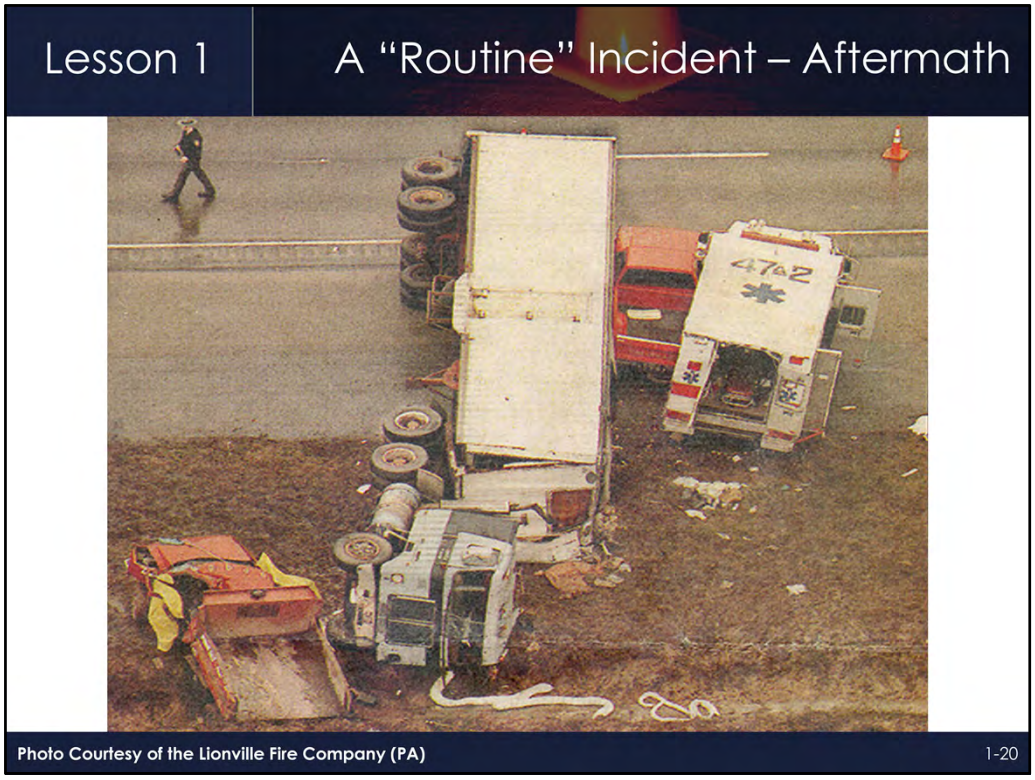
Lesson Objective: 1.2	4-Hour Version Slide: 4H-11

- An older incident from the Pennsylvania Turnpike still represents the largest number of responders struck in a single incident
- It was raining and wet when a Pontiac Grand Am heading west on the Pennsylvania Turnpike lost control and slid off the roadway



Lesson Objective: 1.2

- Uwchlan Ambulance and the Lionville Fire Company were dispatched to the scene

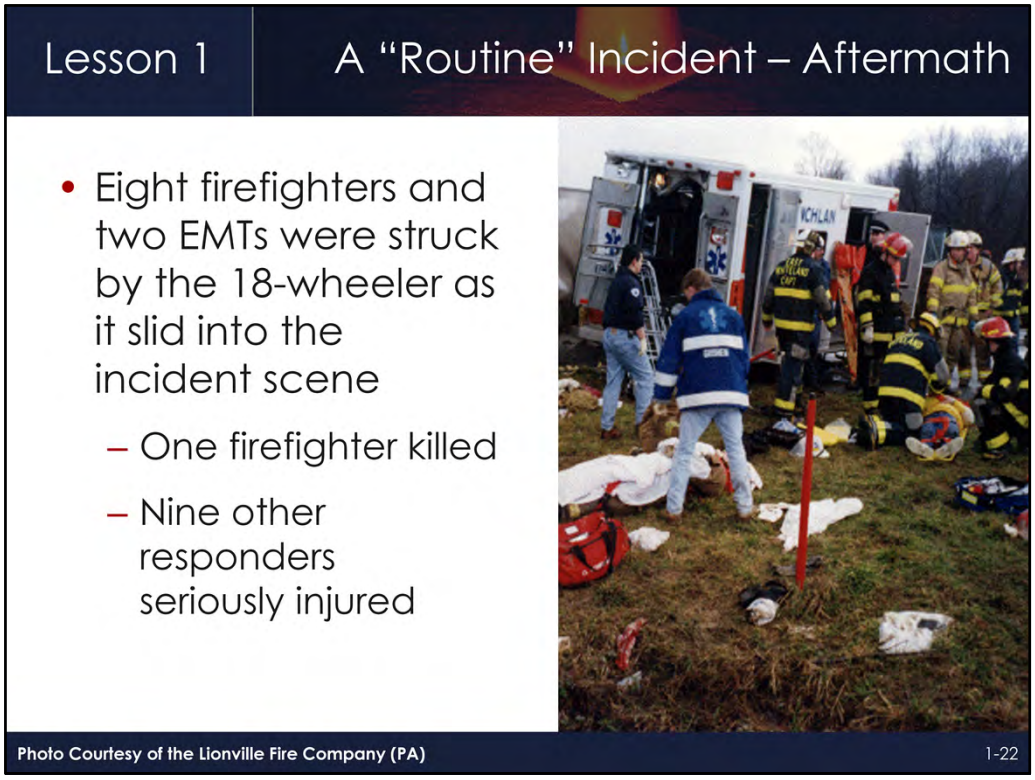


Lesson Objective: 1.2 | 4-Hour Version Slide: 4H-12

- As the responders were working at the incident scene, an18-wheeler topped the hill, saw the incident, and attempted to change lanes
- The driver lost control and flipped the rig on to its side
- The vehicle slid down the hill and slammed into the unprotected incident scene just as the patient was being loaded into the ambulance
- Several responder vehicles, including the fire engine and the ambulance where the patient was being loaded, were struck

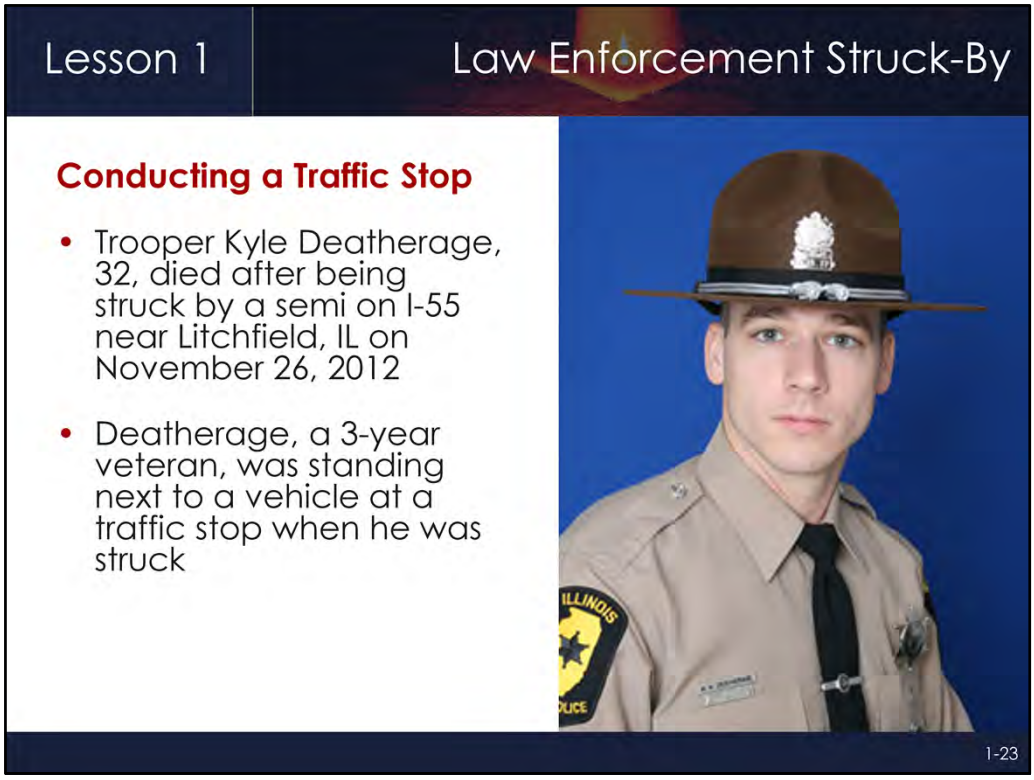
Lesson Objective: 1.2

- Rear loading zone of ambulance after being struck by the roll-over 18-wheeler



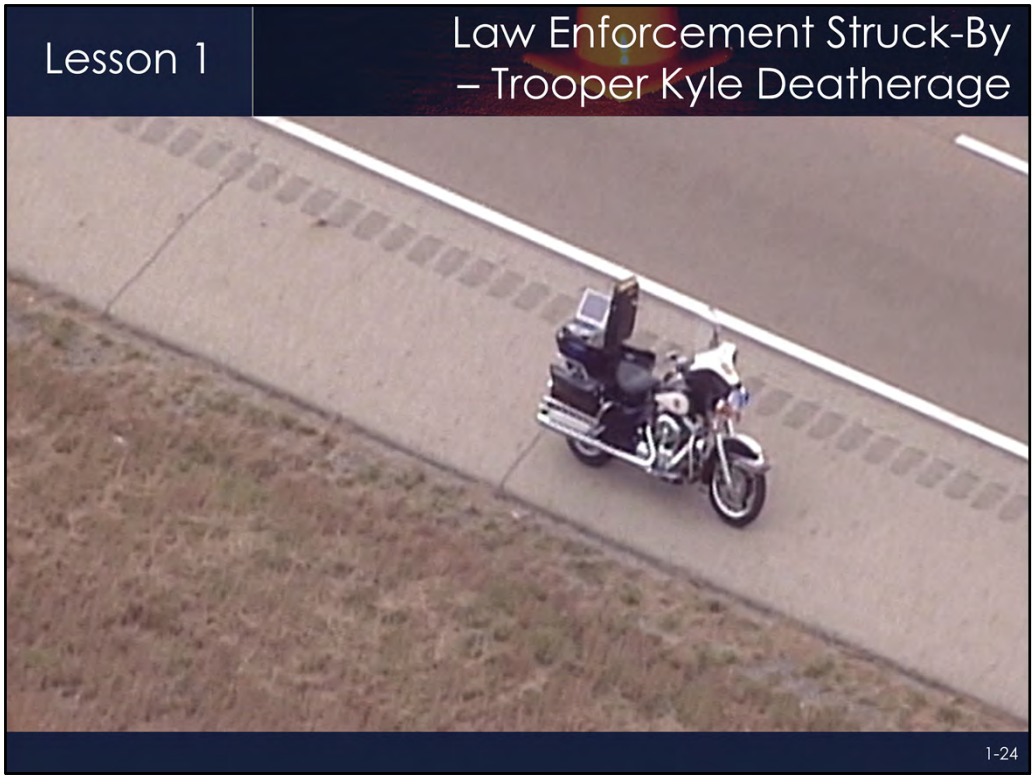
Lesson Objective: 1.2	4-Hour Version Slide: 4H-13

- Paraphrase slide content



Lesson Objective: 1.2	4-Hour Version Slide: 4H-14

- Illinois State Police Trooper Kyle Deatherage, 32, was struck and killed on northbound Interstate 55 near Litchfield, IL on November 26, 2012
- Deatherage had been a member of the Illinois State Police since May 2009 and worked as a motorcycle officer

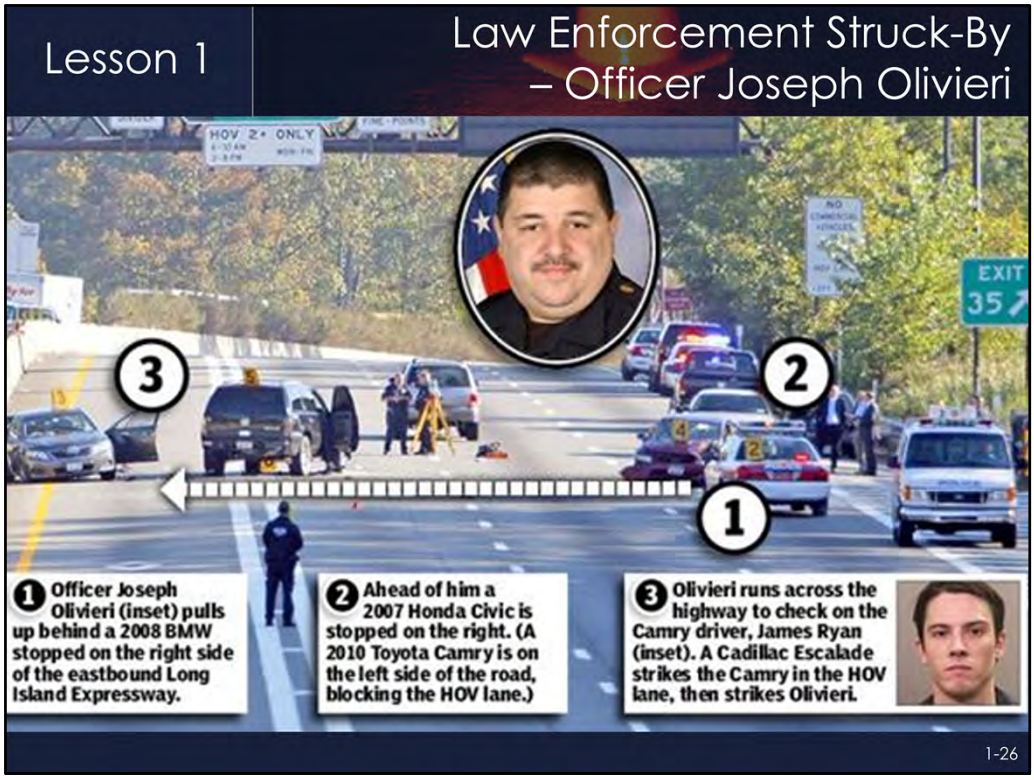


Lesson Objective: 1.2

- Deatherage was conducting a driver-side traffic stop just after 9:00 a.m., when he was struck by a semi tractor-trailer on I-55 at milepost 62
- He was pronounced dead at the scene
- In a report published online by the Federal Motor Carrier Safety Administration (FMCSA), the driver of the truck was described as an imminent hazard
- FMCSA investigators claim the driver admitted he lost consciousness just before the collision, and failed to disclose his use of a prescription medication which otherwise would prohibit him from driving commercially

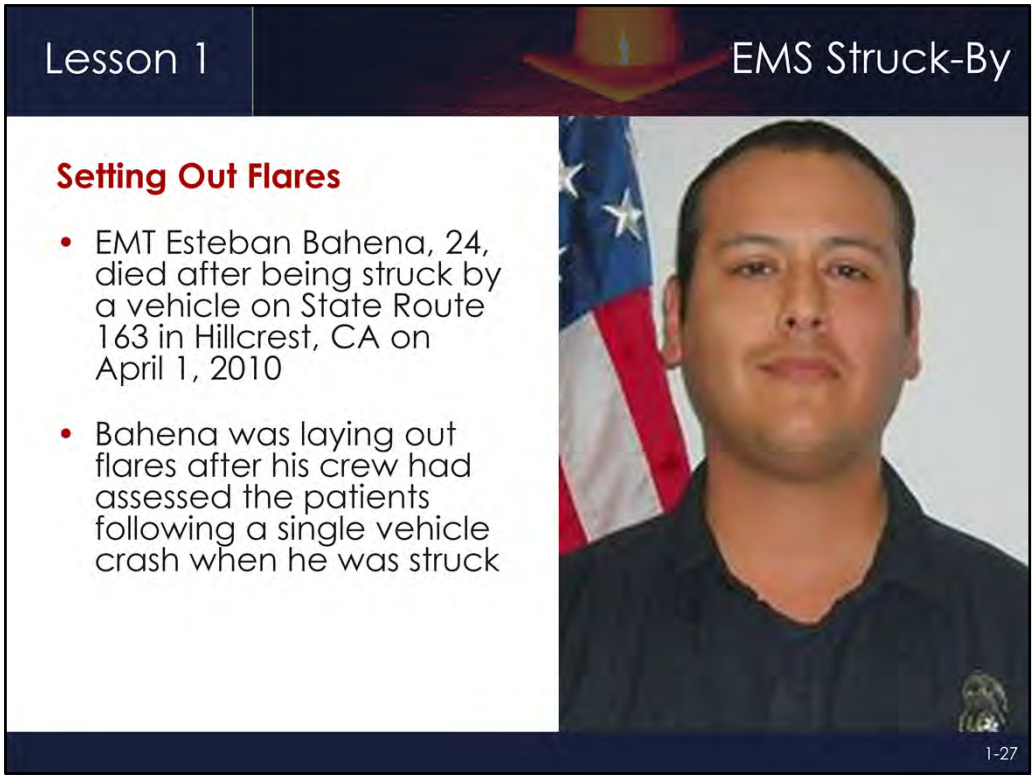
Lesson Objective: 1.2	4-Hour Version Slide: 4H-15

- On October 18, 2012 at 4:43 am, Officer Joseph Olivieri, a Nassau County (NY) Highway Patrol Officer, was responding to a call for a disabled motorist on the Long Island Expressway when he was struck by a vehicle and killed
- Prior to working for 13 years at the Nassau County Police Department, Olivieri had served 5 years with the New York City Police Department



Lesson Objective: 1.2

- This line of duty death incident was the result of the following events:
  - A Toyota Camry stopped abruptly in the left lane, parallel to exit 35, and was struck by a 2007 Honda Civic
  - The Honda Civic came to rest in the right lane facing westbound
  - The Toyota Camry came to rest perpendicular to the center median in the HOV lane
- Upon arriving, Olivieri positioned his marked patrol car in the right lane in front of the Honda Civic
- Olivieri exited his vehicle, crossed to the HOV lane to render assistance when he and the Toyota Camry were struck by a 2002 Cadillac Escalade
- Olivieri was transported to North Shore University Hospital, Manhasset where he was pronounced on arrival

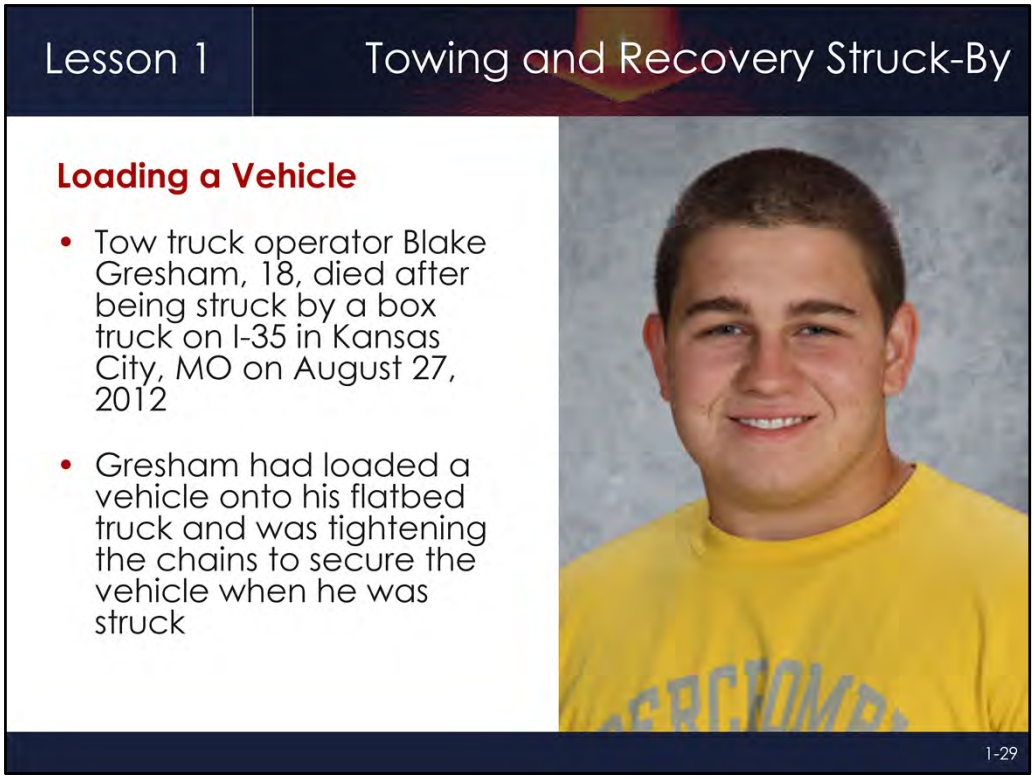


Lesson Objective: 1.2	4-Hour Version Slide: 4H-16

- EMT Esteban Bahena, 24, was a passenger in an ambulance with fellow EMT Paul Santos on April 1, 2010
- Returning to company headquarters at about 7:00 a.m. on State Route 163 in Hillcrest, CA, they came upon a one-car accident on the shoulder
- Bahena and Santos stopped to check on injuries, where the 1999 Mustang had struck a concrete wall on the right shoulder

Lesson Objective: 1.2

- Upon stopping, they noticed another accident in front of the Mustang involving a Dodge Ram pickup truck and a Toyota Scion
- It was raining at the time
- Santos got out of the ambulance and went to check on the drivers of the two-vehicle accident, neither of which requested to be transported
- Bahena checked on the driver in the Mustang and then began to put out flares to warn approaching traffic of the accidents
- He was struck by a silver Dodge Sebring, which then hit the rear of the Mustang
- Both vehicles traveled across the freeway lanes and came to rest against the Dodge pickup, which was in the center divide
- A fire department crew, fresh from a nearby call, arrived moments later and began to render aid to EMT Bahena
- Bahena was taken in his own ambulance to a hospital where he died



Lesson Objective: 1.2	4-Hour Version Slide: 4H-17

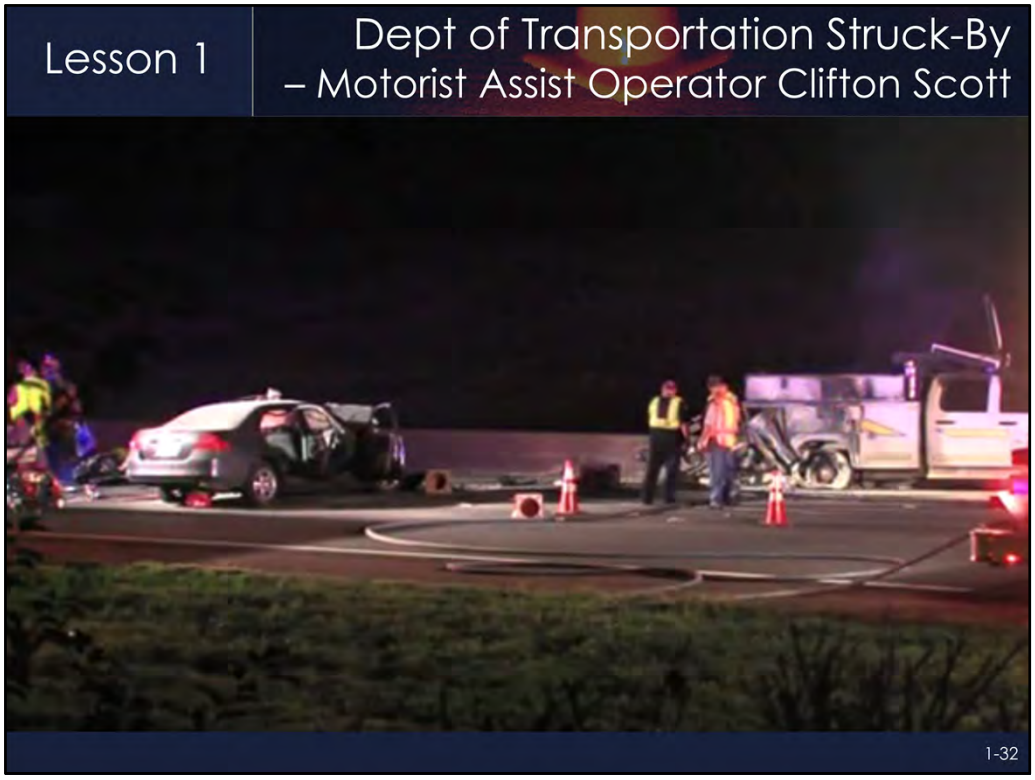
- Tow truck driver Blake Gresham, 18, of Smithville, MO, was killed assisting a driver with a flat tire on I-35

Lesson Objective: 1.2

- Gresham had loaded the customer's vehicle on his flatbed truck and was about to winch down the vehicle
- He was standing on the white line, when a box truck came by and struck him
- Gresham was killed on impact
- Officials say his vehicle's emergency lights were on while he was working on the tow

Lesson Objective: 1.2	4-Hour Version Slide: 4H-18

- Clifton Scott, 50, was a Missouri DOT Motorist Assist Operator
- He was providing traffic control assistance at an I-70/470 crash site at 2:52 a.m. on September 21, 2012
- Scott, a 15-year DOT employee, was helping to reroute traffic around the scene when he was struck by a passing motorist



Lesson Objective: 1.2

- The driver also struck Scott's Motorist Assist patrol vehicle causing it to catch fire
- Tests indicated the driver's blood alcohol content was 0.184 percent, more than twice the legal limit
- The driver was charged with involuntary manslaughter

Lesson Objective: 1.2

- **Customization:** The previous struck-by line of duty death case studies can replaced by local examples as deemed appropriate

- There is no national repository for responder struck-by incidents so data on these events is not always completely accurate
- The ResponderSafety.com website is a valuable resource for obtaining current struck-by, line of duty death, and near-miss information, as well as downloadable training materials and several online e-learning modules
    - Encourage participants to visit the site frequently

Lesson Objective: 1.2

- **Ask/Discuss:** Do you see anything wrong with this scene?
  - There is nothing protecting the loading zone of the ambulance
  - No one is watching or paying attention to traffic
  - These responder vehicles are in the southbound travel direction, but the crash is actually in the northbound lanes

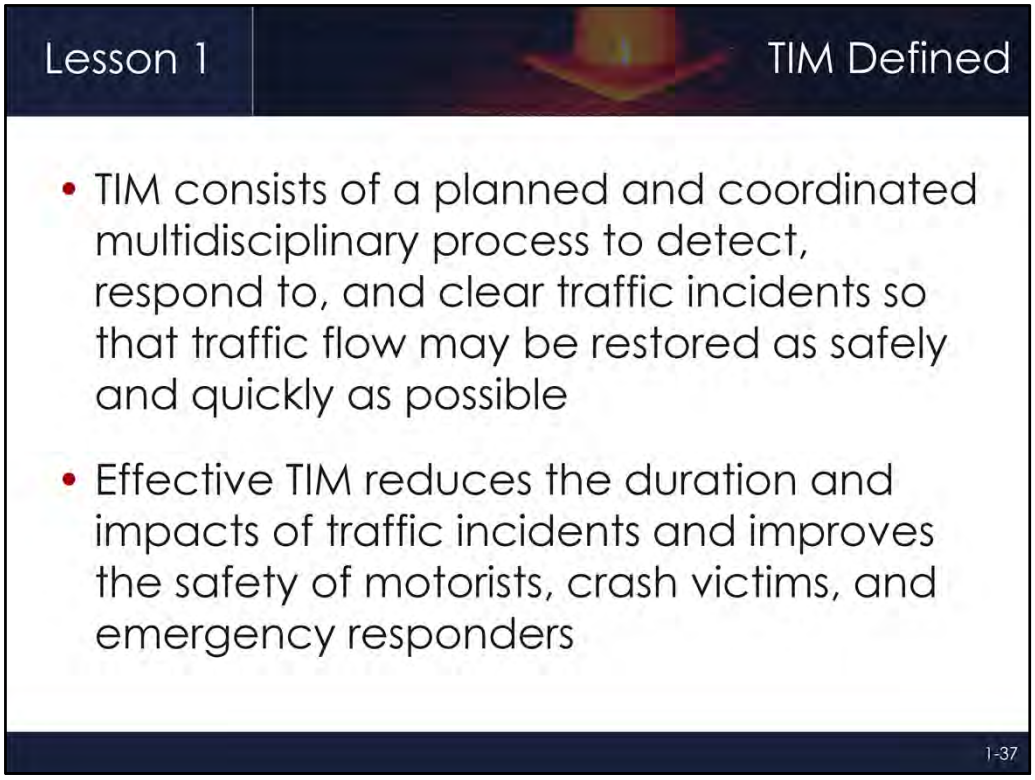
- **Ask/Discuss:** If you rolled up on this scene, would you do/say something?
  - Responders may not be comfortable approaching individuals from different disciplines
  - Issues like this can be remedied by training together

Lesson Objective: --	4-Hour Version Slide: 4H-19

- Crashes that occur within the incident scene or within the queue or backup, including the opposite direction, resulting from an original incident are called secondary crashes
- Secondary crashes can often be more severe than the original incident
- The secondary crash shown here resulted in two fatalities:
  - On May 8, 2013, traffic had backed up for about 4 miles from a crash in the eastbound lanes of I-70 in Columbus, OH
  - A tractor-trailer driver failed to notice slowing cars ahead, clipped a Jeep, then hit two cars and a second semi
  - The impact sent the second truck into a third car
  - The drivers of the first two cars died at the scene
  - The tractor-trailer driver and the driver of the third car had injuries that were not life-threatening

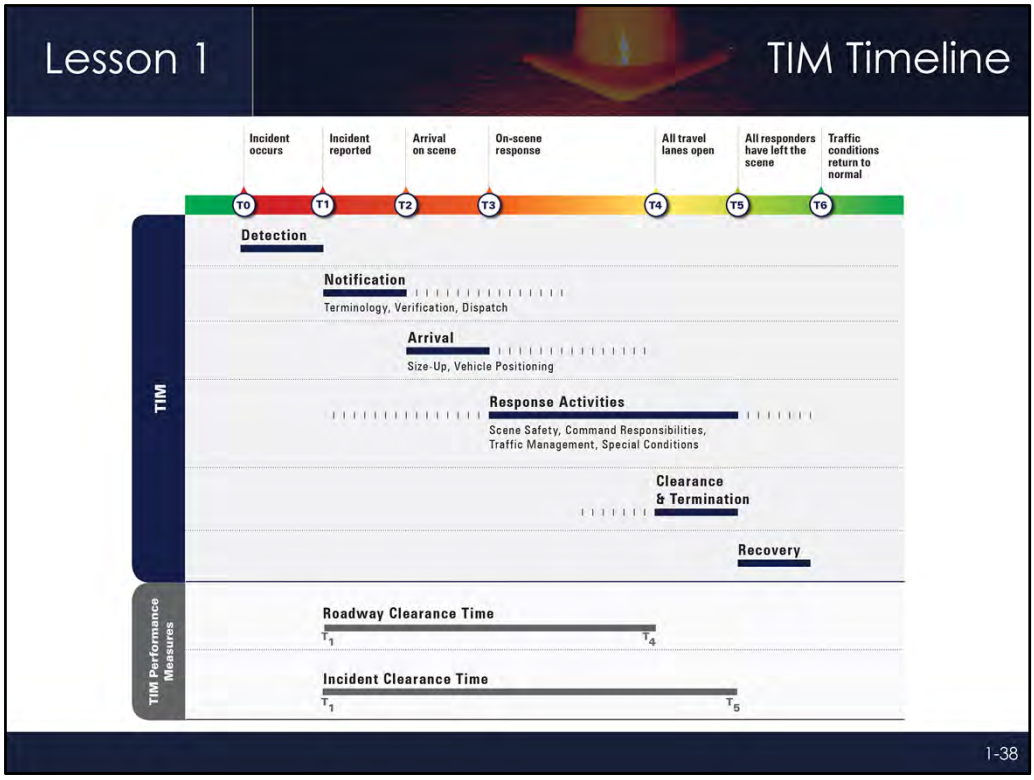
Lesson Objective: --

- **Video:** L1_V1 - INTIME Kerri Crane Story [Cut].wmv
- The Kerri Crane Story provides an example of the consequences of secondary crashes



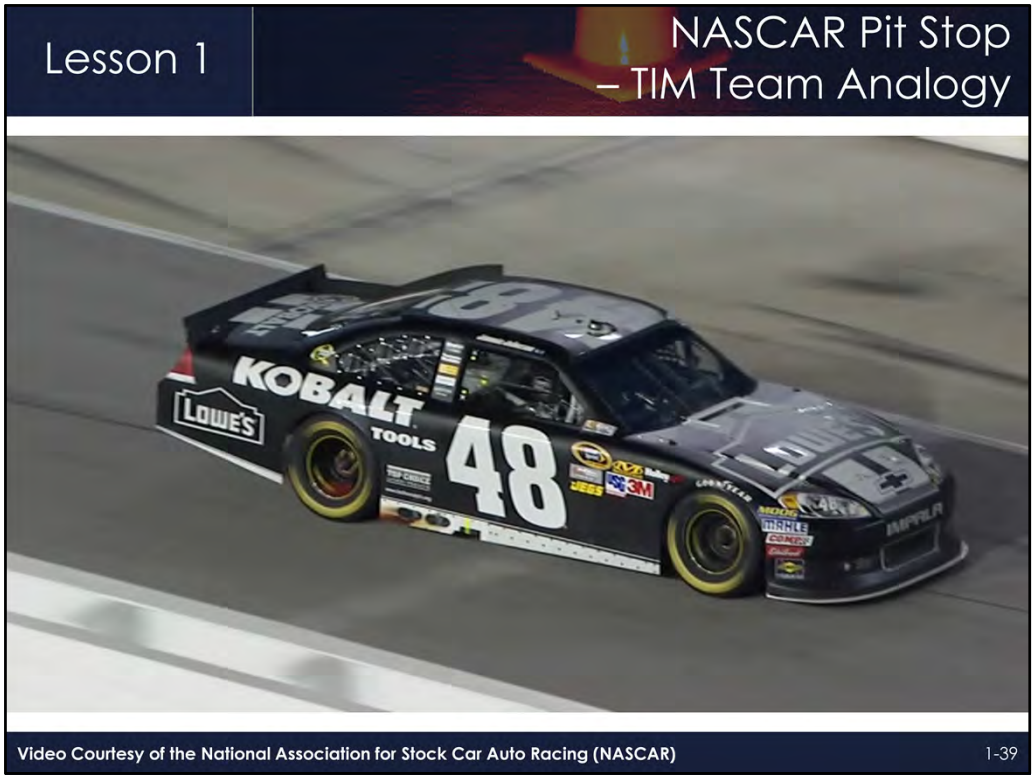
Lesson Objective: 1.3	4-Hour Version Slide: 4H-20

- TIM consists of a planned and coordinated multidisciplinary process to detect, respond to, and clear traffic incidents so that traffic flow may be restored as safely and quickly as possible
- Reiterate that effective TIM has a direct impact on traffic congestion as well as the responder statistics and secondary crashes discussed in the previous slides



Lesson Objective: 1.3	4-Hour Version Slide: 4H-21

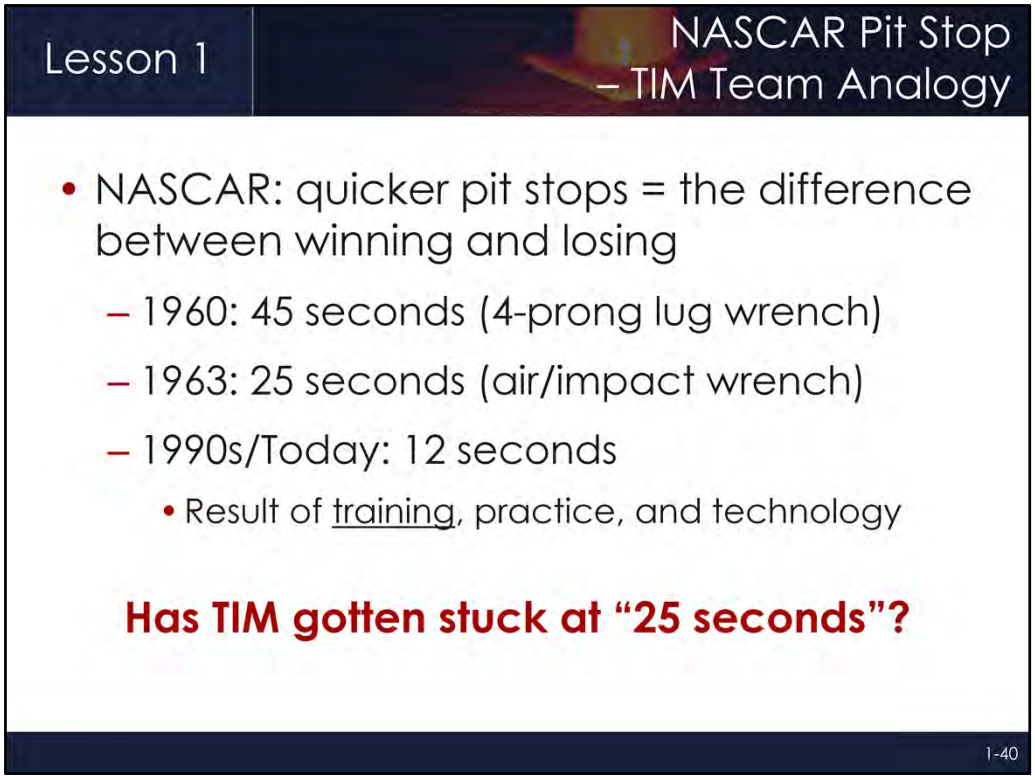
- The TIM timeline lays out what happens from when an incident occurs until when traffic conditions return to normal
- Notice the color bar at the top of the chart changes from green to red, and then slowly back to green, representing potential traffic congestion along the timeline
- Along the color bar are time stamps T0 (incident occurs) through T6 (traffic conditions return to normal)
- The goal of TIM is to shorten the time duration between T0 and T6
- Incremental improvements during each phase may be easier to accomplish than drastically re-working any one aspect of TIM
- Reducing the duration of an incident reduces responder exposure
- One study cites the likelihood of a secondary crash increases by 2.8% for each minute a lane is closed
- The TIM activities under the timeline are those that responders typically perform and correspond with the lessons in this course
- The bottom area of the table shows two TIM performance measures
    - Roadway Clearance Time (T4-T1) – The time between 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 third TIM performance measure is the number of secondary crashes
- TIM performance measures will be gaining more attention in the coming years



Lesson Objective: 1.3	4-Hour Version Slide: 4H-22

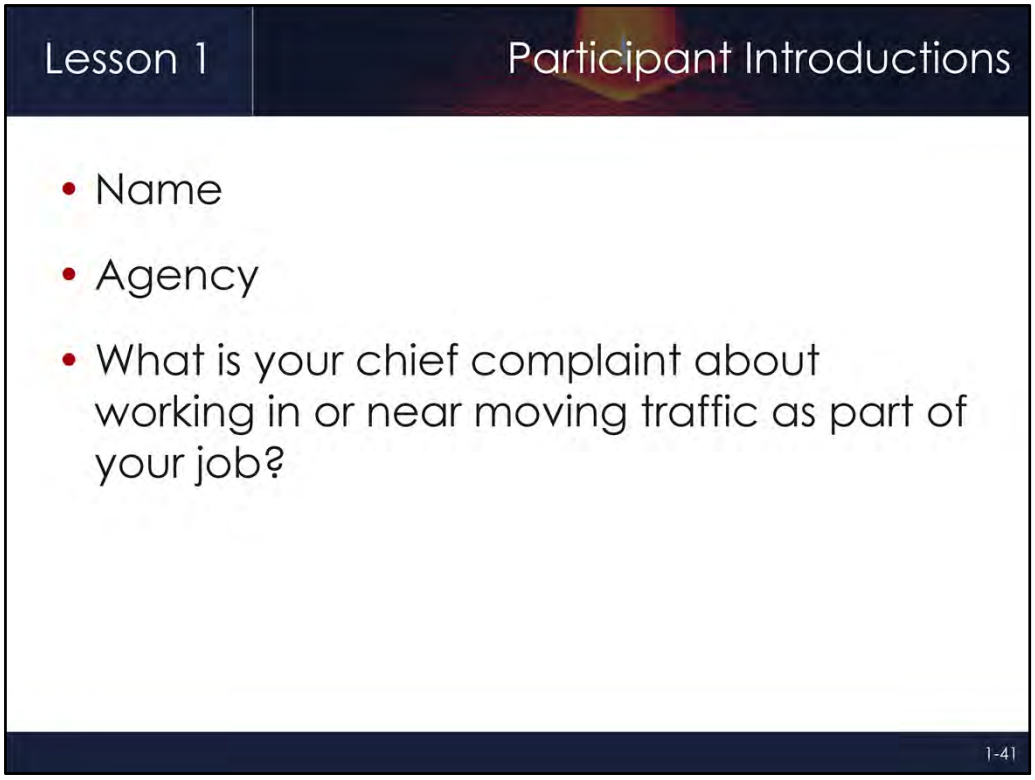
- **Video:** L1_V2 - NASCAR Pit Stop.wmv

- **Ask/Discuss:** What analogies can be drawn between TIM and racing pit stops?
  - Incident Commander
  - Safety Officer
  - Sense of urgency
  - Clear roles and responsibilities
  - Use of technology
  - Practice and training
  - Success = Safety + Expedited Response



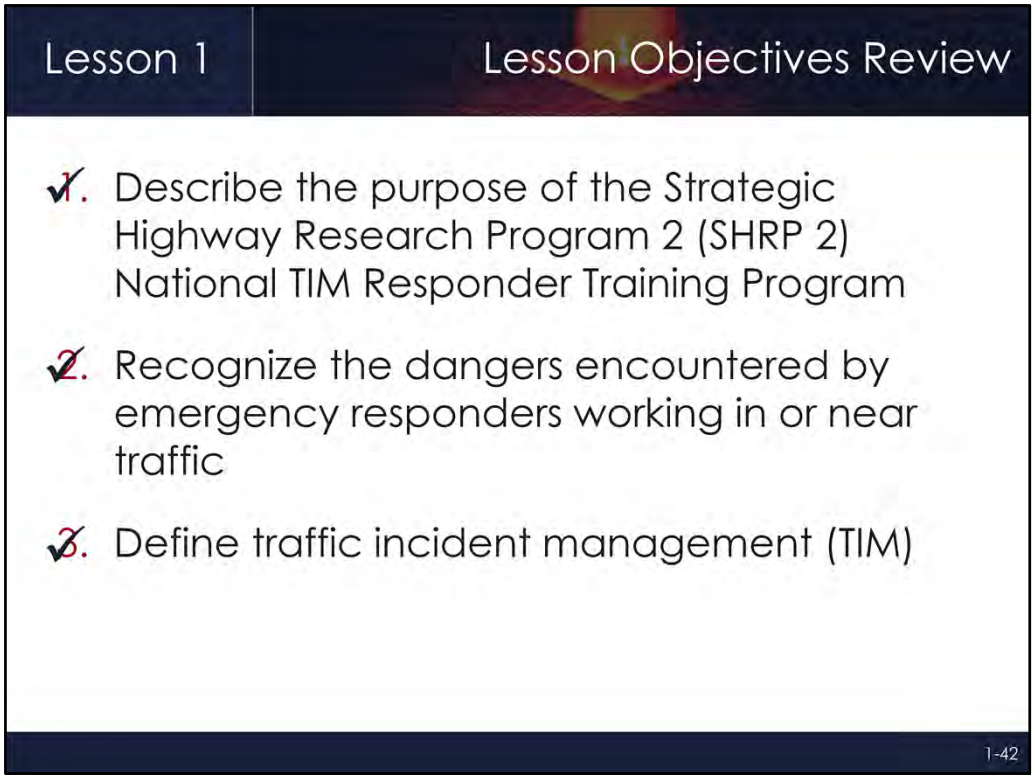
Lesson Objective: 1.3	4-Hour Version Slide: 4H-23

- In the early 1960s, NASCAR race teams recognized that quicker pit stops often made the difference between winning and losing races
- Technology shortened these pit stops to around 25 seconds:
  - Spinning 4-prong lug wrench vs. use of the air impact wrench for example
- Training and practice led to professional pit crews, reducing stops to what they are today, 12-15 seconds
- The question has been raised – Has TIM gotten stuck at "25 seconds"?
- We should be able to apply the same principles of training, practice, and technology to effect similar improvements in our incident clearance times



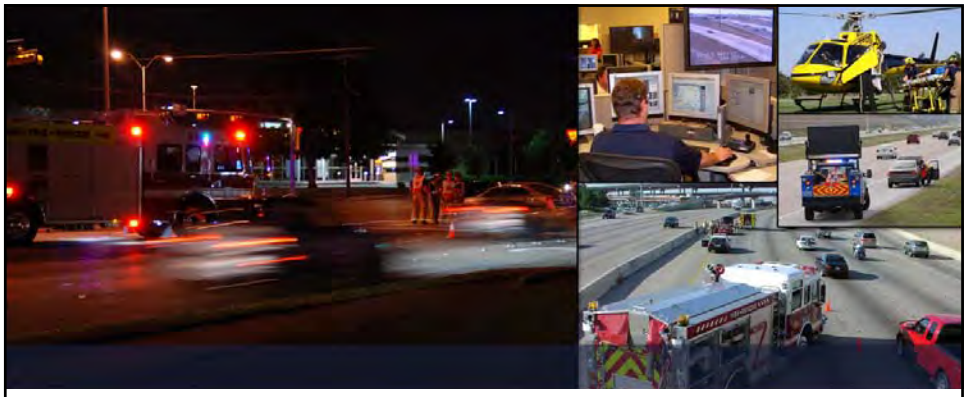
Lesson Objective: --	4-Hour Version Slide: 4H-24

- A multi-discipline group of students is the most effective way to train for TIM
- Participant introductions allow those present to get acquainted and vent about working in or near moving traffic
- With a small group (15-20 people) allow everyone to answer the questions above as you go around the room
- With a larger group (20+), forego introductions and focus on the chief complaint question
- The discussion must be managed well by the trainer to ensure it does not take up too much time



Lesson Objectives Review

- **Animation:** Clicking forward reveals the three check marks one at a time
- Review each lesson objective, checking them off as you go



Lesson 2:
TIM Fundamentals and Terminology

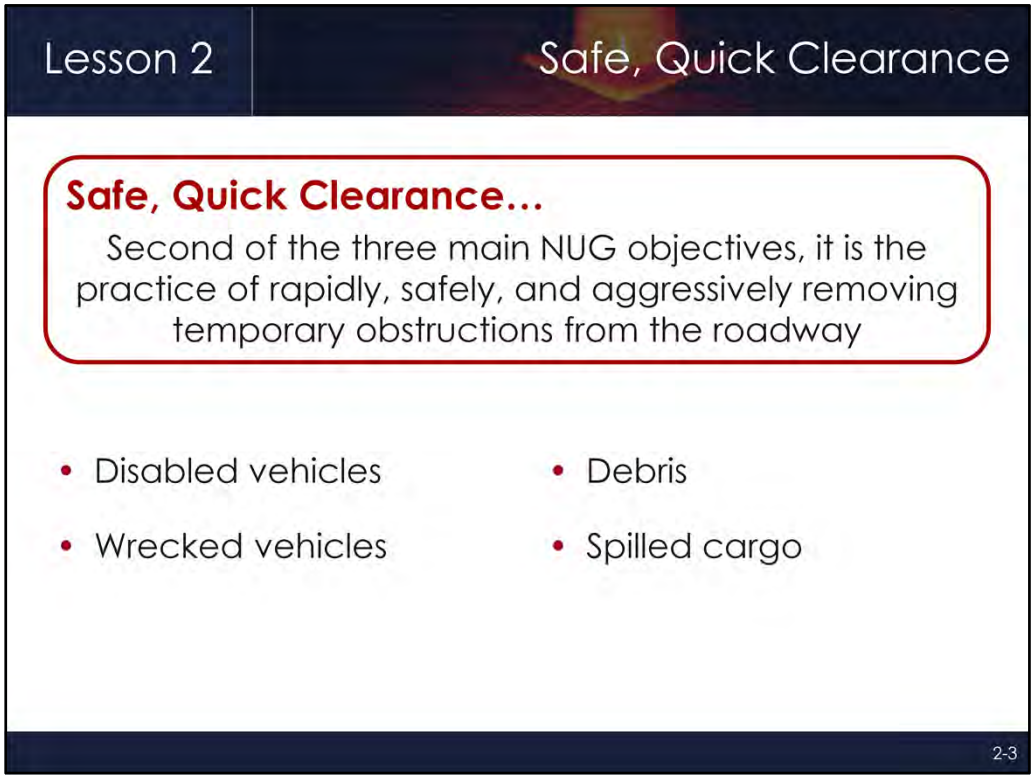
2-1

Lesson 2 — Lesson Objectives

At the conclusion of this lesson, participants will be able to:

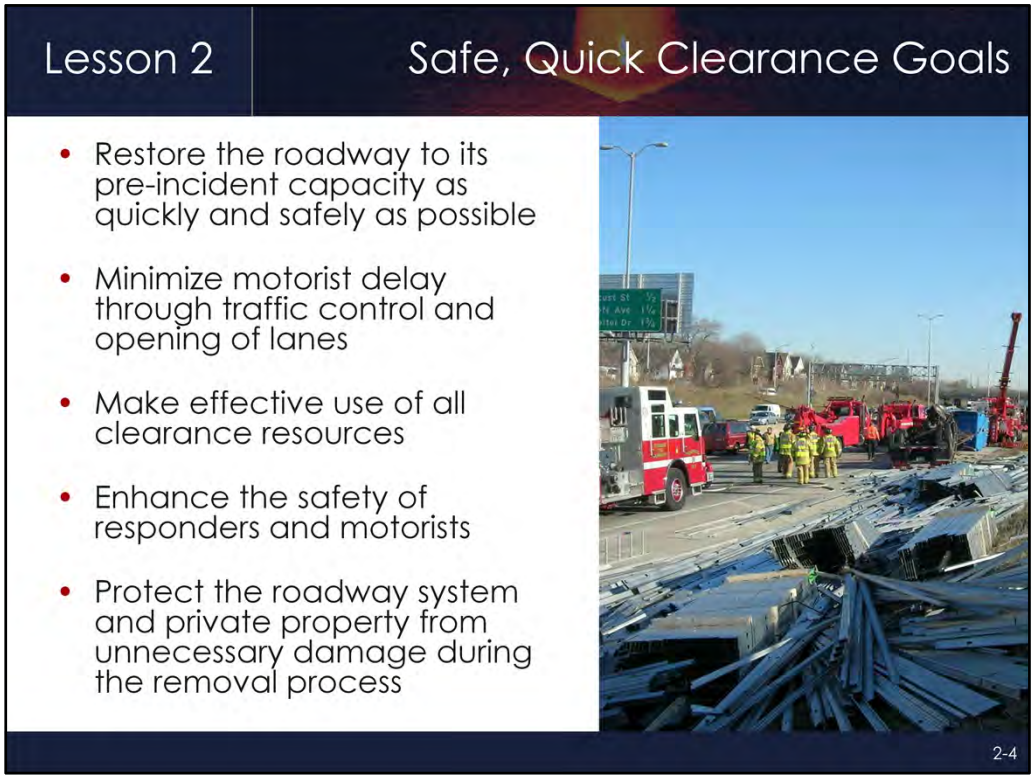
1. Define safe, quick clearance
2. List the principal laws that relate to responder safety and safe, quick clearance
3. Describe how the Manual on Uniform Traffic Control Devices (MUTCD) relates to TIM
4. Recall common response terminology, lane designations, and incident scene terminology

2-2



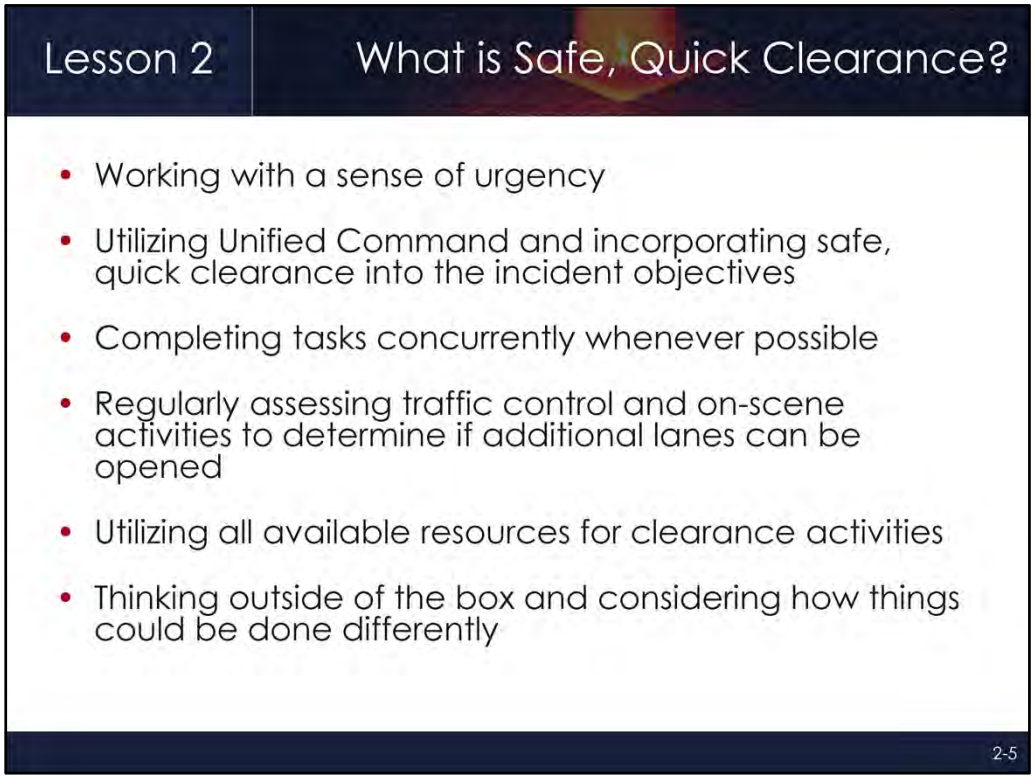
Lesson Objective: 2.1 | 4-Hour Version Slide: 4H-27

- 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
- Safe, quick clearance is a goal that applies to all sorts of traffic-related incidents including:
  - Disabled vehicles
  - Roadway debris
  - Spilled cargo
  - Traffic crashes
  - Vehicle fires
  - Traffic stops
  - Wrecked vehicles



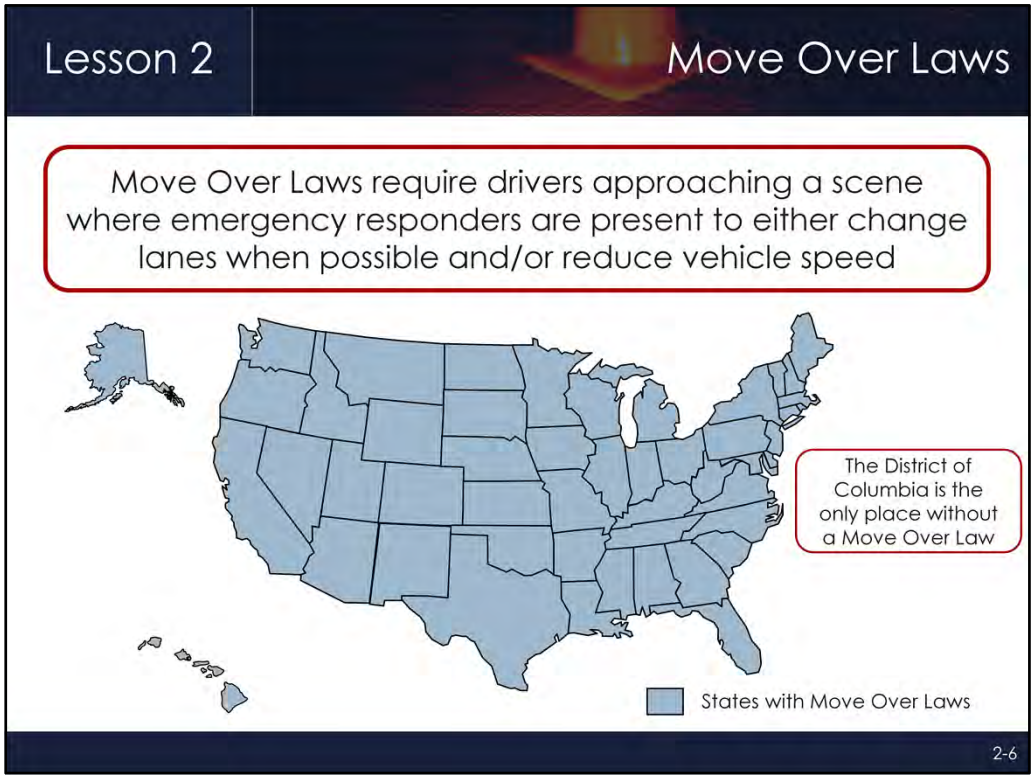
Lesson Objective: 2.1

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



Lesson Objective: 2.1	4-Hour Version Slide: 4H-28

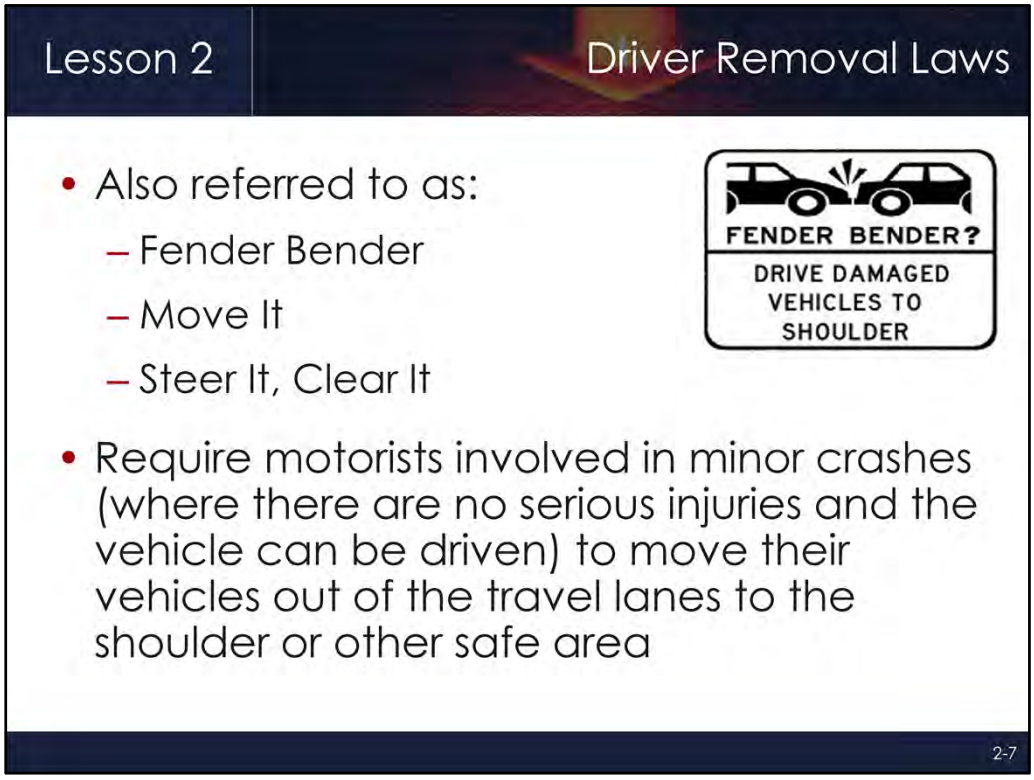
- Paraphrase slide content



Lesson Objective: 2.2 | 4-Hour Version Slide: 4H-29

- **Customization:** Add a slide after this one that includes the text of your state's Move Over Law
- **Possible Handout:** Distribute a copy of your state's Move Over Law

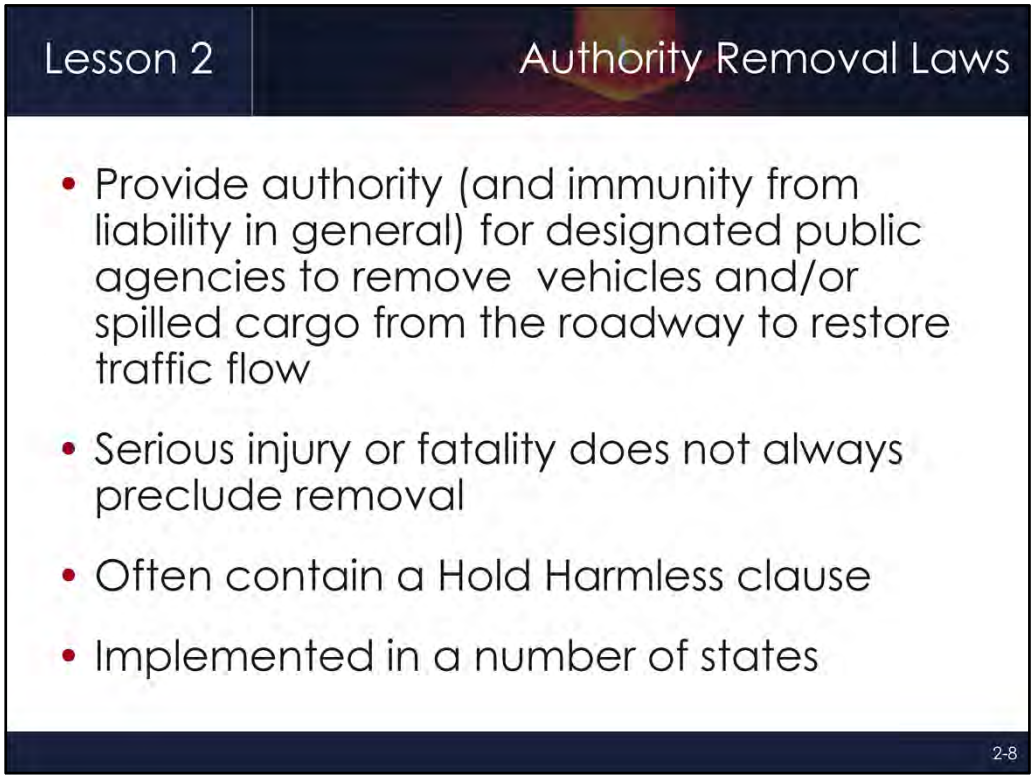
- With Hawaii passing their Move Over Law in 2012, every state now has a version of the Move Over Law
- The District of Columbia is the only U.S. jurisdiction that does not have a Move Over Law
- There are differences in the language of the Move Over Law from state to state
- While the mandate to change lanes when possible is universal, the slow down component varies from state to state
    - Most states have a slow down component that requires a reasonable speed where some require a certain reduction in miles per hour
- The type of responder vehicles covered by the law varies from state to state, where some do not include towing and/or highway maintenance vehicles



Lesson Objective: 2.2	4-Hour Version Slide: 4H-30

- **Customization:** Add a slide after this one that includes the text of your state's Driver Removal Law (if present)
- **Possible Handout:** Distribute a copy of your state's Driver Removal Law (if present)

- Paraphrase slide content



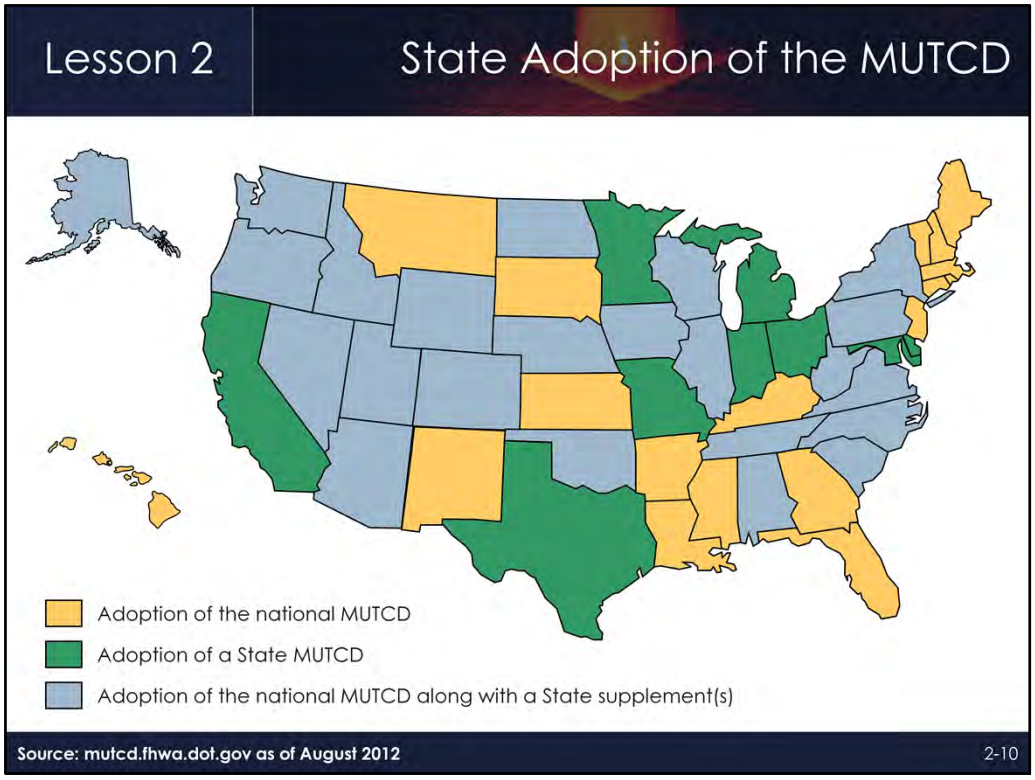
Lesson Objective: 2.2	4-Hour Version Slide: 4H-31

- **Customization:** Add a slide after this one that includes the text of your state's Authority Removal Law (if present)
- **Possible Handout:** Distribute a copy of your state's Authority Removal Law (if present)

- Paraphrase slide content
- Hold harmless is language that protects responders from liability resulting from their actions (in the absence of gross negligence)
- The hold harmless component is not always included in the law

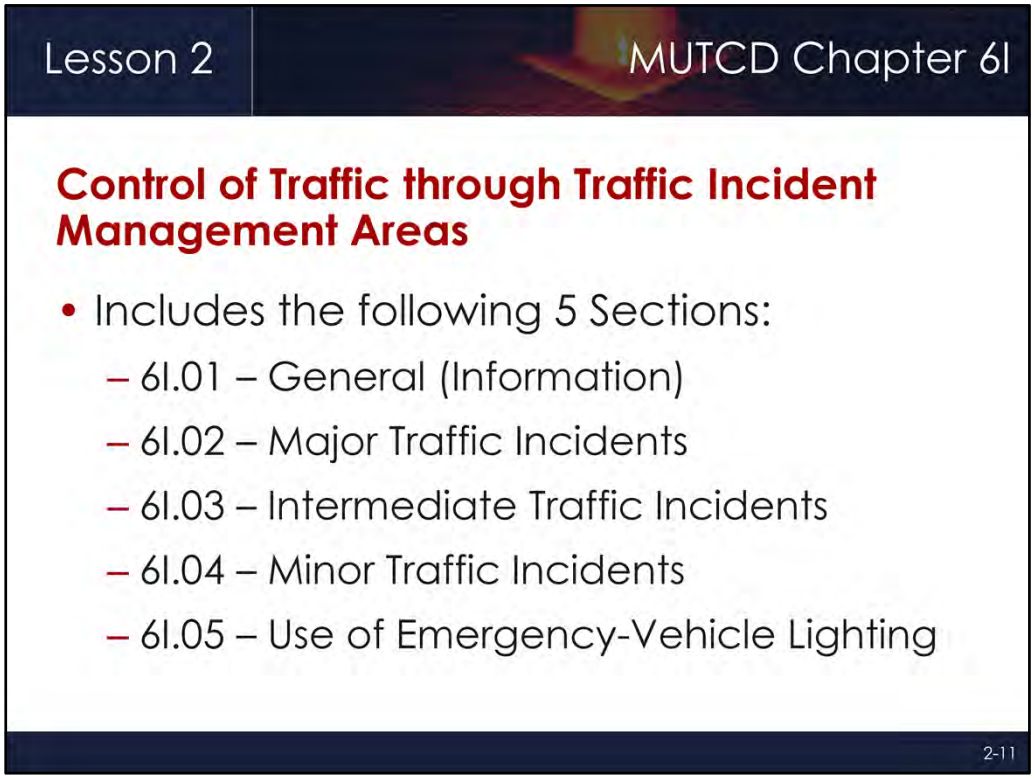
Lesson Objective: 2.3	4-Hour Version Slide: 4H-32

- The Manual on Uniform Traffic Control Devices is commonly referred to as the MUTCD
- The MUTCD is a national standard that was first published in 1935, and it has been maintained by FHWA since 1971
- The current version was published in 2009, and the PDF is 864 pages
- The manual promotes uniformity of traffic control devices like signs, signals, and markings, which improves safety and driver expectancy
- There was extensive participation by practitioners in developing and evaluating the content of the MUTCD, including transportation and public safety



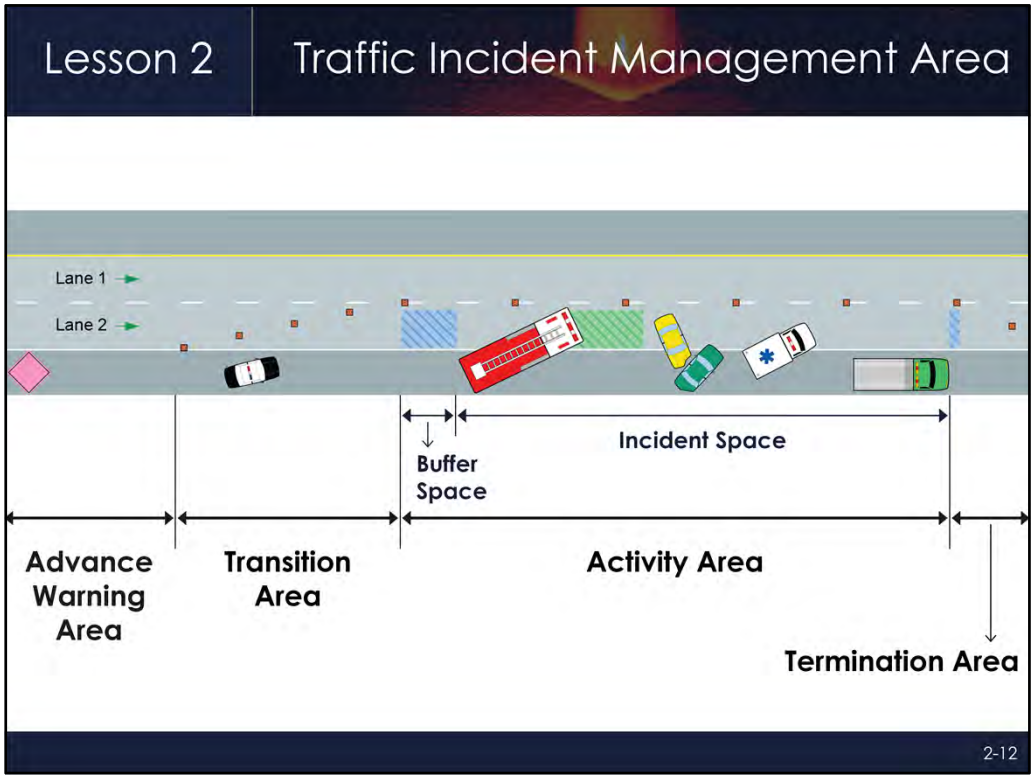
Lesson Objective: 2.3

- There are three principal ways that states adopt the MUTCD
  - The MUTCD is adopted in its entirety
  - The state adds a state specific supplement to the national document
  - The state rewrites the document, maintaining content of the national document
- If your state has developed a state manual or has state supplement(s), they should be obtained and reviewed for Chapter 6I consistency and citation



Lesson Objective: 2.3 | 4-Hour Version Slide: 4H-33

- 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 (pronounced "six-eye"), which specifically addresses traffic incidents
- Because they are emergency events of a temporary nature, traffic incidents are different from highway work zones and are not required to conform with the requirements of work zones
- Review the five sections of Chapter 6I



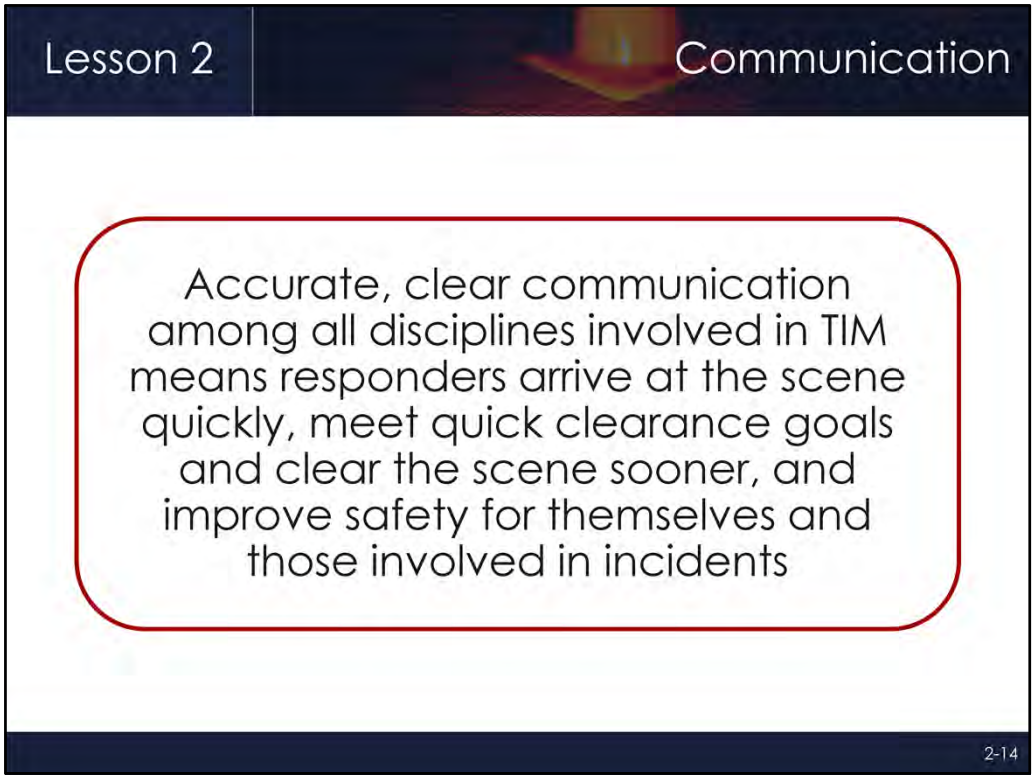
Lesson Objective: 2.3	4-Hour Version Slide: 4H-34

- **Animation:** Click forward to make the Buffer and Incident Space labels appear

- A Traffic Incident Management Area is a type of TTC zone
- A Traffic Incident Management Area has four main components:
  - Advance Warning Area
  - Transition Area
  - Activity Area
  - Termination Area
- The Activity Area is further comprised of a Buffer Space and an Incident Space **[Click]**
- The parts of a Traffic Incident Management Area are covered in greater detail in Lesson 7
- Note the general positioning of the responder vehicles, this will be covered more in Lesson 4

Lesson Objective: --

- Like the FHWA publications catalog, there are a number of TIM-related resources available on the Internet for participants to utilize

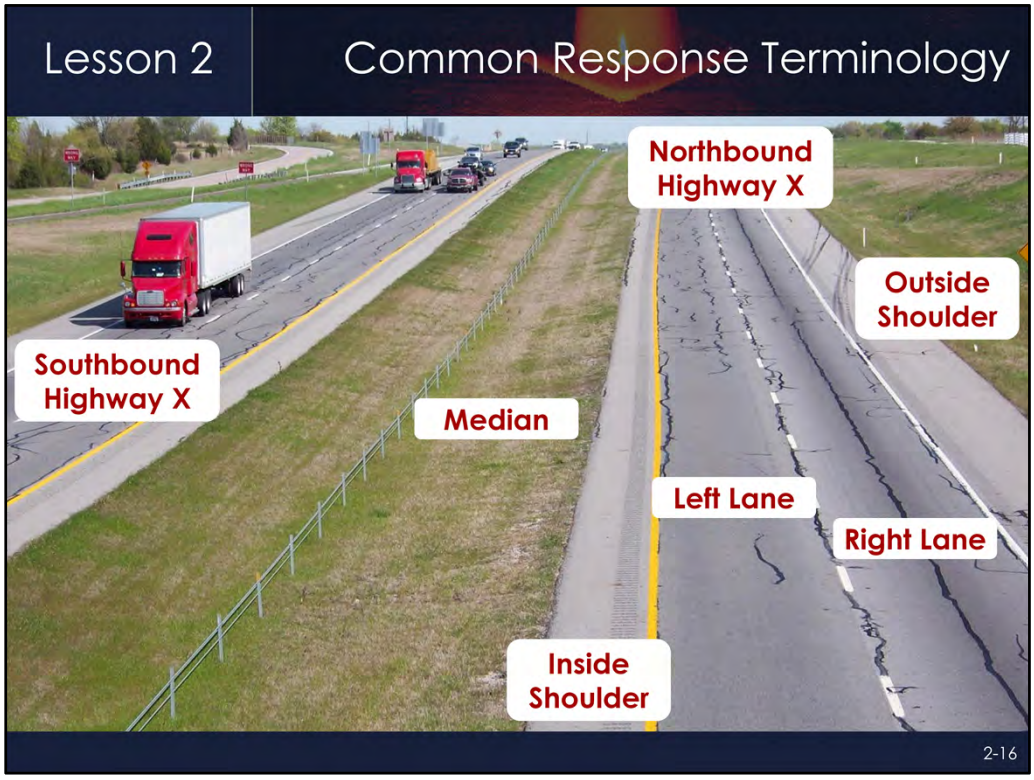


Lesson Objective: 2.4

- Paraphrase slide content and highlight the need for common terminology among responder groups

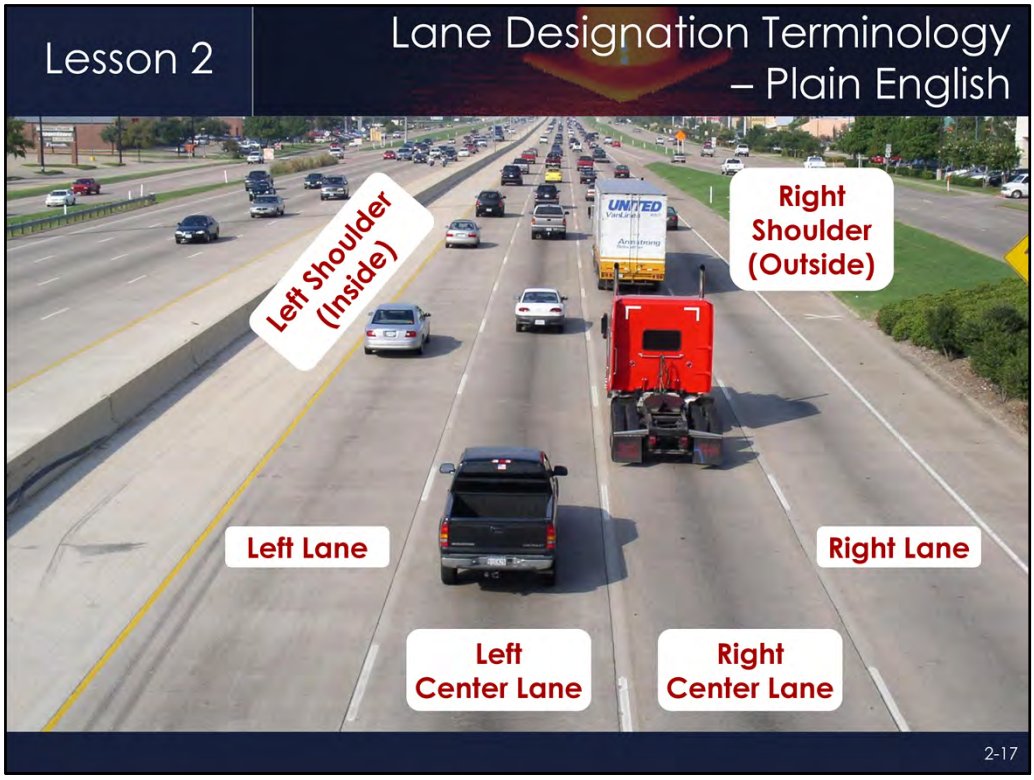
Lesson Objective: 2.4

- The National Incident Management System (NIMS) requires the use of the Incident Command System (ICS) at traffic incident scenes
- ICS requires the use of uniform terminology and plain English
- Incident communications should be easily understood by all responders and responder disciplines
- This ICS requirement is supported by the third objective of the National Unified Goal, which is prompt, reliable, interoperable communications
- The multi-disciplinary NTIMC provides a standardized roadway terminology system



Lesson Objective: 2.4

- Review the common response terminology for components of this four-lane divided highway with a median
- Left and right are determined from the perspective of the flow of traffic
- Left is often analogous with inside and right with outside
- North, south, east, or west refer to the posted highway directions and are not necessarily exact compass directions



Lesson Objective: 2.4	4-Hour Version Slide: 4H-35

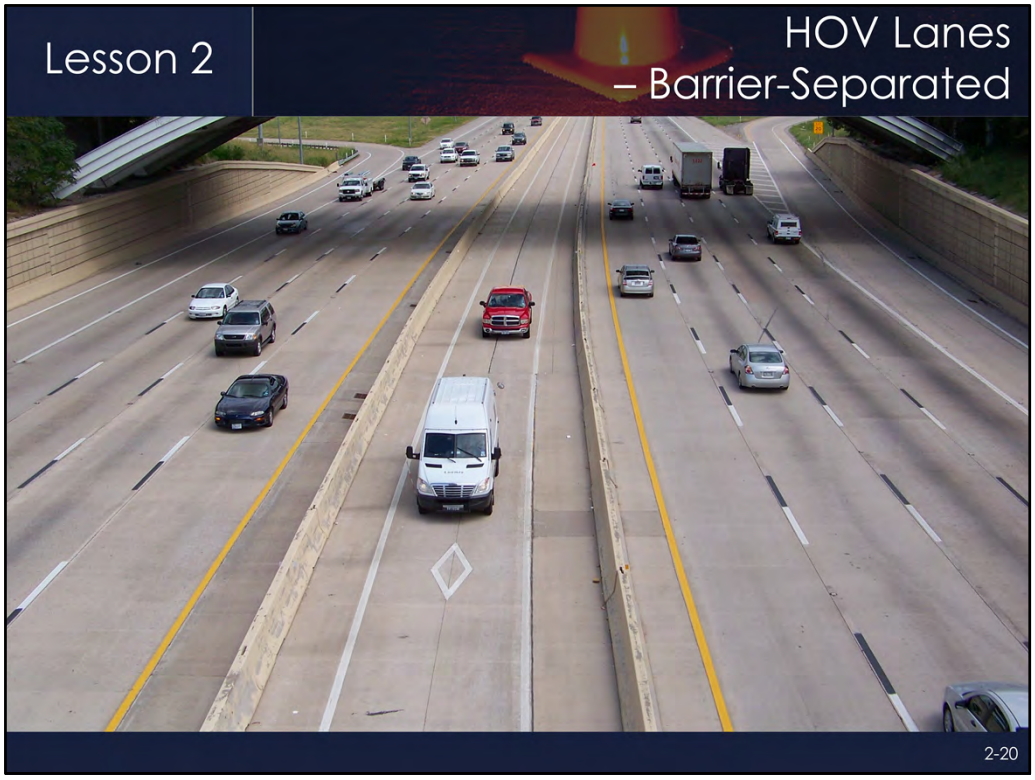
- Review recommended response terminology for elements of this eight-lane divided highway
- **Transition:** For highways with four or more lanes, the plain English process for identifying lanes can become confusing, which is why lane numbering may be used for lane identification

Lesson Objective: 2.4 | 4-Hour Version Slide: 4H-36

- A system for numbering lanes is an alternative to the lane names like left, right, etc.
- The recommended practice for describing travel lanes involves use of a left-to-right lane numbering system, from the perspective of the flow of traffic
- Either plain English or numbering are acceptable, provided area responders train to both

Lesson Objective: 2.4	4-Hour Version Slide: 4H-37

- Note that a special or unique use lane, such as an high-occupancy vehicle (HOV) lane, is not a numbered lane
- The HOV lane shown here should just be referred to as the “HOV Lane”
- “Lane 1” would be the first general traffic lane

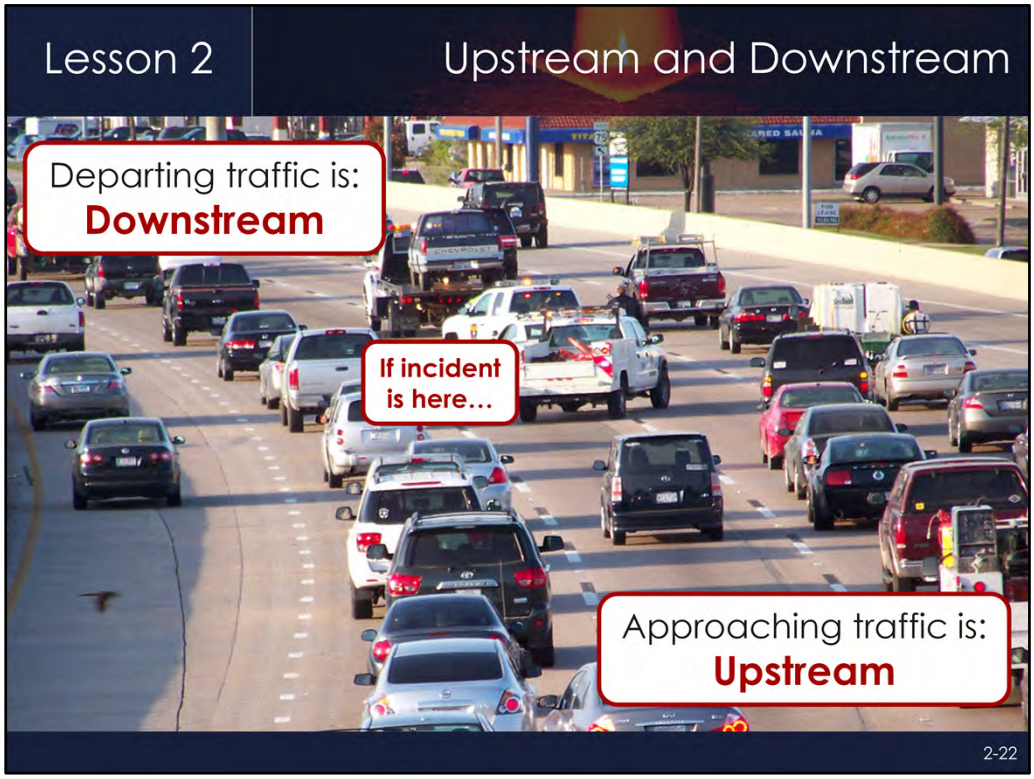


Lesson Objective: 2.4

- HOV lanes might be physically separated from other lanes or barrier-separated
- **Ask/Discuss:** What other situations utilize something similar to an HOV barrier-separated lane?
  - A highway construction zone with barrier dividers separating general traffic lanes from the construction work area

Lesson Objective: 2.4

- For this student activity, select a lane other than the lane with the orange truck and ask the class to describe it using both the plain English and the lane numbering system



Lesson Objective: 2.4 | 4-Hour Version Slide: 4H-38

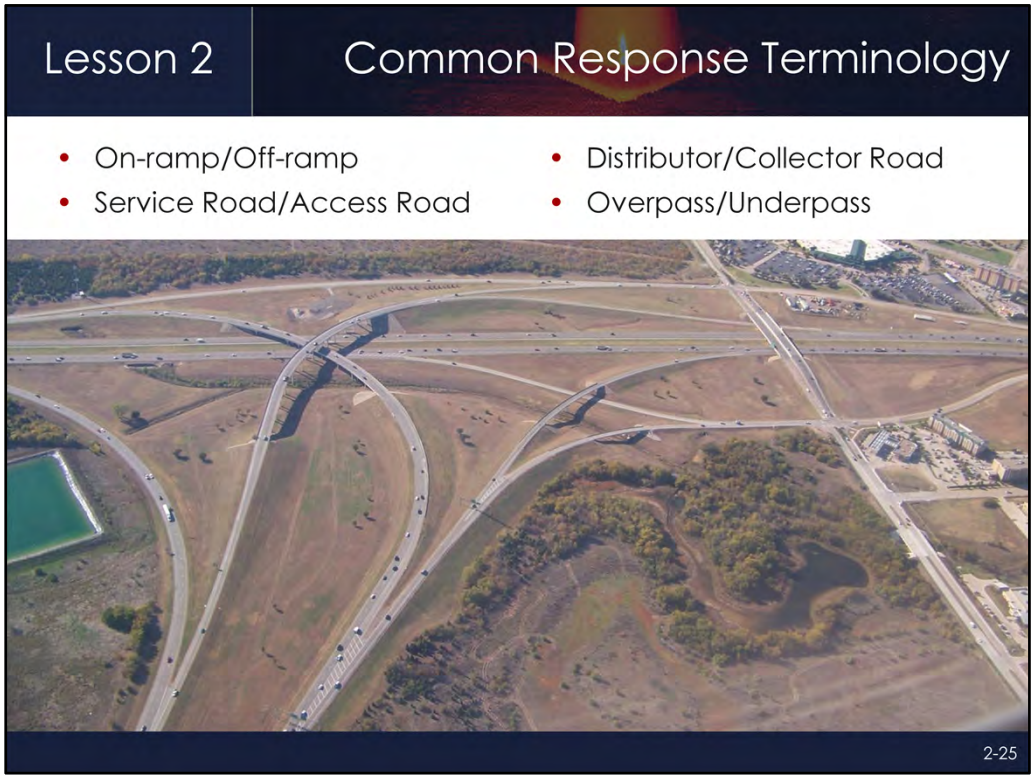
- Traffic that is departing or past the incident is considered downstream traffic
- Traffic that is entering or approaching the incident scene is considered upstream traffic
- Relate these terms as being similar to how running water flows past a fixed point - upstream and downstream

Lesson Objective: 2.4	4-Hour Version Slide: 4H-39

- A traffic queue is the backup of traffic that results from an incident or blocked lanes
- It is pronounced “Q”
- A queue may form in either direction of travel because of rubberneckers
- The back of a queue is a very dangerous place, as we saw in the Kerri Crane video
- Responders must mind the back of queues, which will be discussed in further detail in Lesson 7

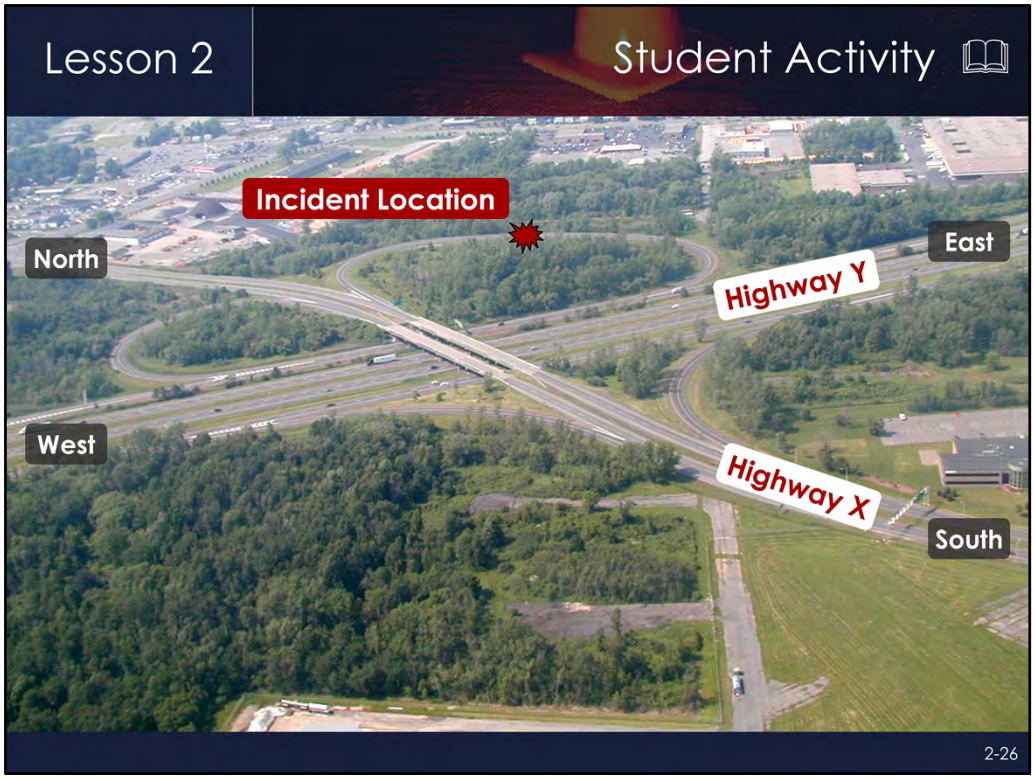
Lesson Objective: 2.4

- Incident vehicles are often moved to the striped area at ramp locations called a gore
- Gores may also be referred to as an apex or safety zone



Lesson Objective: 2.4	4-Hour Version Slide: 4H-40

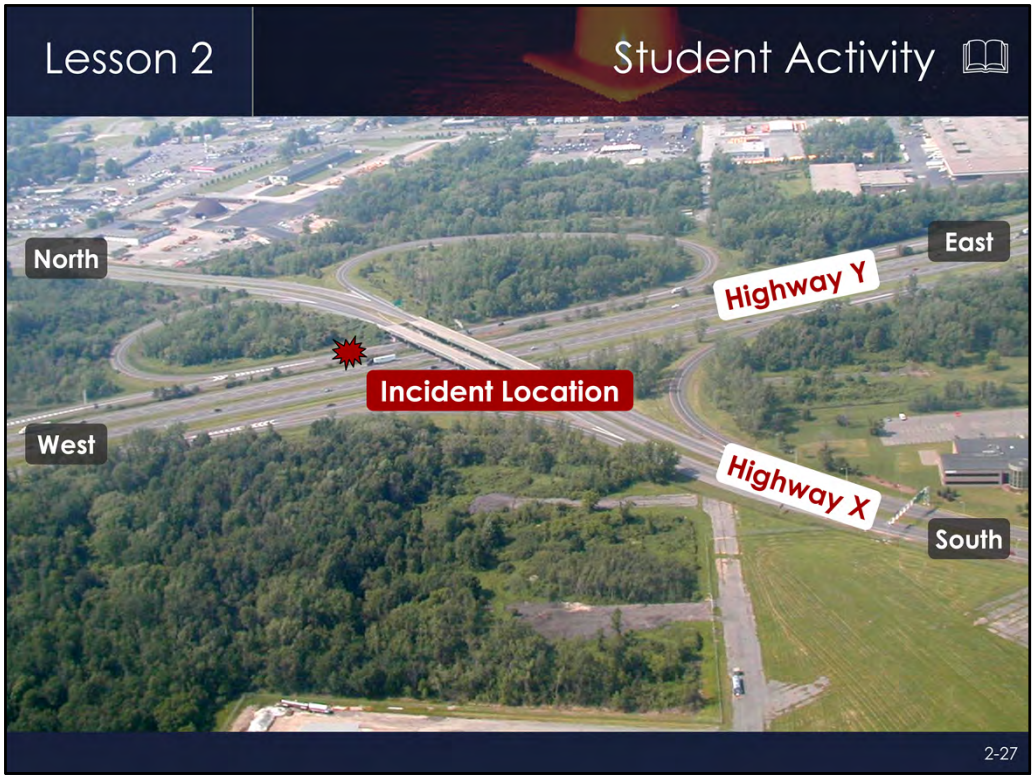
- Review the common response terminology used to describe a variety of roadway and highway features that may exist within the local region
  - On-ramp/off-ramp
  - Distributor/collector road
  - Service road
  - Access road
  - Overpass/underpass
  - Flyover
  - Median turnaround



Lesson Objective: 2.4	4-Hour Version Slide: 4H-41

- For this student activity, select one class participant
  - Explain that they are on this scene as the first-arriving responder
  - Ask them to describe the location of the incident as if they were radioing their location to their communications center

- **Answer:** The incident is on the Highway X northbound ramp to Highway Y westbound



Lesson Objective: 2.4	4-Hour Version Slide: 4H-42

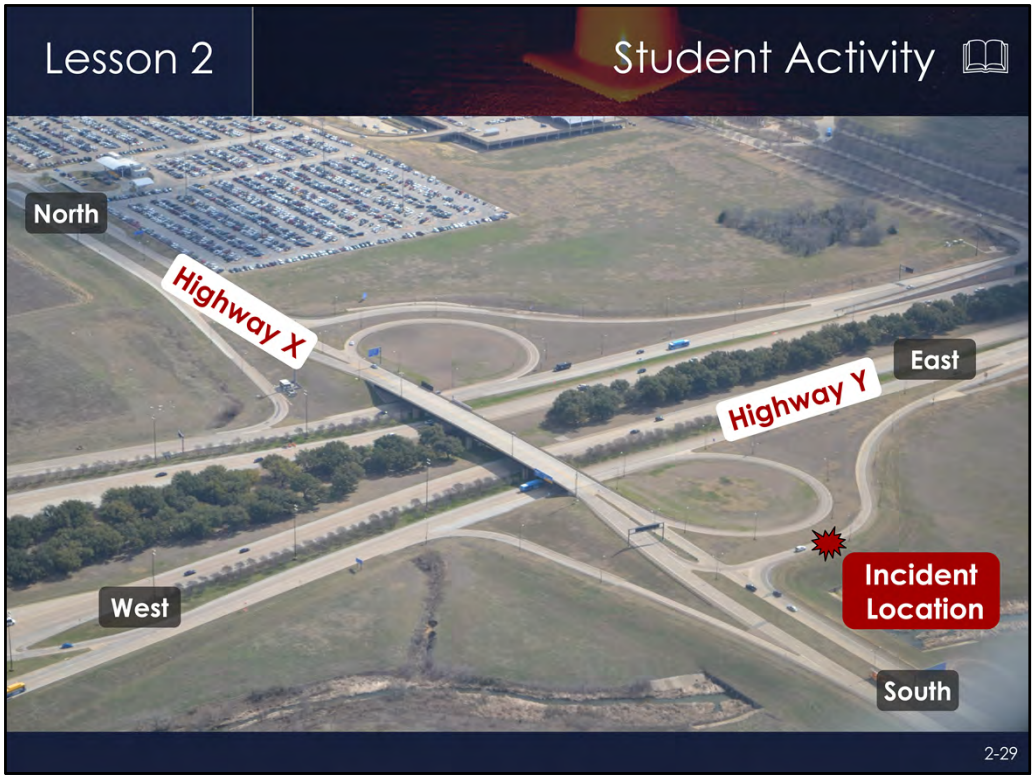
- Using the same highway scene, select a different class participant
  - Explain that they are on this scene as the first-arriving responder
  - Ask them to describe the location of the incident as if they were radioing their location to their communications center

- **Answer:** The incident is on the westbound frontage or collector road just prior to the Highway X southbound on-ramp

Lesson Objective: 2.4

- Select a different class participant
  - Explain that they are on this scene as the first-arriving responder
  - Ask them to describe the location of the incident as if they were radioing their location to their communications center

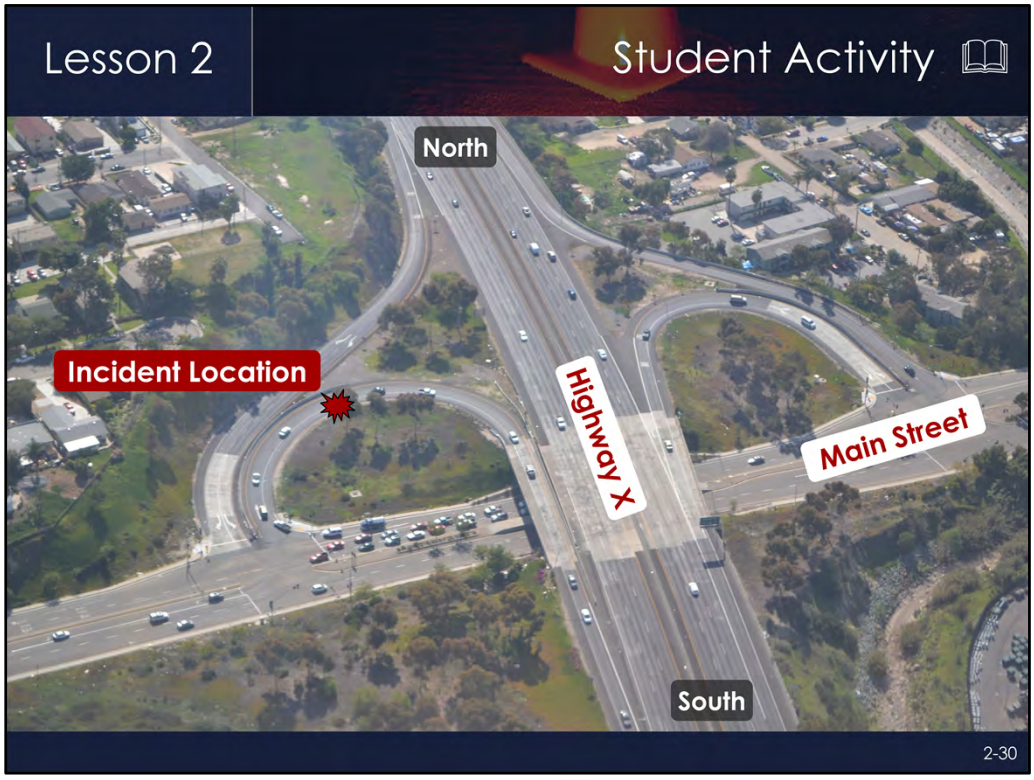
- **Answer:** The incident is on the Main Street exit ramp from Highway X southbound



Lesson Objective: 2.4

- Select a different class participant
  - Explain that they are on this scene as the first-arriving responder
  - Ask them to describe the location of the incident as if they were radioing their location to their communications center

- **Answer:** The incident is on the Highway Y eastbound entrance ramp from Highway X



Lesson Objective: 2.4

- Select a different class participant
  - Explain that they are on this scene as the first-arriving responder
  - Ask them to describe the location of the incident as if they were radioing their location to their communications center

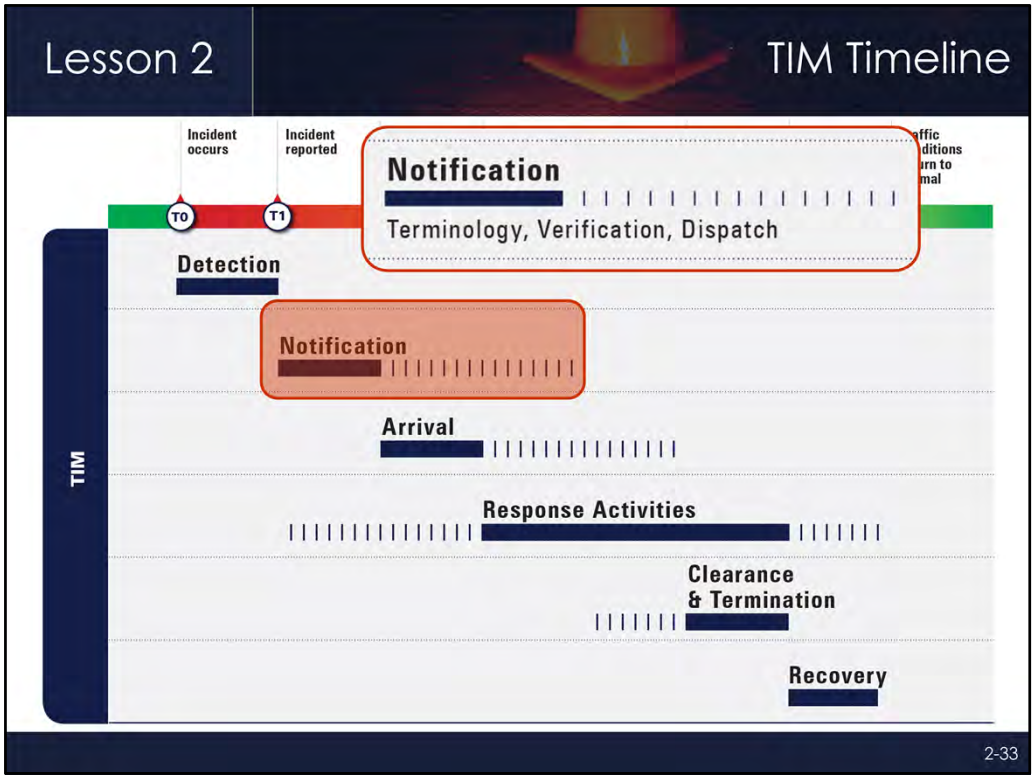
- **Answer:** The incident is on the Main Street on-ramp to Highway X southbound

Lesson Objective: 2.4	4-Hour Version Slide: 4H-43

- Emphasize that TIM does not just apply to urban freeway environments
- Rural road response terminology is very similar to what has already been discussed
- Stress that directions are according to the posted road signs and not compass readings

Lesson Objective: 2.4

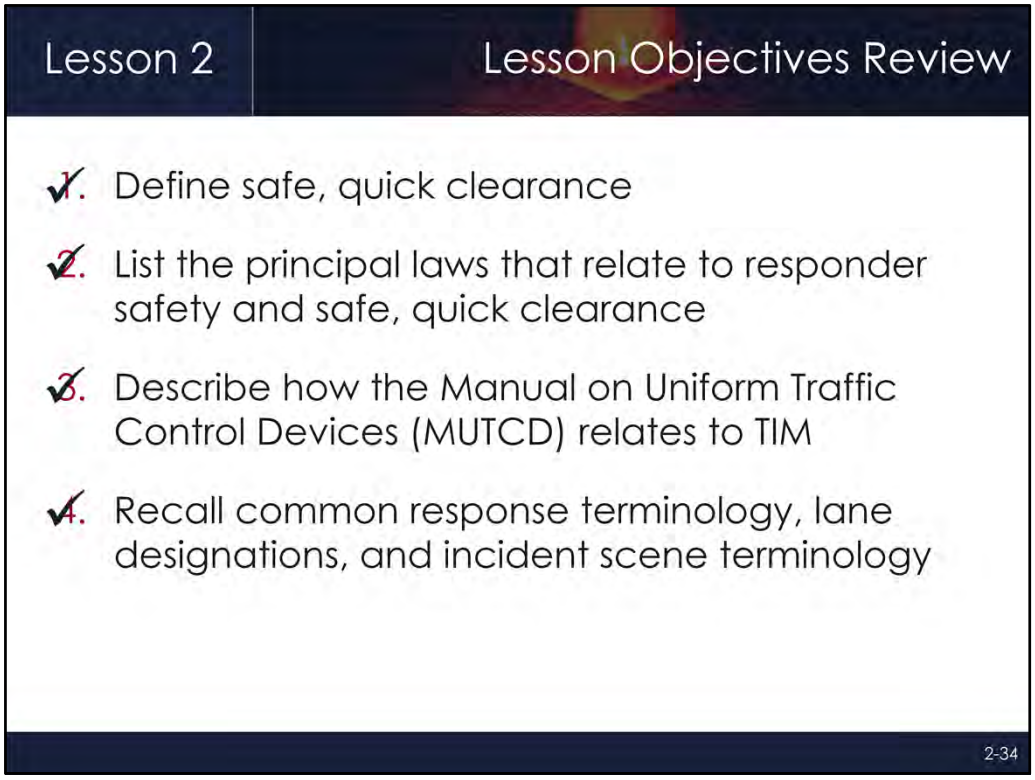
- Terminology used to describe turn lanes



TIM Timeline	4-Hour Version Slide: 4H-44

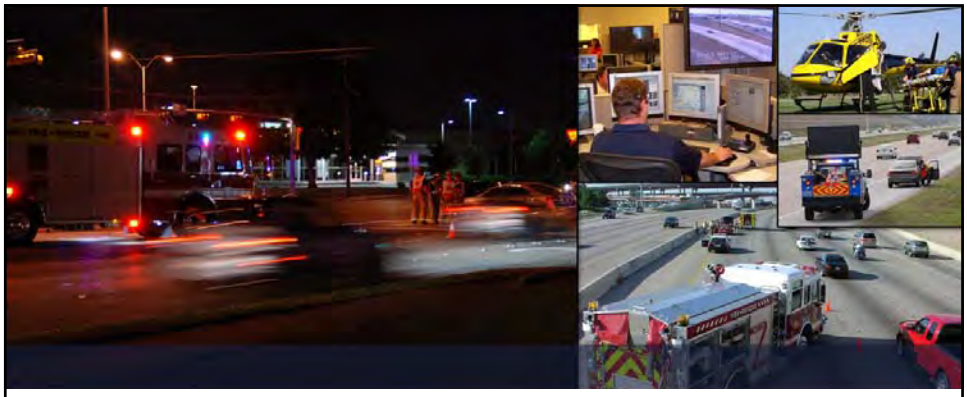
- **Animation:** Click forward to make dark orange box appear and then click again to bring up detailed view of Notification

- **Ask/Discuss:** How does the use of common terminology impact the TIM Timeline?
  - Accurate, clear communication among all disciplines involved in TIM means responders arrive at the scene quickly, clear the scene sooner, and improve safety for themselves and those involved in incidents



Lesson Objectives Review

- **Animation:** Clicking forward reveals the four check marks one at a time
- Review each lesson objective, checking them off as you go



Lesson 3: Notification and Scene Size-Up

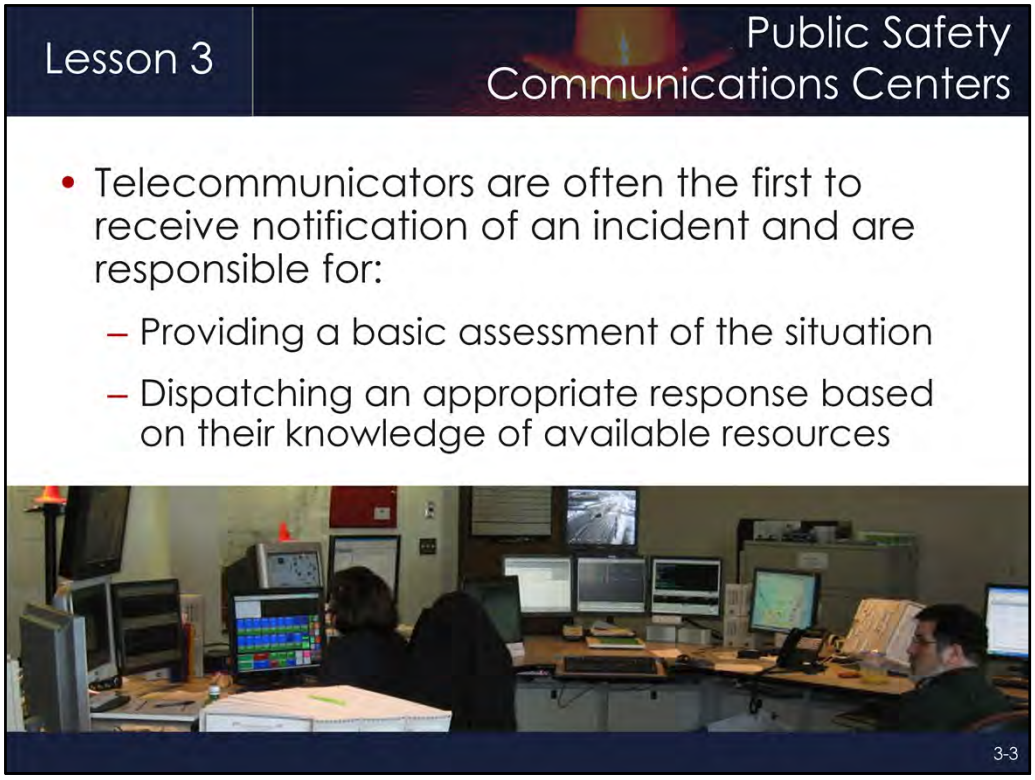
3-1

Lesson 3 — Lesson Objectives

At the conclusion of this lesson, participants will be able to:

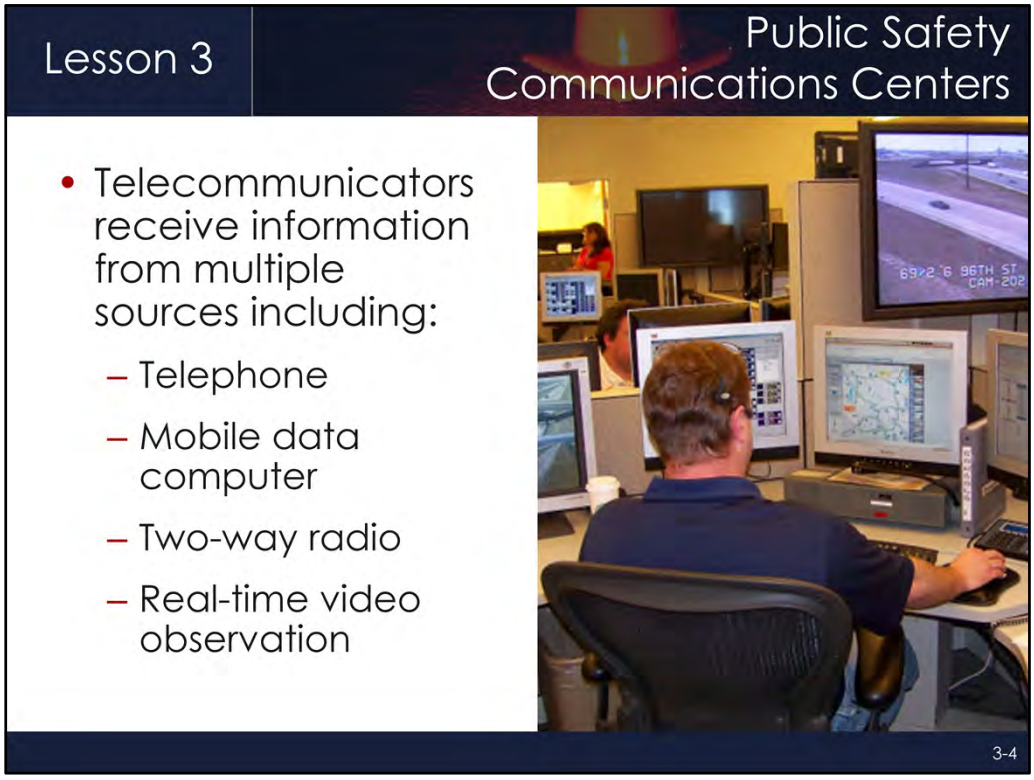
1. Recognize the important role public safety communications centers play in incident response
2. Describe the notification and verification process
3. Recall the typical responsibilities of a Transportation Management Center (TMC)
4. List the key information that should be included in a scene size-up report

3-2



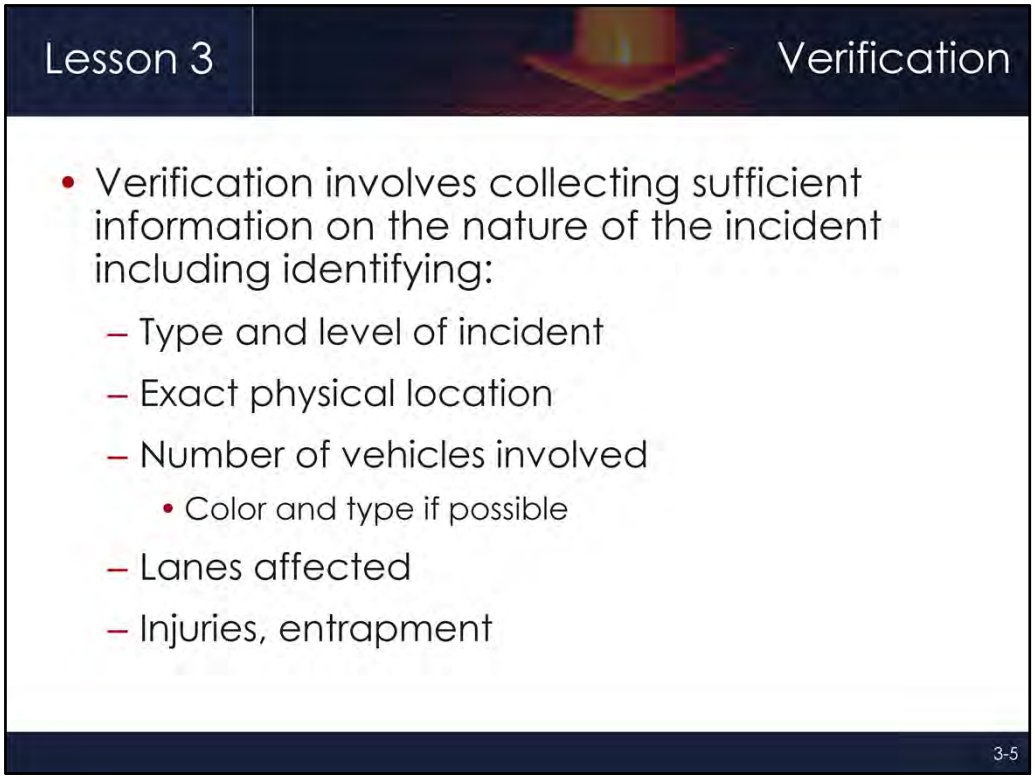
Lesson Objectives: 3.1 and 3.2 | 4-Hour Version Slide: 4H-47

- The first step of the TIM process is detection, a term used to refer to the discovery of an incident
- Incident detection can be a call from the parties involved in the incident or a call from a passing motorist
- Incidents may also be detected by responders who happen upon them
- Telecommunicators working at public safety communications centers are typically the first to receive notification of an incident
- TIM training is very beneficial to telecommunicators, given their important role
- Understanding TIM concepts and terminology ensures telecommunicators are able to aid responders
- Knowing available TIM resources and assets is part of a telecommunicator's basic duties



Lesson Objective: 3.1

- Prompt and reliable interoperable communications has been recognized as a foundation of TIM since the beginning (Recall the NUG)
    1. Responder Safety
    2. Safe, Quick Clearance
    3. Prompt, Reliable, Interoperable Communications
- The nature of their job requires telecommunicators to be proficient at multi-tasking
- Dispatch personnel use the telephone to receive calls from the public as well as other agencies
- Telecommunicators communicate with field units via radio and mobile data computers
- They are the conduit or connection between individuals, agencies, and other resources
- Effective communications is essential for responder safety
- The accuracy, timeliness, and overall quality of information received by dispatch has a significant impact on effective TIM

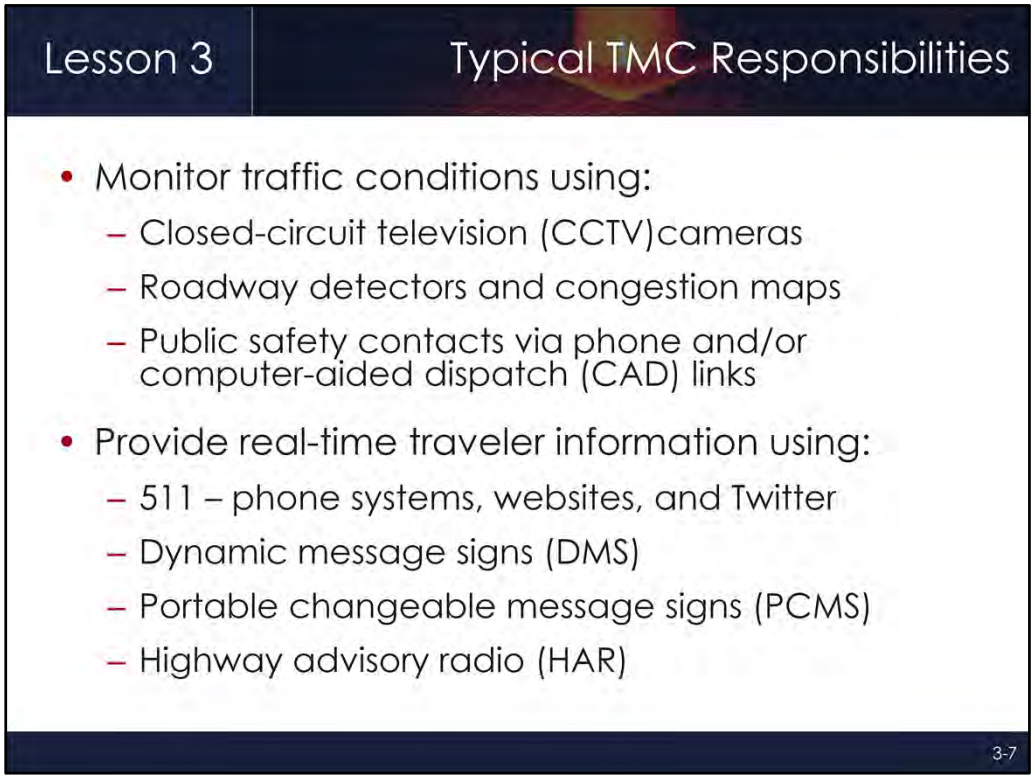


Lesson Objective: 3.2	4-Hour Version Slide: 4H-48

- Verification involves collecting as much information as possible from the individual(s) reporting the incident
- Emphasize that the make, model, and color of the involved vehicles can assist responders in locating the incident
    - Vehicle descriptions can also clarify potential duplicate calls

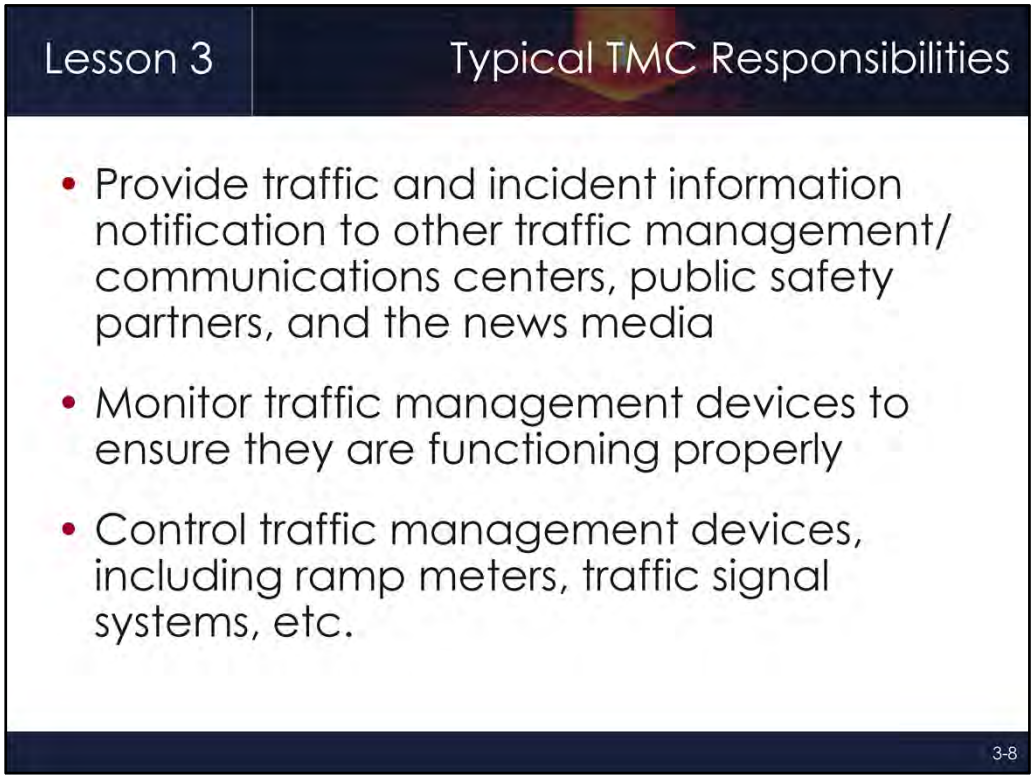
Lesson Objective: 3.3 | 4-Hour Version Slide: 4H-49

- Transportation Management Centers, or TMCs, are also called Traffic Operations Centers, or TOCs
- TMCs may be operated at the local, regional, or state level
- TMCs serve as the hub for the collection and dissemination of incident information and they play a critical role with incident detection and verification
- In general, TMCs monitor roadway conditions, provide support to motorists and field personnel responding to roadway incidents, and actively manage traffic flow



Lesson Objective: 3.3

- Briefly review the typical responsibilities of a TMC
- TMCs also use systems and software similar to public safety computer-aided dispatch (CAD) systems to create and track incidents
- Emphasize traffic monitoring systems such as traffic cameras and traveler information services such as 511 systems if used within the local region

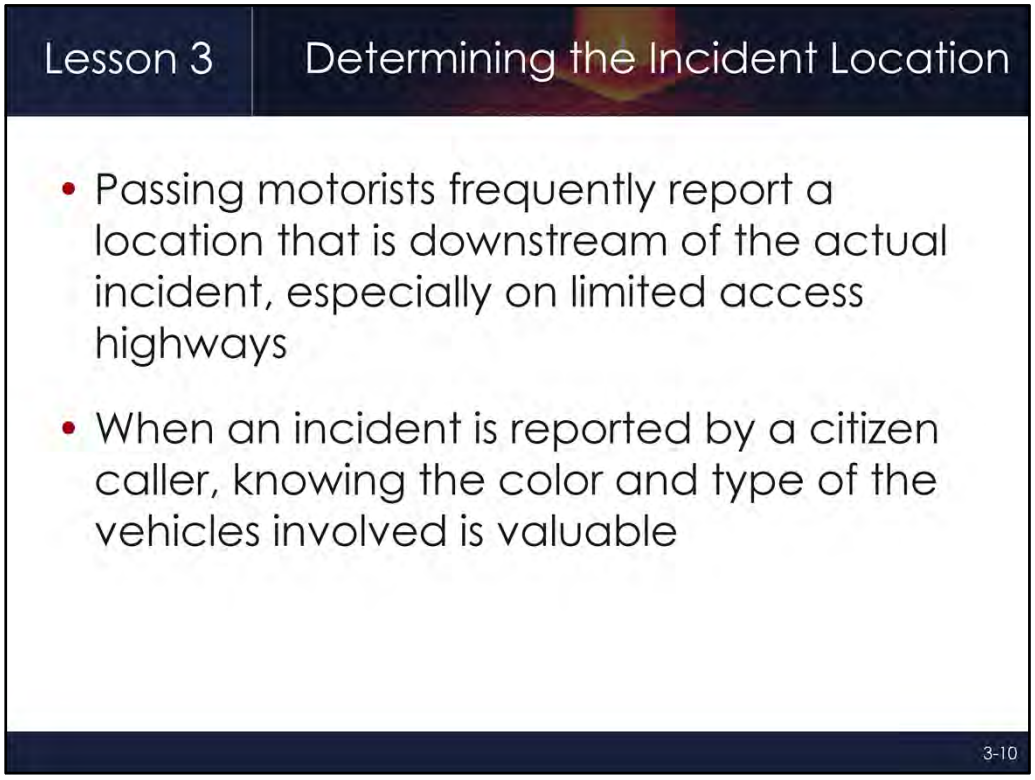


Lesson Objective: 3.3

- TMCs are an important part of ensuring that transportation assets are available in incident response
  - Safety Service Patrols
  - Temporary traffic control
  - Traffic diversion
  - Roadway damage inspection

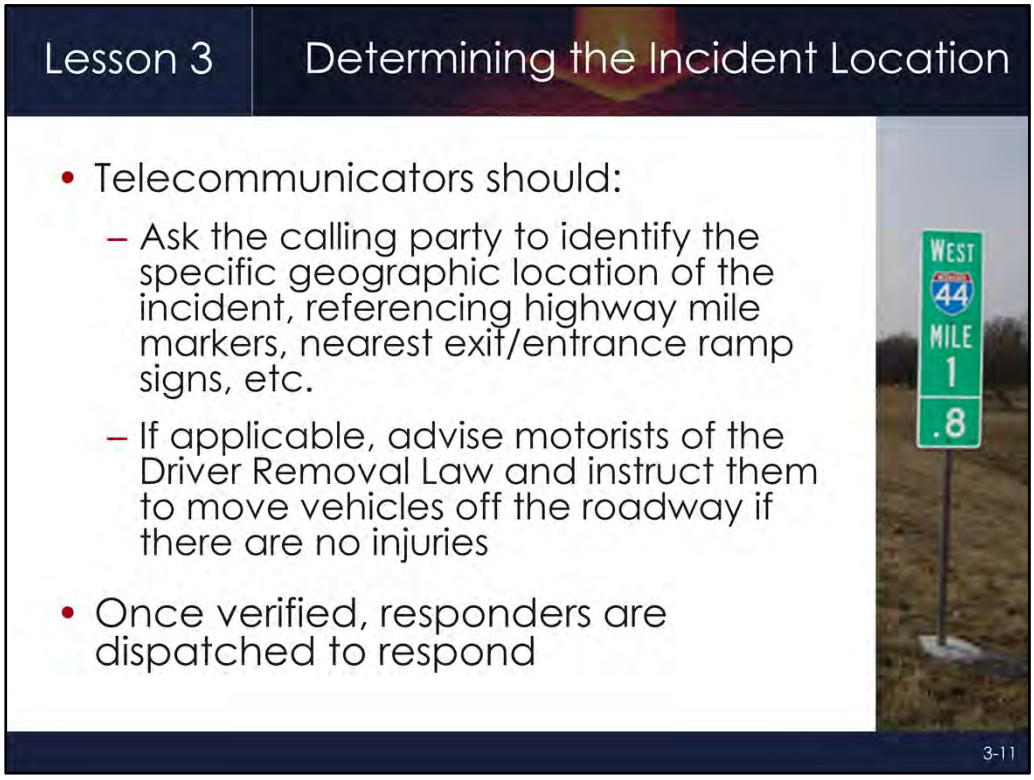
Lesson Objective: 3.3

- **Video:** L3_V1 - FDOT D6 TMC [Cut].wmv
- This excerpt from a promotional video for the Florida Department of Transportation District Six SunGuide TMC provides a nice overview of a TMC



Lesson Objectives: 3.1 and 3.2

- With the proliferation of cellphones, it is often a passing motorist who first notifies a communications center, via 911, that an incident has occurred
- 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
- Knowing the color of the vehicles involved can help responders verify whether they have located the reported incident or a different incident
- Multiple reports in the same area should be assessed for any additional information that can help improve response
- When involved parties call from the scene, getting exact location information can also be challenging
    - Parking lot locations if vehicles have been moved from the roadway
    - Freeway locations if they are between interchanges can be improved with milepost markers or overpass identification signs
    - Callers may be queried about any roadside landmarks they can see that might better help the local communications center confirm the incident location
    - Distances from crossroads or main highways in rural settings where there are few landmarks
    - Motorist unfamiliarity with the area can hamper determining the exact incident location



Lesson Objectives: 3.1 and 3.2 | 4-Hour Version Slide: 4H-50

- Streets and nearest intersections are the staple for identifying traffic incident locations
- Highway markers and nearest interchange locations are most often used for freeway locations
- Some places use ½ mile while other systems use mile markers every one-tenth of a mile
- Interchange locations present unique challenges – some places have implemented lettering for ramps and flyovers with mile marker type signs indicating the ramp letter
- Landmarks often aid in locating incidents and public safety dispatch systems generally have alias systems to facilitate their use
- A simple TIM strategy at the onset of a call is to direct motorists to remove vehicles from travel lanes if the vehicles are drivable
- Once verification is complete, the communications center will dispatch the appropriate response
- At a typical communications center, the time between when a call is first received and responders are dispatched is approximately 60 seconds and is commonly referred to as reflex time

Lesson Objectives: 3.1 and 3.2

- **Animation:** Click forward to make red circle appear

- A caller reported a crash at Sandy Lake Road on a limited access, high-volume highway
- Windshield view is from a responder vehicle on the on-ramp, which can see a blue and a white vehicle on the shoulder of the road **[Click]**
    - Sandy Lake Road is actually a half mile past the green sign seen in the picture

- **Ask/Discuss:** What may have happened?
    - Caller had traveled downstream by the time they reported the incident
    - This may be a different incident

- **Ask/Discuss:** How would you determine if this is the incident you are assigned to?
    - This incident may be a different or new incident that has not yet been reported
    - Having vehicle information, such as make/model and color, can assist with verifying that this is the correct incident

- **Ask/Discuss:** If you determine it is the incident you were assigned to, how would your report this incident location to your communications center?

- Don't allow the discussion to get to bogged down in vehicle positioning, that is coming in the next lesson

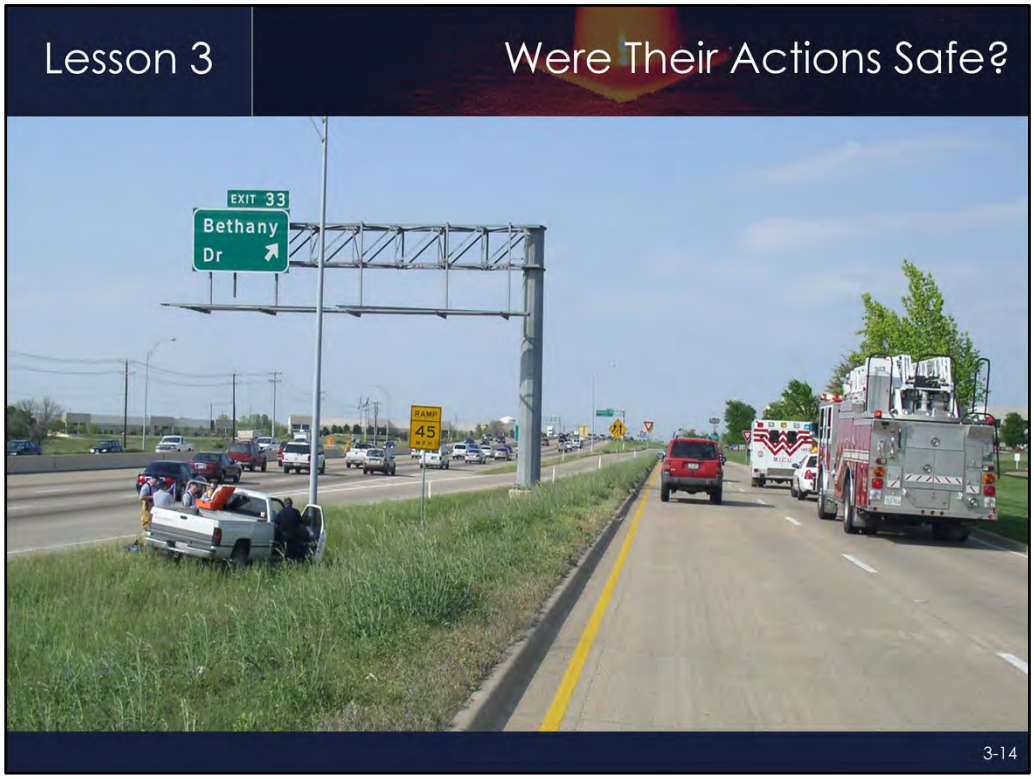
Lesson Objectives: 3.1 and 3.2

- **Animation:** Click forward to make red circle appear

- Responders are dispatched to a man slumped over the wheel in a white pickup truck at the Bethany Drive off-ramp at the service road
- The green highway exit sign states Bethany Drive
- Responders are approaching from the service road
- The image reveals that the actual vehicle location is on the limited access facility **[Click]**

- **Ask/Discuss:** What may have happened?
    - Caller information was incorrect

- **Ask/Discuss:** How would you handle this situation?
    - Determine if any agency policy or protocols exist that would apply to this situation



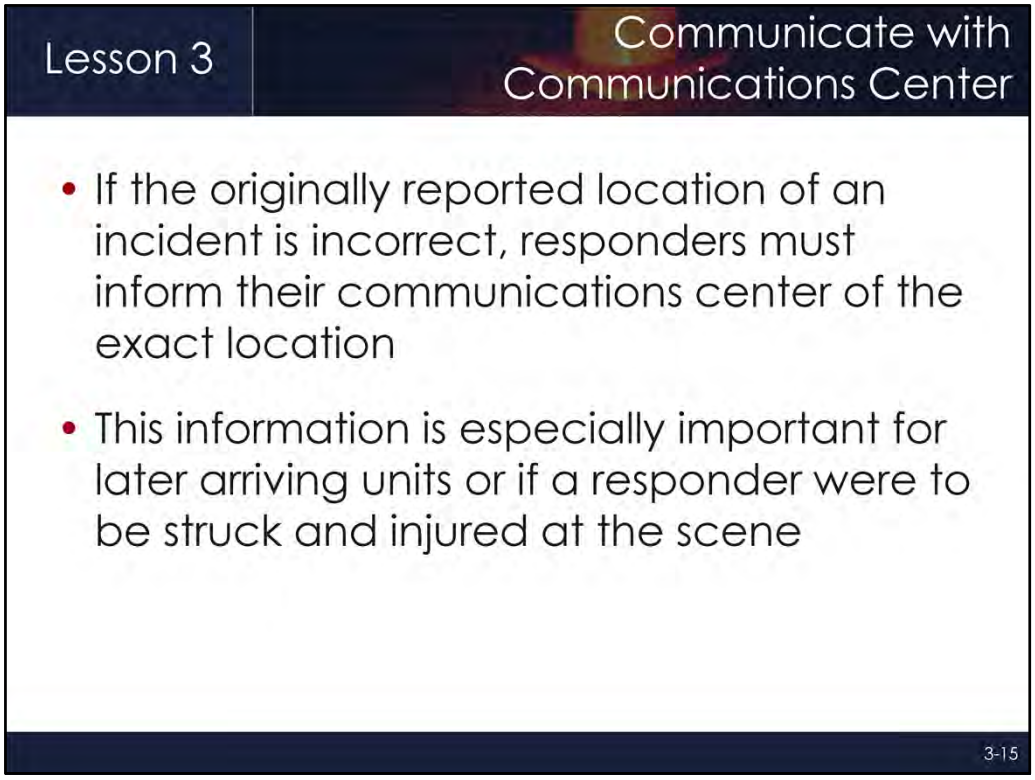
Lesson Objectives: --

- As a secondary teaching point, highlight the FD, EMS, and PD vehicle and personnel response to this incident

- **Ask/Discuss:** Were the actions taken by responders safe?
    - Vehicle positioning creates a spilt scene forcing them to cross lanes of traffic
    - The current vehicle positioning provides no protection for the responders who are working at the scene

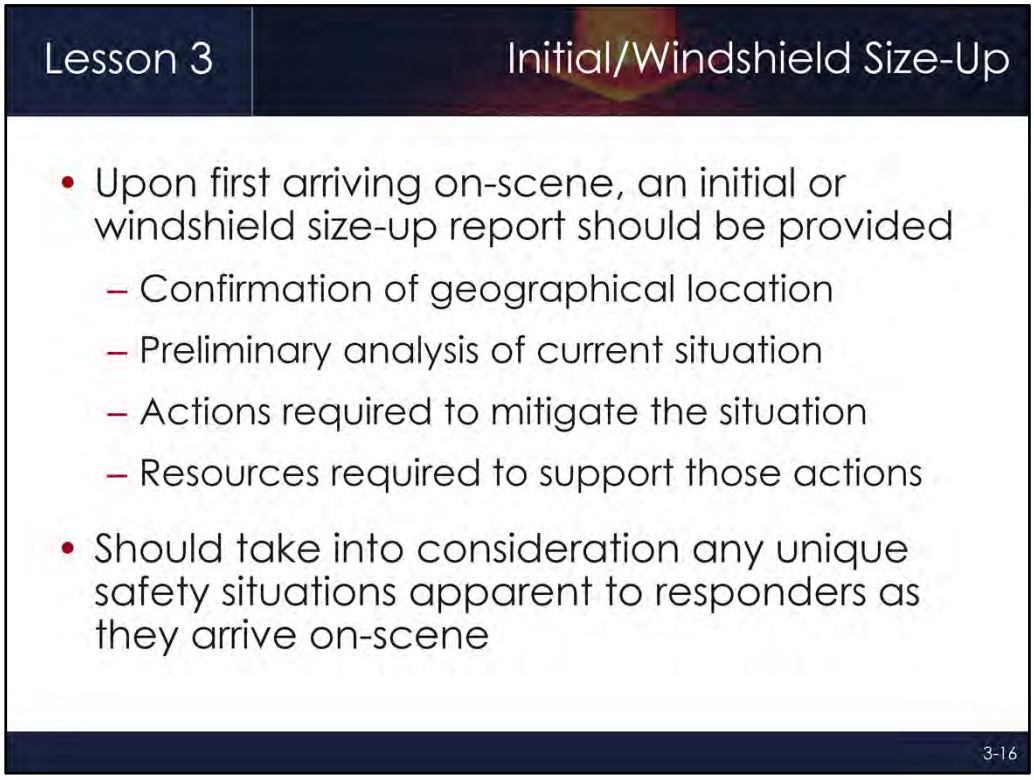
- **Ask/Discuss:** What corrective actions could have been taken to improve responder safety in this specific situation?

- Vehicle positioning will be covered in detail in Lesson 4, so don't get too bogged down in discussion



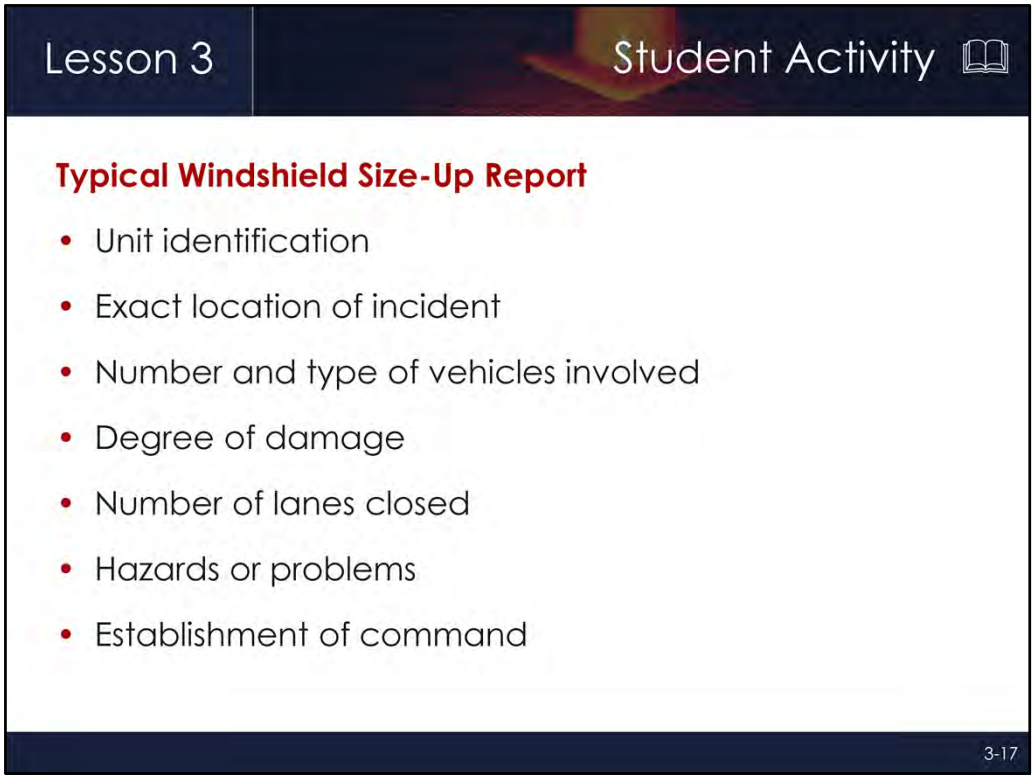
Lesson Objectives: 3.1 and 3.2

- Reiterate that the more accurate and detailed the information obtained and relayed to additional responders, the faster the response and the quicker the clearance
- Emphasize that if the incident location is different than what was originally reported, it MUST be reported to the communications center
    - Additional responding units can report to the correct location
    - If an emergency were to occur (i.e., struck-by, shooting, officer down, etc.), additional responders would know where to go



Lesson Objective: 3.4 | 4-Hour Version Slide: 4H-51

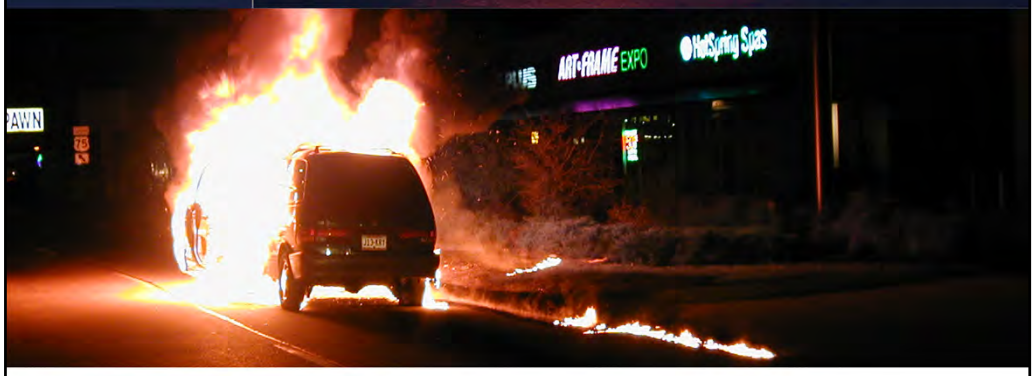
- Upon first arriving on-scene, an immediate arrival report should be given to the communications center:
  - Confirm the geographical location and approach specifics for later-arriving units
  - Other pertinent information that can be determined at first glance
- This report, typically given while still in the vehicle and viewing the scene through the windshield, is called a windshield size-up
- A more detailed and accurate size-up should be provided after the responder has more fully assessed the scene



Lesson Objective: 3.4	4-Hour Version Slide: 4H-52

- Review the information that is typically included in an initial arrival/windshield size-up report

Lesson 3 | What Is Your Windshield Size-Up Report?



Typical F/R 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 "

3-18

Lesson Objective: 3.4	4-Hour Version Slide: 4H-53

- This example is an initial arrival report for a fire department when arriving on a scene

Lesson Objective: 3.4	4-Hour Version Slide: 4H-54

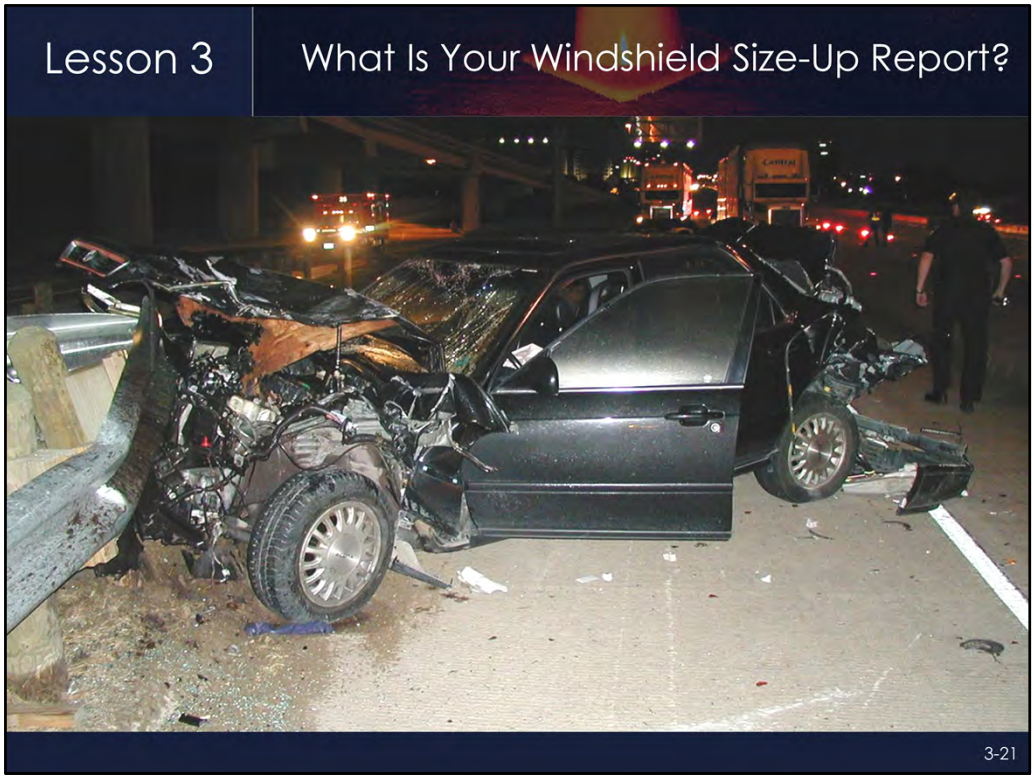
- Elements of this arrival size-up report should include the following:
  - Unit identification
  - Exact location of incident
  - Number and type of vehicles involved
  - Degree of damage
  - Number of lanes closed
  - Hazards or problems
  - Establishment of command

- **Sample Answer:** Unit one on-scene… Francis Street northbound shoulder prior to Woodside Drive… Two vehicles with minor damage… No apparent injuries… Assuming Francis Street command

Lesson Objective: 3.4

- Elements of this arrival size-up report should include the following:
  - 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

- **Sample Answer:** Unit one on-scene… State Route 60 at mile marker 44… Overturned sedan severely damaged… Both lanes blocked… Assuming 60 command



Lesson Objective: 3.4

- Elements of this arrival size-up report should include the following:
  - 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

- **Sample Answer:** Unit one on-scene… Highway 20 Eastbound… One vehicle with severe damage… Blocking the right lane and the shoulder… Guardrail damage… Assuming 20 command

Lesson Objective: 3.4

- Elements of this arrival size-up report should include the following:
  - 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

- **Sample Answer:** Unit one on-scene… Northbound Highway 6 on the right shoulder downstream of Exit 41… Disabled box truck… Assuming 6 command

Lesson Objective: 3.4

- Elements of this arrival size-up report should include the following:
  - 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

- **Sample Answer:** Unit one on-scene… Intersection of Main and State streets… Jackknifed tractor-trailer… Right lane blocked… Fuel leaking from saddle tank… Assuming Main/State command

Lesson Objective: 3.4

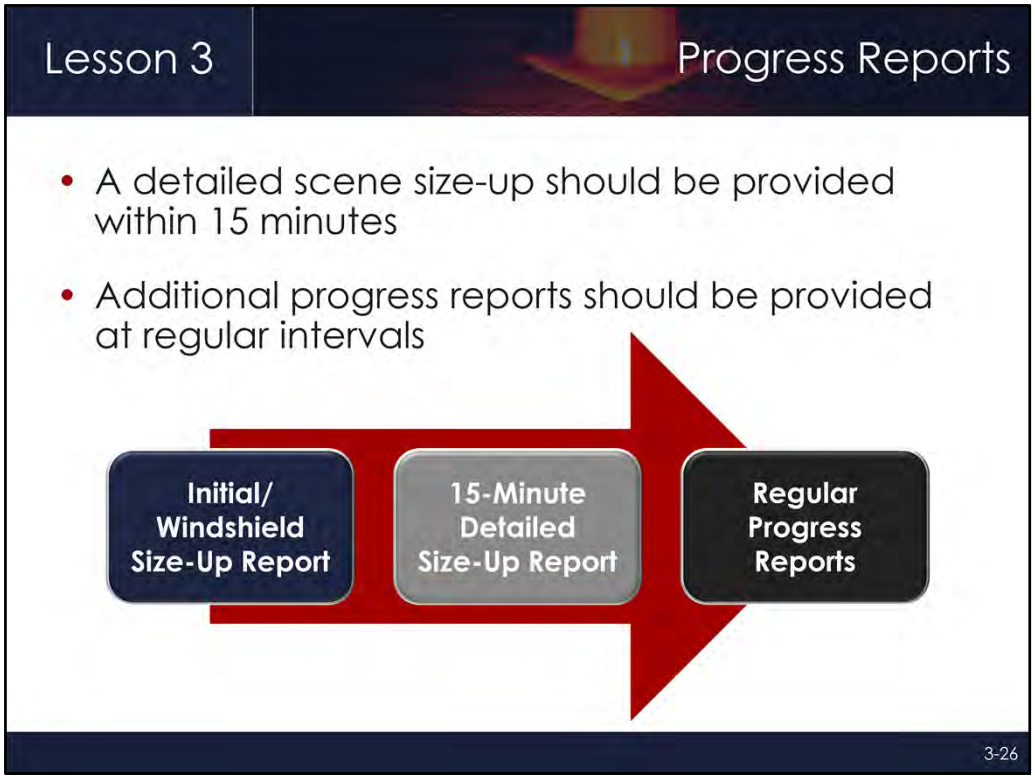
- Elements of this arrival size-up report should include the following:
  - Unit identification
  - Exact location of incident
  - Number and type of vehicles involved
  - Degree of damage
  - Number of lanes closed
  - Hazards or problems
  - Establishment of command

- **Sample Answer:** Unit one on-scene… State Route 21 at mile marker 73… Overturned track-trailer… Southbound lane blocked… Assuming 21 command

Lesson Objective: 3.4

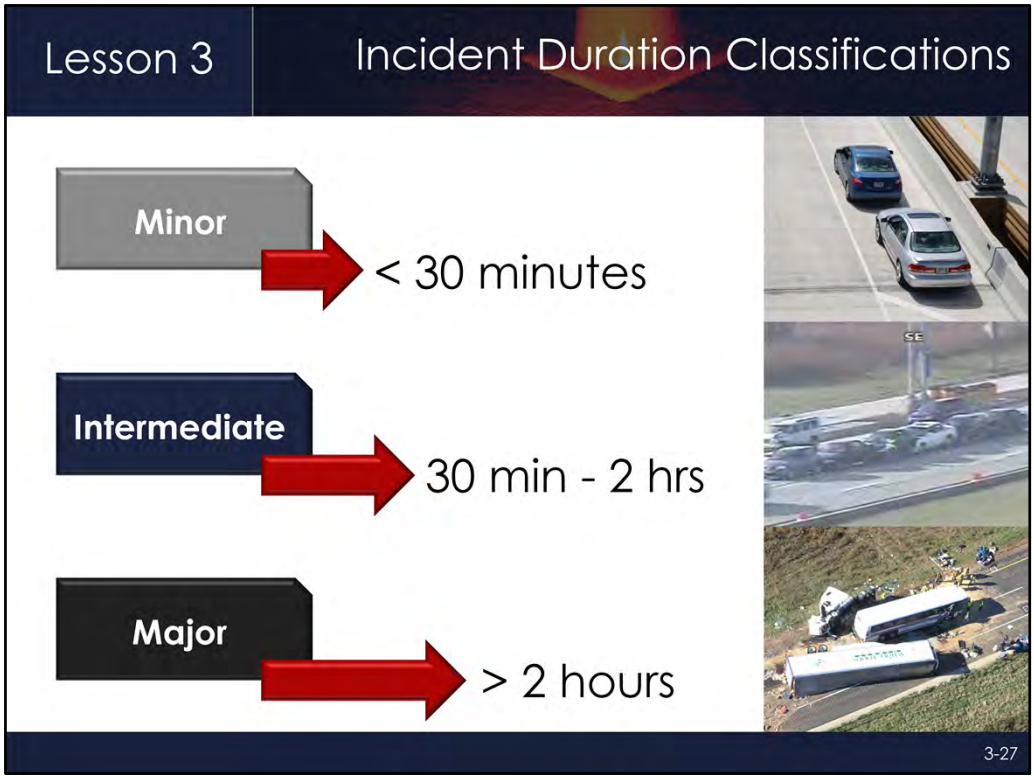
- Elements of this arrival size-up report should include the following:
  - Unit identification
  - Exact location of incident
  - Number and type of vehicles involved
  - Degree of damage
  - Number of lanes closed
  - Hazards or problems
  - Establishment of command

- **Sample Answer:** Unit one on-scene… Highway 35 northbound, north of Exit 7… Snowplow fully engulfed in flames with melted tires… Shoulder and left lane blocked… Appears to be leaking fuel… Assuming 35 command



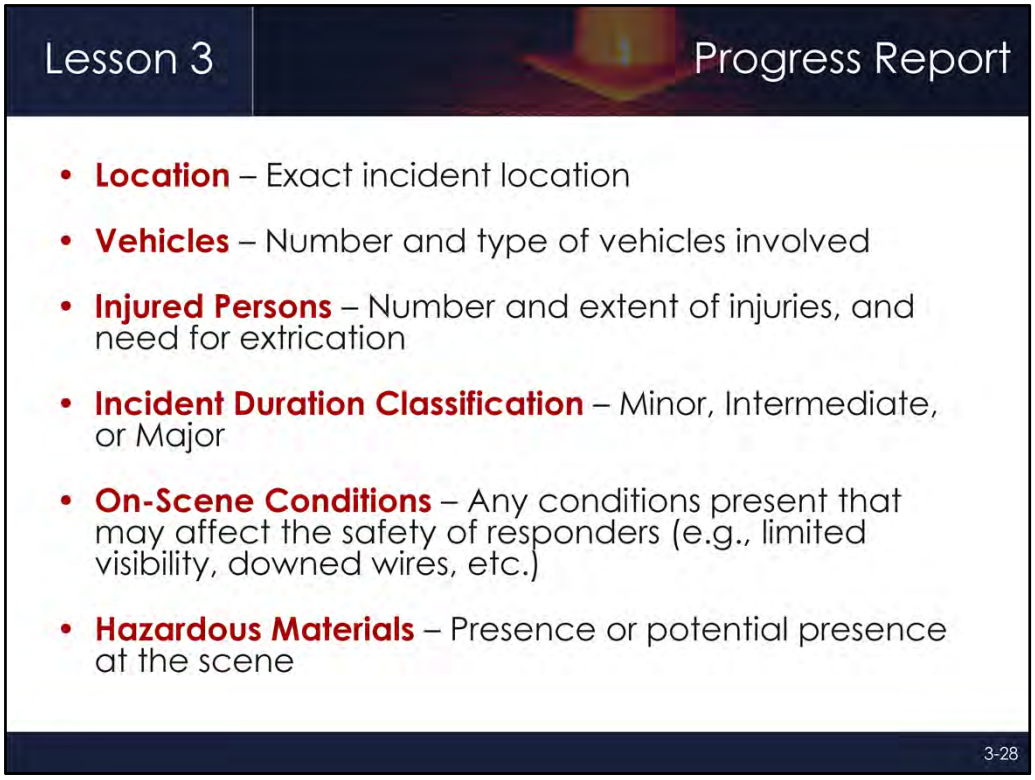
Lesson Objective: 3.4 | 4-Hour Version Slide: 4H-55

- The initial arrival/windshield size-up report provides a quick assessment of the scene for dispatch and other responders monitoring the channel
- A more detailed size-up report should be conducted within 15 minutes of arrival at the scene
- For the duration of the incident, progress reports should be communicated at regular intervals to provide an update on how response, traffic management, and clearance activities are progressing



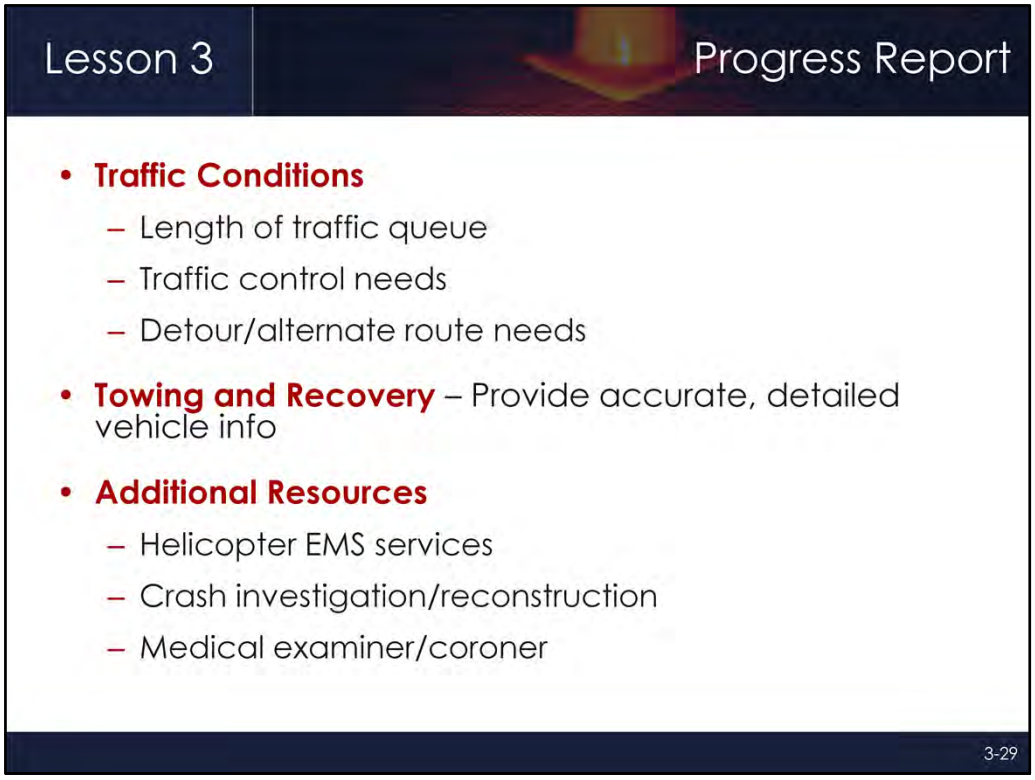
Lesson Objective: 3.4 | 4-Hour Version Slide: 4H-56

- MUTCD Chapter 6I divides traffic incidents into three general classes based on duration
- Each of these classifications have unique traffic control characteristics and needs
- The longer you are on the scene, the more that is expected and the more that is required of you and your TIM team
- MUTCD Chapter 6I states that responders arriving at a traffic incident should:
    - Estimate the magnitude of the traffic incident
    - Estimate the expected time duration of the traffic incident
    - Estimate the expected vehicle queue length
    - Set up the appropriate temporary traffic controls based on these duration estimates; shorter requires less resources; long duration incidents will require more resources
    - Lesson 7 provides a detailed overview of traffic management and temporary traffic control
- 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 Objective: 3.4

- The next two slides summarize information that should be considered during the detailed progress report and subsequent progress reports

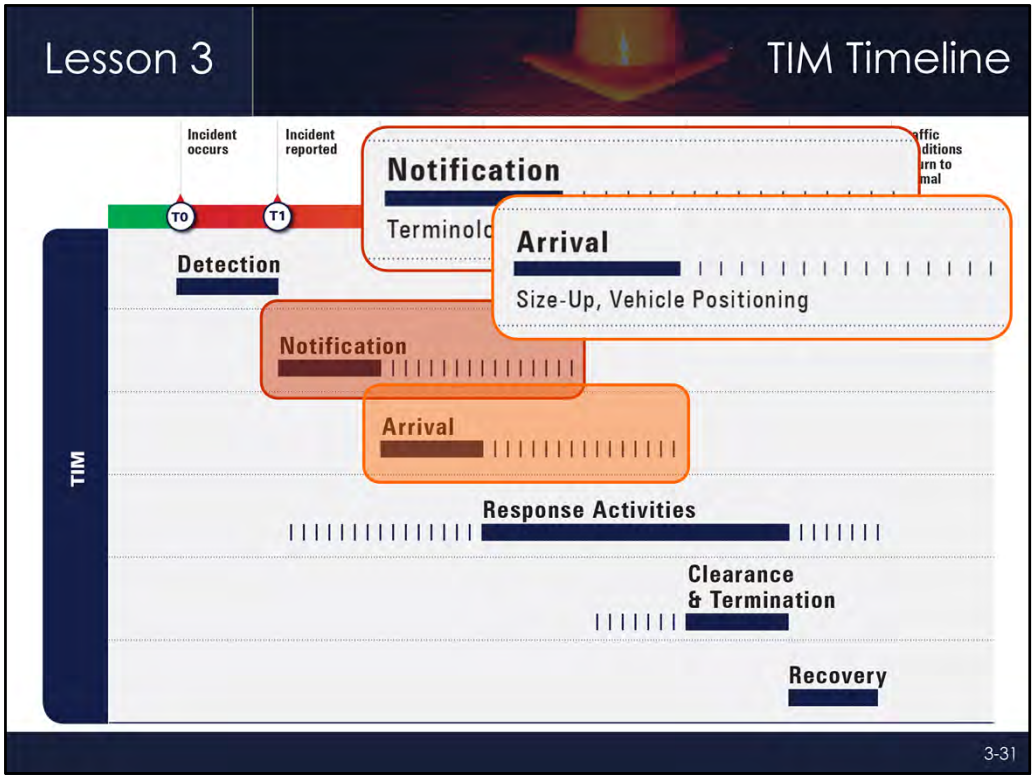


Lesson Objective: 3.4

- It should be highlighted that even if additional resources are not needed immediately, the resource request should be made as soon as possible to ensure timely response
    - For example, even if a crash investigation team is required at the scene, the towing and recovery provider should be contacted early so that they can plan their response, arrive on the scene, and be prepared to work as soon as directed to do so

Lesson Objective: 3.4

- It is important that preplanning occur for incidents involving unique locations and special roadway characteristics since these incidents may impede or complicate incident response
- Examples include:
  - Bridges
  - Tunnels
  - Elevated roadways
  - Tollbooths
- Unique locations such as these can present challenges for later-arriving responders still enroute to the scene
- Directions for response or approaches to the scene must be communicated to other responders
- Providing recommended approach strategies can minimize response times and improve safety for all personnel



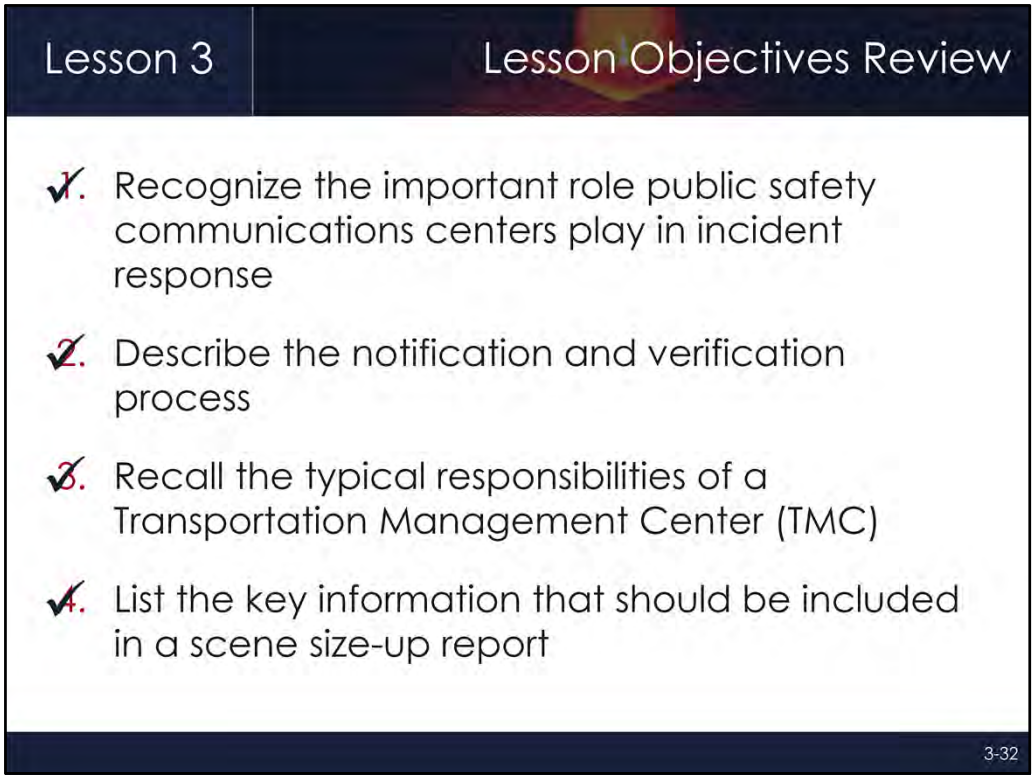
TIM Timeline	4-Hour Version Slide: 4H-57

- **Animation:** Click forward to make dark orange box appear, second click brings up detailed view of Notification, third click makes orange box appear, and fourth click brings up detailed view of Arrival

- **Ask/Discuss:** How can notification and verification impact the TIM Timeline? **[First and second click]**
  - It is very important to obtain and provide accurate and concise incident details
  - Locations reported by citizen callers are not always accurate and can delay response

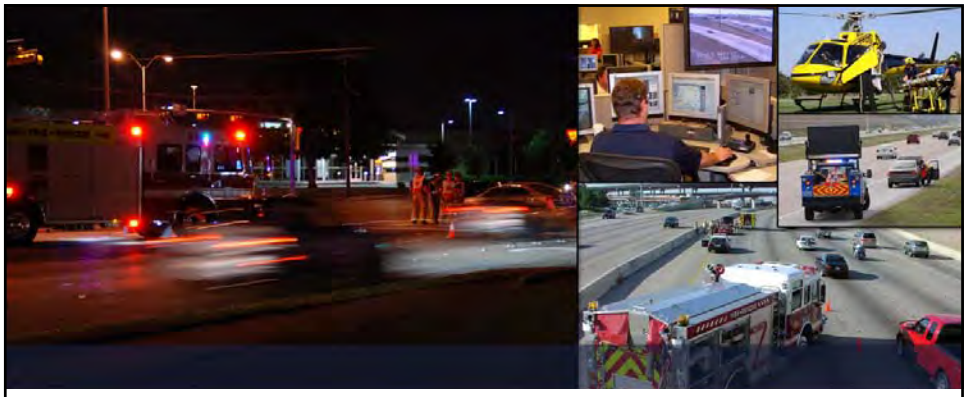
- This lesson also covered portions of Arrival **[Third click]**

- **Ask/Discuss:** How can the scene size-up impact the TIM Timeline? **[Fourth click]**
  - An accurate windshield size-up report can help to ensure later arriving units have the correct location and are aware of any safety concerns



Lesson Objectives Review

- **Animation:** Clicking forward reveals the four checkmarks one at a time
- Review each lesson objective, checking them off as you go



Lesson 4:
Safe Vehicle Positioning

4-1

Lesson 4 — Lesson Objectives

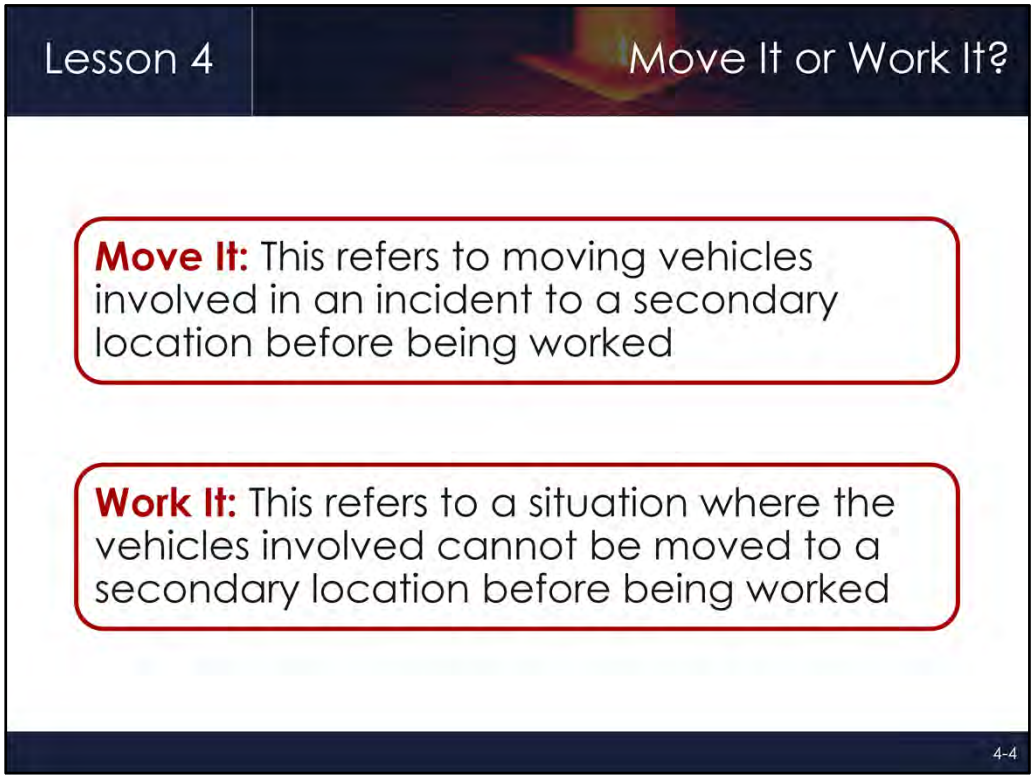
At the conclusion of this lesson, participants will be able to:

1. Differentiate between Move It and Work It incidents
2. State the MUTCD definition of safe-positioned and describe blocking
3. Define Lane +1 blocking and describe the need for it
4. Describe safe practices for working around or avoiding the zero buffer

4-2

Lesson Objective: 4.1

- The windshield size-up upon your arrival sets the stage for early decisions that are made at traffic incidents
- Every time you arrive at an incident scene, you have to make a choice to either *Move It* or to *Work It*



Lesson Objective: 4.1	4-Hour Version Slide: 4H-60

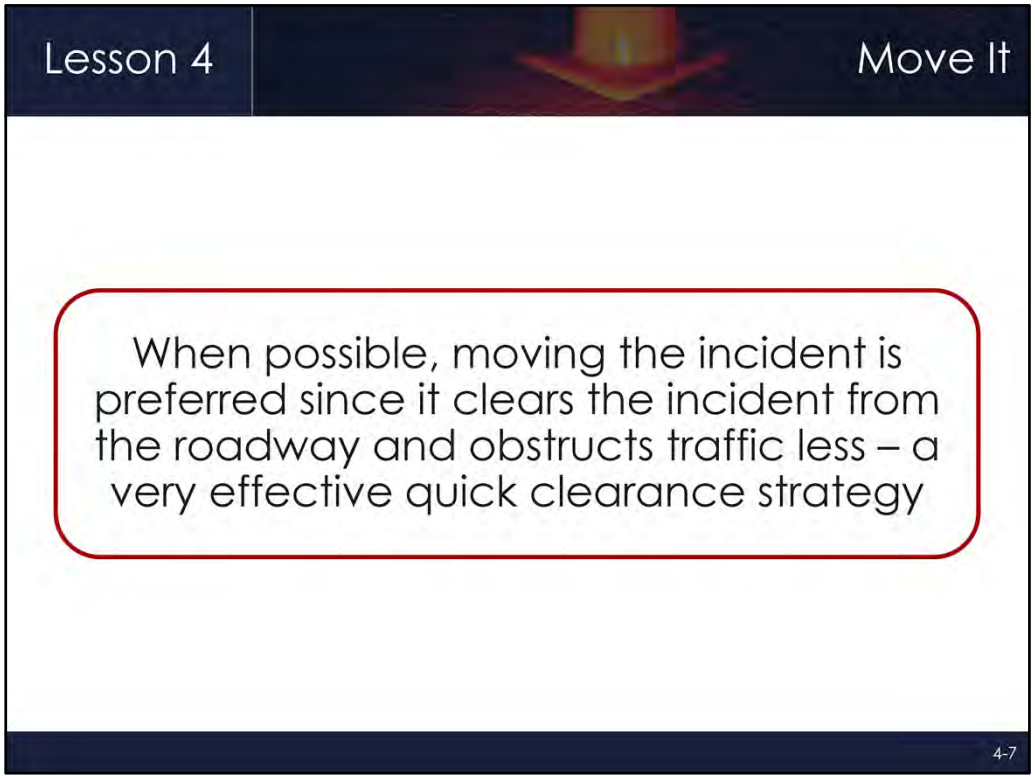
- Read the definitions on the slides
- Ensure that participants understand the meaning of these terms and the difference between them

Lesson Objective: 4.1	4-Hour Version Slide: 4H-61

- **Ask/Discuss:** Is this a Move It or Work It incident?
  - This is an example of a Move It incident if the vehicle is vacated
  - This could be an example of a Work It situation if an injured person were still inside the vehicle
  - This could be an example of a Work It situation if the vehicle were leaking fluids or if it were on fire upon the arrival of the responders

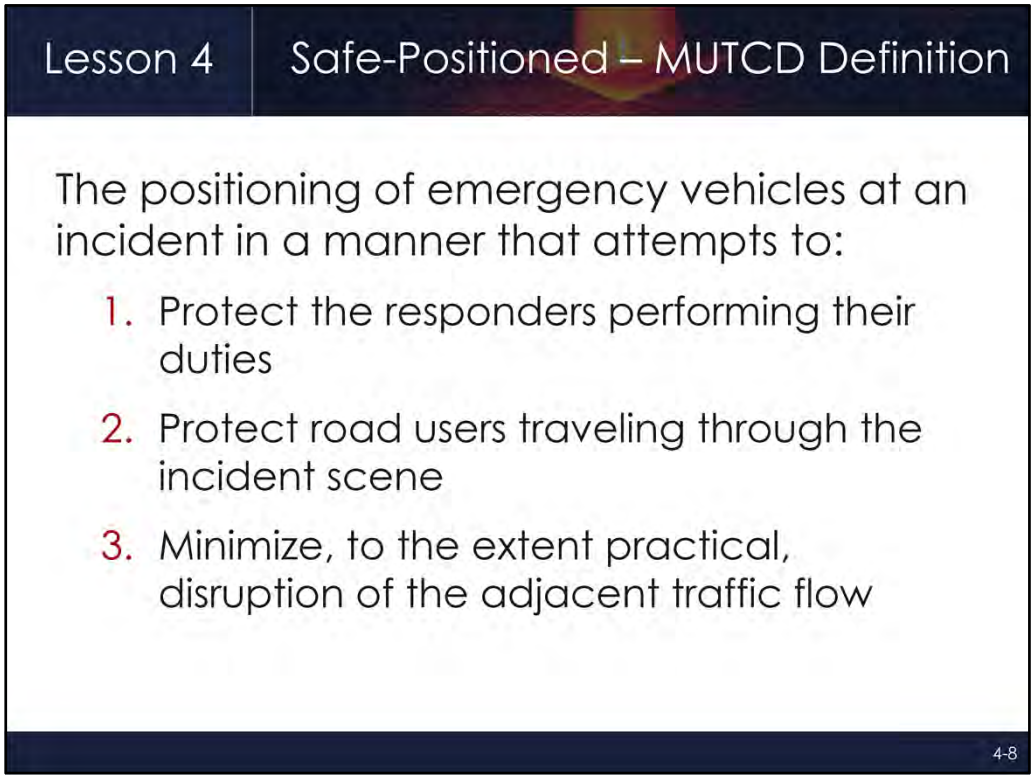
Lesson Objective: 4.1

- **Ask/Discuss:** Is this a Move It or Work It incident?
    - This is an example of a Work It incident



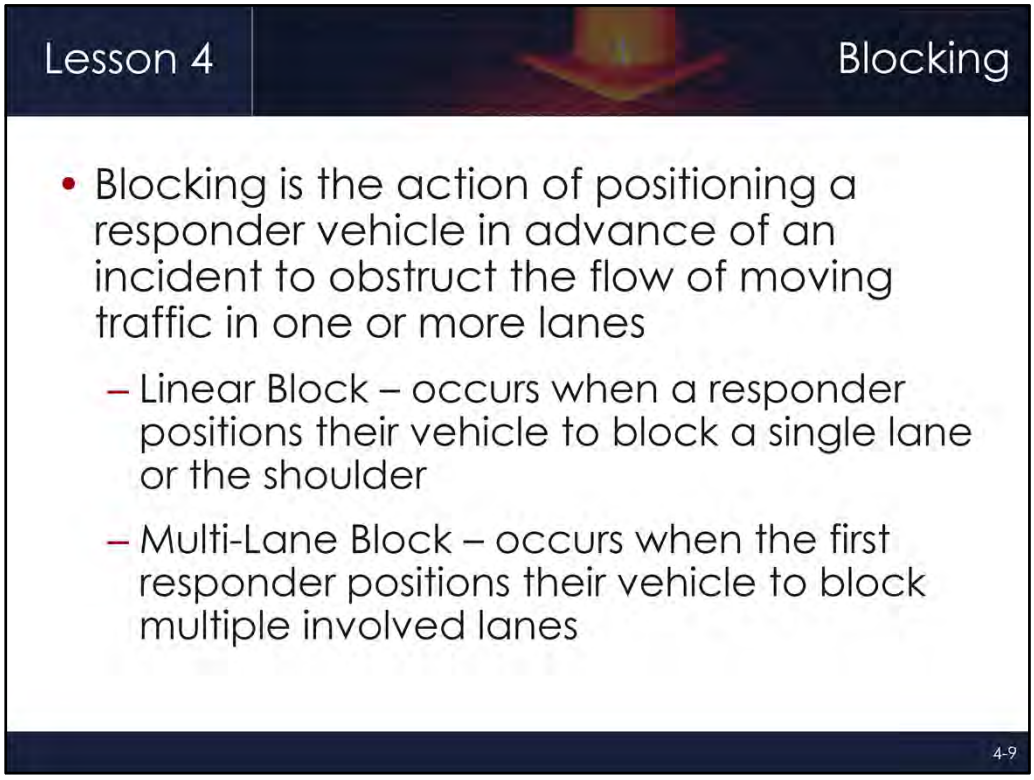
Lesson Objective: 4.1

- Paraphrase slide content
- Emphasize Authority Removal laws or ordinances that cover the topic of moving vehicles or debris off the travel lanes of the highway



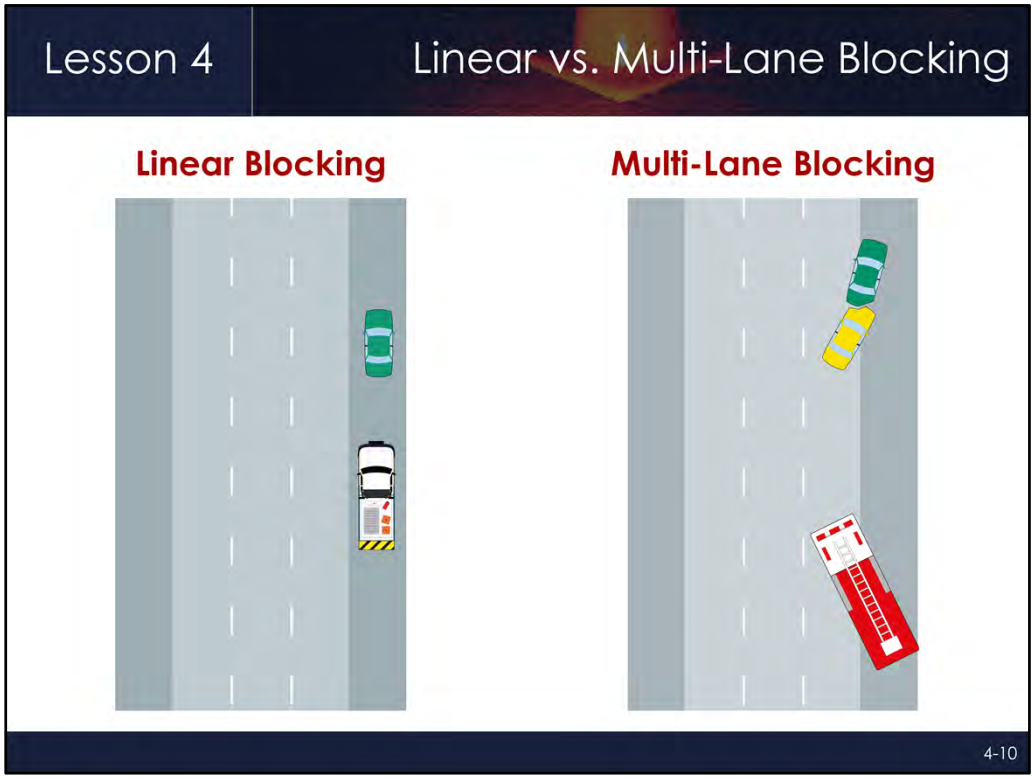
Lesson Objective: 4.2	4-Hour Version Slide: 4H-62

- Positioning emergency vehicles to establish a safe work area is another foundational decision for responders arriving at an incident scene
- Vehicle positioning is a critical element to protecting both emergency responders and motorists



Lesson Objective: 4.2	4-Hour Version Slide: 4H-63

- The first emergency vehicle that arrives at an incident scene is responsible for positioning their vehicle as an initial block
    - The number of lanes that need to be blocked will vary based on the circumstances of the incident
- The shoulder of a highway is considered a lane when establishing a block
- Blocking creates a barrier between traffic and the incident scene where responders are working
- Blocking vehicles should be positioned upstream of the incident scene so that:
    - There will be sufficient distance for the vehicle to roll-ahead without hitting the incident area should it get struck
    - But not so much so that errant vehicles will travel around the blocking vehicle and strike the protected responders
- Blocking vehicle will be the term used throughout this course, however, some DOT participants may also refer to the blocking vehicle as the shadow vehicle, which is a term used in the MUTCD

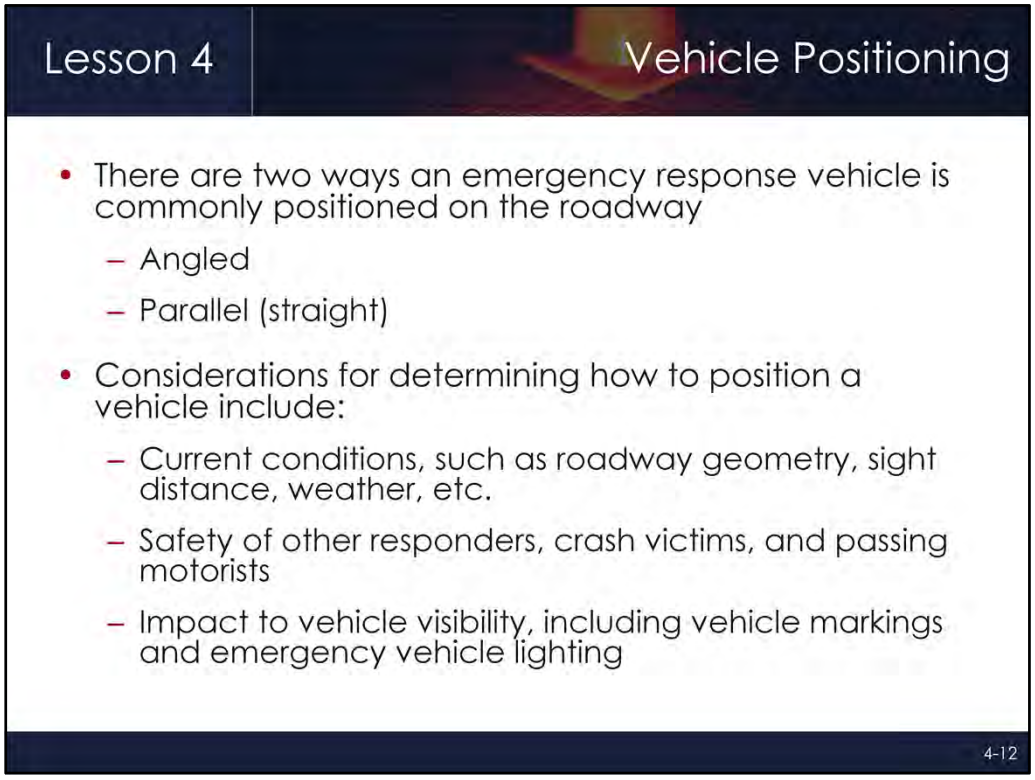


Lesson Objective: 4.2	4-Hour Version Slide: 4H-64

- This slide provides a visual representation of two new terms; linear blocking and multi-lane blocking
- At this point, blocking entails only the involved lanes but visually, the participants can see that the shoulder is included in these scenarios

Lesson Objective: 4.2

- This picture highlights why it is important to block the shoulder when positioning vehicles at an incident scene
- Vehicles may travel intentionally or unintentionally around a responder vehicle on either side or in an unpredictable manner
- Emphasize the “D” Driver risk



Lesson Objective: 4.2	4-Hour Version Slide: 4H-65

- There are two ways a 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 in parallel with the travel lanes or the shoulder
- Paraphrase considerations from the slide:
  - Current conditions, such as roadway geometry, sight distance, weather, etc.
  - Safety of other responders, crash victims, and passing motorists
  - Impact to vehicle visibility, including vehicle markings and emergency vehicle lighting

Lesson Objective: 4.2	4-Hour Version Slide: 4H-66

- Example of a fire truck that is using an angled multi-lane blocking position

Lesson Objective: 4.2	4-Hour Version Slide: 4H-67

- Examples of law enforcement vehicles that are using a parallel linear blocking position

Lesson Objective: 4.2	4-Hour Version Slide: 4H-68

- Example of a safety service patrol vehicle that is using a parallel linear blocking position
  - Vehicles that are using a vehicle-mounted variable message sign or arrow board typically position their vehicles parallel so that passing motorists can see the sign/board more effectively

Lesson Objective: 4.2 | 4-Hour Version Slide: 4H-69

- Example of a law enforcement vehicle that is using an angled linear blocking position
  - Although angled, the vehicle is remaining within the width of one travel lane
- When a vehicle is using linear positioning, the vehicle angle, as shown here, provides motorists a more effective visual cue that the vehicle is not moving
- In this case, the angle of the patrol vehicle also guides motorists to merge or taper into the available right lane

Lesson Objective: 4.2	4-Hour Version Slide: 4H-70

- Example of a safety service patrol vehicle that is using an angled linear blocking position within the width of the outside shoulder of this highway
    - Point out that the vehicle-mounted variable message sign is not being utilized in this example

Lesson Objective: 4.2

- Example of parallel linear blocking in a residential neighborhood

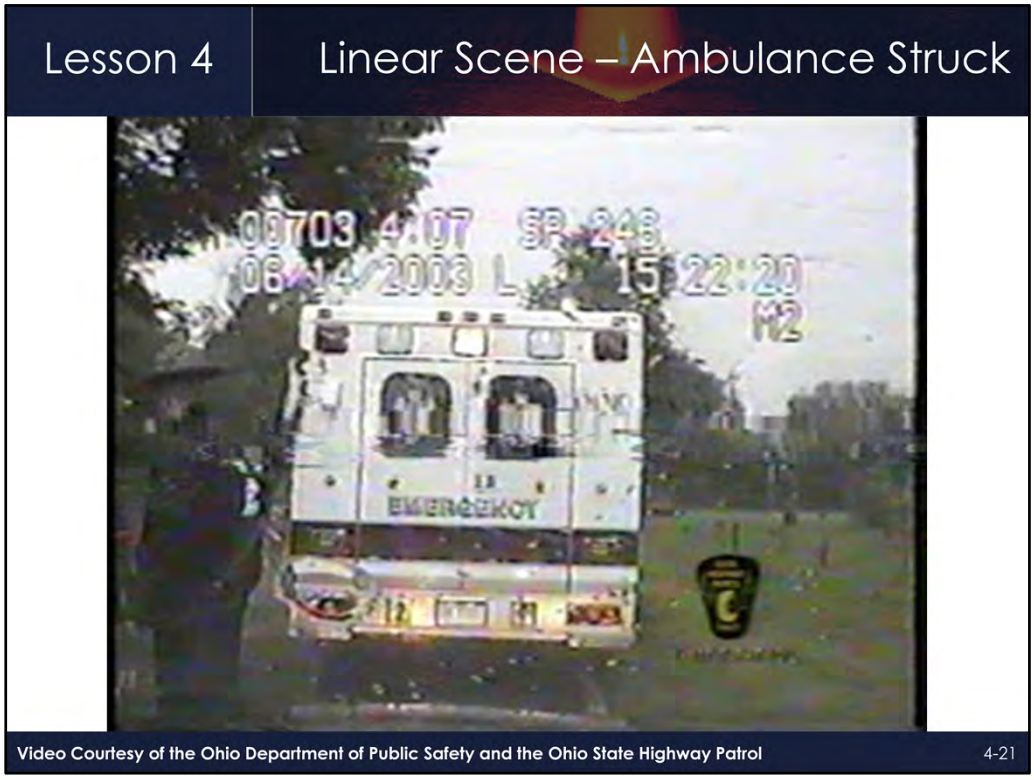
Lesson Objective: 4.3	4-Hour Version Slide: 4H-71

- Provide the following case study details:
  - The ambulance has responded to a medical emergency in a white SUV which has parked on the left shoulder
  - The driver is slumped over the wheel
  - Access via the driver's side door is obstructed since the vehicle is parked so close to the center divider barrier
  - Law enforcement is in a parallel linear blocking position upstream of the ambulance

Lesson Objective: 4.3	4-Hour Version Slide: 4H-72

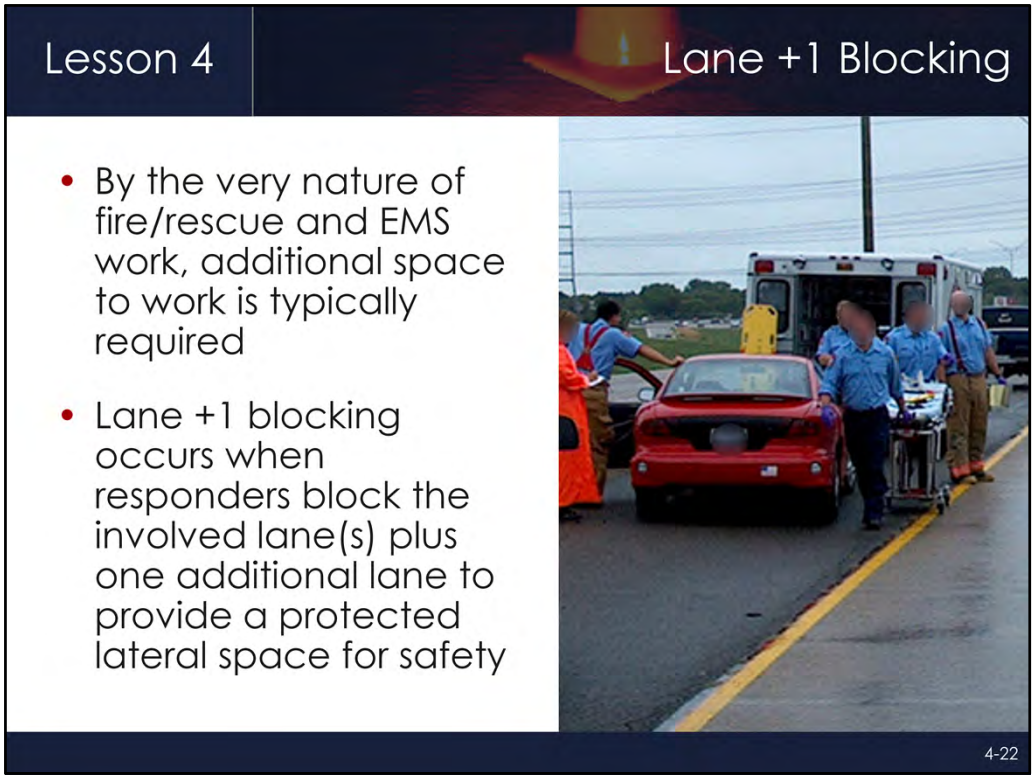
- **Ask/Discuss:** What safety concerns do you see with this linear operation?
  - Since it is not possible to remove the vehicle occupant via the driver's door, this will have to be accomplished through the passenger side, meaning that EMS responders will be directly exposed to moving traffic since no travel lanes have been closed
  - Think about how they would bring a stretcher to the patient – they essentially have to walk in a moving lane of traffic
  - Due to the challenge of loading a patient into an ambulance, EMS personnel will have all their attention focused on that task and will consequently have their backs turned to traffic and be unable to monitor approaching traffic
  - Due to the limited space available to work, the time needed to complete incident clearance will be increased

- In this situation, it is recommended that Lane 1, or the left lane, be blocked in addition to the inside shoulder to provide a safer work environment for the responders and the patient



Lesson Objective: 4.3	4-Hour Version Slide: 4H-73

- **Video:** L4_V1 - Linear Ambulance Crash.wmv
- **Ask/Discuss:** Debrief the video
  - Vehicle positioning and scene security should be discussed



Lesson Objective: 4.3 | 4-Hour Version Slide: 4H-74

- To ensure responder and motorist safety, it may be necessary to close additional lanes for a short time
- 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
- This protocol, where one additional lane is blocked in order to increase safety for actively working, is referred to as Lane +1 blocking
- Use of the Lane +1 blocking protocol creates an adequate incident/work space for responders that is protected against moving traffic

Lesson Objective: 4.3	4-Hour Version Slide: 4H-75

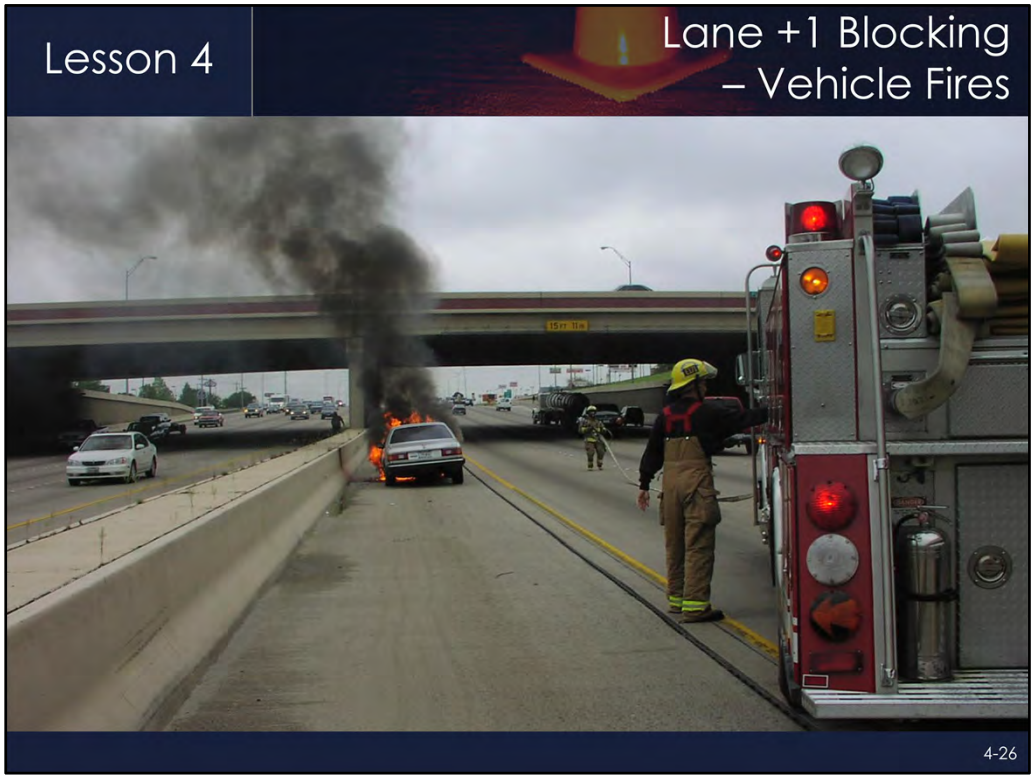
- **Animation:** Click forward for red shape to appear
- Lane +1 blocking expands the protected area provided by the blocking vehicle

Lesson Objective: 4.3

- Another example where the extra space created by Lane +1 blocking is needed
- It is not possible to safely remove a person from a vehicle on a long board confined to one 12-foot wide lane
- Fire and EMS personnel need additional room to work during patient treatment and patient movement
- Lane +1 blocking allows EMS providers to focus on the patient and not be distracted by moving traffic being so close to them

Lesson Objective: 4.3	4-Hour Version Slide: 4H-76

- Once the patient is loaded, vehicle positioning could be re-assessed to determine if the extra lane can be opened back up

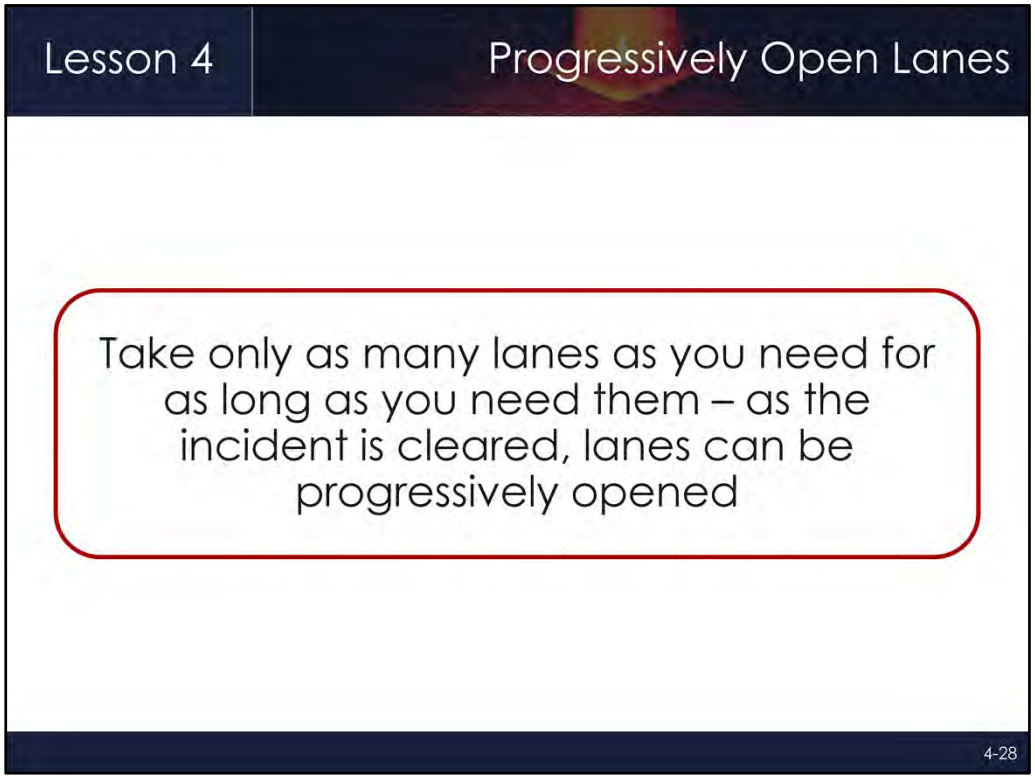


Lesson Objective: 4.3	4-Hour Version Slide: 4H-77

- Lane +1 blocking is also beneficial in the case of vehicle fires where an off-angle approach is needed for firefighter safety

Lesson Objective: 4.3	4-Hour Version Slide: 4H-78

- Lane +1 blocking is used for activities related to patient loading, vehicle fires, extrication, etc.
- Once active participation in these activities stops, the scene should be re-evaluated
- It is possible that the additional lane or lanes originally shut down could be opened, with the blocking vehicle only blocking the involved lane(s)



Lesson Objective: 4.3	4-Hour Version Slide: 4H-79

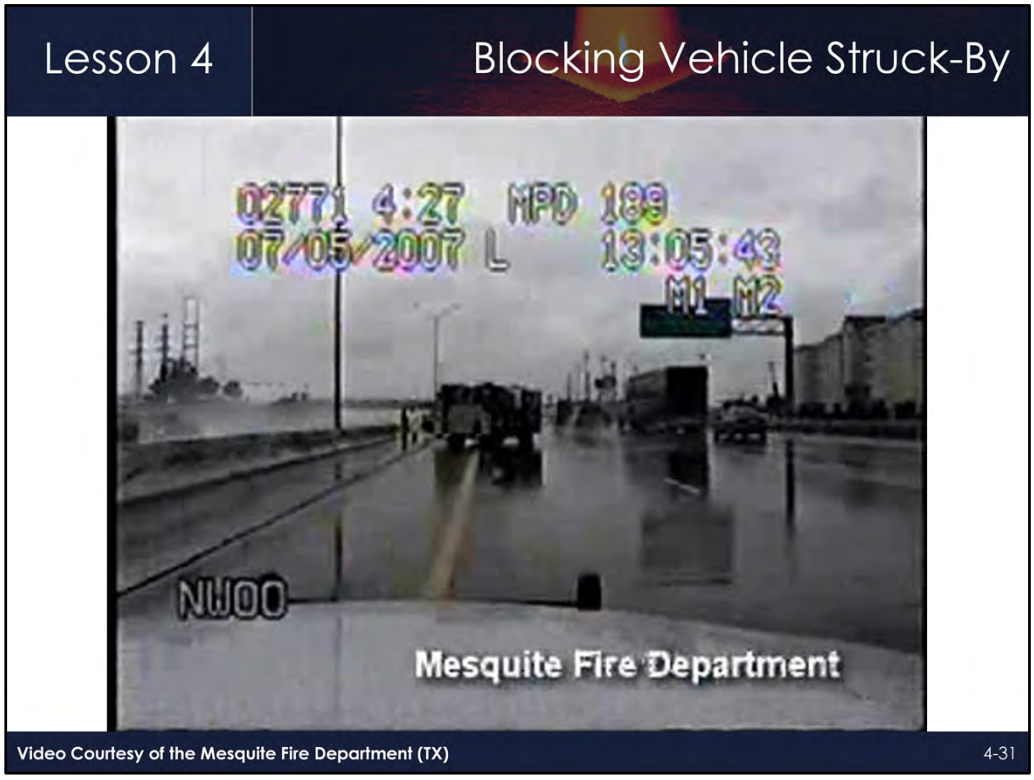
- Read slide verbatim

Lesson Objective: 4.2

- Any responder vehicle can provide a block
- EMS vehicles serve as the blocking vehicle only if they are the first to arrive at the incident
- Large, heavy fire apparatus provide the best block

Lesson Objective: 4.2

- The Bethesda-Chevy Chase Rescue Squad responded to a highway incident during the late afternoon hours, after it had been raining
- Upon arrival, they parked their vehicle in a block to the right position and were hit by a hydroplaning car within 30 seconds of their arrival



Lesson Objective: 4.2	4-Hour Version Slide: 4H-80

- **Video:** L4_V2 - TX Struck-By.wmv

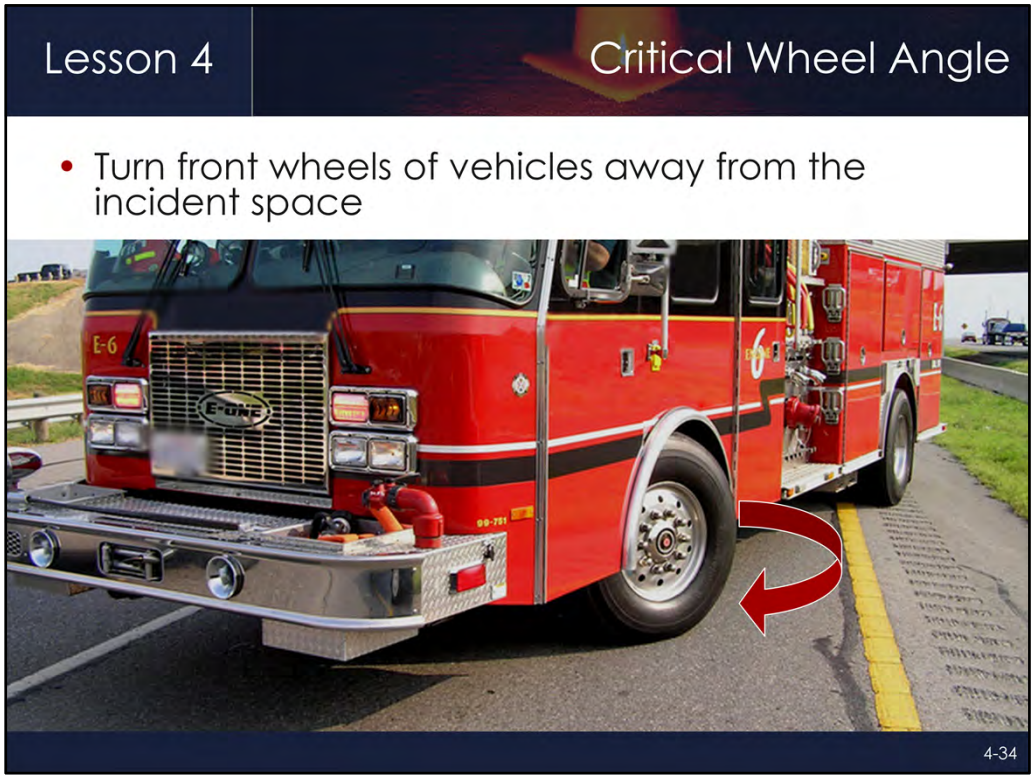
- Video from Mesquite Texas where a motor vehicle crash was being worked by responders
- Fire apparatus was providing a protective block
- Fire crew had just entered their vehicle and were preparing to depart
- Dash cam from the law enforcement vehicle at the scene that was providing advance warning

Lesson Objective: 4.2

- The ideal blocking vehicle is one that is equipped with a truck-mounted attenuator
  - In general, these vehicles are deployed by DOTs or highway/transportation agencies and typically only respond to intermediate or major duration incidents

Lesson Objective: 4.2

- The Grand Rapids Fire Department (MI) developed this blocker truck after three of their fire trucks received damage while blocking traffic
- The project was a joint effort between the Fire Department, the Michigan DOT, the Kent County Road Commission, and the Michigan State Police
- A dump truck, donated by the Grand Rapids Water Department, was updated with lights, radios, striping, and other additions
- MDOT paid for a special trailer mounted shock-absorbing attenuator
- The unit also has a large flashing arrow, alerting traffic to merge



Lesson Objective: 4.2 | 4-Hour Version Slide: 4H-81

- When positioning a response vehicle, drivers should work on the assumption that the unit may be hit by a vehicle approaching from upstream
- Turning wheels so that they are not facing the incident space is a recommended practice referred to in this course as the *critical wheel angle*
- The critical wheel angle may help divert a struck responder vehicle away from downstream responders
- Agency policy about critical wheel angle should be followed, particularly in the case of law enforcement

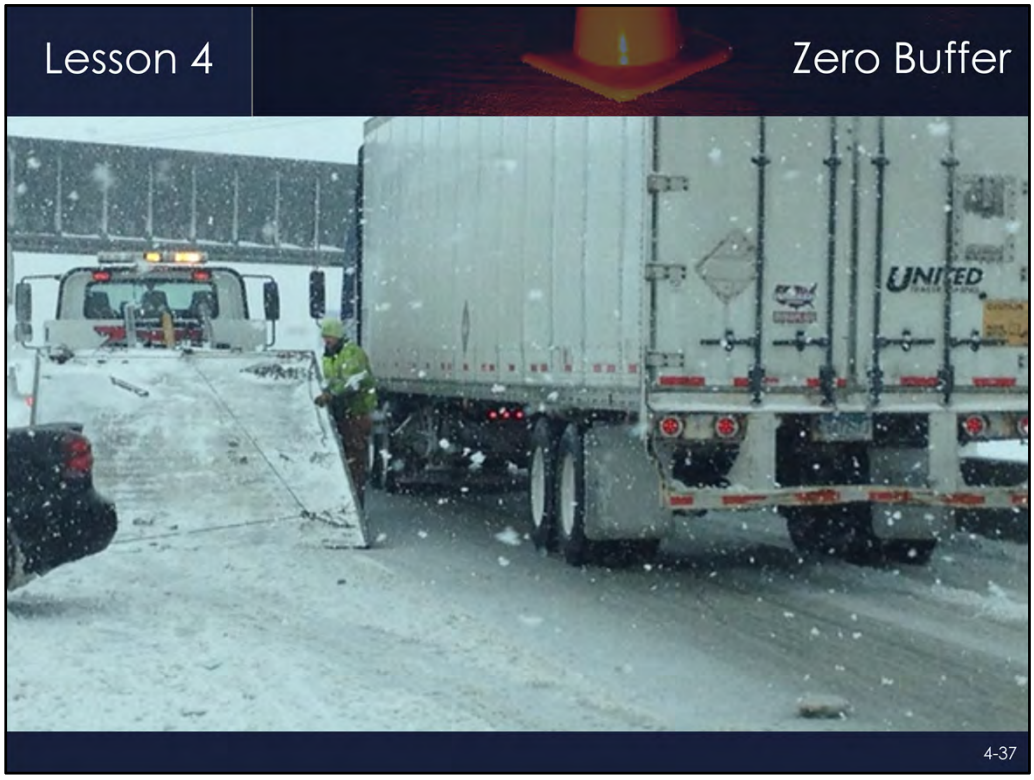
Lesson Objective: 4.4 | 4-Hour Version Slide: 4H-82

- **Animation:** Click forward to make STOP sign appear

- Every block creates an area of danger at the space between the furthermost point of the blocking vehicle and moving traffic
- This area is referred to as the *zero buffer*
- If responders have to pass through the zero buffer zone, they should stop, check for traffic, and then proceed as close to the emergency vehicle as possible
- Zero buffer in not a term officially recognized by the MUTCD

Lesson Objective: 4.4

- **Animation:** Click forward to make red oval appear
- **Ask/Discuss:** Where is the zero buffer?
  - Use animation to highlight the zero buffer **[Click]**



Lesson Objective: 4.4 | 4-Hour Version Slide: 4H-83

- Working in the zero buffer is very dangerous
- This photo was taken by a police officer who saw the tow truck operator in an unsafe situation

- **Ask/Discuss:** What can be learned from this situation?
  - Any person at an incident scene who sees someone in an unsafe situation should assist to get them back to safety
  - The officer who saw the issue could have initiated a Lane +1 block or momentarily stopped traffic to provide a safe location for the tower to work
  - Speaking about the unsafe situation after the fact (possibly during an after-action review) might prevent this from happening again

Lesson Objective: 4.4 | 4-Hour Version Slide: 4H-84

- **Video:** L4_V3 - TN Zero Buffer.wmv

- A Tennessee Highway Patrol trooper was required to move his seat organizer from the front to the rear to accommodate a rookie
- At the scene of an accident, it was necessary to obtain forms requiring he place himself in the zero buffer

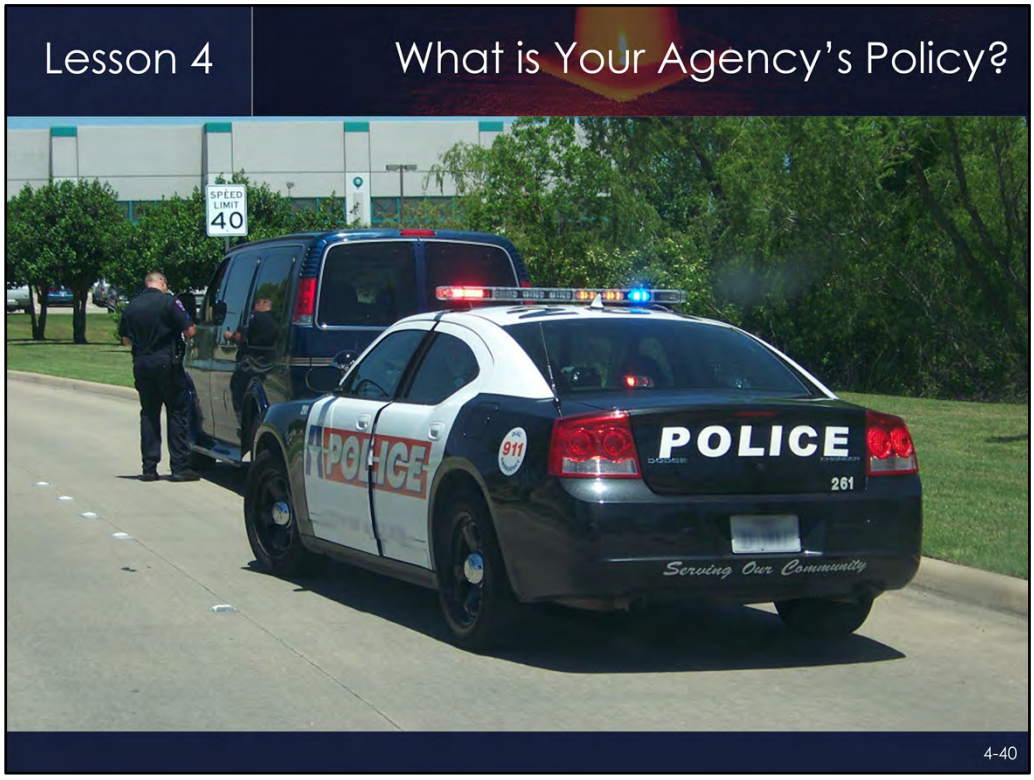
- **Ask/Discuss:** Debrief the video

Lesson Objective: 4.4	4-Hour Version Slide: 4H-85

- **Video:** L4_V4 - FL Zero Buffer.wmv

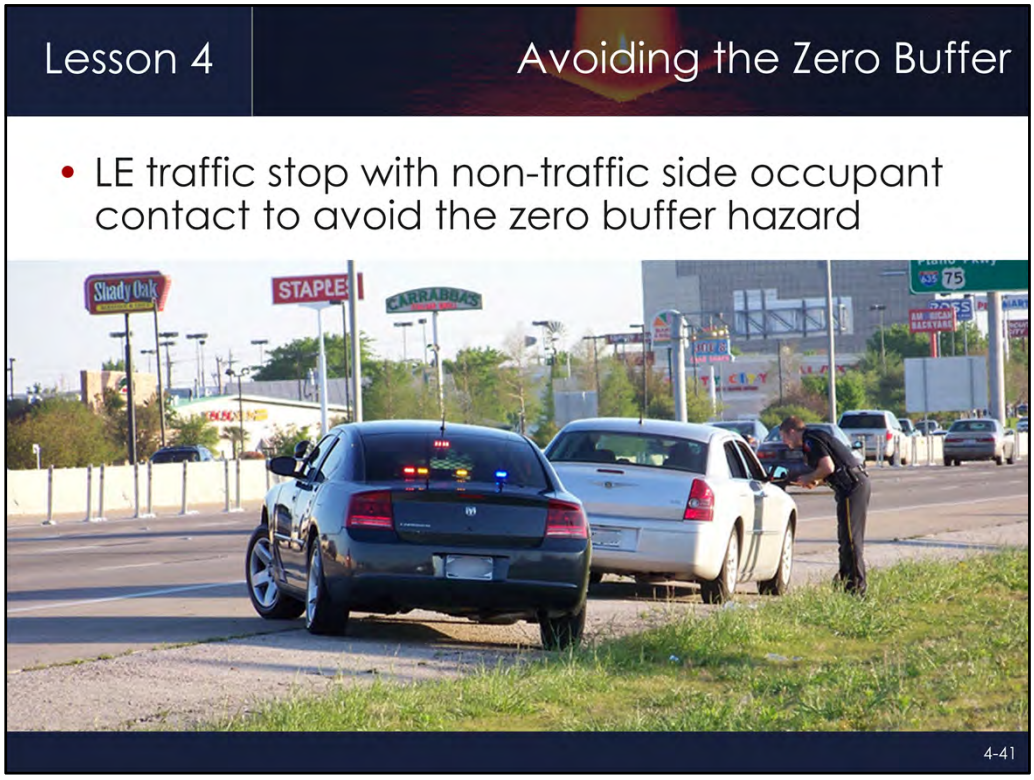
- A Florida Highway Patrol trooper is conducting a traffic stop, executing a driver's side approach
- The driver of the passing vehicle was running late for the airport and panicked when he saw traffic ahead slowing

- **Ask/Discuss:** Debrief the video
    - Notice the distance from the edge line



Lesson Objective: 4.4

- **Ask/Discuss:** What is your local law enforcement agency's policy for making vehicle contact?
  - Driver's side or passenger side; traffic-side or non-traffic side approach

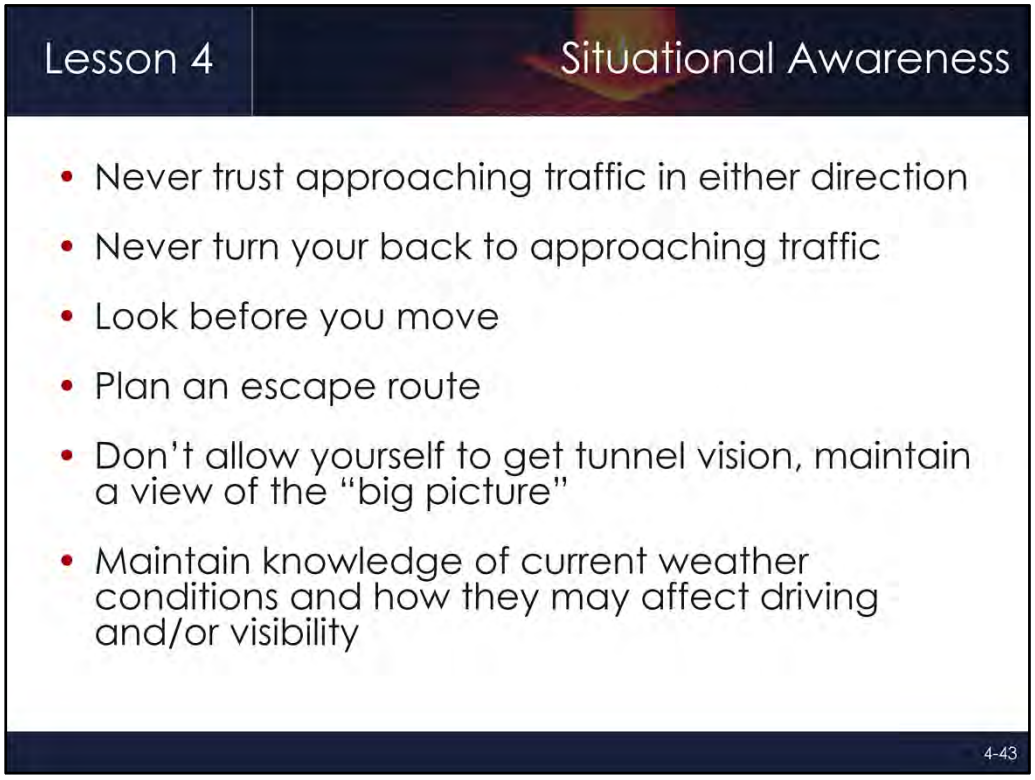


Lesson Objective: 4.4	4-Hour Version Slide: 4H-86

- The use of a passenger side, non-traffic side, approach during this traffic stop reduces the officer's exposure to the hazard of being in the zero buffer
- A subcommittee of the International Association of Chiefs of Police (IACP) found that nationally, differences exist in vehicle positioning, approach side, and critical wheel angle among police agencies
- Agency policy and the threat of the encounter should dictate all traffic stop protocols for law enforcement personnel

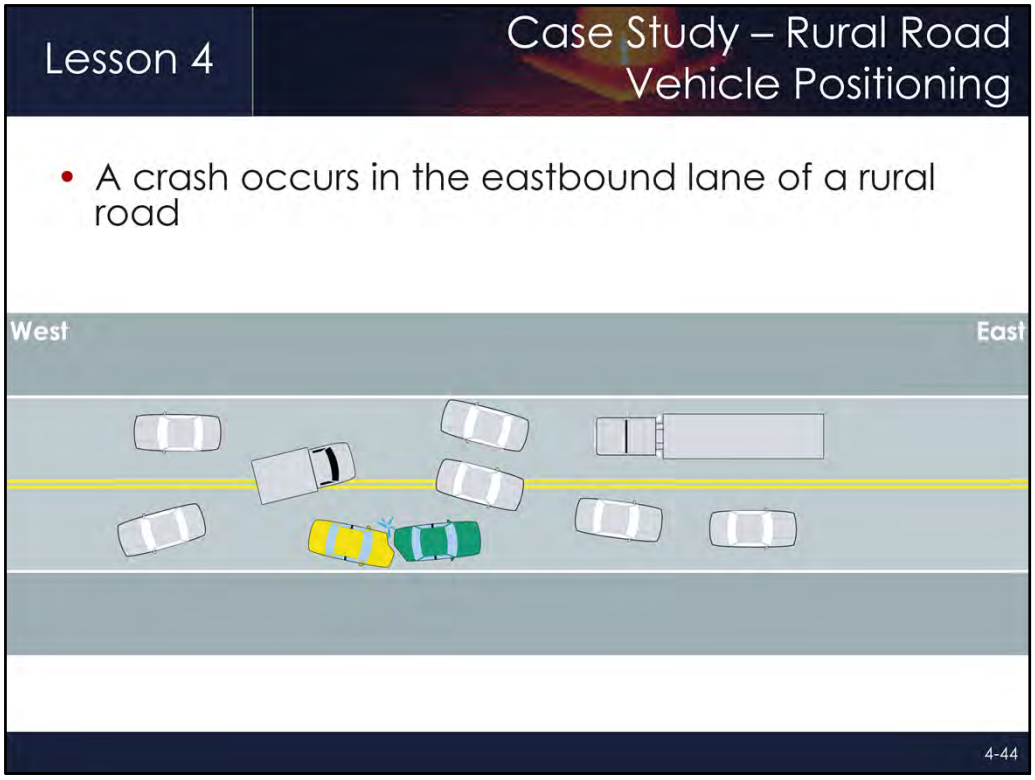
Lesson Objective: 4.4	4-Hour Version Slide: 4H-87

- **Video:** L4_V5 - Avoiding Zero Buffer.wmv
- **Ask/Discuss:** Debrief the video
  - Highlight the Trooper's situational awareness and the need to have an escape route



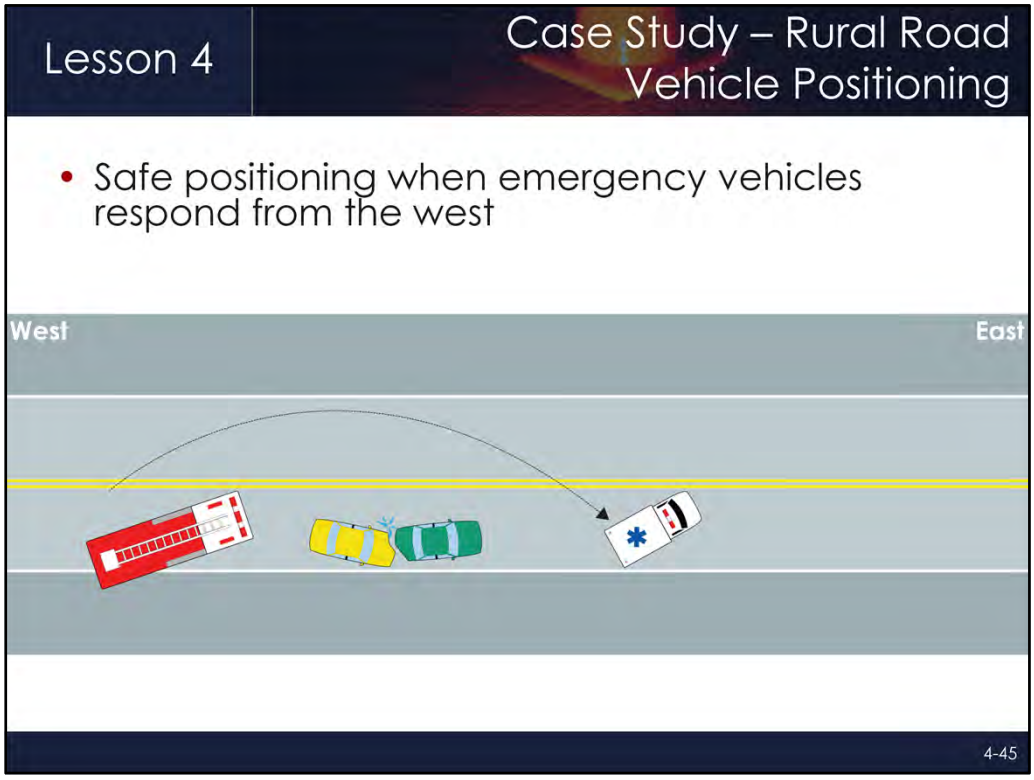
Lesson Objective: 4.4

- Review these basic situational awareness tips



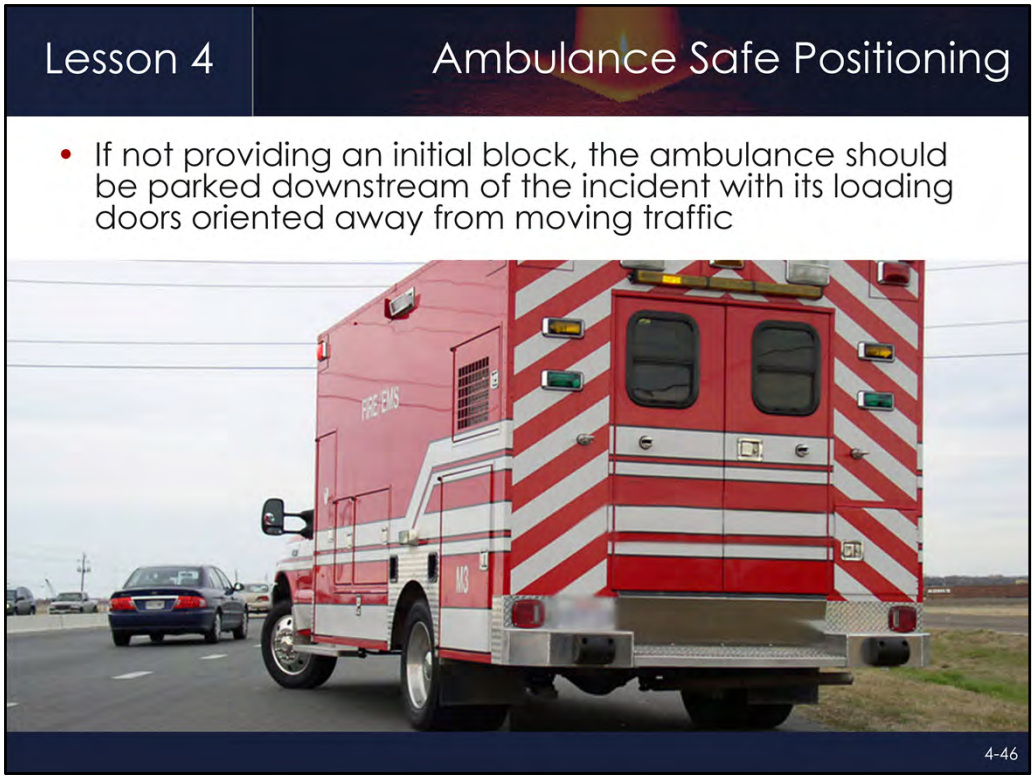
Lesson Objective: 4.2

- Safe vehicle positioning is not just for high-speed roadways – the same basic principles should be applied to every scene, including those in rural settings



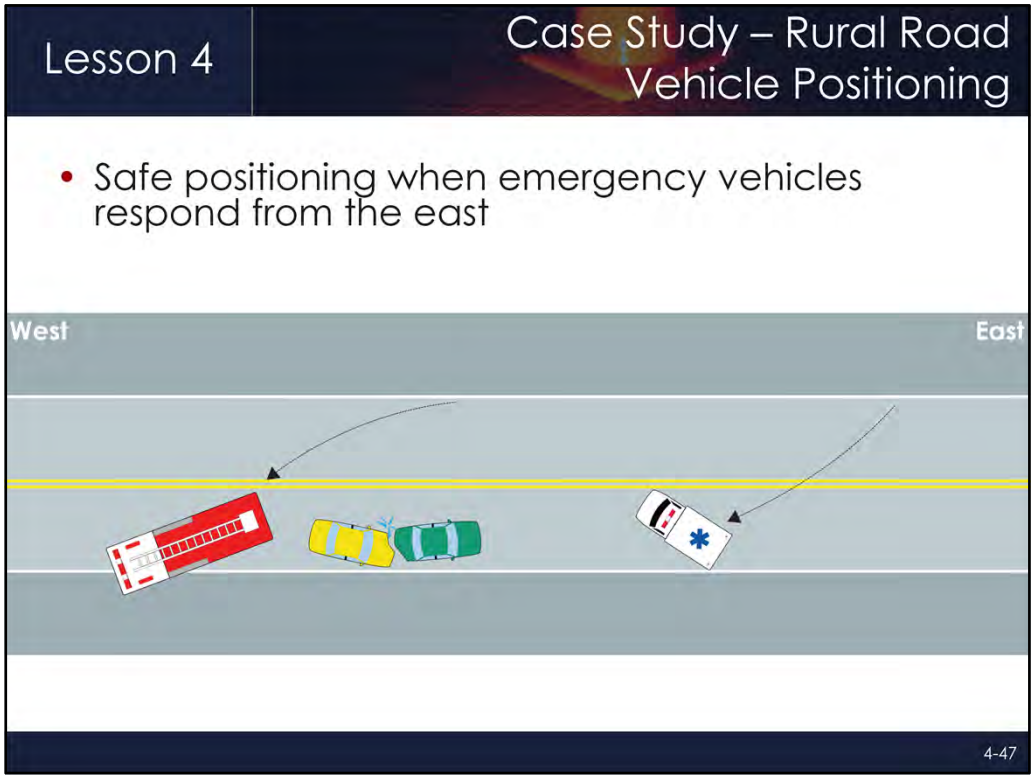
Lesson Objective: 4.2

- If the vehicles are approaching from the west, the fire truck would be serving as the block and the ambulance would safe-position downstream
- In this situation, it would be necessary to either detour eastbound traffic, or use flaggers to alternate both directions of travel



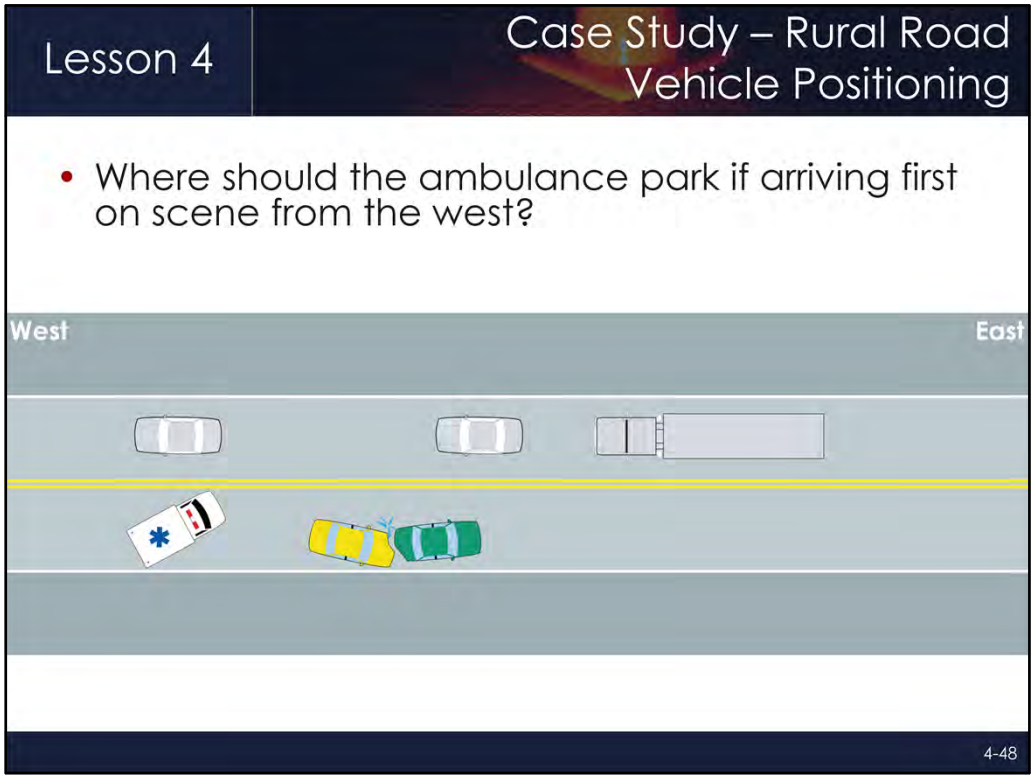
Lesson Objective: 4.2

- If not providing an initial block, the ambulance should be parked downstream at an incident
- The loading doors of the ambulance should be oriented away from moving traffic



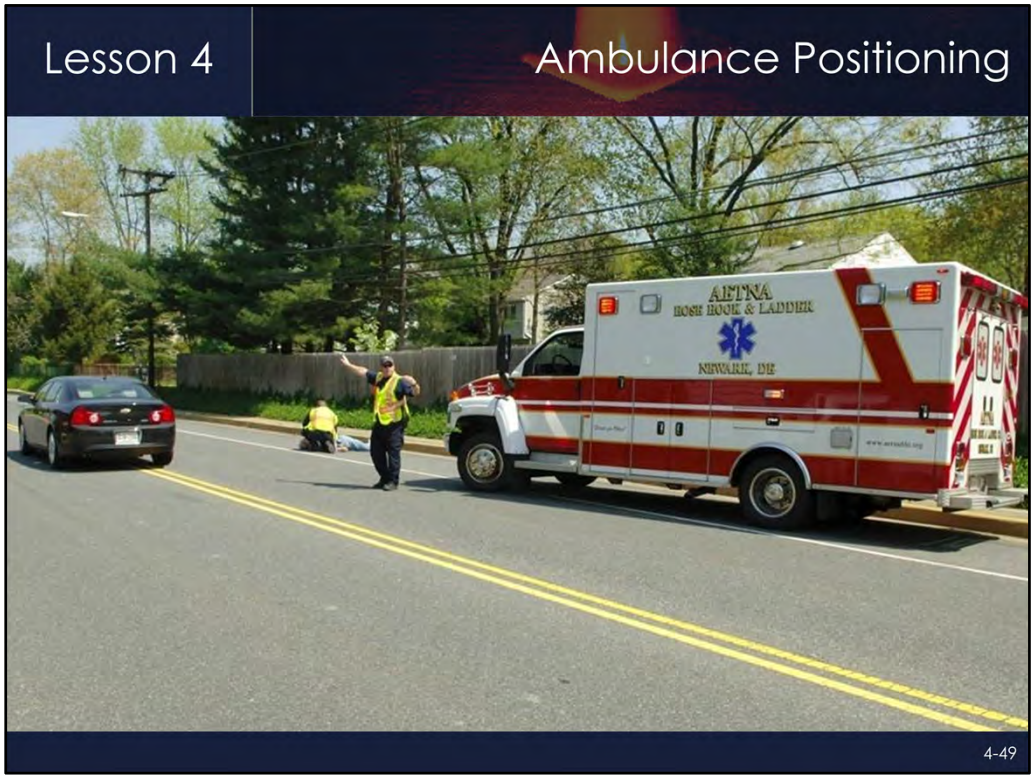
Lesson Objective: 4.2

- Similar positioning can be used even when the vehicles approach from the east



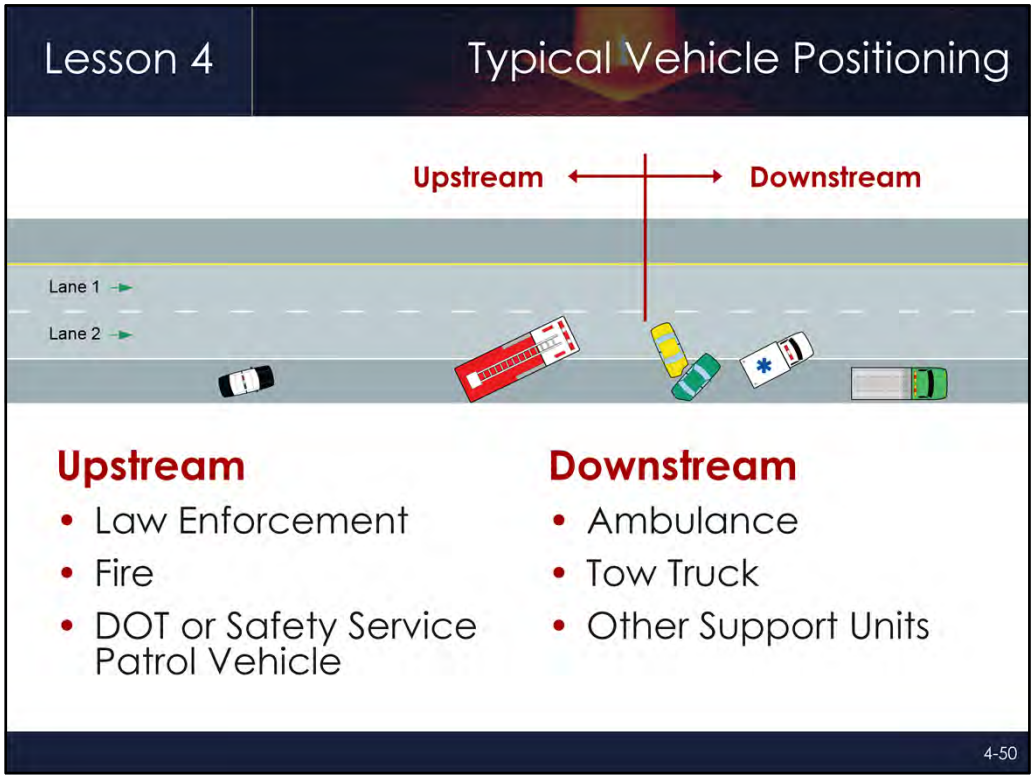
Lesson Objective: 4.2

- **Animation:** Click forward to make ambulance appear
- **Ask/Discuss:** Where should the ambulance park if arriving first on scene from the west?
  - If the ambulance were to arrive on the scene first, it should park to block the scene until other emergency vehicles arrive to provide further blocking **[Click]**



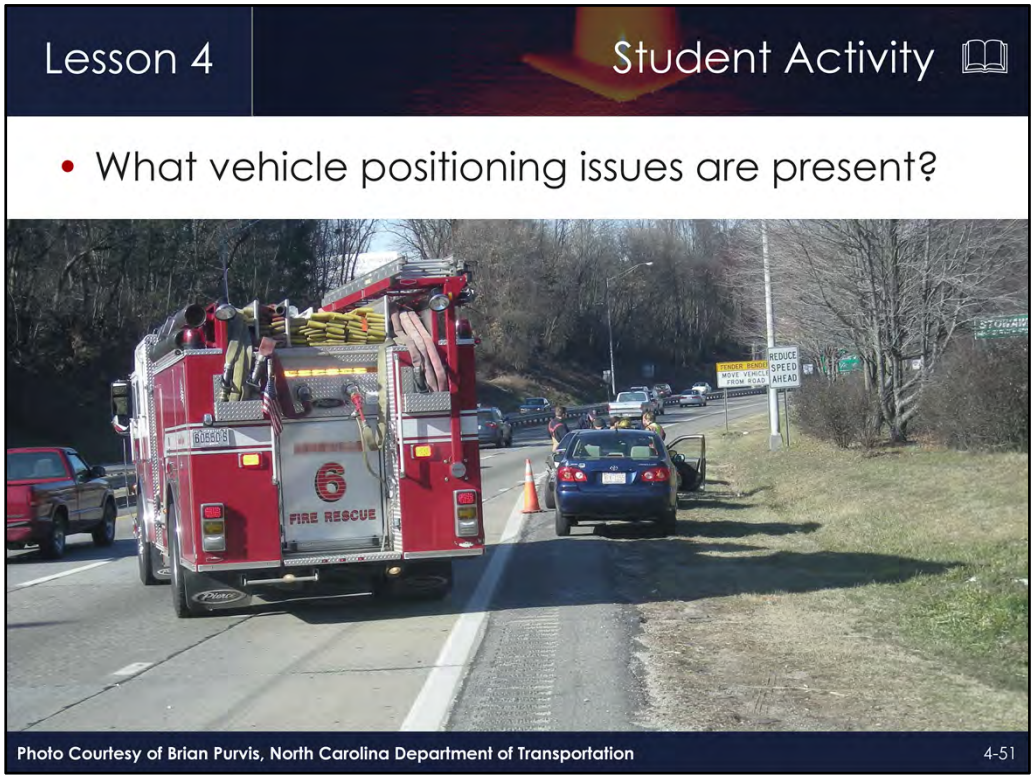
Lesson Objective: 4.2

- Example of an incident where the ambulance was first on scene for a pedestrian struck call



Lesson Objective: 4.2	4-Hour Version Slide: 4H-88

- This graphic provides the typical positioning of response vehicles relative to the incident itself
- Highlight that vehicle positioning should be reviewed and adjusted as the incident progresses

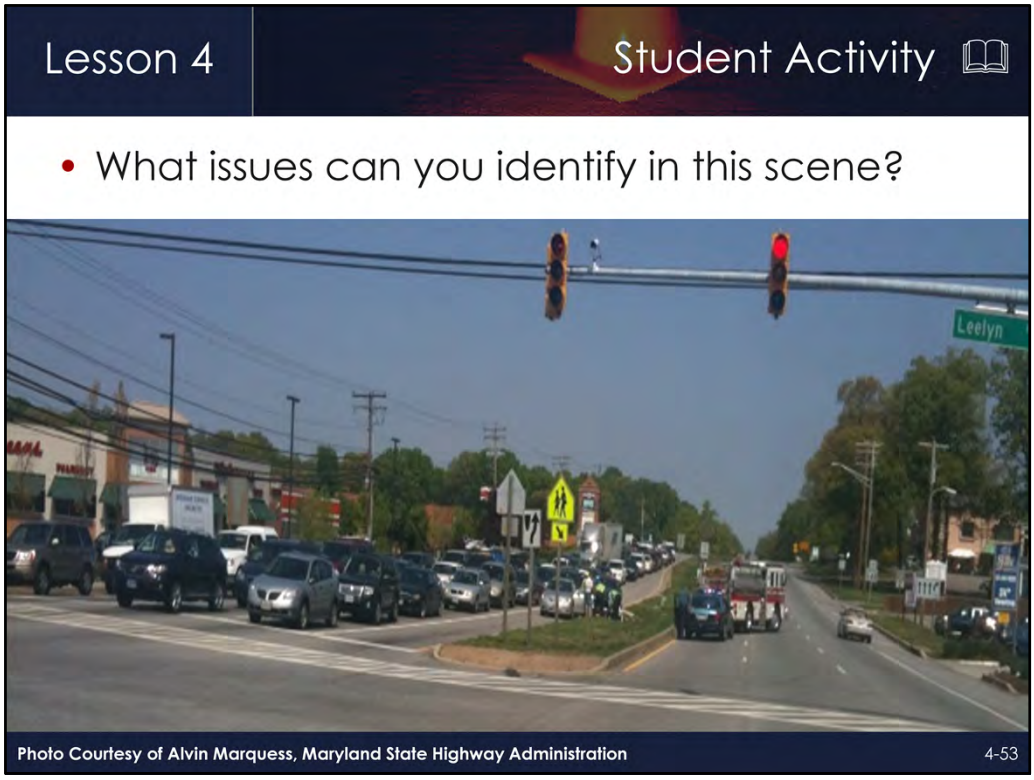


Lesson Objective: 4.2

- **Ask/Discuss:** What vehicle positioning issues are present?
  - Recall that the shoulder is considered a lane when occupied by vehicles
  - The blocking vehicle should be covering the shoulder to better protect the workers operating at this scene

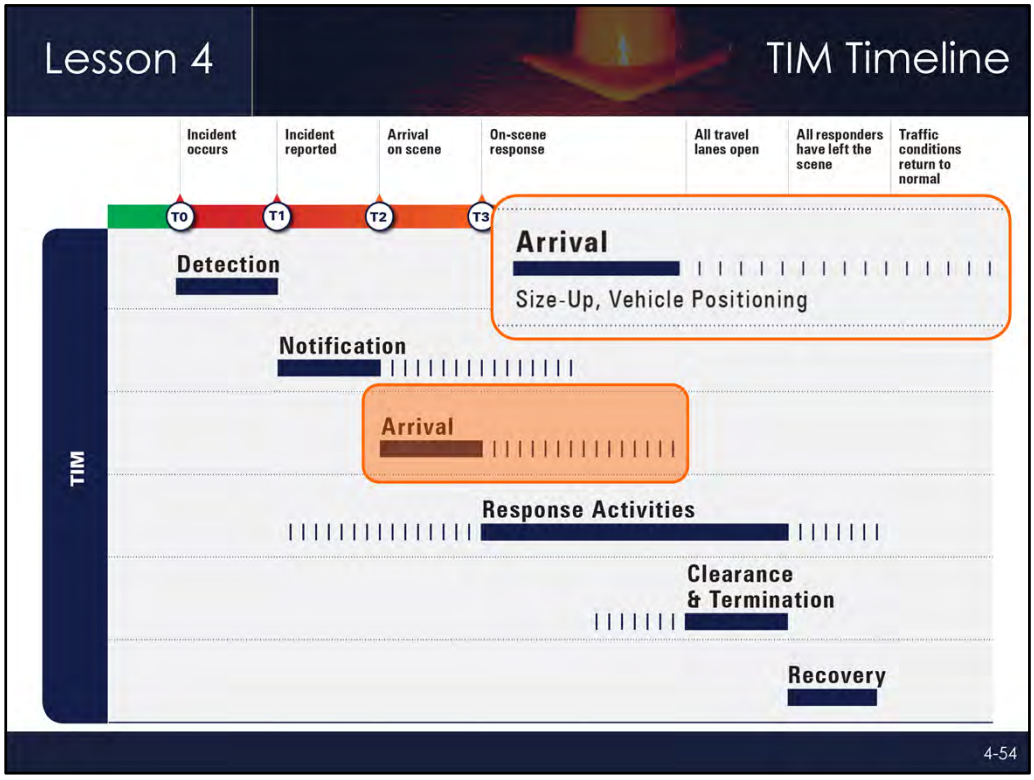
Lesson Objective: 4.2

- **Ask/Discuss:** Is this incident "D" Driver proof?
- **Ask/Discuss:** How could the responding vehicles be re-positioned?



Lesson Objective: 4.2

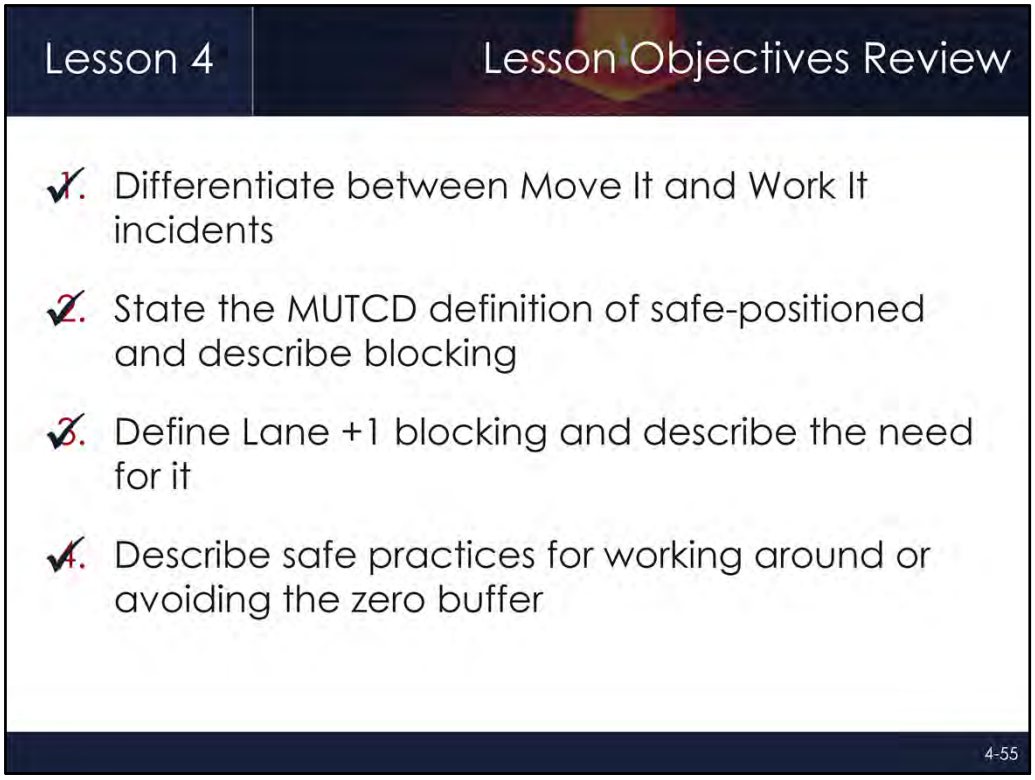
- **Ask/Discuss:** What responder safety issues can you identify in this scene and how can the situation be improved?



TIM Timeline	4-Hour Version Slide: 4H-89

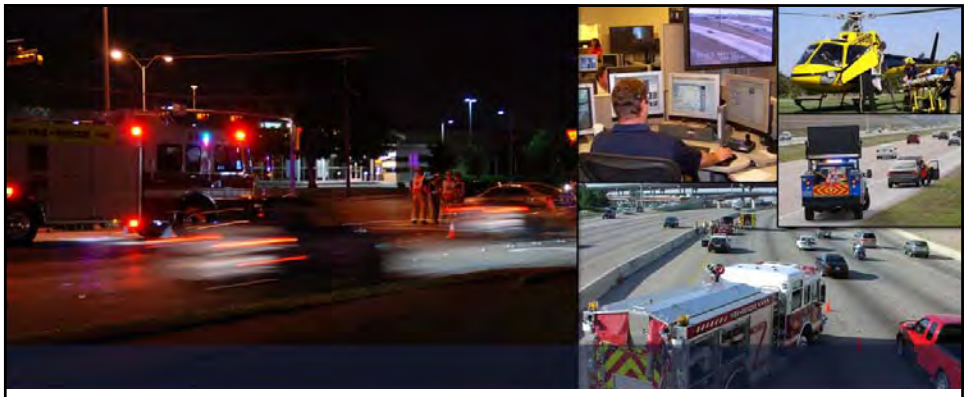
- **Animation:** Click forward to make orange box appear and then click again to bring up detailed view of Arrival

- **Ask/Discuss:** How does safe vehicle positioning impact the TIM Timeline?
  - Making the correct Move It or Work It decision can significantly reduce incident duration
  - Correct vehicle positioning and the use of Lane +1 when required can actually reduce clearance times



Lesson Objectives Review

- **Animation:** Clicking forward reveals the four check marks one at a time
- Review each lesson objective, checking them off as you go



Lesson 5:
Scene Safety

5-1

Lesson 5 — Lesson Objectives

At the conclusion of this lesson, participants will be able to:

1. Describe how emergency vehicle markings can improve scene safety
2. Describe recommendations for emergency-vehicle lighting as set forth in the MUTCD
3. Describe high-visibility safety apparel requirements for incident responders

5-2

Lesson Objective: 5.1 | 4-Hour Version Slide: 4H-92

- Making responder vehicles more visible improves safety by reducing the chances they will be hit at incident scenes
- The term conspicuity refers to the ability of a vehicle to draw attention to its presence, even when other road users are not actively looking for it
- The Emergency Vehicle Lighting and Conspicuity Study was published in 2009 and is available online
    - Study reports on research done by the Federal Emergency Management Agency (FEMA) and the US Fire Administration (USFA) with support from the US Department of Justice (DOJ) and the National Institute of Justice (NIJ)
- Markings are referred to as passive treatments that complement emergency lighting
- Innovative markings have been used in many European countries (mainly by law enforcement) for years – commonly called the Battenberg pattern
- Markings are now increasingly being adopted by response agencies in the United States
- Contrasting colors make the vehicle stand out
- Fluorescent colors increase daytime visibility
- Retro-reflective materials maximize nighttime visibility

Lesson Objective: 5.1 | 4-Hour Version Slide: 4H-93

- National Fire Protection Association (NFPA) Standard 1901 governs the application of retro-reflective markings on fire apparatus
- NFPA 1901 is the Standard for all automotive fire apparatus built on or after January, 2009
- Standard requires 50% of the rear of the fire vehicle have minimum 6 inch striping placed at 45 degree angle down and away from centerline
- Striping pattern is referred to as chevrons
- Standard requires red, yellow, or hi-visibility green/yellow
- Additional new NFPA Standard 1917, released in 2013, includes similar retro-reflective striping requirements for ambulances
- There is no standard for other disciplines; law enforcement vehicles, DOT vehicles, Safety Service Patrol vehicles, or towing and recovery vehicles

Lesson Objective: 5.1

- NFPA Standards also require markings on vehicle doors to increase visibility and improve chances that a passing motorist see that the door is open
- The amount of retro-reflective material affixed to the inside of doors on fire apparatus is slightly different than the amount required for vertically hinged doors on ambulances
- For other types of responder vehicles, application of retrorefelctive material on rear-facing surfaces or door parts serves a similar purpose
- Some agencies have added reflective tape to trunk lids and utility boxes in the beds of SUVs

Lesson Objective: 5.1

- Example of emergency vehicles with retro-reflective chevron striping, during both daytime and nighttime conditions
- A retro-reflective, high-visibility pink MUTCD incident scene advance warning sign is also pictured

Lesson Objective: 5.1 | 4-Hour Version Slide: 4H-94

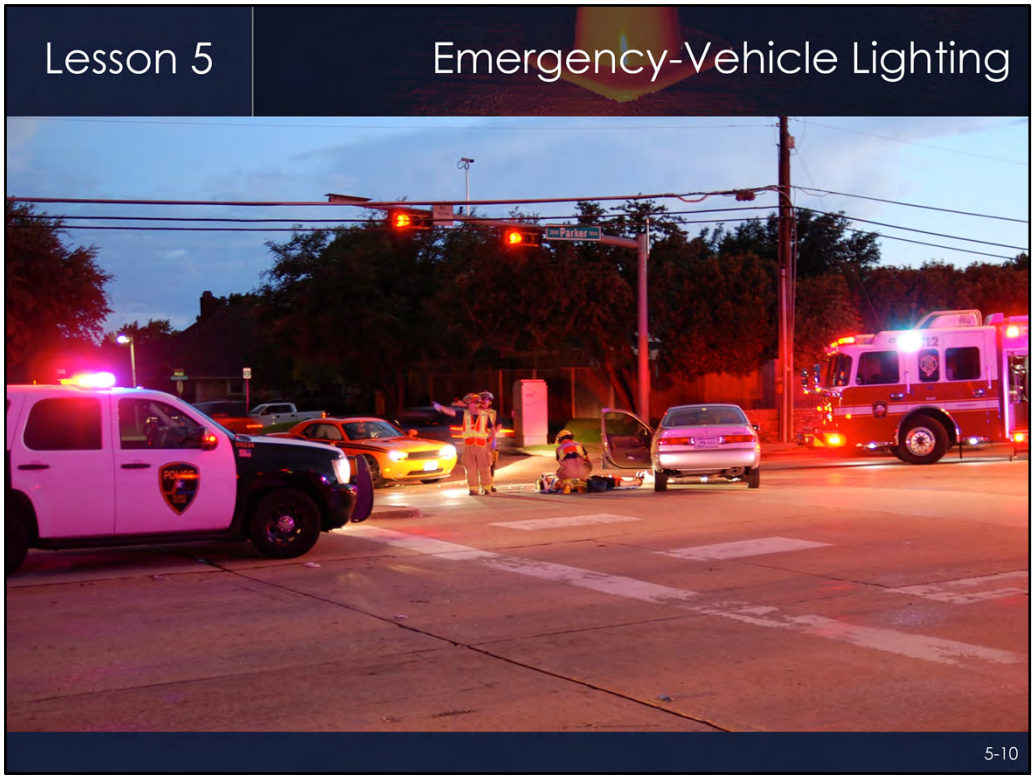
- Unlike fire apparatus and ambulances, there is no standard for law enforcement vehicle markings in the United States
- Increasingly, police departments are using high-visibility markings on their vehicles
- Pictured is a patrol car with contour markings to silhouette the outline of the vehicle when viewed from the side
- The Emergency Vehicle Lighting and Conspicuity Study acknowledged that law enforcement vehicles may have a need for stealth
- Recommendation for law enforcement is to concentrate markings on the rear of the vehicle
- Challenge for law enforcement are vehicle contours, large rear glass surface area, and minimal vertical surfaces on the rear of vehicles

Lesson Objective: 5.1	4-Hour Version Slide: 4H-95

- Retro-reflective markings increase nighttime conspicuity
- Highlight the large lettering billboard effect and the addition of red reflective material next to the taillights
- New lettering, chevrons, and red reflective materials were a vast improvement over the older markings shown on the right
- According to research, however, the use of high-visibility red, green, or yellow/green fluorescent colors is essential to daytime conspicuity

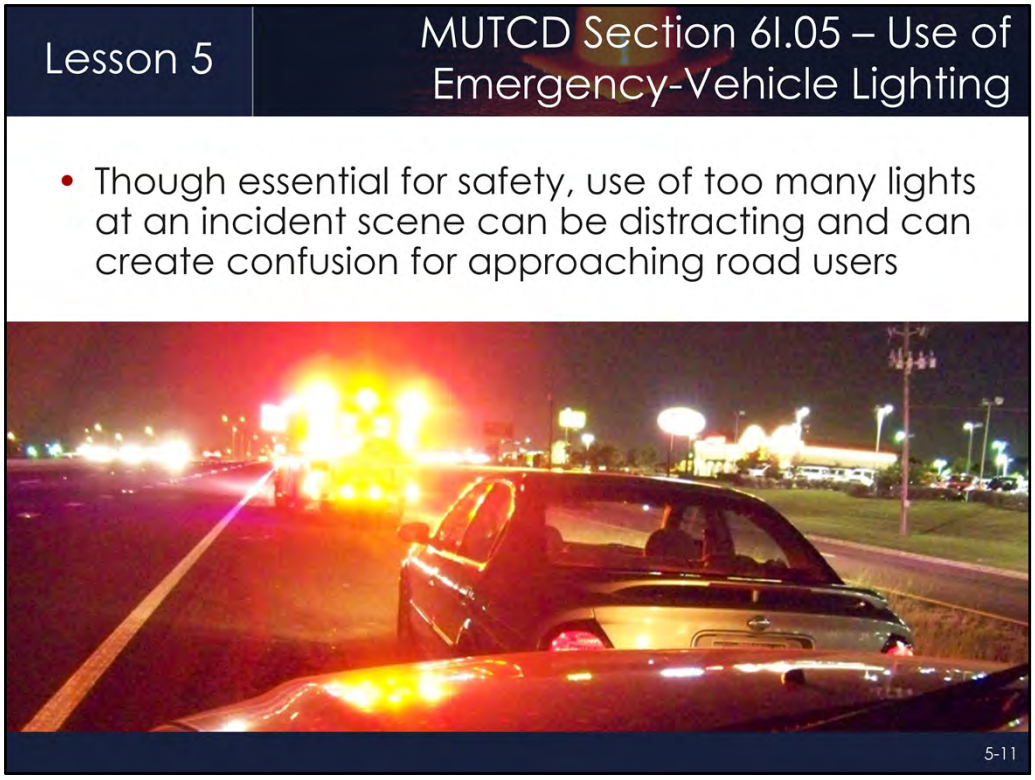
Lesson Objective: 5.1

- A DOT Safety Service Patrol vehicle shown outfitted with retro-reflective markings
- Again there are no set national standards in place for transportation department vehicles
- Agency logos and other decals are an important part of the vehicle's overall visibility, particularly at night when they are retro-reflective
- Retro-reflective agency logos and decals have been noted in national research as an important part of conspicuity



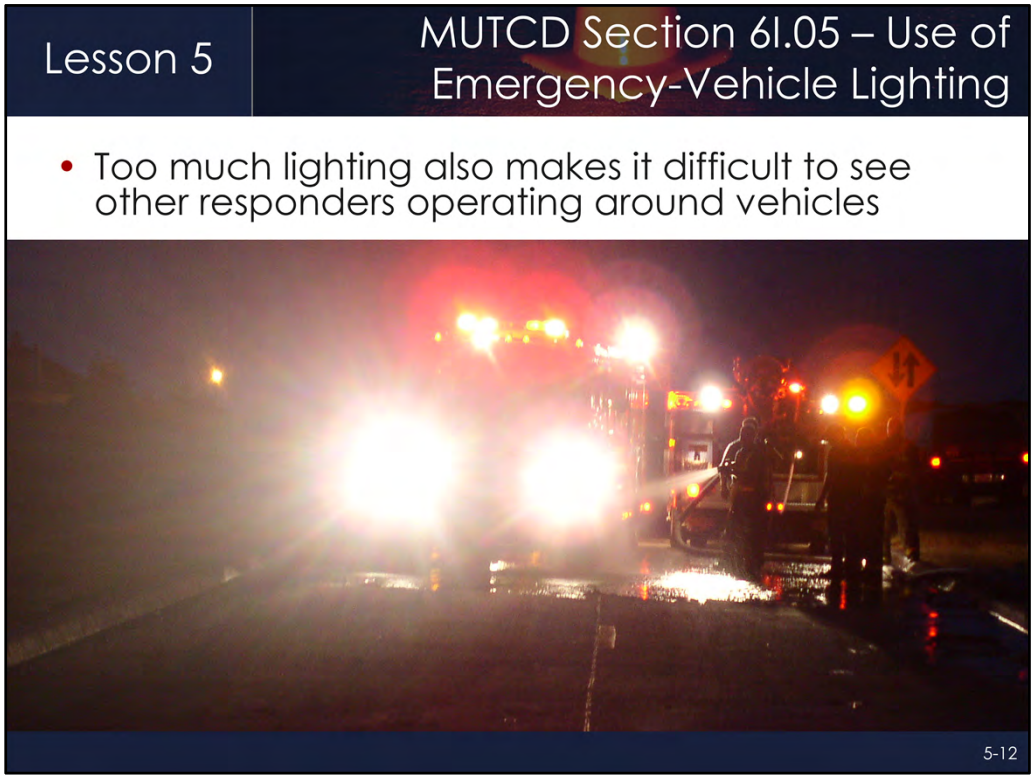
Lesson Objective: 5.2	4-Hour Version Slide: 4H-96

- MUTCD Section 6I.05 specifically covers the use of emergency-vehicle lighting and states:
  - The use of emergency-vehicle lighting (such as high-intensity rotating, flashing, oscillating, or strobe lights) is essential, especially in the initial stages of a traffic incident, for the safety of emergency responders and persons involved in the traffic incident, as well as road users approaching the traffic incident



Lesson Objective: 5.2 | 4-Hour Version Slide: 4H-97

- Emphasize here that more is not always better where emergency lighting is concerned
- Too many lights can be distracting or even worse blinding to approaching motorists
- Lighting technology has advanced significantly in recent decades
- LEDs make more efficient and compact units for public safety applications
- The MUTCD specifically states that emergency-vehicle lighting provides warning only and provides no effective traffic control
    - Most lighting has the effect of *look at me* or *watch out, I am here* rather than guiding approaching drivers
- Vehicle lighting needs to warn drivers but not overload their senses
- Some red and blue emergency lights are beneficial to promote warning and Move Over Law compliance
- Reducing some lights when multiple responders are on scene eliminates a blinding effect
- According to the Emergency Vehicle Lighting and Conspicuity Study, there is no research to support the *moth* effect where drivers are drawn into lights

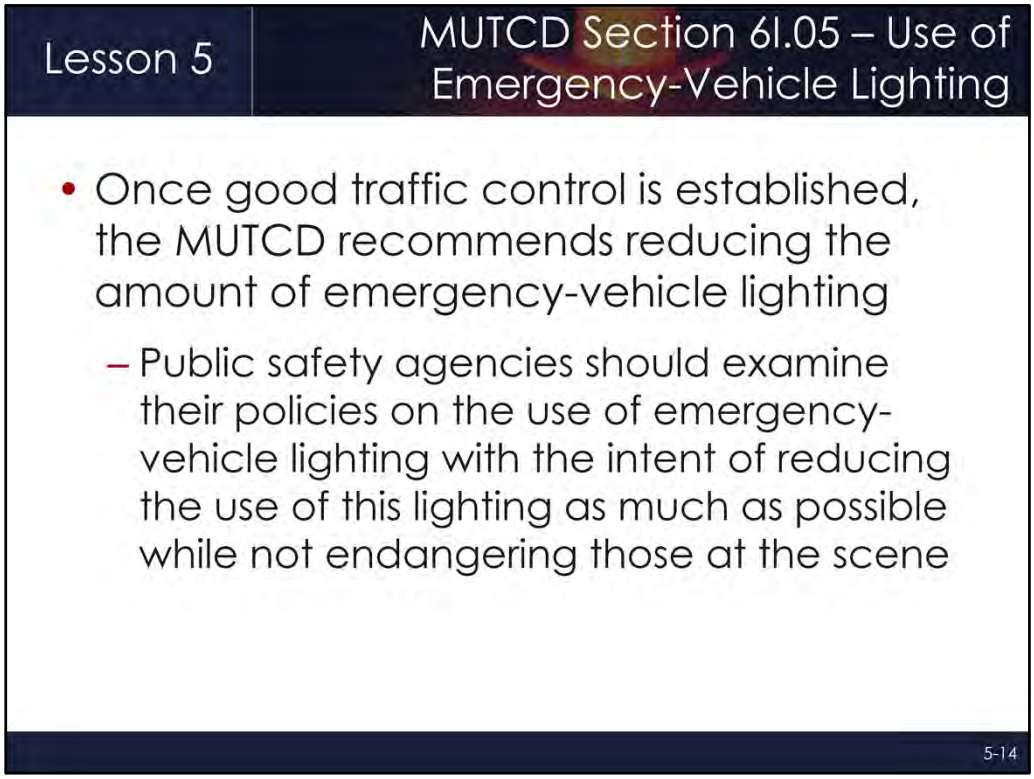


Lesson Objective: 5.2

- MUTCD Section 6I.05 (continued):
  - 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
- Guidance for lighting:
  - Turn OFF the traffic preemptive devices
  - Turn OFF headlights (unless needed for scene illumination)
  - Turn OFF white strobes
  - Turn **ON** ground lights
  - Turn **ON** amber arrows or directional lights
  - Turn **ON** compartment lights

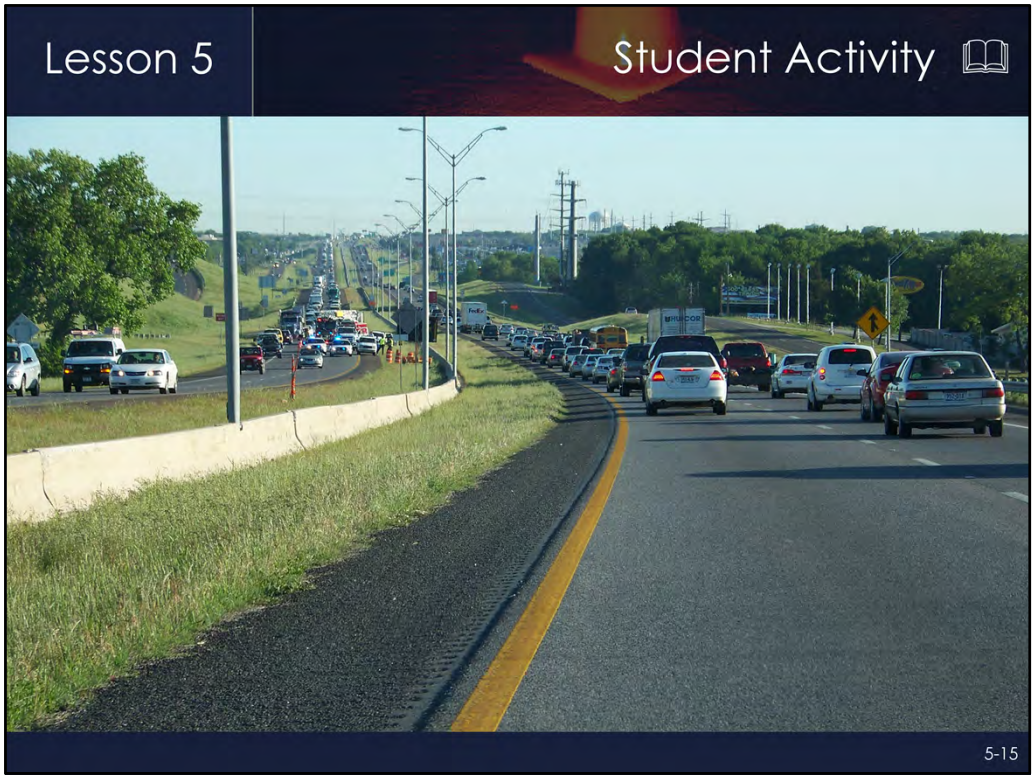
Lesson Objective: 5.2 | 4-Hour Version Slide: 4H-98

- Reducing forward-facing lights is another important part of TIM
- Forward-facing lights distract traffic traveling in the opposite direction and create rubbernecker delays
- Forward-facing lights can blind opposite direction vehicles
- Forward-facing lights contribute to secondary crashes on opposite direction travel lanes
- Most modern lighting systems allow forward lights to be turned OFF – ask participants if their agency has any vehicles that are not equipped with that capability



Lesson Objective: 5.2 | 4-Hour Version Slide: 4H-99

- MUTCD Section 6I.05 (continued):
  - The use of emergency-vehicle lighting can 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
- Policy guidance might include:
  - Reducing the use of emergency-vehicle lighting as much as possible while not endangering those at the scene
  - Reducing or extinguishing forward facing emergency-vehicle lighting, especially on divided roadways, to reduce distractions to oncoming road users
  - Vehicle headlights, any floodlights or vehicle headlights that are not needed for illumination, or to provide notice to other road users of an incident response vehicle being in an unexpected location, should be turned off at night
- To support the recommendations set forth in the MUTCD, agencies should also consider installing day/night or high/low power switches on LED and strobe bars

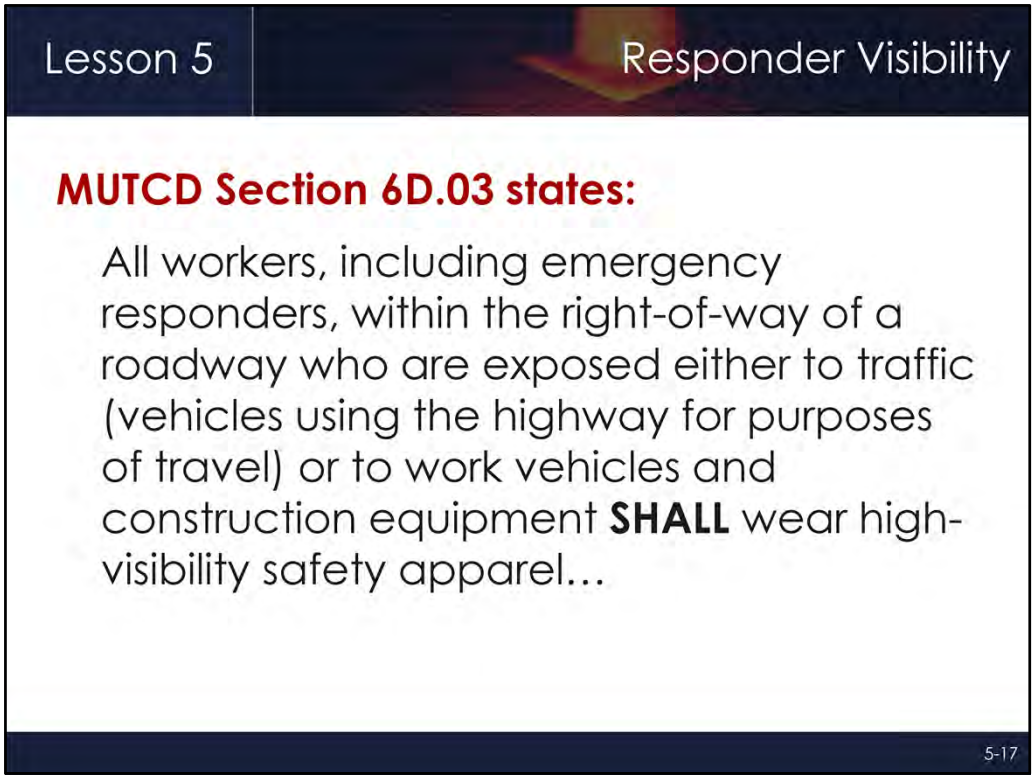


Lesson Objective: 5.2

- Responders are on the scene of a crash in the southbound lanes of this highway
- Two law enforcement officers have positioned their vehicles with their forward-facing emergency warning lights illuminated
- Highlight the brake lights of the rubbernecker northbound vehicles

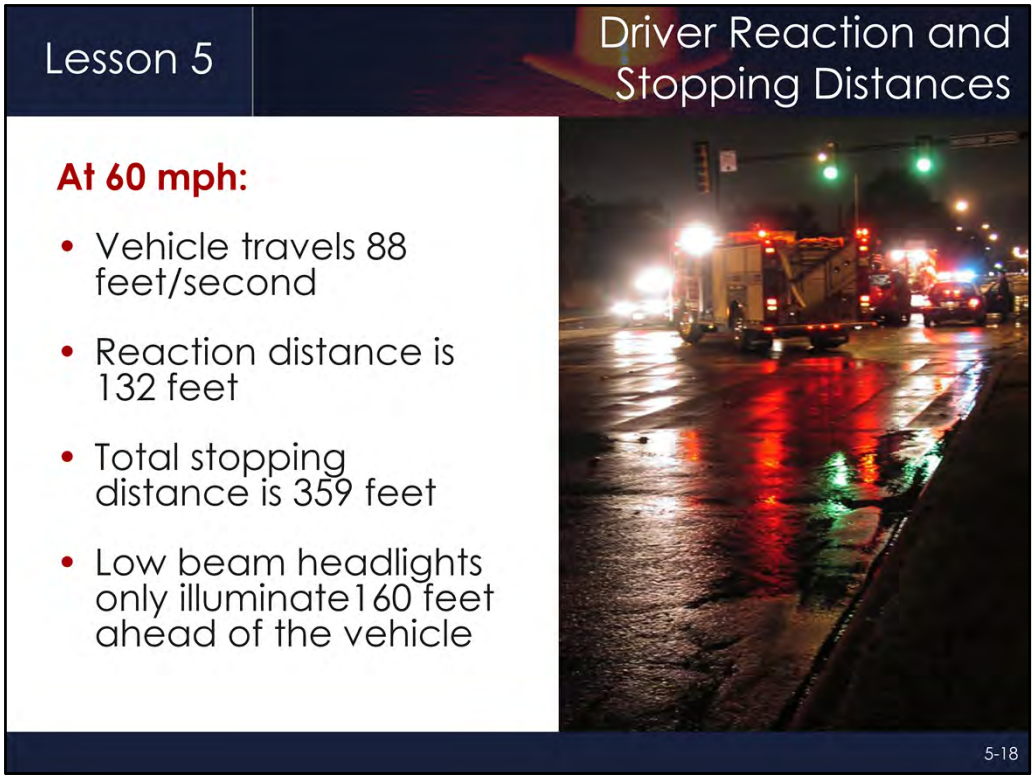
Lesson Objective: 5.2

- **Ask/Discuss:** What impact, if any, did the law enforcement units' forward-facing lights on have on Northbound traffic?
  - Highlight that the warning lights are causing a distraction to motorists in the opposing lane of traffic
  - This is especially distracting under low light level situations at night
- **Ask/Discuss:** What practices or protocols exist among participant agencies that apply to this specific situation?



Lesson Objective: 5.3 | 4-Hour Version Slide: 4H-100

- As discussed previously, the MUTCD applies to all streets and highways open to public travel
- This requirement applies to all incident responders, including, but not limited to:
  - Law enforcement
  - Fire
  - EMS
  - Towing and recovery
  - Medical examiner/Coroner
  - Local/county/state maintenance and transportation officials
  - Insurance investigators
  - Traffic engineers
  - Media personnel
- The Code of Federal Regulations (23 CFR Part 634) implemented a high-visibility safety apparel requirement for Federal Aid Highways in November of 2008
- The 2009 MUTCD supersedes 23 CFR and applies the high-visibility safety apparel requirement to all roadways



Lesson Objective: 5.3

- Consider total stopping distance as it relates to drivers approaching an incident scene
- At 60 mph, the distance covered in the time to perceive, react, and brake can be around 359 feet
- Typical low beam headlights only illuminate around 160 feet
- The stopping distance of an automobile is goal line-to-goal line, but at night the headlights only shine to the 50-yard line
- Use of retro-reflective, high-visibility garments can increase the effectiveness of those headlights, making you more visible

Lesson Objective: 5.3

- **Animation -** Click forward to make circle appear

- The police officer and tow personnel are not wearing high-visibility garments while exposed to moving traffic, which in not compliant with MUTCD requirements
- Since they are in the zero buffer, they are at great risk
- Greater situational awareness would have them wearing vests, facing oncoming traffic, with the patrol vehicle blocking for the final clearing of debris from the crash

- **Transition** - We know that these responders are required to wear a high visibility traffic vest, but how do we know which one?

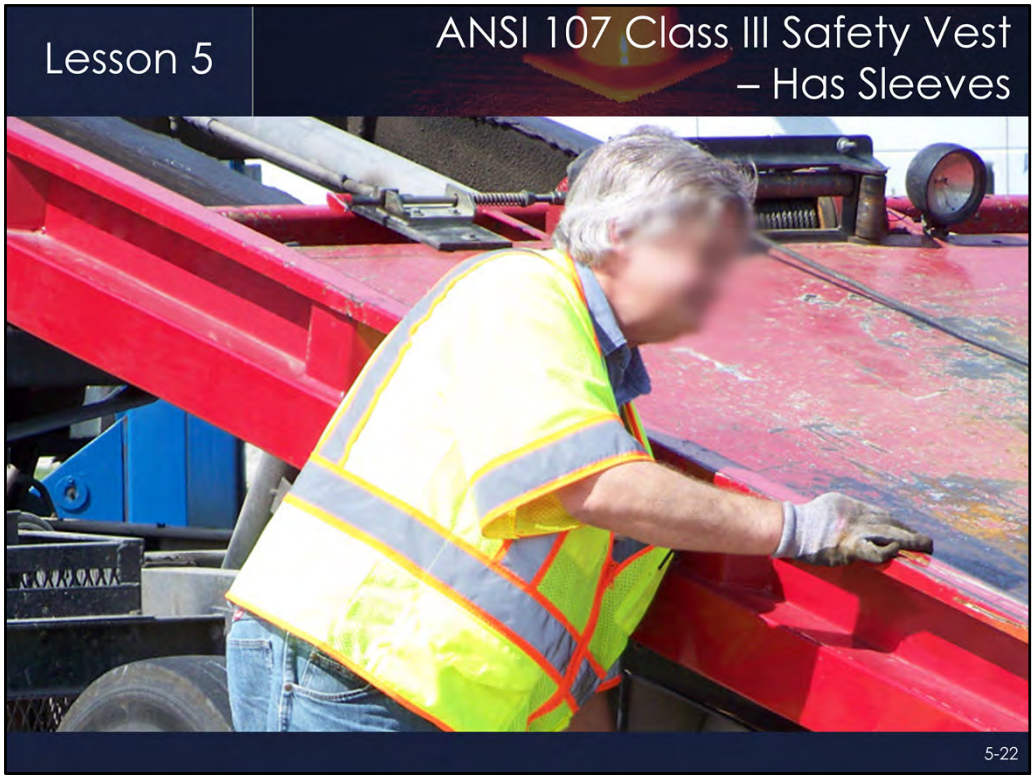
Lesson Objective: 5.3	4-Hour Version Slide: 4H-101

- **Prop:** Recommend having examples of Class II, Class III, and Public Safety (with breakaway) vests

- High-visibility safety apparel examples (from left): Class II-107 vest, Class III-107 vest, pant, and Class II-207 Public Safety Vest
- Each class of vest has different requirements for the amount of reflective material and coverage of the garment, i.e. sleeves, width of reflective stripes, reflective material location, etc.
- The ANSI/ISEA 207 Public Safety Vest is shorter in length to allow access to the gun belt
- In addition to the items shown here, ANSI-compliant jackets and coats are also available and acceptable for use by responders
- ANSI-compliant garments must have a permanently affixed label with the Class II or Class III, 107 or 207 reference
- Class I vests are not allowed for TIM response under any circumstances

Lesson Objective: 5.3

- Example of ANSI 107 Class II safety vests in use by fire department personnel
- The side panels provide 360 visibility
- Highlight the fluorescent and retro-reflective materials



Lesson Objective: 5.3

- Example of a tow truck operator wearing an ANSI 107 Class III safety vest
- A Class III garment has sleeves in order to provide enough retro-reflective material to meet ANSI Standard requirements

Lesson Objective: 5.3	4-Hour Version Slide: 4H-102

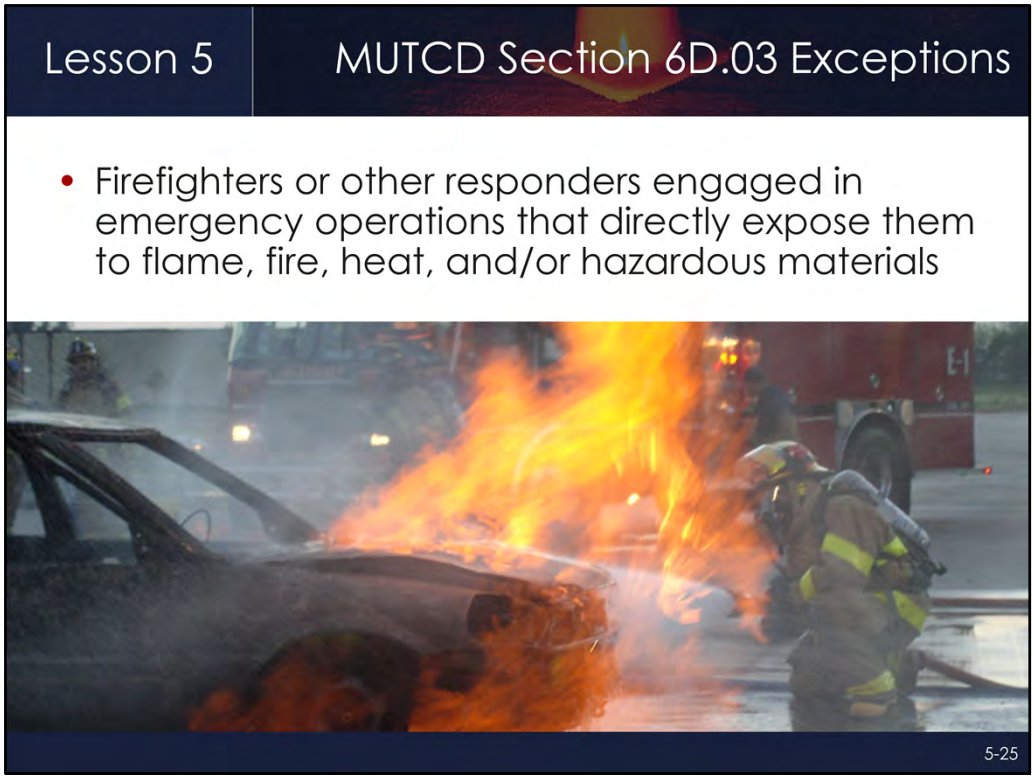
- **Animation:** Click forward to make the text box appear

- The ANSI 207 standard includes basic requirements such as vest dimensions, color, and materials performance
- The five-point breakaway function is also available for ANSI 107 and 207 standard vests **[Demo if vest is available]**
- Vests may also have badge holders, pen holders, microphone holders, and other accessories beneficial to responders

Lesson Objective: 5.3

- **Animation:** Click forward to make the white outline appear

- Describe the obvious difference the vest makes and why this is dangerous for responders in traffic incidents
- Explain that this is an old photo, and the the two officers in the center of this image are wearing non-compliant Class I vests
    - Highlight that the Class I vest provides no visibility or reflectivity when viewed from the side
- Also point out that not wearing a vest could have consequences related to worker compensation claims benefits



Lesson Objective: 5.3 | 4-Hour Version Slide: 4H-103

- 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, such as the pump operator and the supervising officer, are required to comply with the requirement if not exposed to fire, etc.

Lesson Objective: 5.3	4-Hour Version Slide: 4H-104

- 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:
  - Directing traffic
  - Investigating crashes
  - Handling lane closures, obstructed roadways, or disasters

Lesson Objective: 5.3

- If you need a simple and straightforward vest policy consider this – *If your feet are on the street, your vest is on your chest*
- Remember that simply issuing a vest is not sufficient
- Agencies should have policies that require their use
- Supervisors should ensure compliance in their daily observations and set the example by donning high-visibility garments when working in or near moving traffic

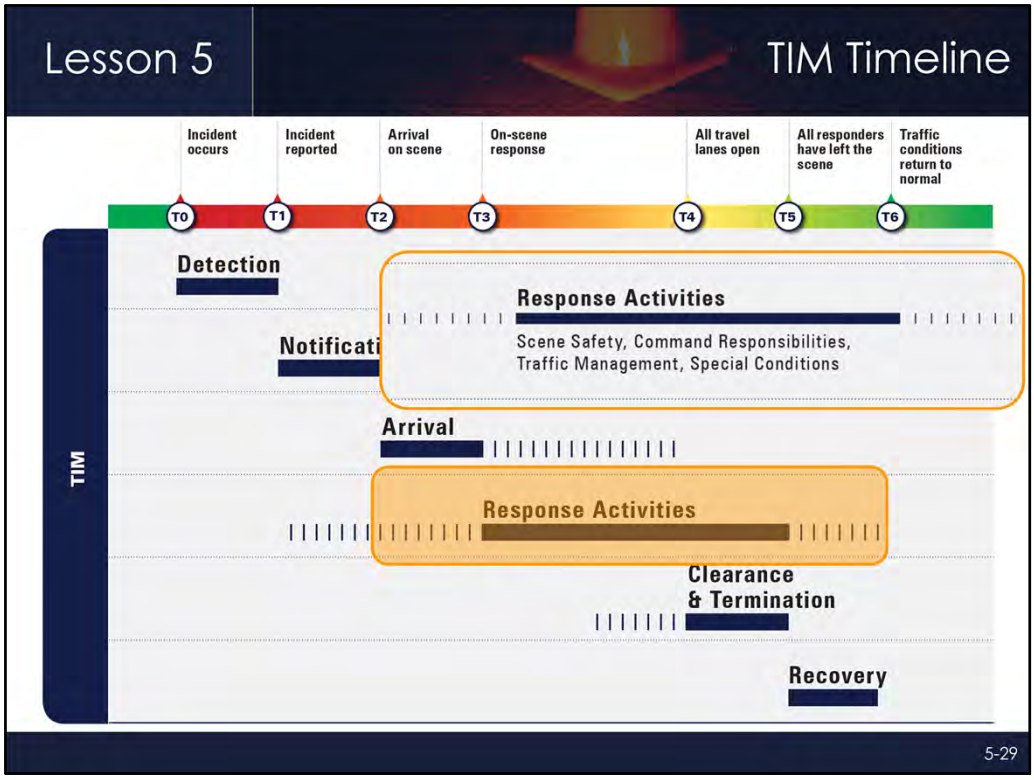
Lesson 5 — End of Service Life

- According to FHWA and the American Traffic Safety Services Association (ATSSA), high-visibility safety apparel should be replaced when it becomes:
  - Not visible at 1,000 feet day or night
  - Faded
  - Soiled
  - Torn
  - Worn
  - Dirty
  - Defaced

5-28

Lesson Objective: 5.3

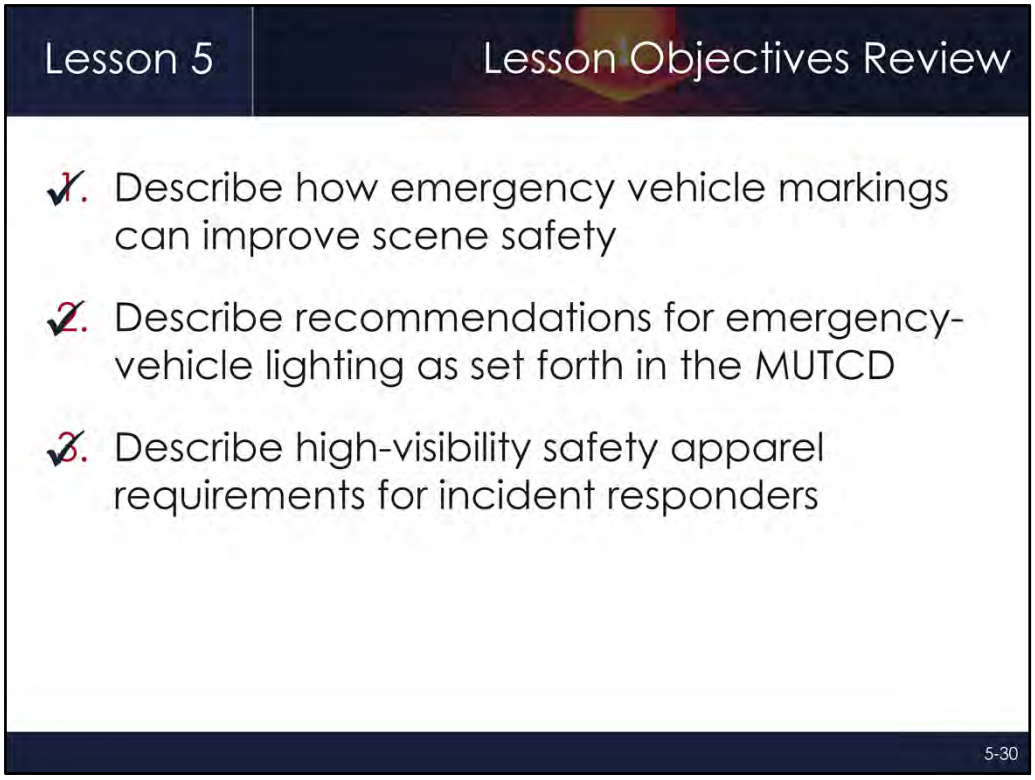
- The typical vest useful life depends on the type of work an individual performs while wearing the vest
- Vests, when worn, must be visible up to 1000 feet day or night to be compliant with the ANSI Standard



TIM Timeline	4-Hour Version Slide: 4H-105

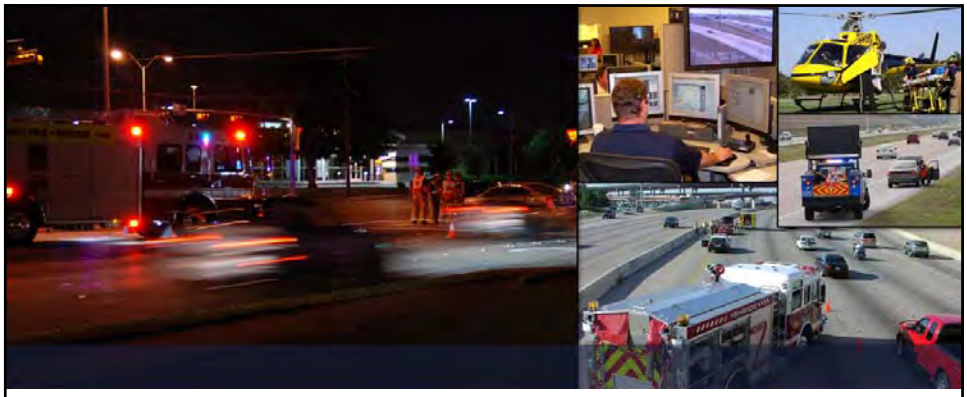
- **Animation:** Click forward to make orange box appear and then click again to bring up detailed view of Response Activities

- **Ask/Discuss:** How do emergency vehicle markings and emergency-vehicle lighting impact the TIM Timeline?
    - Highlight that scene safety is a critical and required component of effective TIM



Lesson Objectives Review

- **Animation:** Clicking forward reveals the three check marks one at a time
- Review each lesson objective, checking them off as you go



Lesson 6: Command Responsibilities

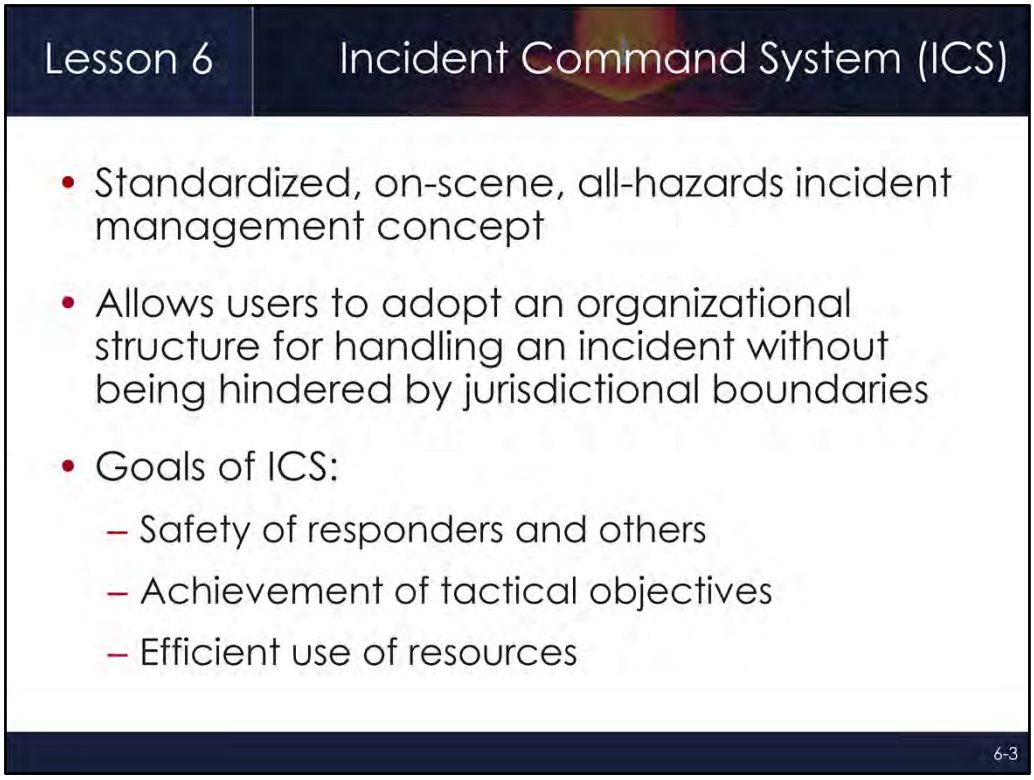
6-1

Lesson 6 — Lesson Objectives

At the conclusion of this lesson, participants will be able to:

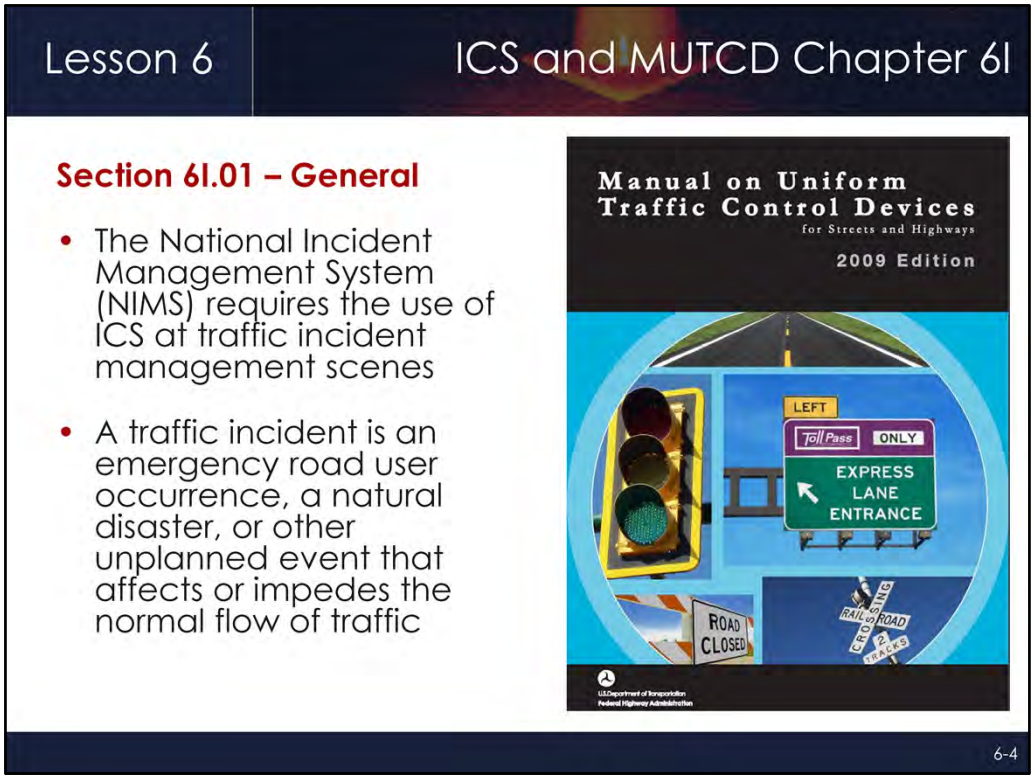
1. Describe both the need and the requirements for establishing and participating in the Incident Command System (ICS)
2. Describe when it is appropriate to implement Unified Command
3. Identify the need for and use of Staging Areas

6-2



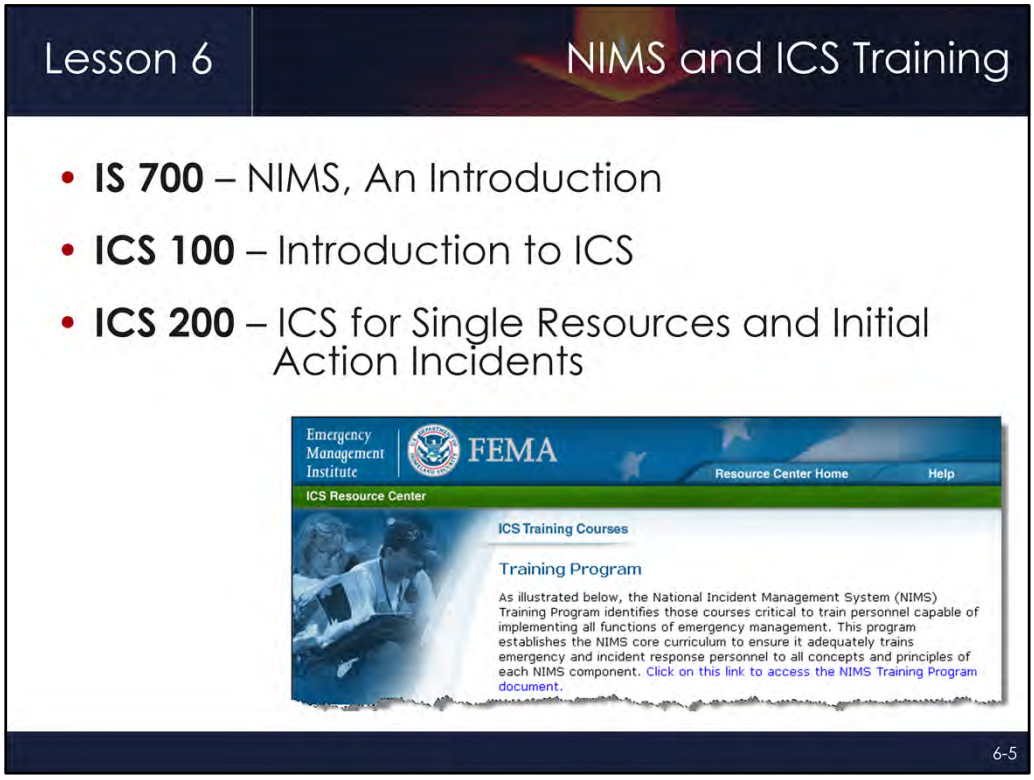
Lesson Objective: 6.1 | 4-Hour Version Slide: 4H-108

- Clearing incidents safely and quickly depends on developing coordinated, multi-agency operations that are supported by integrated communications
- Coordination comes when all responders from all disciplines are trained and can effectively operate under the ICS at highway incidents
- Like the NASCAR Pit Crew analogy, everyone works together under a coordinated system, knowing their role plus understanding the roles of their team members



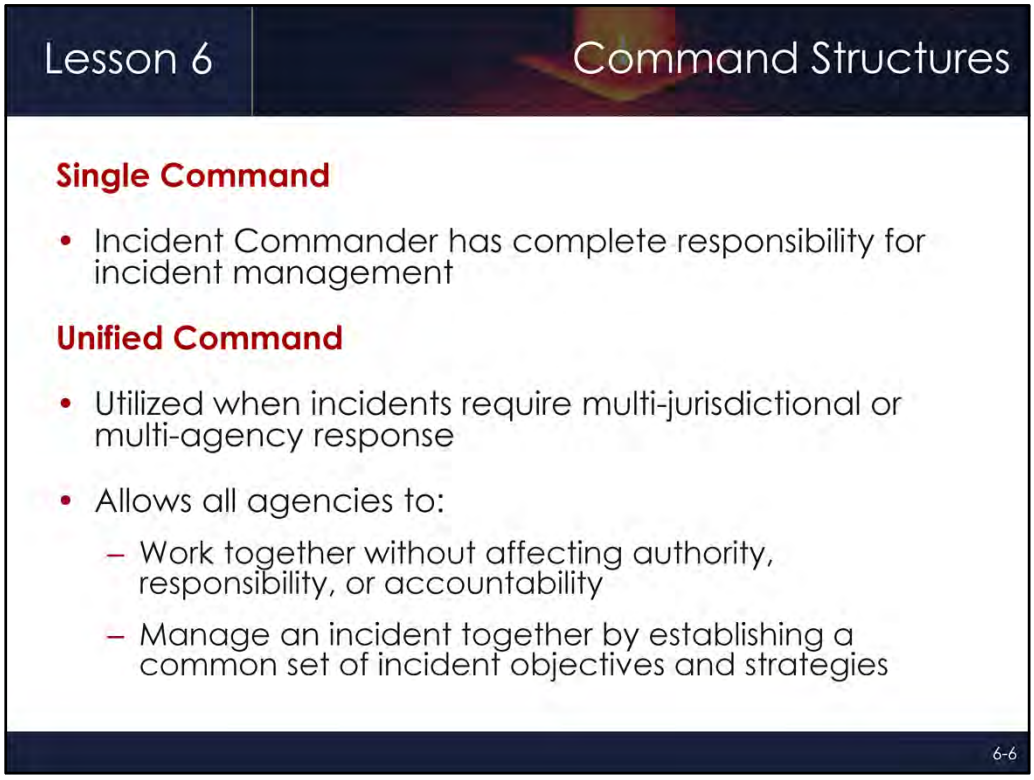
Lesson Objective: 6.1	4-Hour Version Slide: 4H-109

- The NIMS requirement that ICS be used at traffic incident scenes is emphasized in MUTCD Section 6I.01



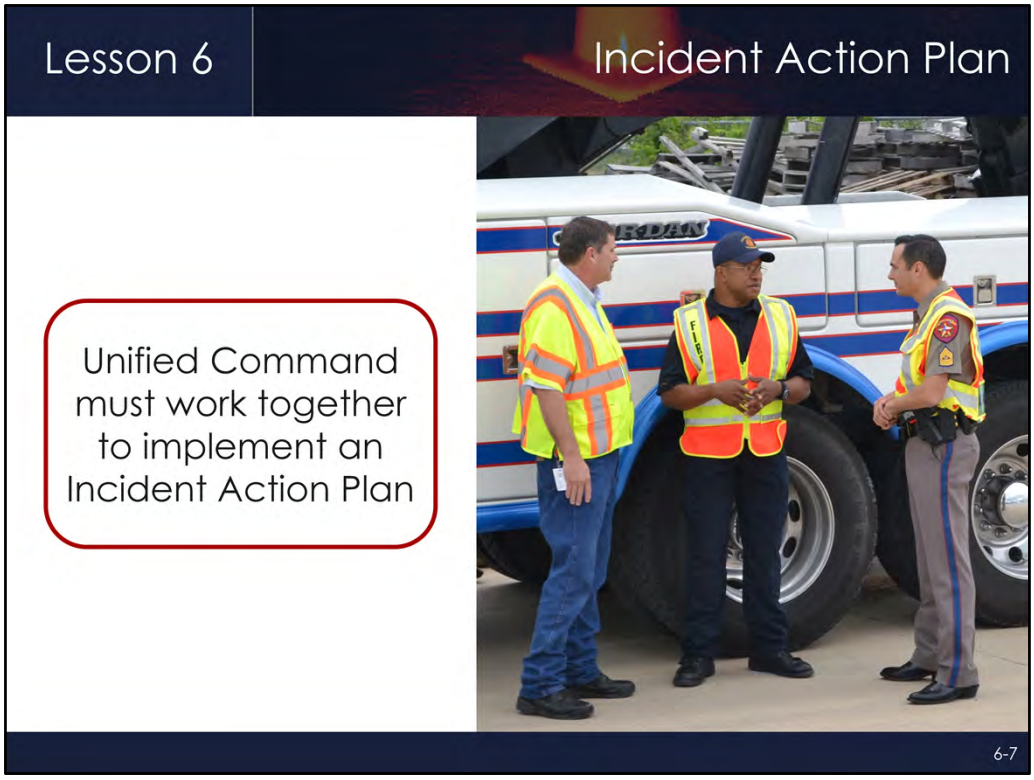
Lesson Objective: 6.1

- The National TIM Responder training course assumes that participants have already taken ICS 100, 200, and IS 700
- The material in Lesson 6 is intended to simply be a review of the fundamental ICS information presented in these three online courses
- For those who have not completed these courses, they are available online at no charge and are strongly recommended for all responders
    - http://training.fema.gov/IS/NIMS.asp



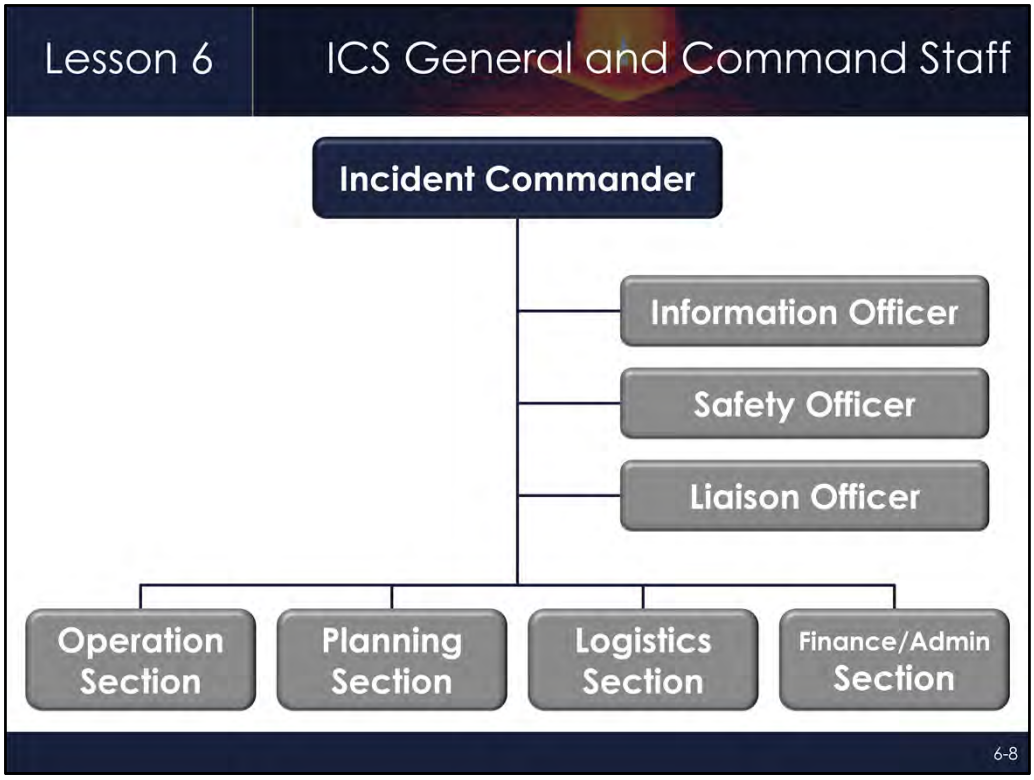
Lesson Objective: 6.2 | 4-Hour Version Slide: 4H-110

- When one individual is designated as Incident Commander, or the IC, that person represents the Single Command concept
- Unified Command is a joint management and authority structure in which the role of Command is shared by two or more individuals
  - Unified Command typically is fulfilled by a team of individuals already having authority within their discipline or responding agency
  - Allows responding agencies and/or jurisdictions with responsibility for the incident to share incident management
  - May be needed and is most appropriate for major incidents involving multiple agencies



Lesson Objectives: 6.1 and 6.2 | 4-Hour Version Slide: 4H-111

- Incident Action Plans (IAPs) are developed to identify tactical objectives and identify:
  - How the objectives will be accomplished
  - The resources needed to achieve those objectives
- IAPs are often unwritten in small-scale incidents and recorded in a written format during larger-scale incidents
- The IAP assigns resources to accomplish the tactical objectives and allots specified amounts of time to accomplish them
- After the IAP is developed, on-going size-up occurs so that the IAP can be modified as necessary
- The purpose of an IAP is to:
  - Record and document incident objectives
  - List and maintain a record of activities to be completed to address the objectives
  - Cover the operational period of an incident



Lesson Objectives: 6.1 and 6.2 | 4-Hour Version Slide: 4H-112

- **Animation:** First click forward turns the Information Officer box red and the second click turns the Safety Officer box red

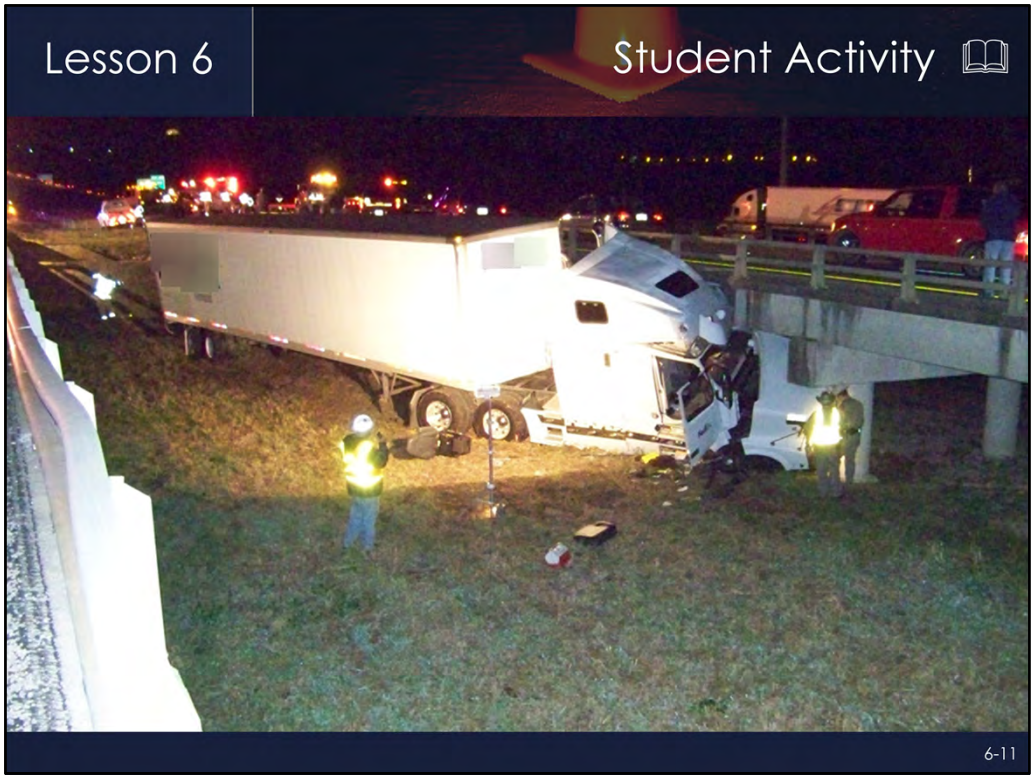
- The Command function is carried out by an Incident Commander or Unified Command
- The Incident Commander is supported by a Command Staff and a General Staff
- The Public Information Officer is responsible for: **[First click]**
    - Serving as the go-between for Command and the media
    - Relaying information on the incident and response efforts
- The Safety Officer: **[Second click]**
    - Is responsible for monitoring scene safety and developing preventative safety measures
    - Possesses the ability to immediately stop any action that is deemed hazardous, unsafe, or too high a risk
    - All responders must adhere to immediate direction/orders from the Safety Officer
    - The Incident Commander can over-ride the Safety Officer's orders after consultation with the Safety Officer and personnel involved in an action that was halted
- The leaders of the individual sections are know as the General Staff and individually as Section Chiefs (can be any agency organizational rank)
- Both the Command and General Staff report directly to the Incident Commander or Unified Command

Lesson Objective: 6.1

- Example of charting of an ICS for a typical highway incident involving LE, FD, EMS, and a Safety Service Patrol operator
  - One police officer is on-scene
  - One fire department engine company and supervisor (Captain) is on-scene
  - One ambulance crew is on-scene
  - A Safety Service Patrol operator from the DOT is on-scene
- When a higher-ranking official from a responder agency arrives, Command can be transferred to this higher-ranking officer
- Command may also be transferred to a better-qualified individual who is more suited to commanding the incident

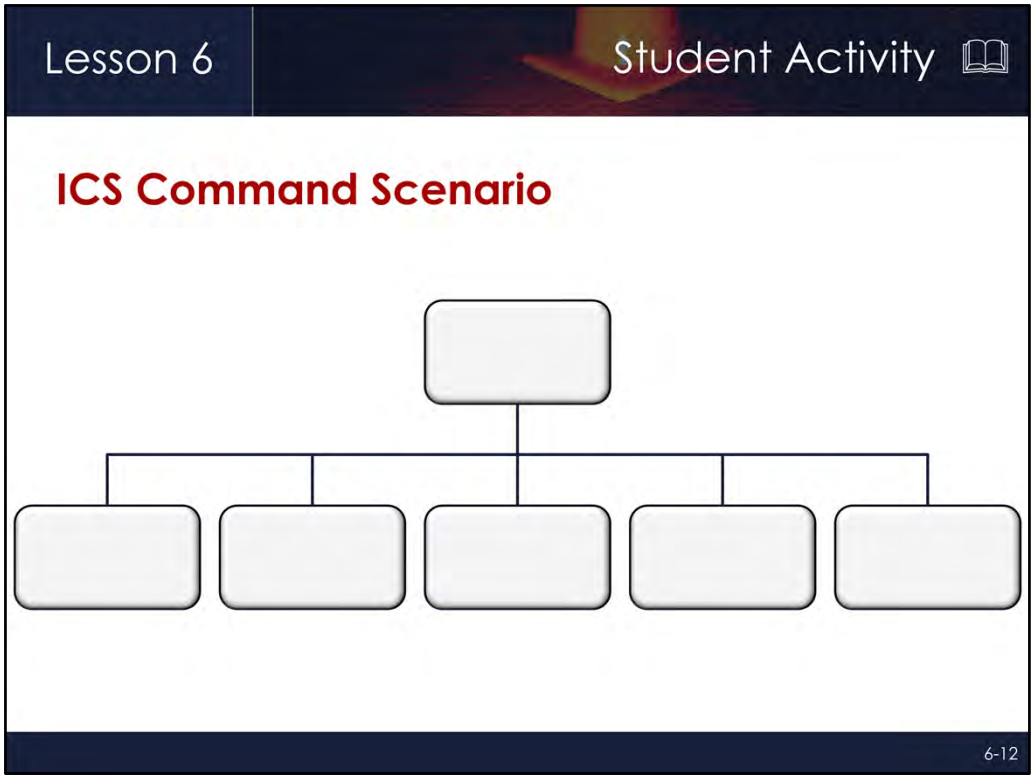
Lesson Objectives: 6.1 and 6.2

- Set up this student activity by reviewing the details of the incident:
  - A truck driver driving an 18-wheeler has run off the road, crashing into a bridge pillar
  - The driver is severely injured and trapped in the cab of the truck
  - Considering the involved vehicle is an 18-wheeler, a bridge has been hit and may be damaged, and the driver is injured and trapped, this has been deemed a major duration incident and Unified Command has been established



Lesson Objectives: 6.1 and 6.2

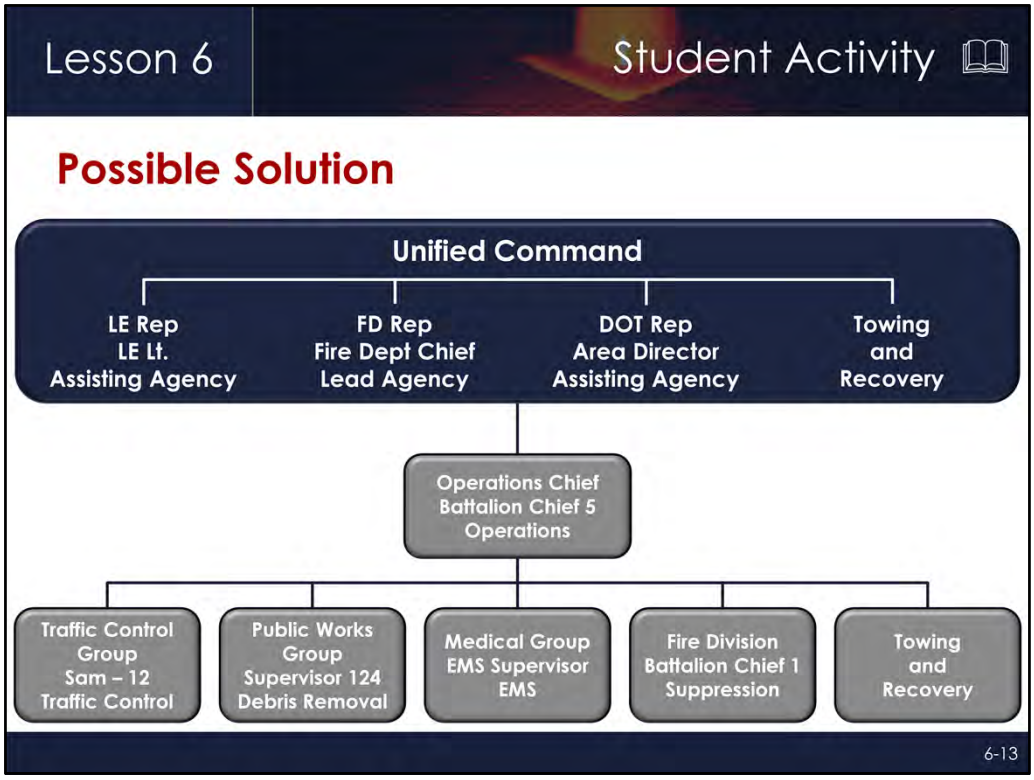
- Incident details (continued):
  - Due to the possibility of structural damage to the bridge, DOT personnel need to perform a thorough examination to assure its safety
  - LE, FD, EMS, a medical helicopter, Tow/Recovery, and DOT have responded
  - While responders are working under the bridge to extricate the driver, a secondary collision occurs in the travel lanes above the bridge, sending two patients to the hospital



Lesson Objectives: 6.1 and 6.2

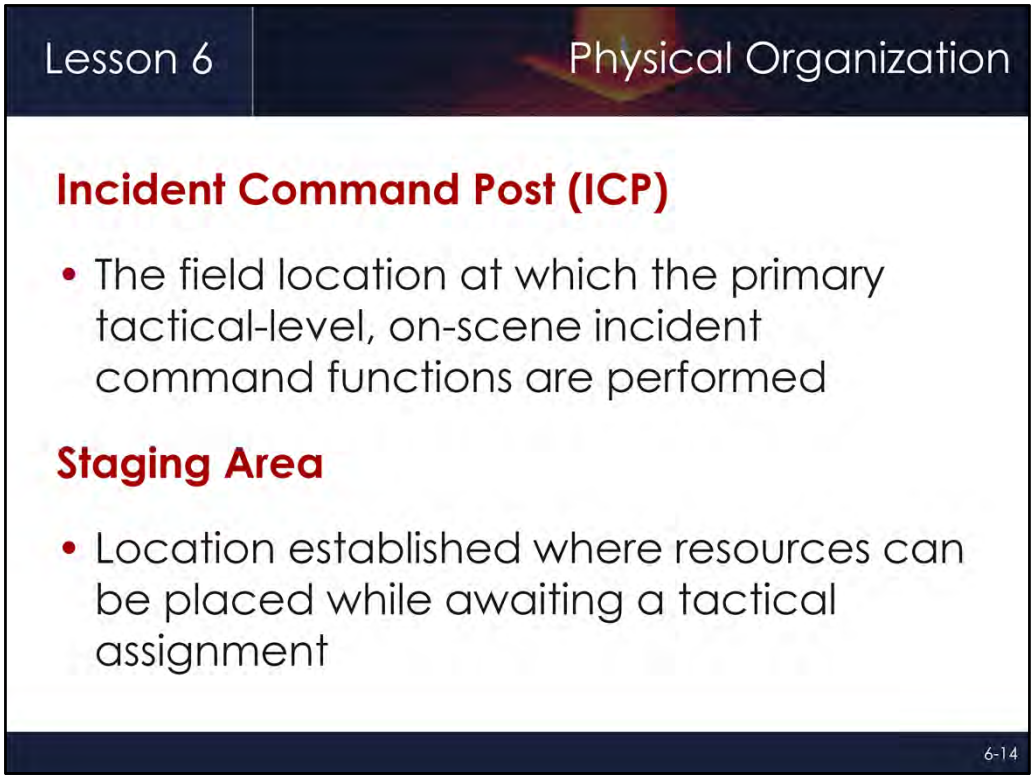
- As a small group activity, request that participants chart out an example of an ICS structure that would be appropriate for response
- Have individual small groups utilize this generic ICS chart or an equivalent one utilized by local response agencies to complete this activity

- **Ask/Discuss:** Describe (by charting) an ICS structure that would be appropriate for this incident if it occurred within your local jurisdiction



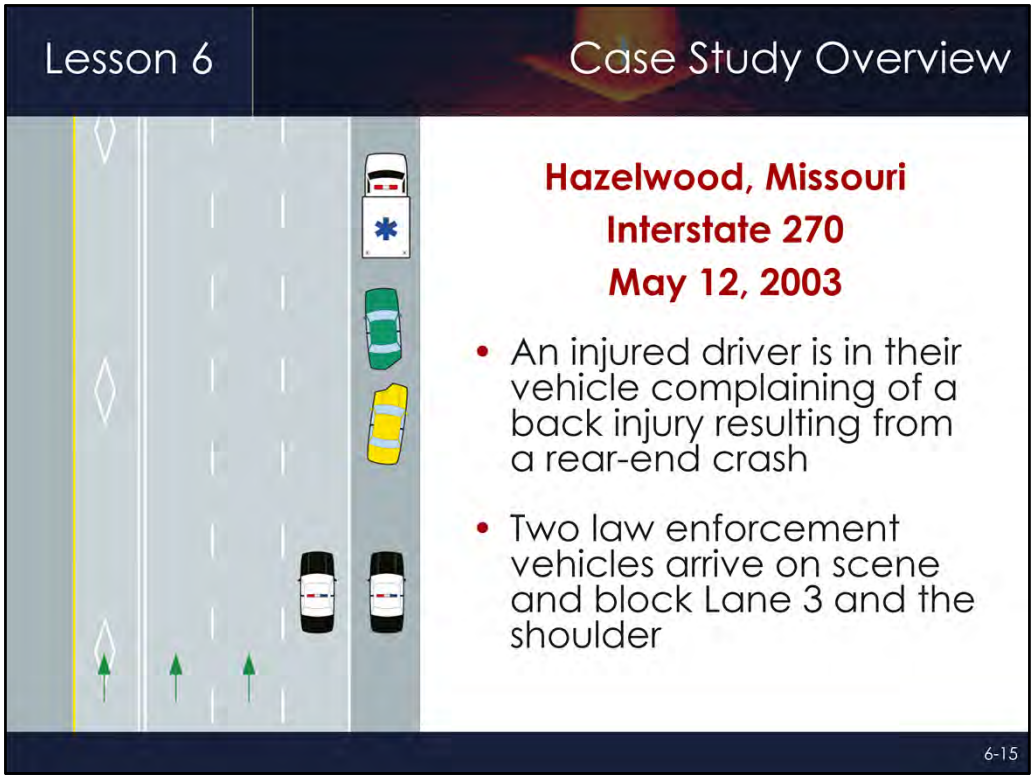
Lesson Objectives: 6.1 and 6.2

- Review this ICS structure as an example of a possible solution
- Review the small group ICS charts for completeness, accuracy, and compliance with the ICS structure



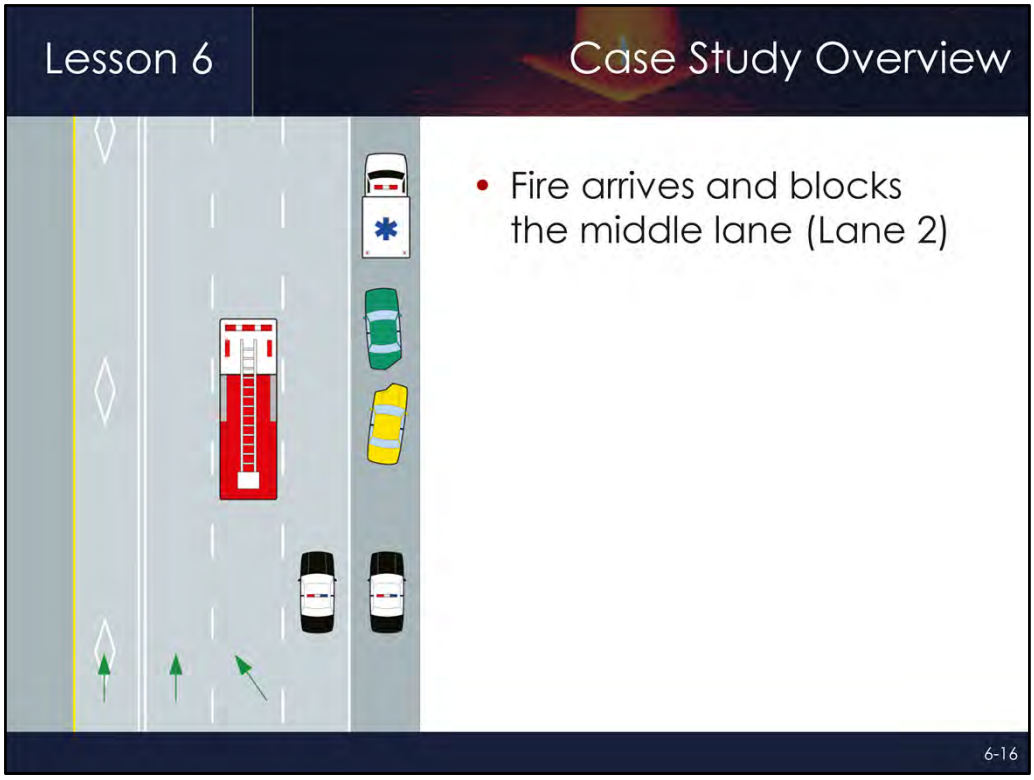
Lesson Objective: 6.3 | 4-Hour Version Slide: 4H-113

- Physical organization of a scene involves the establishment of a Traffic Incident Management Area, as well as an Incident Command Post, Staging Area(s), and diversion routes for larger-scale incidents
- The Incident Command Post is where the Incident Commander or those participating in a Unified Command operation are physically located at the incident scene
  - An Incident Command Post should be established when ICS is initiated
  - Initially, it can be inside a responder's radio-equipped vehicle
  - The Incident Command Post location should be communicated to responders as needed and clearly marked if possible
  - The Incident Commander/Unified Command team should be located at the Incident Command Post
- Staging Areas allow for the organization of personnel and equipment to be readied for immediate use at the incident scene
  - Holding incoming resources that are not actively involved in incident operations
  - Consideration should be given to the location and whether there is enough room for large response vehicles to easily enter or exit the staging area
- Staging Areas also allow for un-needed resources and/or personnel to immediately depart the scene and return to service



Lesson Objective: 6.1

- An injured driver is in his vehicle (green vehicle) on the side of I-270 complaining of a back injury resulting from a rear-end collision
- A two-person EMS crew and two LE units are on-scene
  - The ambulance and one LE unit are positioned on the right shoulder
  - The second LE unit is positioned in a linear fashion blocking Lane 3



Lesson Objective: 6.1

- The fire apparatus positions in a linear manner blocking Lane 2
- The FD crew begins work to support the medical crew and the packaging of the injured driver

Lesson Objective: 6.1	4-Hour Version Slide: 4H-114

- **Video:** L6_V1 - MO On-Scene Arrest.wmv

- Following is a synopsis of the video:
  - One of the LE Officers on the scene has an issue with where the fire engine has been parked and walks over to the engine and tells the FD driver to move
  - The FD driver refuses to move the engine because his Captain directed him to park within Lane 2
  - The LE Officer approaches the FD Captain who is working on getting the injured motorist out of the vehicle
  - The FD Captain tells the engine driver not to move the vehicle
  - This confrontational situation leads the LE Officer to place the FD Captain into custody while he is supporting the head of the patient

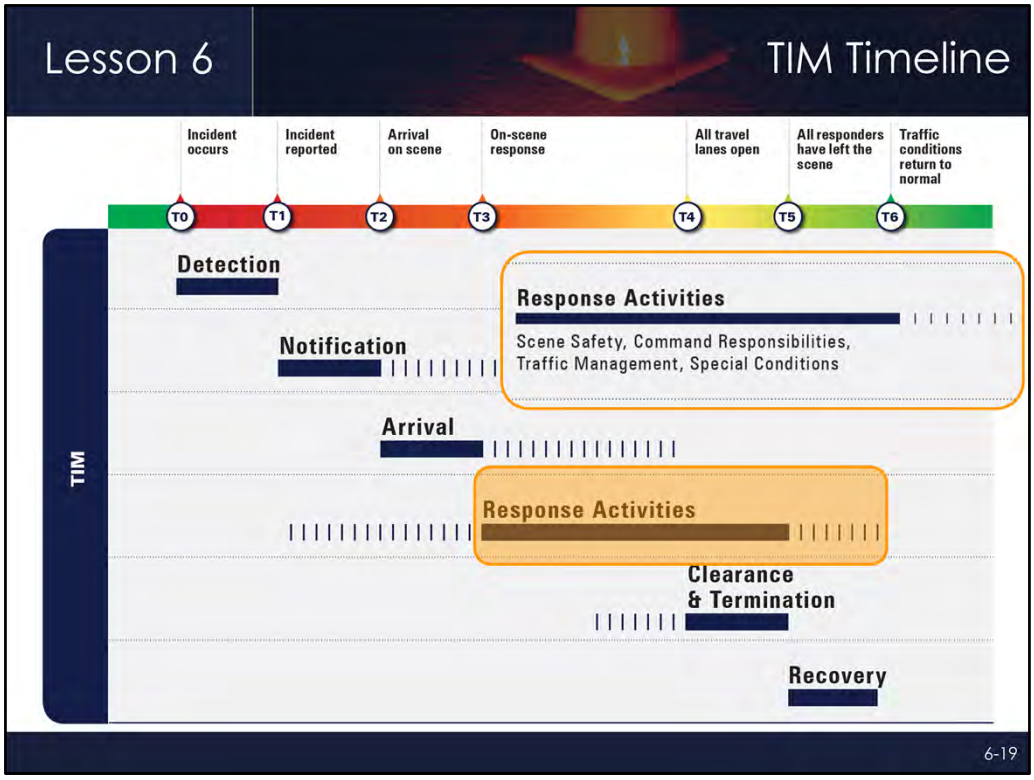
- **Ask/Discuss:** Was ICS followed?

- **Ask/Discuss:** If ICS had been used, how could this incident have turned out differently?

Lesson Objective: 6.1 | 4-Hour Version Slide: 4H-115

- **Ask/Discuss:** In terms of both the second arriving LE unit and FD engine, was the positioning of these vehicles appropriate or could it have been improved? If so, how?
  - The FD engine could have parked behind the LE as there was already a Lane +1 block in place

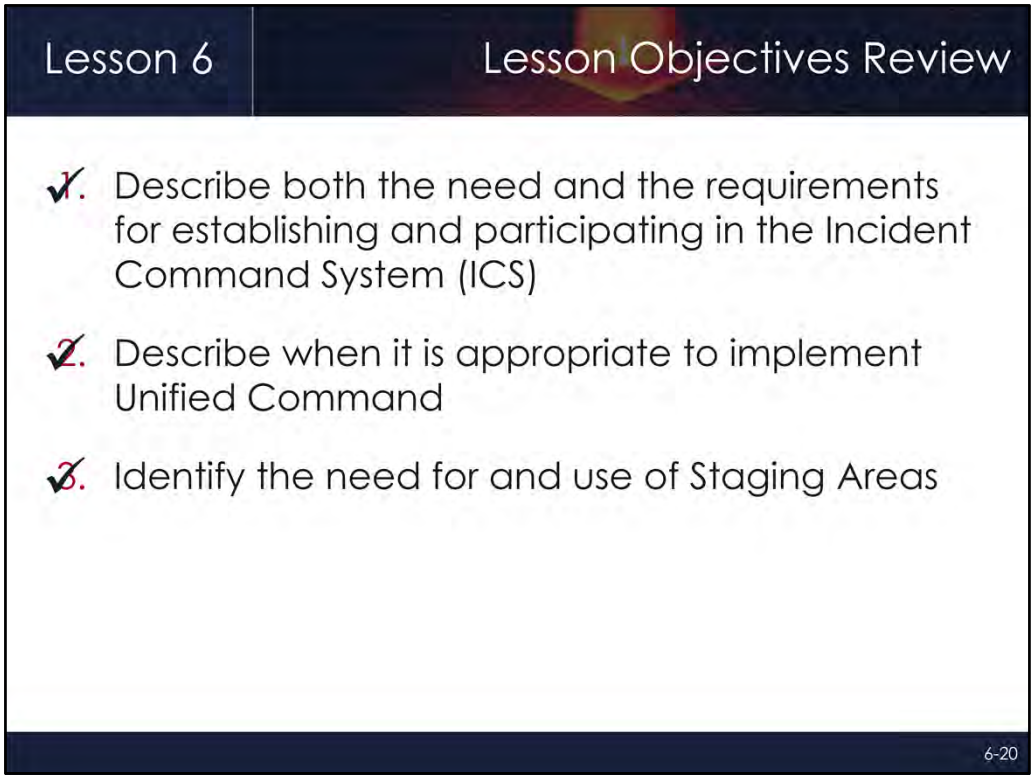
- Additional considerations:
  - The way the FD Captain exited the engine is unsafe, not a recommended practice, and violates common safety protocols within the Fire Service
  - There was a long running personality clash between the LE Officer and the FD Captain



TIM Timeline	4-Hour Version Slide: 4H-116

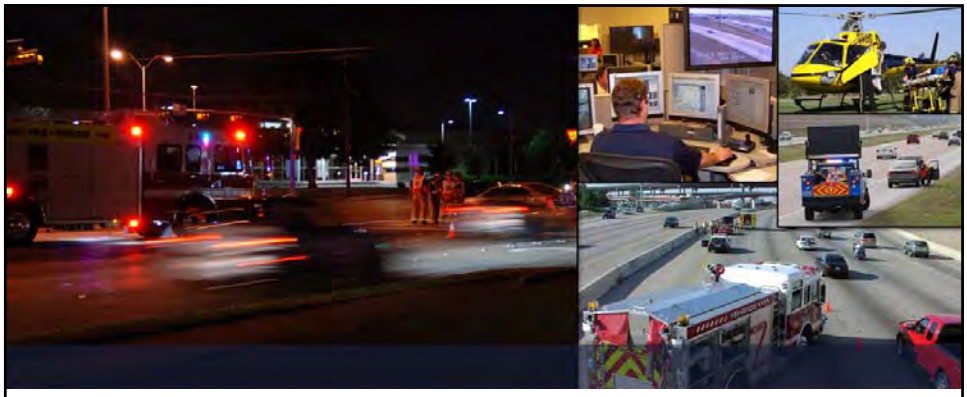
- **Animation:** Click forward to make orange box appear and then click again to bring up detailed view of Response Activities

- **Ask/Discuss:** How could the effective use of ICS impact the TIM Timeline?
  - Highlight that ICS should be established at every incident scene as soon as the first responder arrives on-scene



Lesson Objectives Review

- **Animation:** Clicking forward reveals the three check marks one at a time
- Review each lesson objective, checking them off as you go



Lesson 7:
Traffic Management

Lesson 7 — Lesson Objectives

At the conclusion of this lesson, participants will be able to:

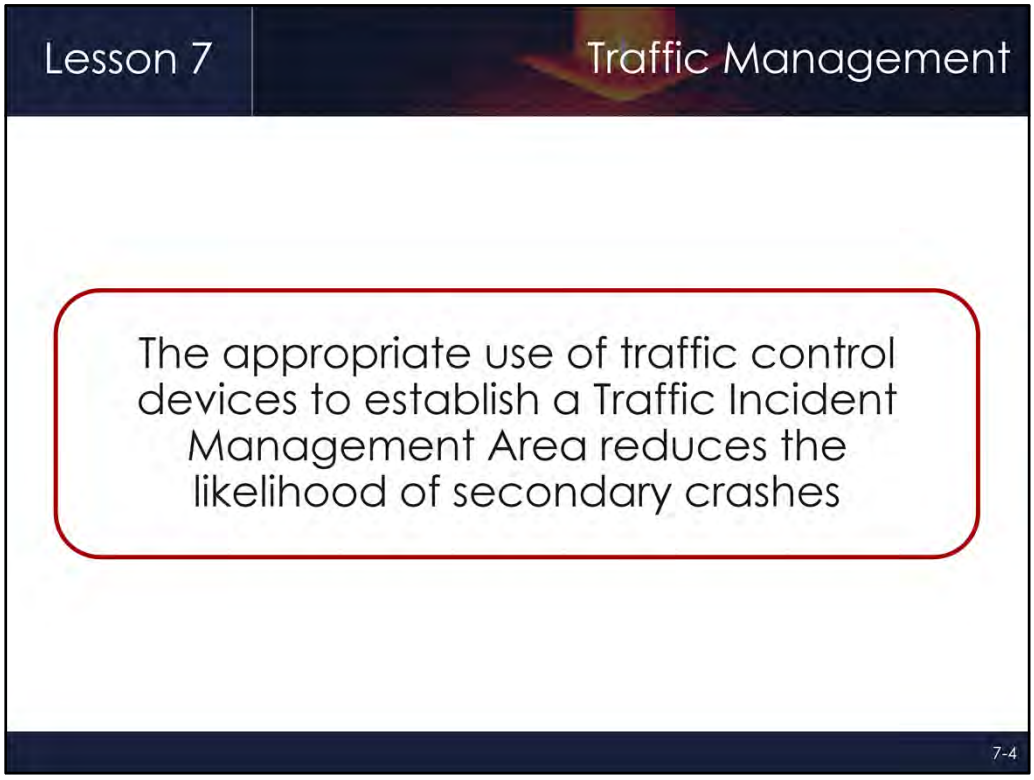
1. Describe the four main components of a Traffic Incident Management Area
2. Identify conditions at an incident scene that would require the Advance Warning Area be extended
3. Describe the need for, and how to set up, a taper
4. Identify and describe the two types of buffers that may be established at an incident scene

Lesson Objective: --	4-Hour Version Slide: 4H-119

- **Video:** L7_V1 - OH Struck-By.wmv

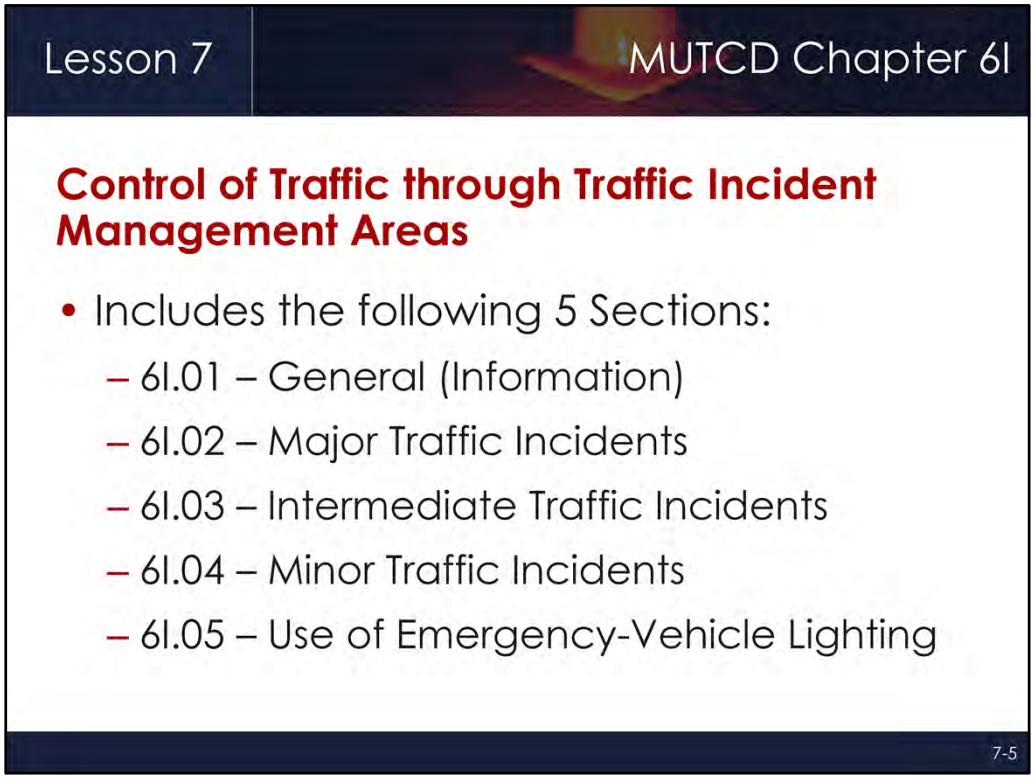
- **Ask/Discuss:** Debrief the video
  - As an introduction to this lesson, discuss the importance of using traffic control devices to establish a Traffic Incident Management Area

- Law enforcement dash cam video of a single vehicle crash in Dayton, OH
- March of 2013 at approximately 5:30 am, icy roads led to multiple crashes on US 35
- A fire crew is on the scene, as is another law enforcement vehicle on the inside shoulder in the opposite direction
- Captain Barry Cron narrowly avoided a secondary crash and while he was checking on the victim, a third vehicle struck the second vehicle and threw him 20 feet away
- Captain Cron suffered 3 broken ribs and a broken leg, but was thankful to be alive



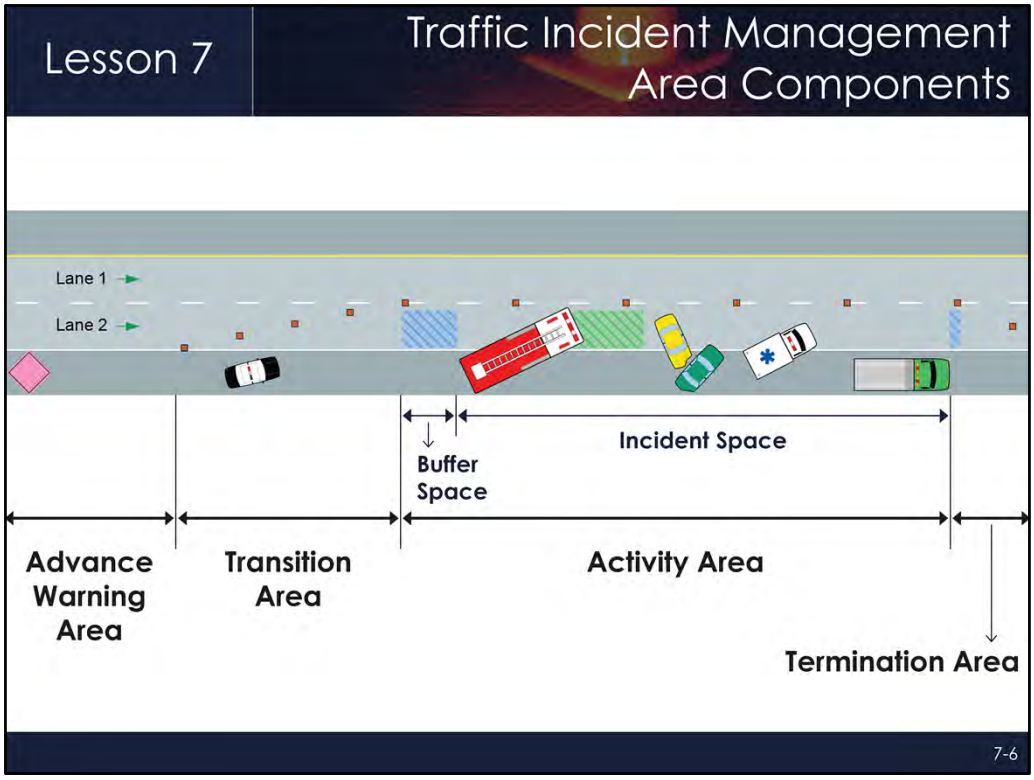
Lesson Objective: --

- The primary functions of temporary traffic control (TTC) at a Traffic Incident Management Area are:
  - Inform road users of the incident
  - Provide guidance information on the path to follow through the incident area
  - Protect incident responders and those involved in working at the incident scene
  - Aid in moving road users expeditiously past or around the traffic incident
  - Reduce the likelihood of secondary traffic crashes



Lesson Objective: 7.1 | 4-Hour Version Slide: 4H-120

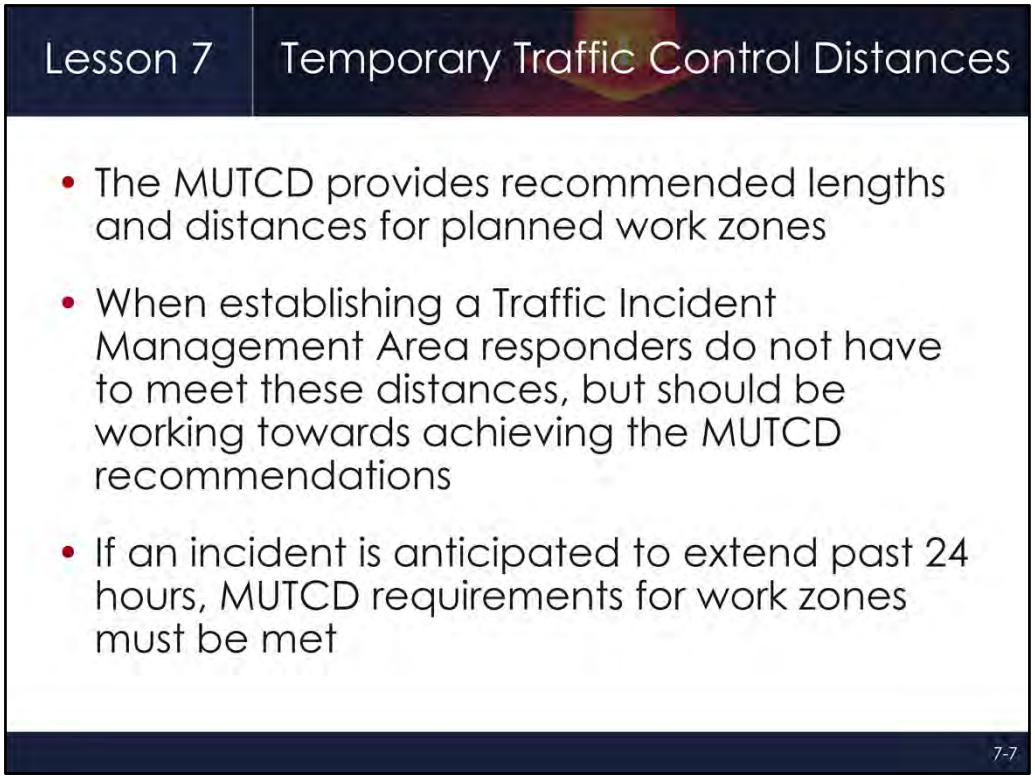
- Chapter 6I of the MUTCD specifically addresses traffic control at incident scenes
- Latitude is give to responders, because of the nature of the events:
  - For traffic incidents, particularly those of an emergency nature, TTC devices on hand may be used for the initial response as long as they do not themselves create unnecessary additional hazards
- Chapter 6I establishes different requirements, based on the duration of the incident
  - For MINOR incidents:
    - When a minor traffic incident blocks a travel lane, it should be removed from that lane to the shoulder as quickly as possible
  - For INTERMEDIATE and MAJOR incidents, more is required of responders:
    - All traffic control devices needed to set up the TTC at a traffic incident should be available so that they can be readily deployed
    - The TTC should include the proper traffic diversions, tapered lane closures, and upstream warning devices to alert traffic approaching the queue and to encourage early diversion to an appropriate alternative route



Lesson Objective: 7.1 | 4-Hour Version Slide: 4H-121

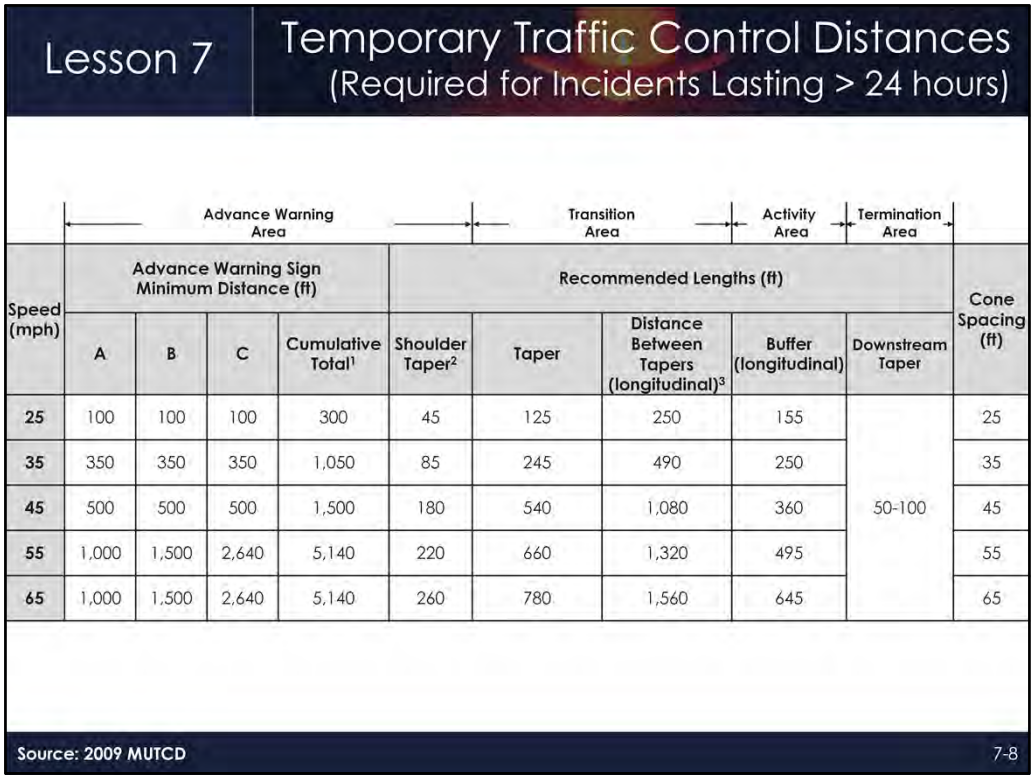
- **Animation:** Click forward to make the buffer and incident space labels appear

- A Traffic Incident Management Area is a type of temporary traffic control zone
- While there are similarities, there are also significant differences between a work zone and a traffic incident
    - The time to plan and availability of resources are the main differences between the two
- A Traffic Incident Management Area is a type of emergency event
- Review the four main components of a Traffic Incident Management Area, which will be discussed in detail in this lesson:
    - Advance Warning Area
    - Transition Area
    - Activity Area
    - Termination Area
- The Activity Area is further comprised of a Buffer Space and an Incident Space **[Click]**



Lesson Objective: 7.1	4-Hour Version Slide: 4H-122

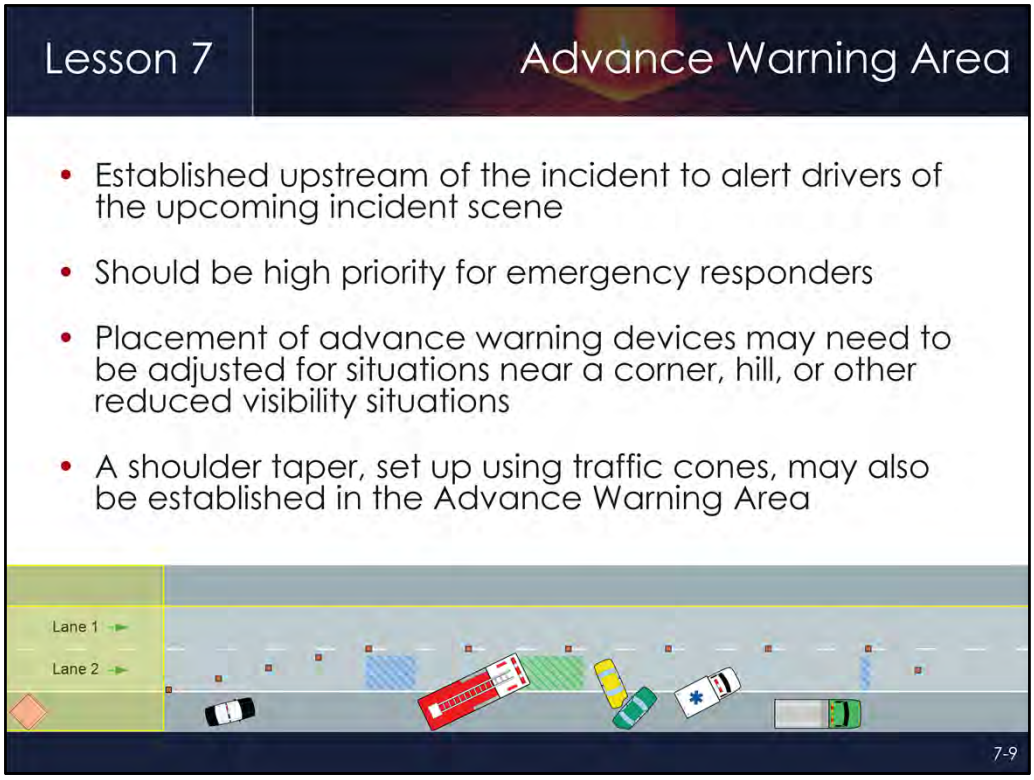
- Paraphrase slide content



Lesson Objective: 7.1 | 4-Hour Version Slide: 4H-123

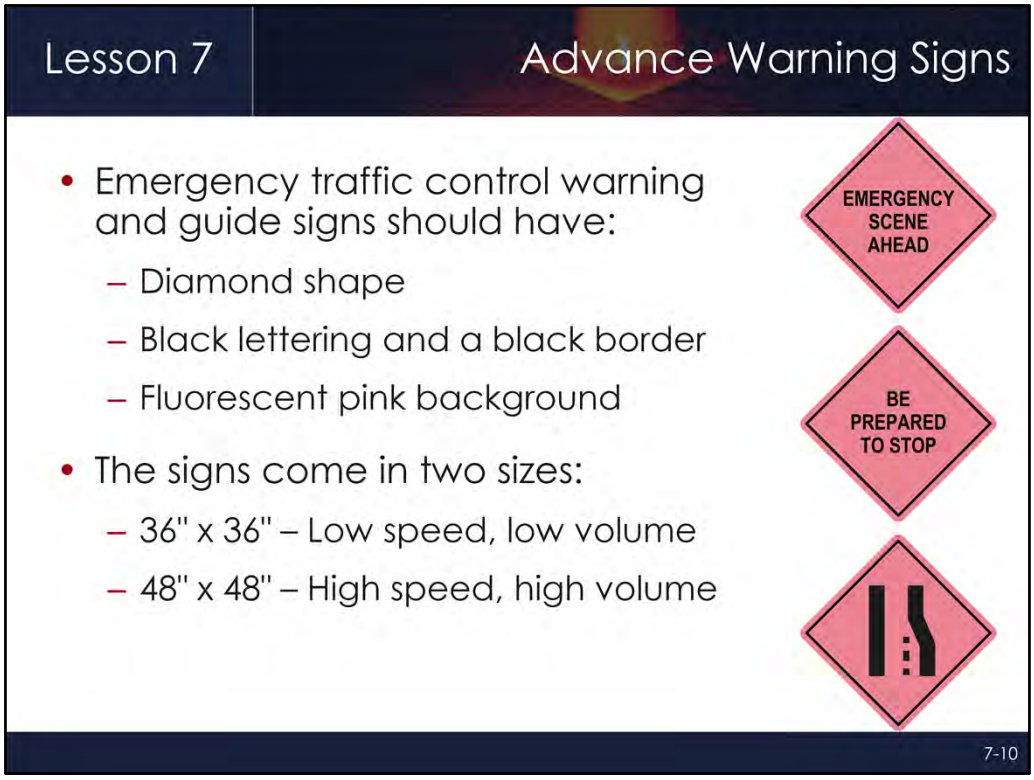
- The distances provided in this table are specifically for work zones
- The top of the table shows the four components of a temporary traffic control zone
- Along the left column is the speed limit of the roadway
- The distances for the advance warning signs are listed, nearly 1 mile for a 65 mph roadway
- The length of a taper on a 65 mph roadway would be 780 feet

- **Ask/Discuss:** Are any of these distances achievable in a TIM scenario?



Lesson Objective: 7.1 | 4-Hour Version Slide: 4H-124

- All advance warning devices should be placed so that they will provide enough warning for vehicles to slow before reaching the incident and any queue that might form
- Advance warning should be a high priority for responders, particularly in the cases of reduced visibility which will be discussed later
- The shoulder taper is used to advise motorists that the shoulder is closed ahead
    - Due to limited resources (availability of cones) a typical Traffic Incident Management Area will likely not include a shoulder taper



Lesson Objective: 7.1	4-Hour Version Slide: 4H-125

- To distinguish Traffic Incident Management Areas from work zones, the MUTCD specifies a fluorescent pink advance warning sign
- These signs are being carried by many fire crews and Safety Service Patrols
- Paraphrase slide content for specific design elements

Lesson Objective: 7.1 | 4-Hour Version Slide: 4H-126

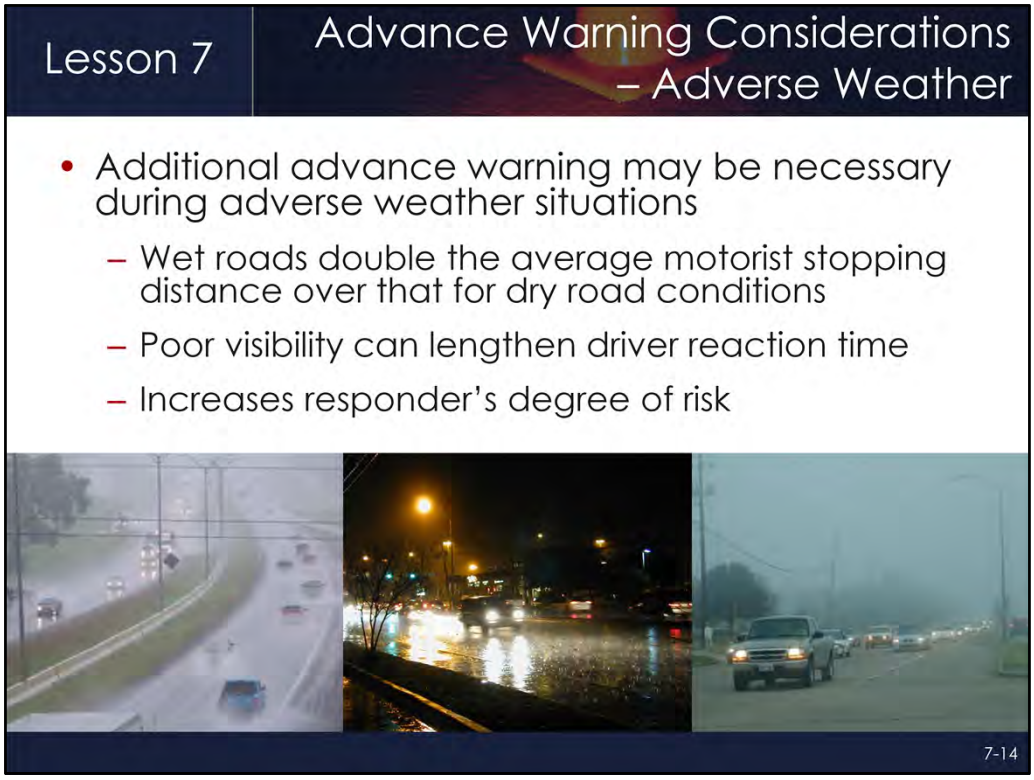
- Example of a deployed advance warning sign
- Explain that the sign is on the shoulder, in advance of the taper
- The placement of an advance warning sign might be accomplished by a fire crew immediately prior to arrival on the scene, or by a secondary responder

Lesson Objective: 7.1

- Variable message signs (VMS) are another tool for providing advance warning
  - Also referred to as dynamic message signs (DMS) in some areas
- VMS are typically controlled by a TMC or transportation agency
- Standard set of legends are scripted for use on VMS

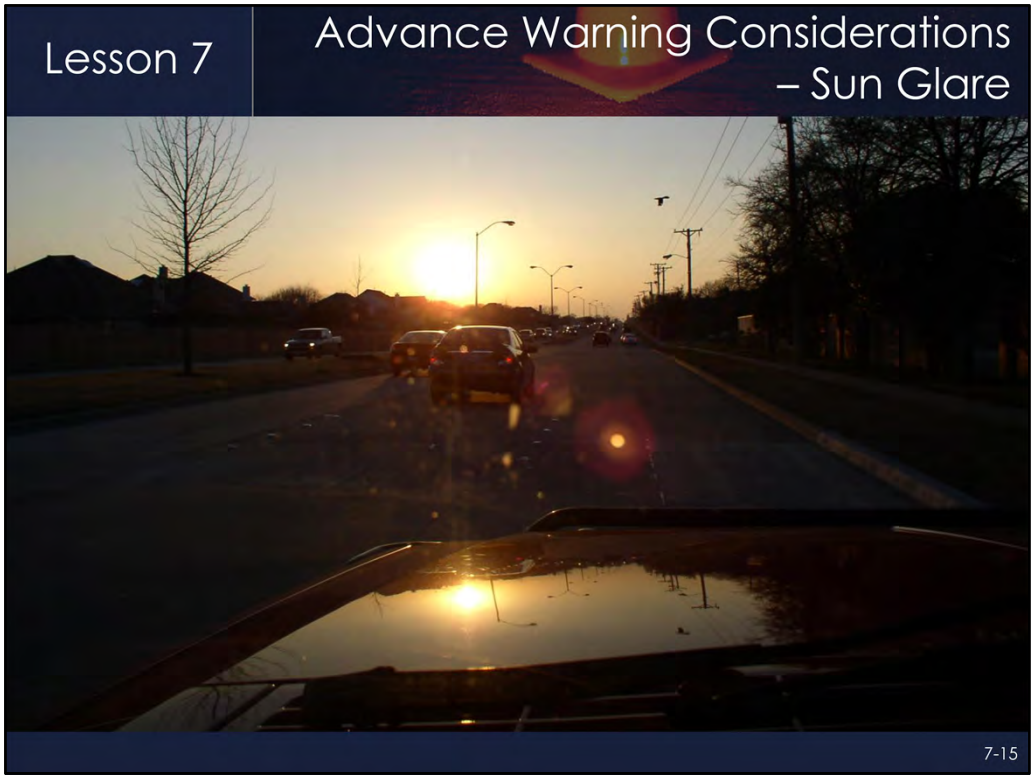
Lesson Objective: 7.1

- Similarly, portable changeable message signs (PCMS) can also be used for advance warning
- The State DOT, local transportation agency, or public works department is typically responsible for deploying PCMS
- Private traffic control companies and/or asset management companies may also be used by transportation agencies



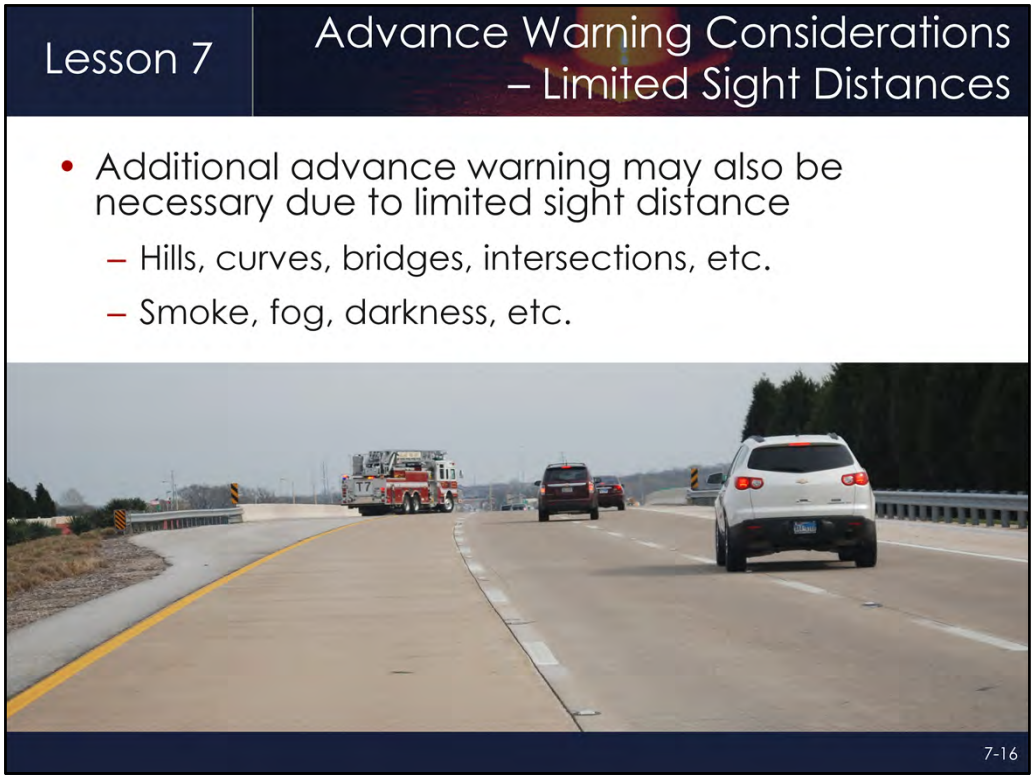
Lesson Objective: 7.2	4-Hour Version Slide: 4H-127

- Identify lighting, road, and weather conditions that should be taken into account when setting up an Advance Warning Area
- Bad weather, such as rain, fog, and snow, all create significant responder risks
- Wet roads double the average motorist's stopping distance over that for dry road conditions, and poor visibility can lengthen driver reaction time
    - These combined increase responders degree of risk
- With these concerns in mind, the Advance Warning Area should be extended to compensate when such conditions exist



Lesson Objective: 7.2

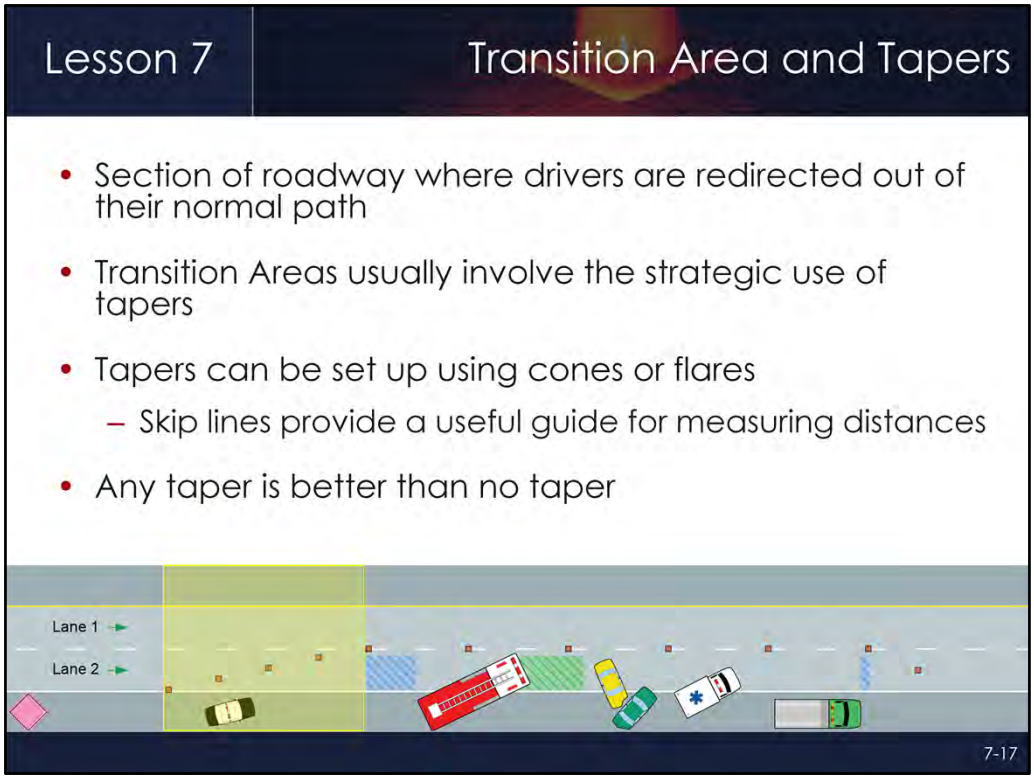
- Sun glare is another environmental condition that occurs twice each day somewhere
- A driver's ability to see ahead is impaired by glare
- Though clearly a temporary event, it must be considered when establishing advance warning



Lesson Objective: 7.2 | 4-Hour Version Slide: 4H-128

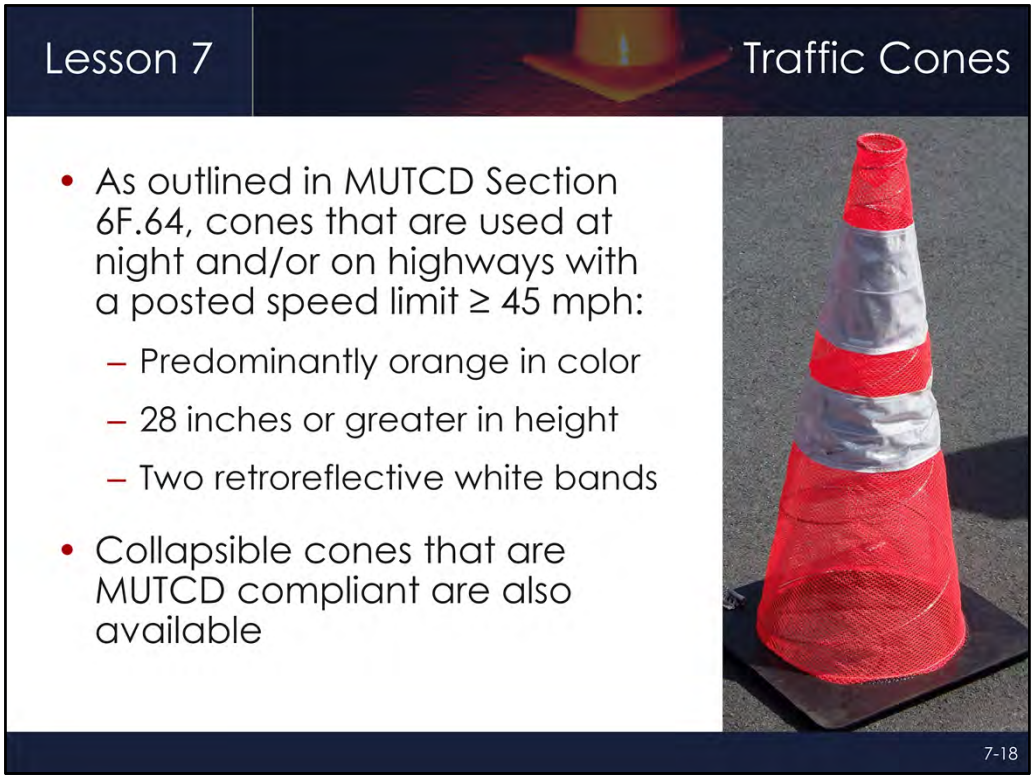
- **Animation:** Click forward to make second picture appear

- Another advance warning adjustment consideration involves limited sight distance
- A small elevation or curvature in the roadway can obstruct a driver's view, as can smoke, fog, and darkness
- Once it has been determined the incident is a limited sight distance situation:
  - Position your vehicle further upstream of the scene than normal to serve as advance warning and keep your lights on
  - Contact other responding units and advise them of the exact location and request they position for extended advanced warning
  - Setup temporary warning and traffic control with available cones and signs



Lesson Objectives: 7.1 and 7.3	4-Hour Version Slide: 4H-129

- Paraphrase slide content



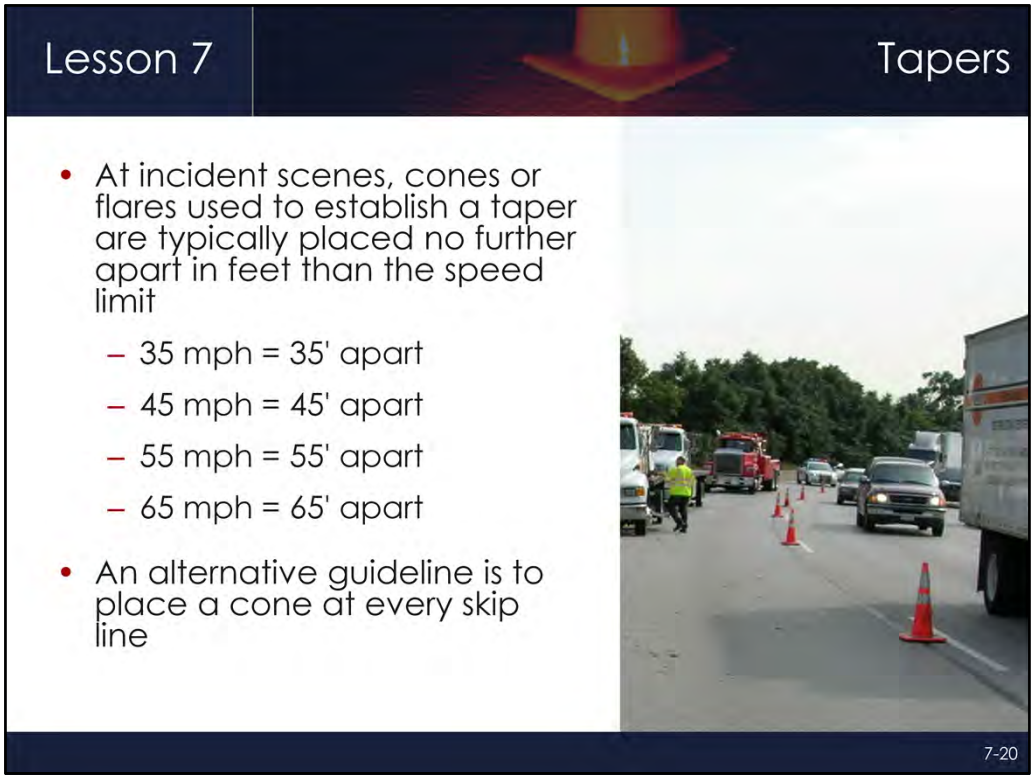
Lesson Objective: 7.3	4-Hour Version Slide: 4H-130

- **Animation:** Click forward to make collapsible cone picture appear

- Traffic cones are a type of channelizing device used to direct traffic
- There is no MUTCD requirement that responders carry traffic cones
- The MUTCD *does* require appropriate traffic control for intermediate and major incidents, so their use at incident scenes *is* required
- Response vehicles are typically not designed to hold more than a few cones, and a cone's shape and size present storage issues
- For nighttime use and on roadways with speeds over 45 mph, a 28 inch cone is specified in the MUTCD
- Collapsible traffic cones are available, but price and durability warrant some caution **[Click]**

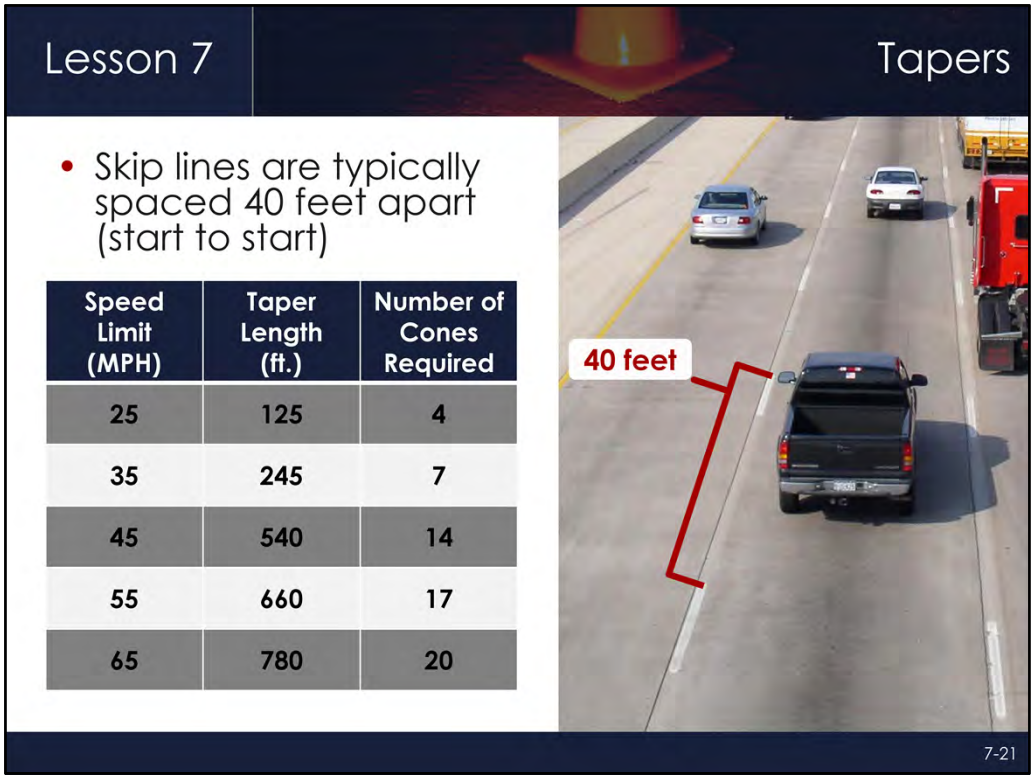
Lesson Objective: 7.3	4-Hour Version Slide: 4H-131

- Nighttime channelizing devices are available
  - Flares or fusees
  - Chemical light sticks
  - Light emitting diodes
- Flares and fusees are most effective when used with a stand
- Nighttime devices can augment the use of traffic cones when strategically placed



Lesson Objective: 7.3 | 4-Hour Version Slide: 4H-132

- Channelizing devices, such as cones, are typically spaced according to the speed of the roadway
- As an alternative, skip lines provide a useful guide for setting up tapers

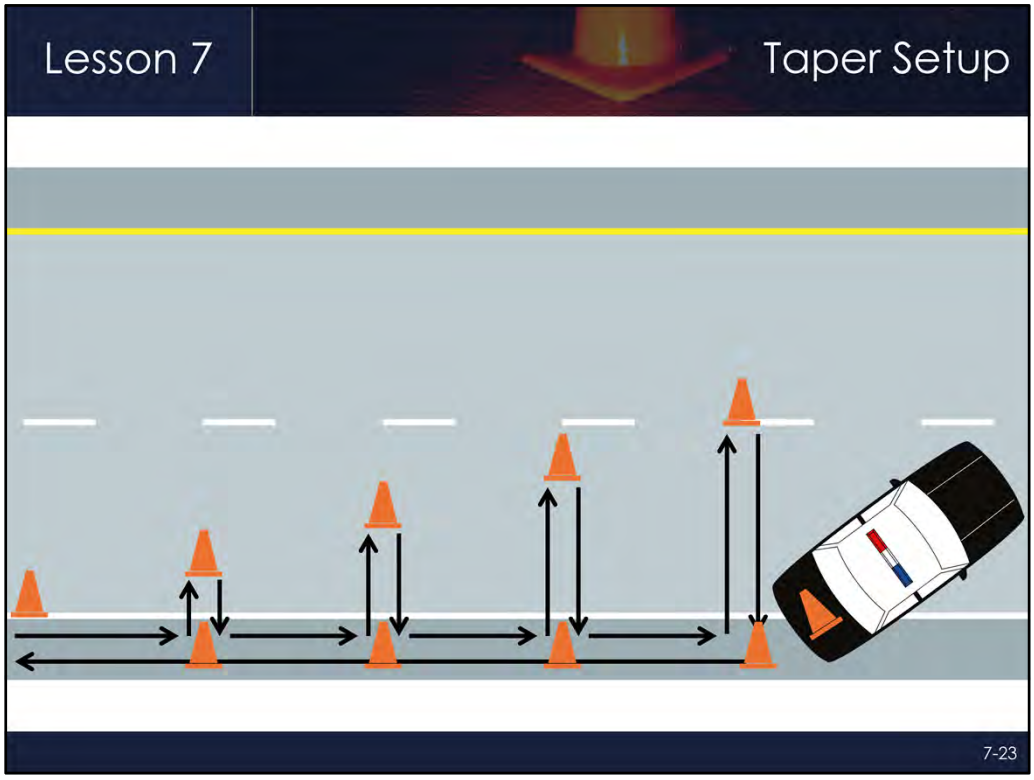


Lesson Objective: 7.3

- As mentioned, tapers for work zones are generally longer and involve more cones than TIM applications
- In many situations responders will simply not have sufficient cones available to set up tapers of this length and will have to do the best they can with the resources they have
- When available, channelizing devices can be set on skip lines to approximate distances
- Based on MUTCD guidance, broken lines (or skip lines) should consist of 10-foot line segments and 30-foot gaps
- Explain that the ultimate goal of a taper is to have the taper appear as a straight line indicating the direction in which you want the motorist to merge

Lesson Objective: 7.3

- The objective of a taper is to establish a uniform line that directs approaching traffic



Lesson Objective: 7.3 | 4-Hour Version Slide: 4H-133

- **Animation:** Click forward to start taper set up, placement of each cone requires two clicks for a total of 11 clicks

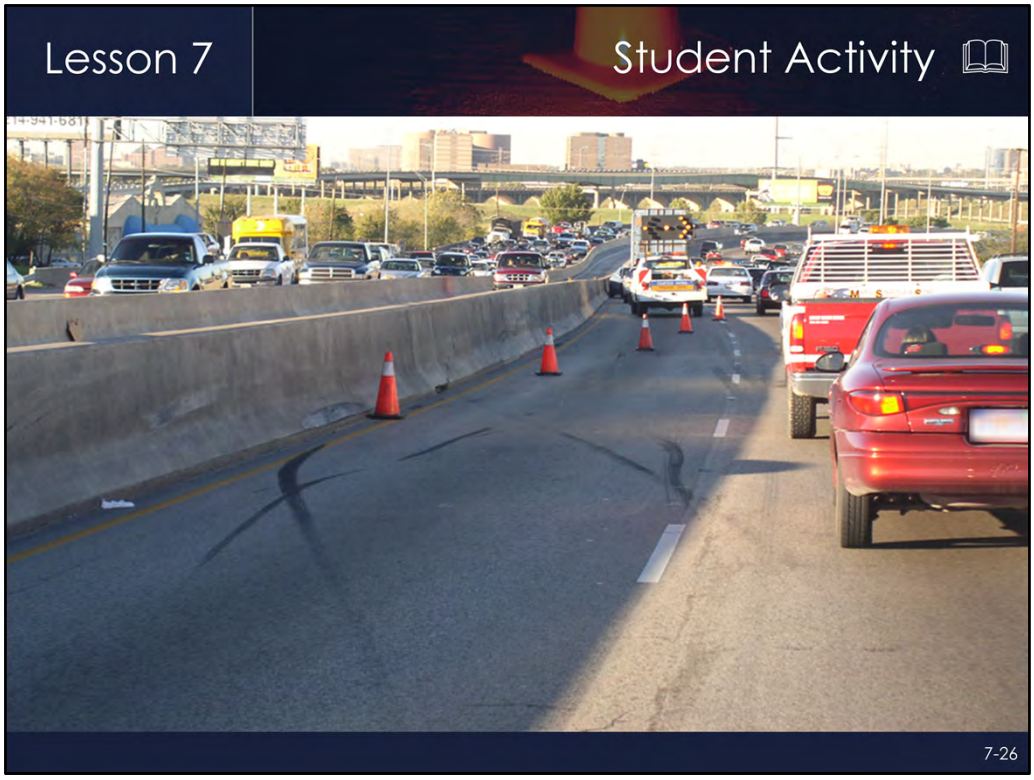
- Florida Gulf Coast University in Ft. Myers worked on a Justice Department grant related to nighttime traffic control devices
- As a related issue, they developed a deployment technique that fills a historical training gap
- The deployment of 5 cones to block one traffic lane is demonstrated
- In this example, the skip lines are used to guide taper set up
- The methodology has the responder use the refuge of the shoulder throughout deployment
    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

Lesson Objective: 7.3

- A shoulder accident has necessitated a temporary Lane +1 block by the fire department ladder truck
- **Ask/Discuss:** What actions should be taken when there is limited sight distance?

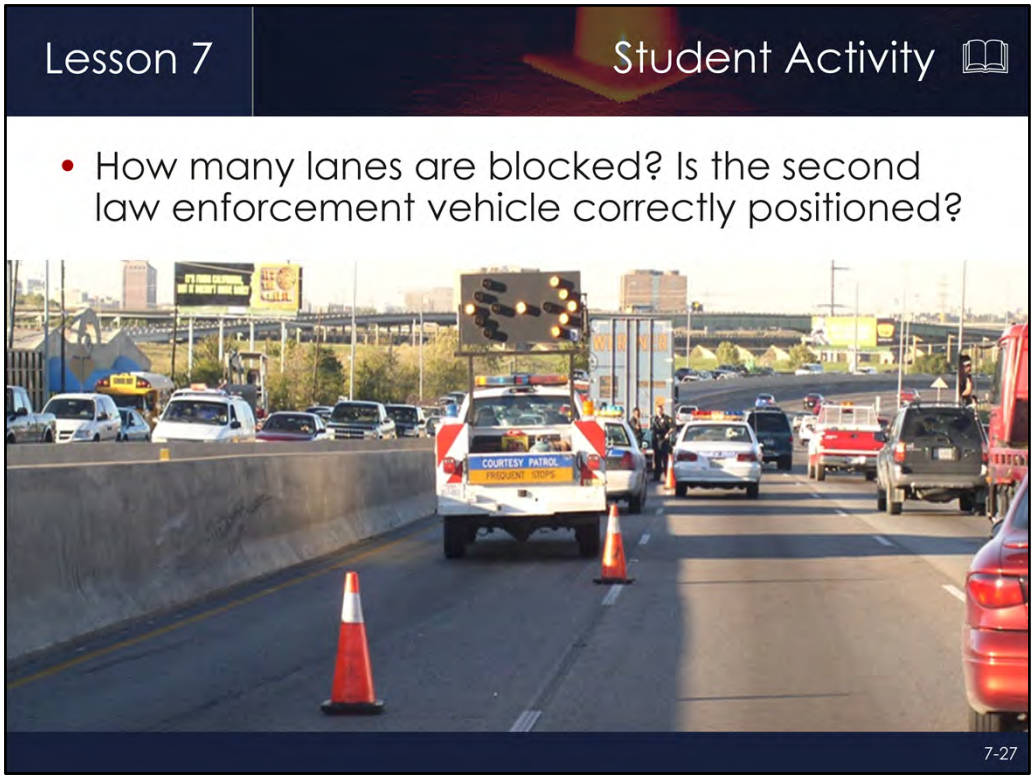
Lesson Objective: 7.3

- The advance warning sign is properly deployed ahead of the taper
- The taper is uniform and straight
- Arrow boards are placed one in each lane
- The MUTCD specification for work zone lane closures may require a longitudinal segment between successive tapers, a straight section before a second lane is taken
    - This is not the case in TIM applications



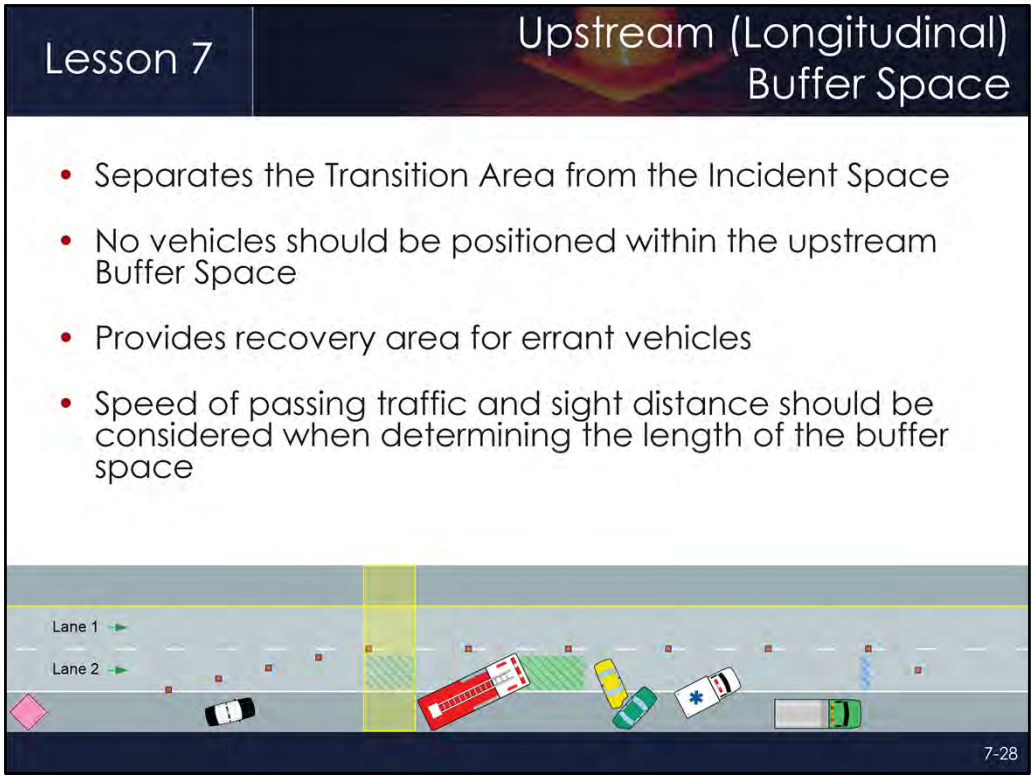
Lesson Objective: --

- Participants are allowed to demonstrat learned material in this activity
- **Ask/Discuss:** Review the temporary traffic control devices being used
  - Cones – highlight placement of the taper
  - Arrow board



Lesson Objective: --

- A closer view of the same incident scene
- **Ask/Discuss:** Did you notice the stopped law enforcement vehicle, outside of the Traffic Incident Management Area?
    - Comment on vehicle positioning and the need to either adjust traffic control placement as necessary or have un-needed responders leave the scene

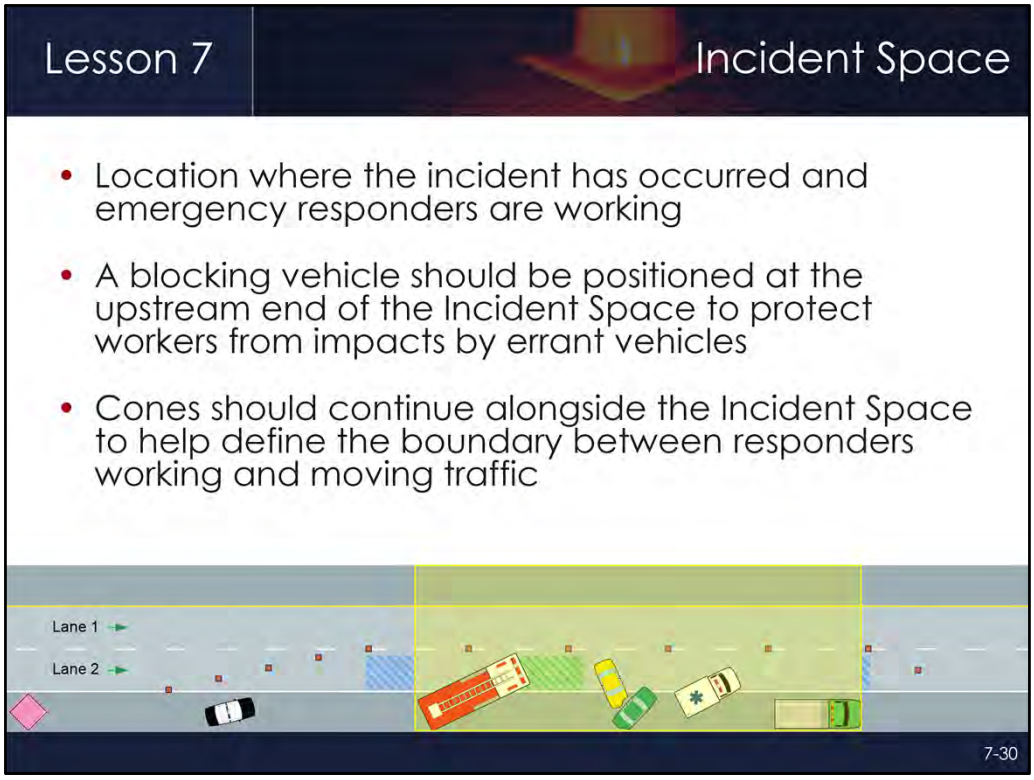


Lesson Objectives: 7.1 and 7.4 | 4-Hour Version Slide: 4H-134

- The Buffer Space covers the distance between the Transition Area and the Incident Space
- In work zone settings, this space is determined based on the stopping sight distance of a vehicle traveling at the posted speed limit
- The buffer space in TIM applications will typically be fairly short due to the limitation of channelizing devices
- When additional resources are available, the buffer should be expanded to accommodate errant vehicles

Lesson Objective: 7.4 | 4-Hour Version Slide: 4H-135

- Lateral buffer space is the area between the incident space and the adjacent travel lane
- Lateral buffer space can be beneficial because it allows for more room for responders to work
- Lateral buffer space can be accommodated through the use of Lane +1 blocking
- Partial lane closures are not recommended because they can confuse drivers and decrease scene safety (photo example)



Lesson Objective: 7.1 | 4-Hour Version Slide: 4H-136

- The Incident Space is also called the work space or activity space in temporary traffic control zone terminology
- Once traffic control devices are in place, the blocking vehicle is positioned at the upstream end of the incident space to protect workers and civilians
- The MUTCD also uses the term shadow vehicle to describe the blocking vehicle
- As outlined in the MUTCD, the blocking (or shadow) vehicle should be positioned a sufficient distance in advance of responders to absorb contact (Illustrated by green area on graphic)
- The distance to the scene should not impede access to responder gear and not allow errant vehicles to travel around the blocking vehicle and re-enter the lane prematurely
- Cone placement alongside the Incident Space can help dissuade premature re-entry

Lesson Objective: 7.1 | 4-Hour Version Slide: 4H-137

- The Termination Area is typically small in TIM applications
- The last channelizing device and/or responder vehicle typically signals the end or termination of the Traffic Incident Management Area
- Paraphrase slide content

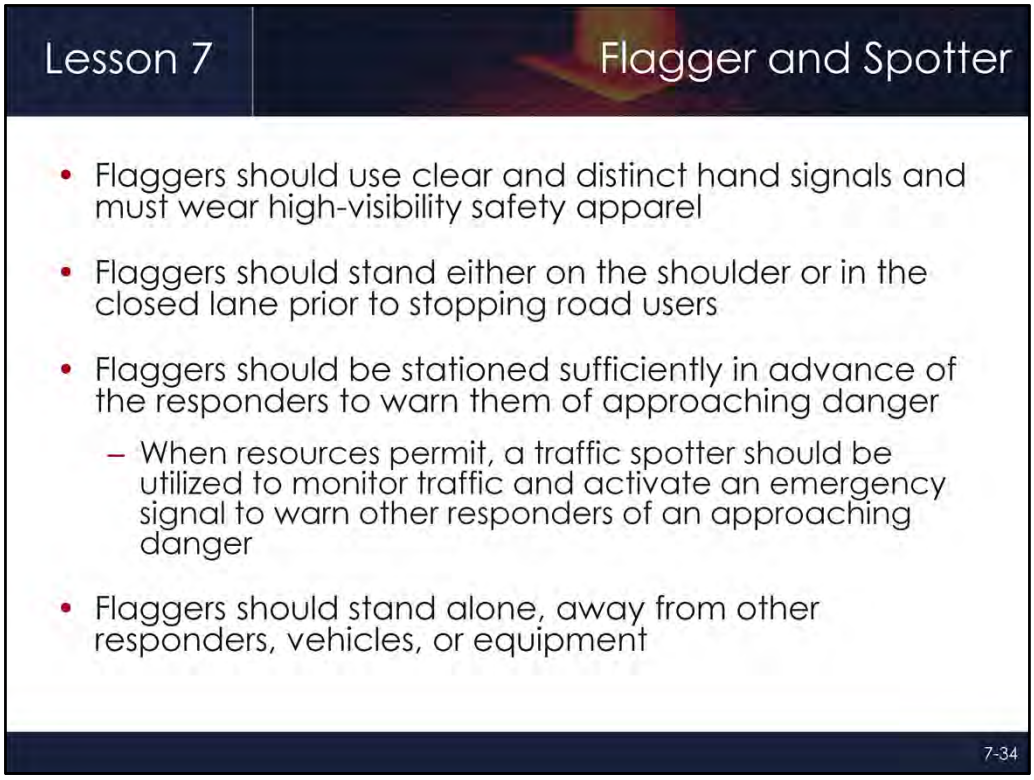
Lesson Objective: --

- Participants can re-cap lessons learned with a student activity
- In this crash, the red car rear-ended the white car and occupants of both cars are complaining of injury

- **Ask/Discuss:** Identify the parts of the Traffic Incident Management Area and as many TIM terms as they can see
    - Upstream, downstream
    - Zero buffer, lateral buffer
    - Angled, multi-lane block
    - Sight distance
    - TTC devices
    - Critical wheel angle
    - Etc.

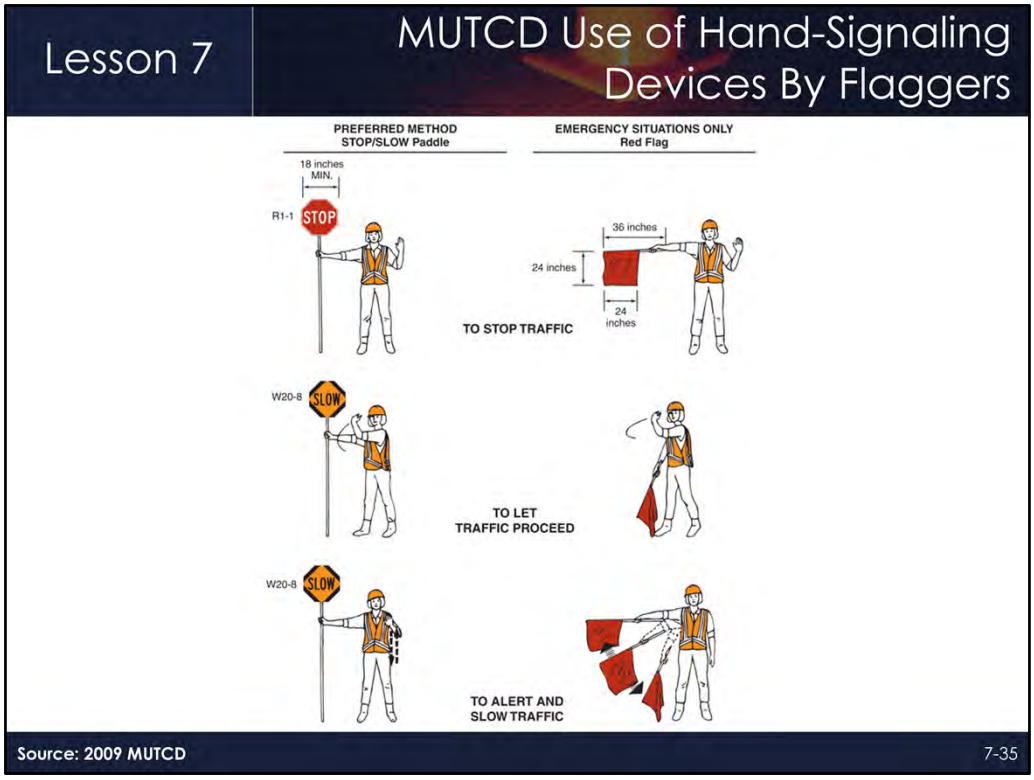
Lesson Objective: --

- **Ask/Discuss:** Are there lateral buffer issues? Sight distance issues? What are the solutions?



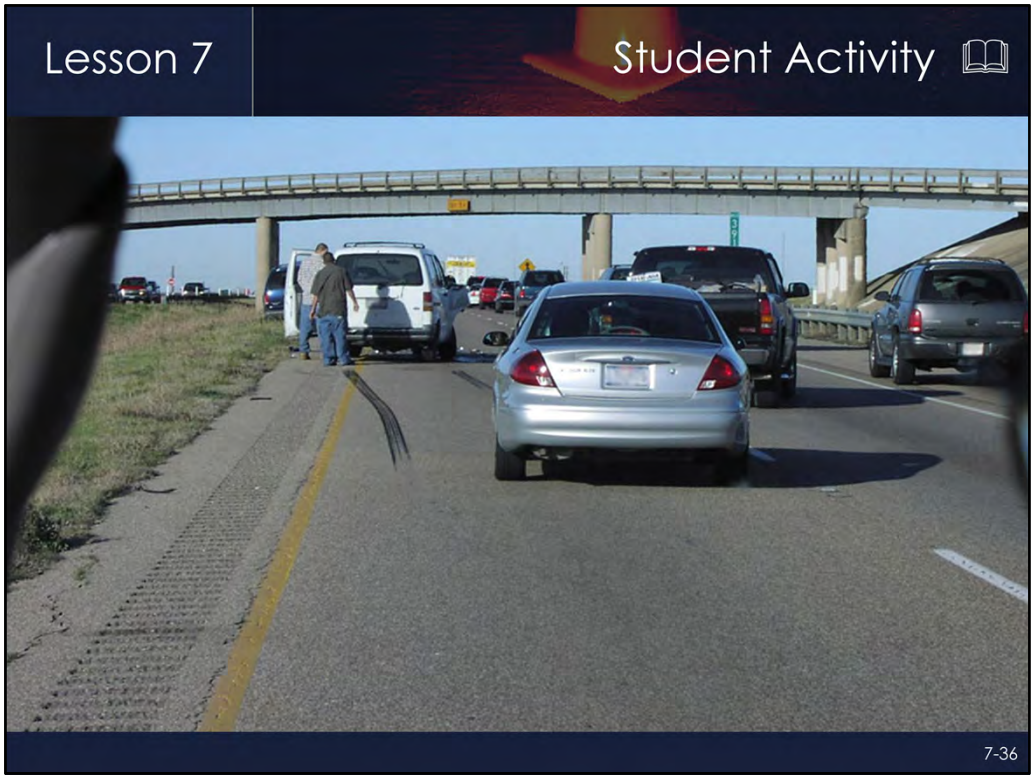
Lesson Objective: --

- Paraphrase slide content
- MUTCD 6I states that if manual traffic control is needed, it should be provided by qualified flaggers or uniformed law enforcement officers
    - Training requirements for being a flagger vary by state



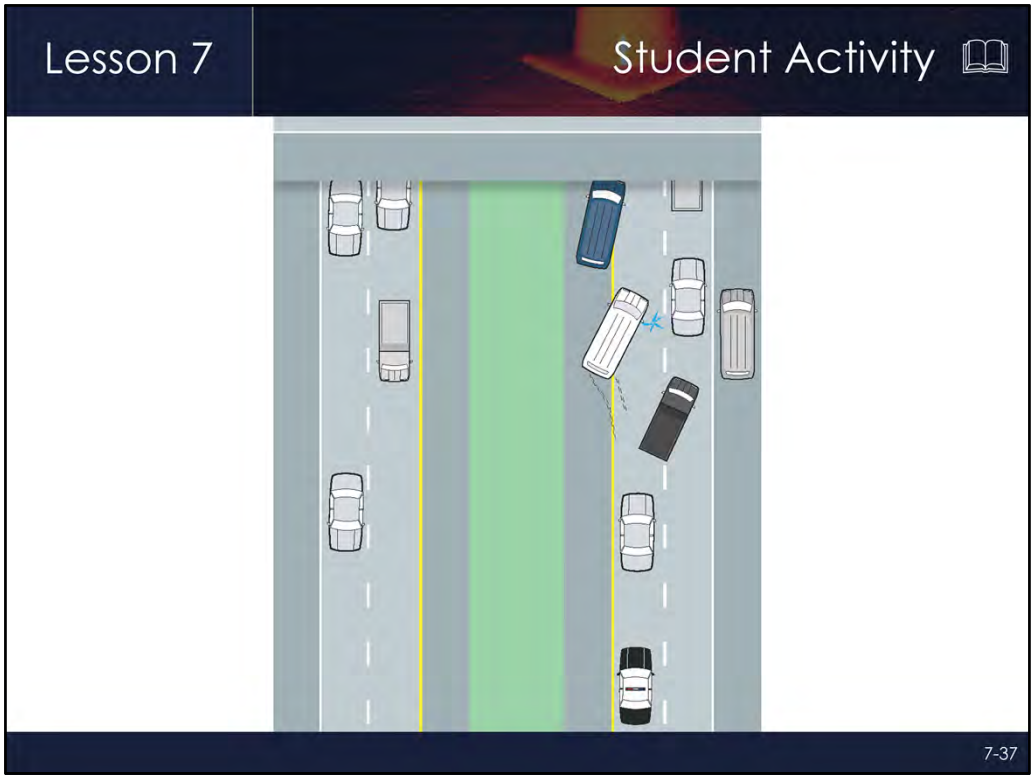
Lesson Objective: --

- MUTCD diagram of flagger operations



Lesson Objective: --

- A two vehicle property damage only crash has occurred on an Interstate highway
  - A white minivan has rear-ended a blue minivan
  - The white minivan is straddling the left lane and inside shoulder
  - A gray Dodge is on the right shoulder; the spouse of one of the parties involved
- **Ask/Discuss:** What is your windshield size-up?
- **Ask/Discuss:** Where would you position your vehicle?
- **Ask/Discuss:** Is this a Move It or Work It incident?



Lesson Objective: --

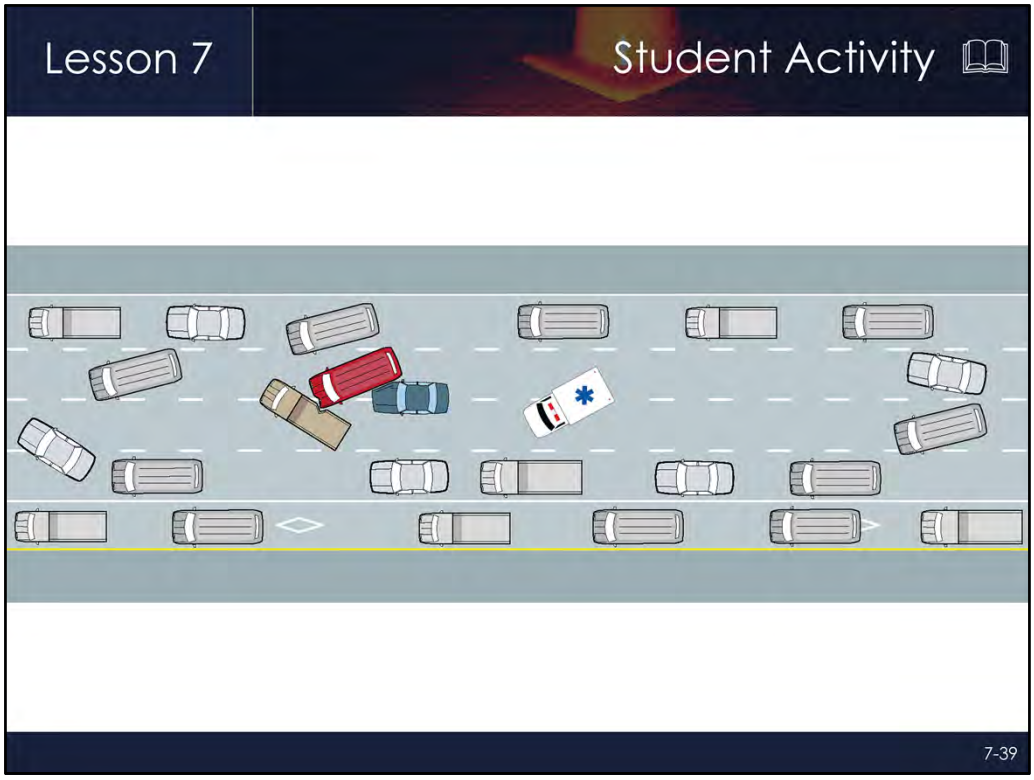
- Here is the same incident from a diagram view
- **Ask/Discuss:** Given all vehicles are drivable, what is the best Traffic Incident Management Area setup?

Lesson Objective: --

- A disabled vehicle is being taken care of by a tower on the inside shoulder
- A law enforcement vehicle has stopped to provide assistance/advance warning

- **Ask/Discuss:** What issues or concerns do you have with this scene?
  - A second law enforcement officer has positioned on the right shoulder
  - A split scene has been created and divided attention for approaching motorists

- **Ask/Discuss:** What implications does this have for Move Over Law compliance?

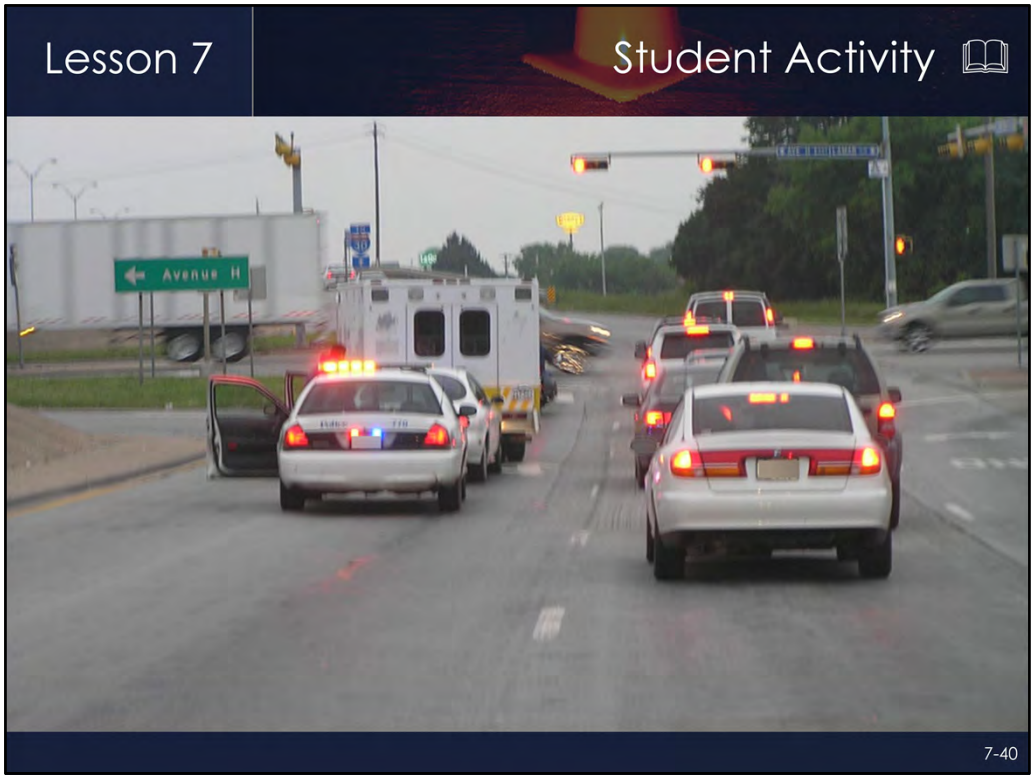


Lesson Objective: --

- **Animation:** Click forward to make EMS vehicle appear

- This scene is the opposite of the split scene, called the 'island', where traffic is passing on both sides
- An island creates two zero buffers

- **Ask/Discuss:** You are an EMS unit and are first to arrive at this scene, where would you position your responder vehicle?
    - Explain that the EMS crew would re-position downstream upon the arrival of the next responder vehicle that blocks upstream of the ambulance



Lesson Objective: --

- A medical incident has occurred at an expressway service road and the intersection with a local street
- EMS and law enforcement are on the scene

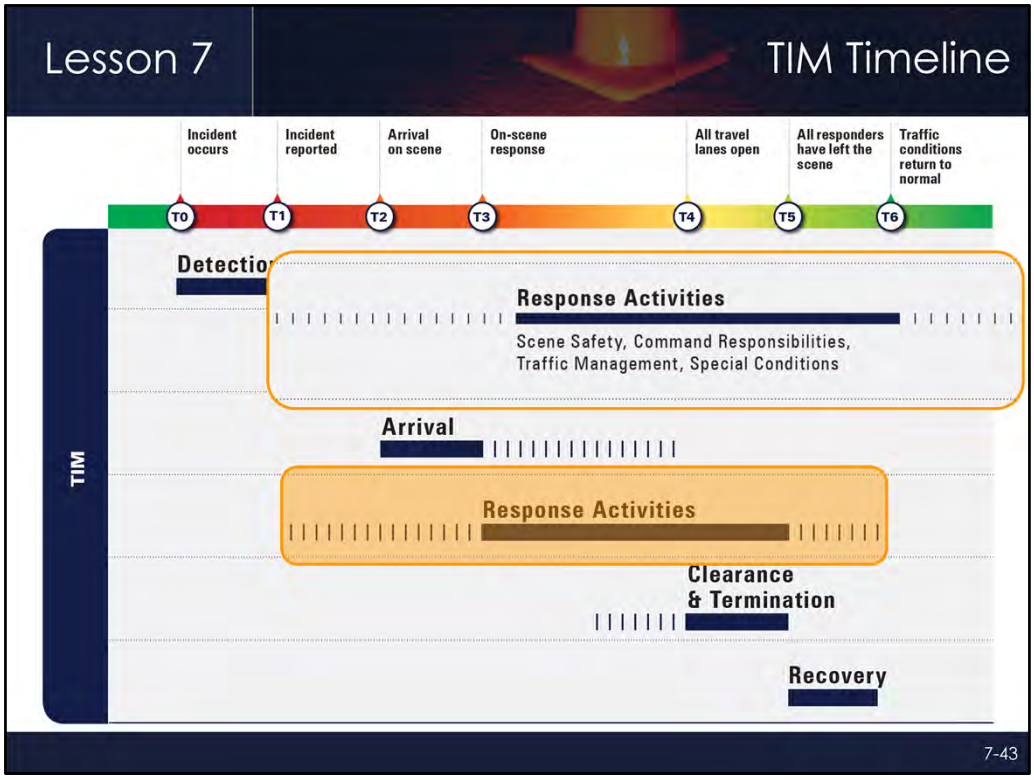
- **Ask/Discuss:** What issues do you see with responder vehicle positioning?

Lesson Objective: --

- **Animation:** Click forward to make red 'crash' shape appear
- Suppose a serious incident occurred in this barrier separated lane on the left, be it an HOV or work zone lane
- A total blockage prevents approach/response from within that lane
- **Ask/Discuss:** How might responders safely access this scene?

Lesson Objective: --

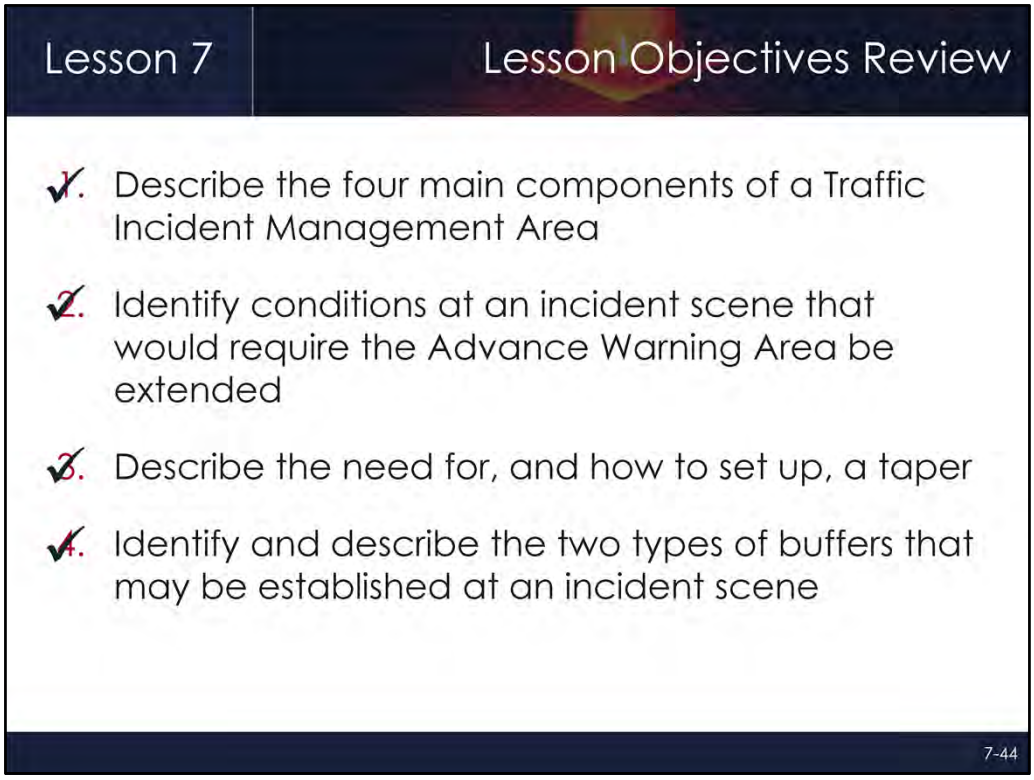
- Roundabouts are an increasingly used type of roadway geometry
- **Ask/Discuss:** How would traffic be controlled in this setting if the incident was in the travel lanes of the roundabout?



TIM Timeline	4-Hour Version Slide: 4H-138

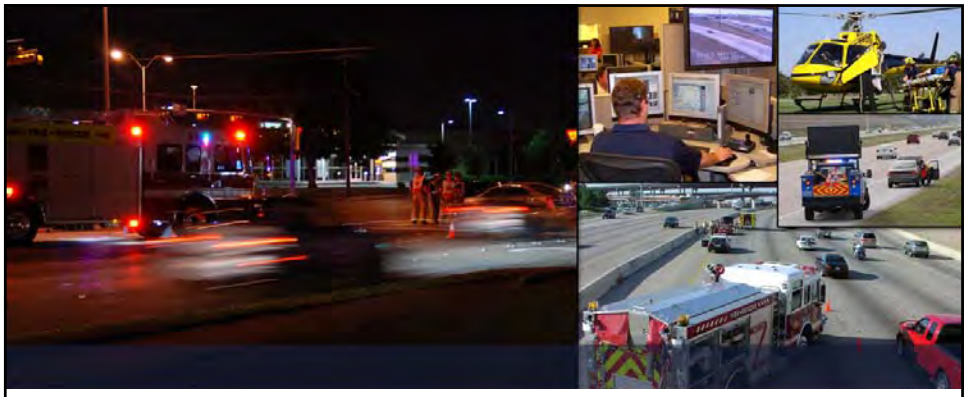
- **Animation:** Click forward to make orange box appear and then click again to bring up detailed view of Response Activities

- **Ask/Discuss:** How does proper traffic management impact the TIM Timeline?
  - Highlight that traffic management activities may occur even before arrival on scene if there is a TMC in the area
    - For example, the TMC may be able to provide advance warning through use of VMS and/or PCMS



Lesson Objectives Review

- **Animation:** Clicking forward reveals the four check marks one at a time
- Review each lesson objective, checking them off as you review them



Lesson 8:
Special Circumstances

8-1

Lesson 8 — Lesson Objectives

At the conclusion of this lesson, participants will be able to:

1. Identify the safety concerns related to responding to an incident involving a vehicle fire
2. Describe how to identify what hazardous material is being transported
3. Recount good practices for responding to an incident involving a vehicle fluid spill
4. Describe the primary goal of a crash investigation and the importance of preserving short-lived evidence
5. Describe the importance of performing response tasks concurrently as it relates to safe, quick clearance

8-2

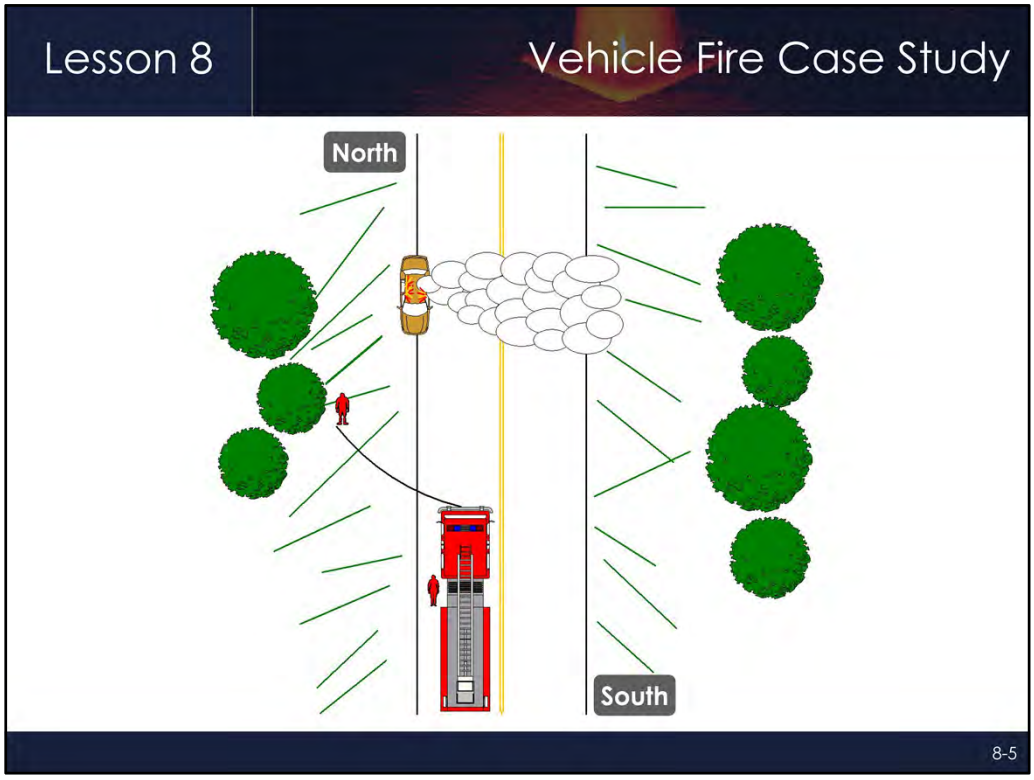
Lesson Objective: 8.1 | 4-Hour Version Slide: 4H-141

- **Video:** L8_V1 - MN Minivan Fire.wmv

- This video highlights the potential dangers encountered at vehicle fires and the need for shutting down additional lanes during vehicle fires
- The first traffic camera perspective shows a burning minivan on the right shoulder of the highway; well involved in fire
    - This is an older Ford minivan with a plastic-type fuel tank
- The second traffic camera view is of the same scene from the opposing direction

Lesson Objective: 8.1	4-Hour Version Slide: 4H-142

- A vehicle fire presents a *danger zone* that surrounds the vehicle
- The danger zone at a vehicle fire specifically includes the area directly in front of or behind the burning vehicle where projectiles 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



Lesson Objective: 8.1

- Incident details are as follows:
  - Volvo sedan has caught fire and is positioned along the right shoulder of the highway
  - The engine compartment is fully involved
  - The fire department engine company positions in the same lane of traffic but facing the opposing direction and obstructed by smoke from the vehicle

- **Ask/Discuss:** In regard to scene set up at this vehicle fire, what could have or should have been done differently?

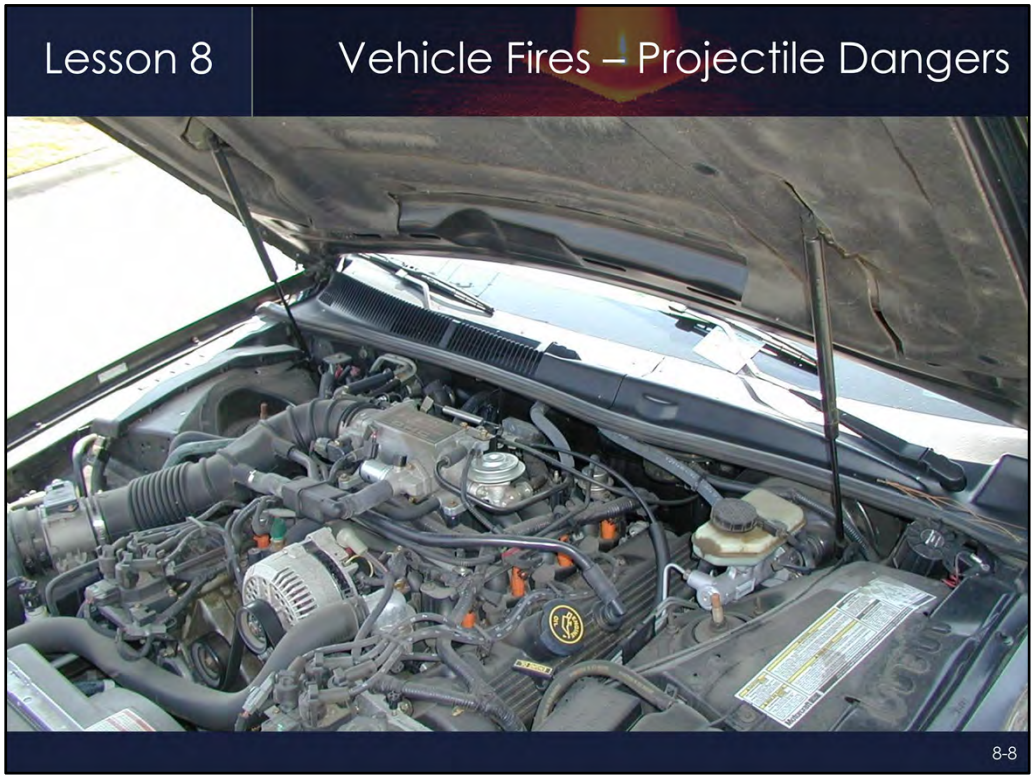
Lesson Objective: 8.1	4-Hour Version Slide: 4H-143

- **Video:** L8_V2 - FL Vehicle Fire.wmv

- This video is of the incident explained in the graphic on the previous slide
- Explain that the explosion that occurs is the energy-absorbing bumper piston from the vehicle's front bumper
- This video underscores how critical it is to keep personnel out of the danger zone directly in front of or directly behind a burning vehicle

Lesson Objective: 8.1

- Image of an energy-absorbing bumper piston launching off a well-engulfed Volvo sedan
- Hydraulic pistons, exposed to heat under the right conditions, may violently explode and propel loose parts off the vehicle
- The entire bumper may even detach itself and move a considerable distance away from the vehicle
- These bumper pistons are mainly used on older cars, but similar pistons are now used to support hoods, hatchbacks, lift gates, and trunks



Lesson Objective: 8.1

- Fluid-filled, hydraulic piston units used to hold open this hood would be compressed and in a horizontal position when the hood is closed
- If overheated, they are likely to fly forward during an engine compartment fire

Lesson Objective: 8.1

- **Animation:** Click once to make the two red circles appear, click again to make second picture appear

- Roseville, MN firefighters had just brought a vehicle fire under control
- Upon opening the hood, the hood struts failed and shot straight into a garage door where they became impaled

Lesson Objective: 8.1

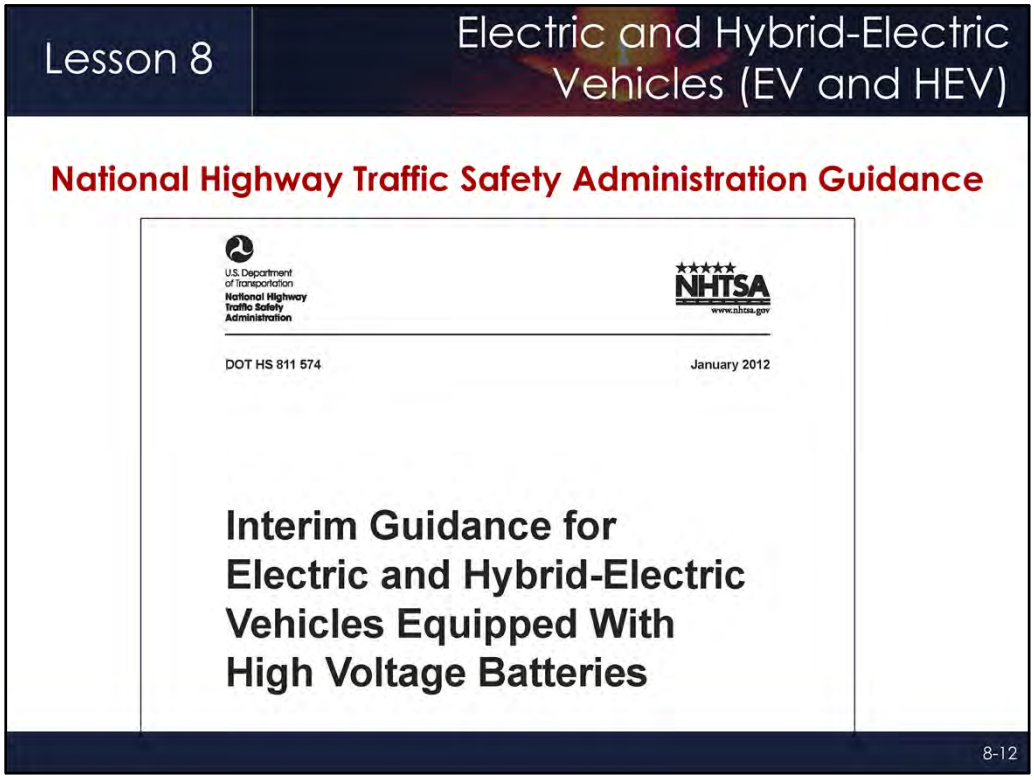
- A burning vehicle should be approached from a vantage point other than the front or rear of the vehicle
  - It presents the greatest risk if a bumper system component or other type of pressurized component should rupture and launch off the vehicle
  - In general, any approach to a burning vehicle should be conducted from an uphill, upwind, and off-angle approach

Lesson Objective: 8.1	4-Hour Version Slide: 4H-144

- **Video:** L8_V3 - WI Vehicle Fire.wmv

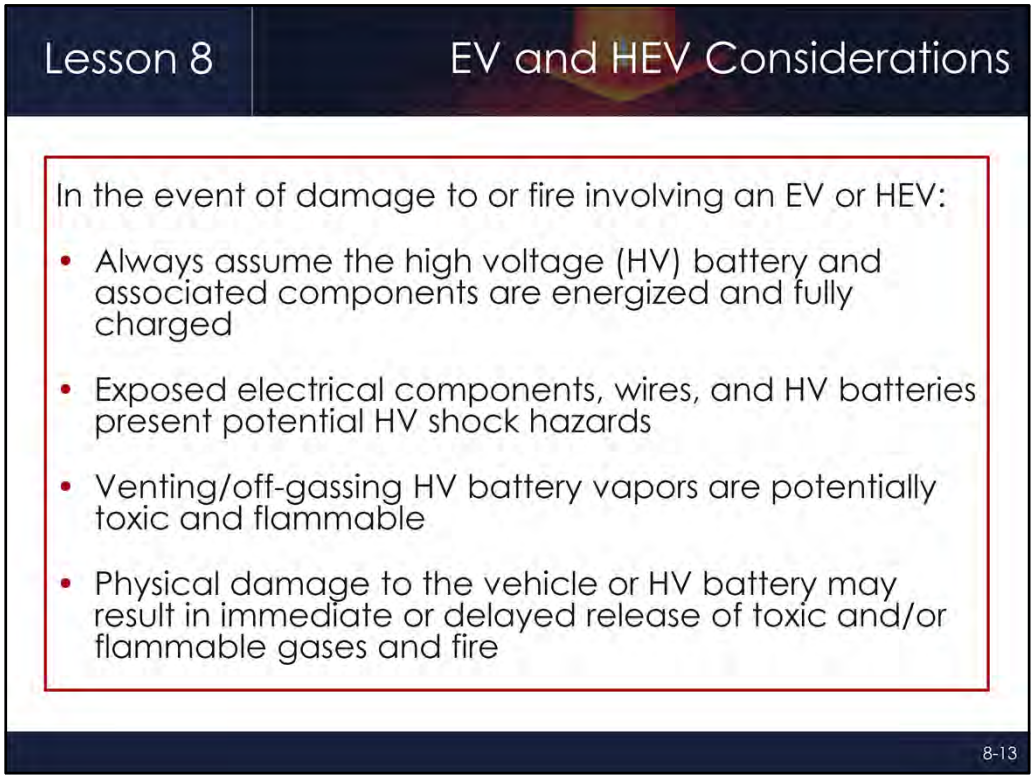
- **Ask/Discuss:** What safety concerns did you identify in this video?
  - Safety implications of providing no traffic control during firefighting activities
  - Fire department pump operator exposed to upstream traffic
  - Limited sight distance due to drifting smoke
  - Individual walking on downstream side of smoke screen
  - Burning vehicle danger zone
  - Rubbernecker drivers in the opposing lanes of traffic

- It is oftentimes better to close more lanes while the fire is being extinguished



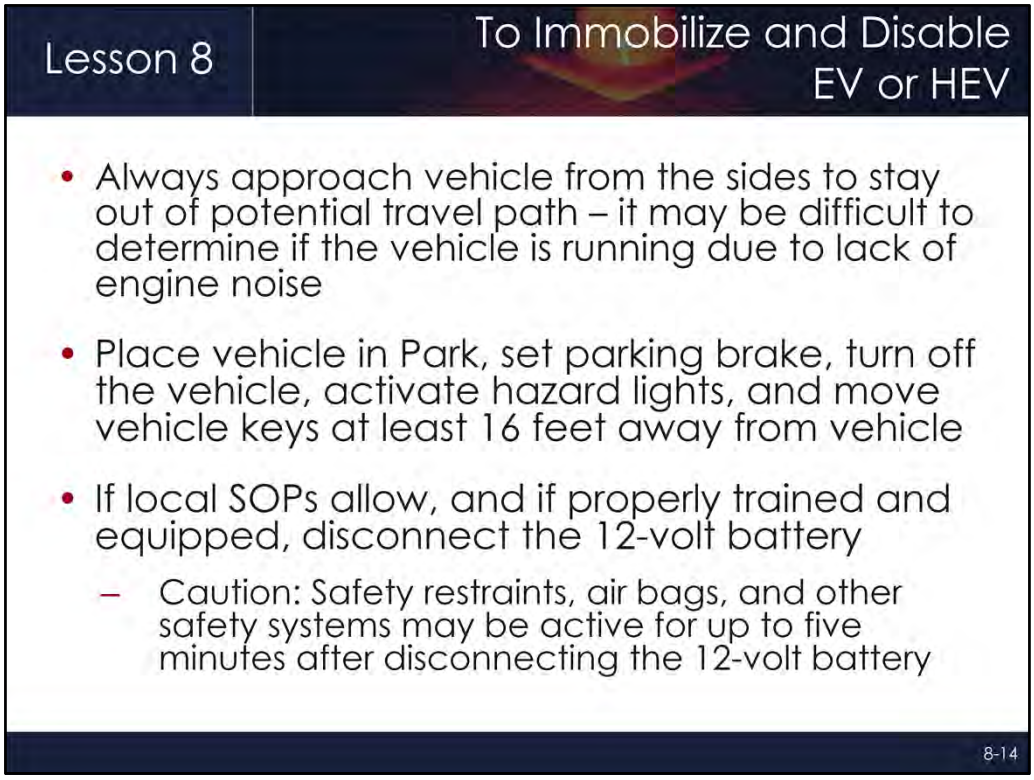
Lesson Objective: --	4-Hour Version Slide: 4H-145

- The National Highway Traffic Safety Administration (NHTSA) has published interim guidance for all responder disciplines when dealing with electric and hybrid-electric vehicles
- It is intended to serve as a general reference for vehicle operators and responders when confronted with a hybrid or electric plug-in disabled vehicle, crash, or fire incident
- Individual sections of the document are specifically written for firefighters, medical personnel, law enforcement officers, and tow operators with each section providing specific instructions to that responder discipline
- The NHTSA interim guidance document is free and downloadable at:
  - http://www.nhtsa.gov/



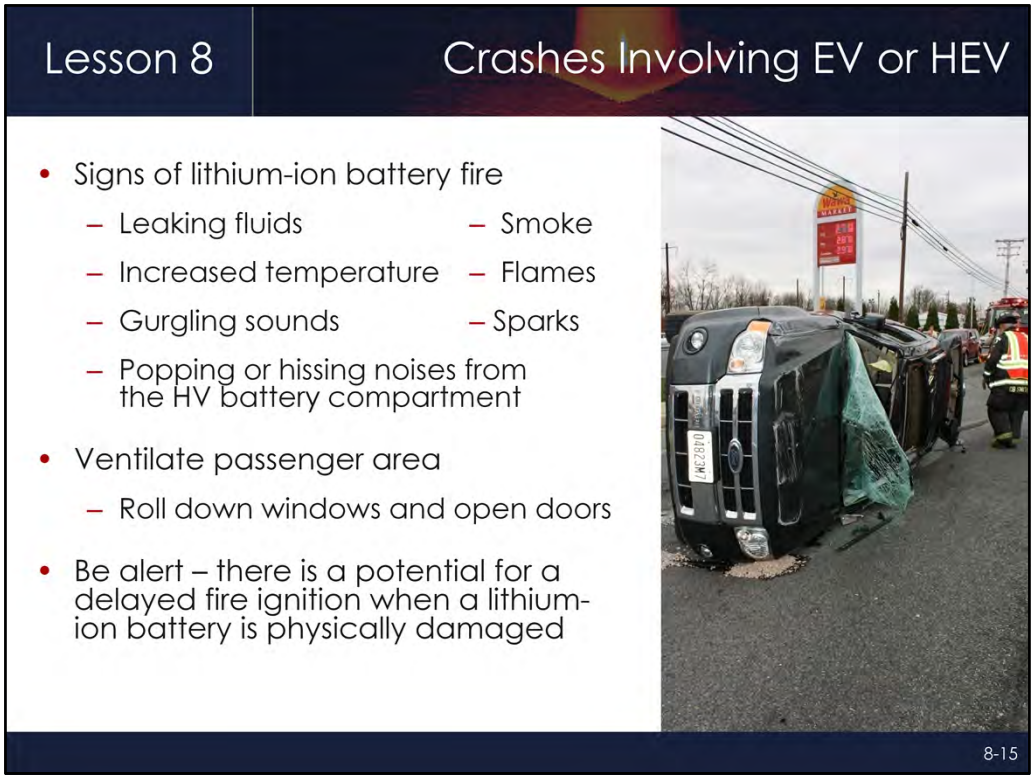
Lesson Objective: --

- The NHTSA Interim Guidance document highlights these important considerations for responders at an incident involving a disabled vehicle
- As mentioned, individual sections guide different responder groups – each has a red box that highlights safety considerations similar to the one presented on the slide



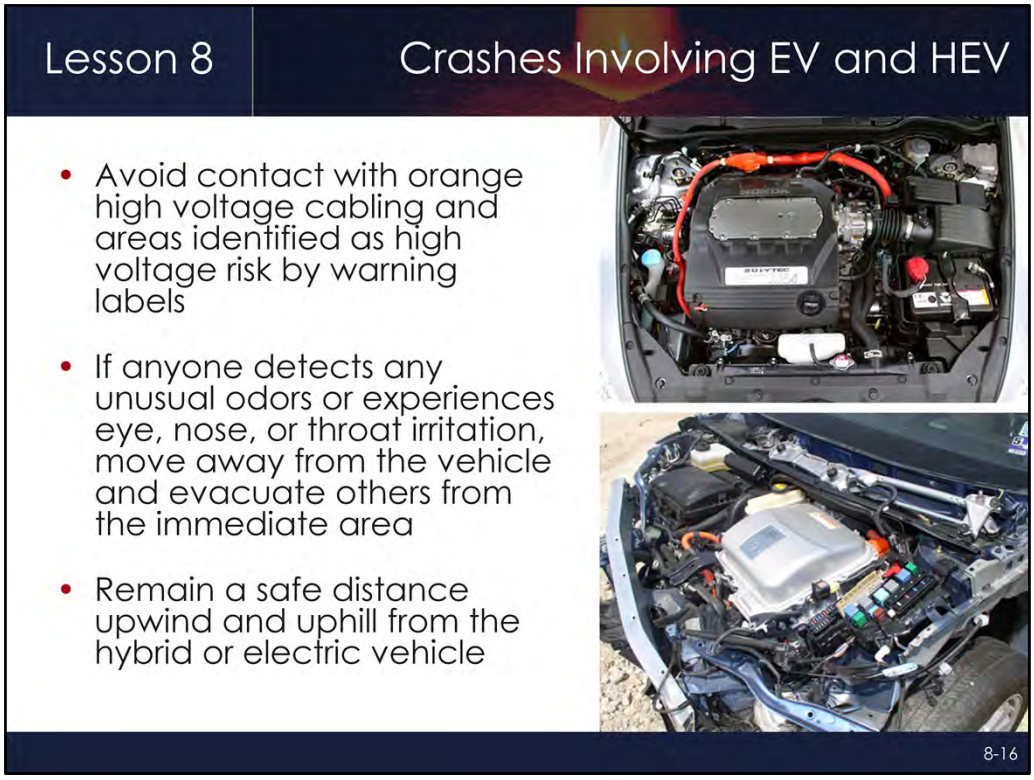
Lesson Objective: --

- Review the NHTSA Interim Guidance document best practices for immobilizing and disabling an EV or HEV



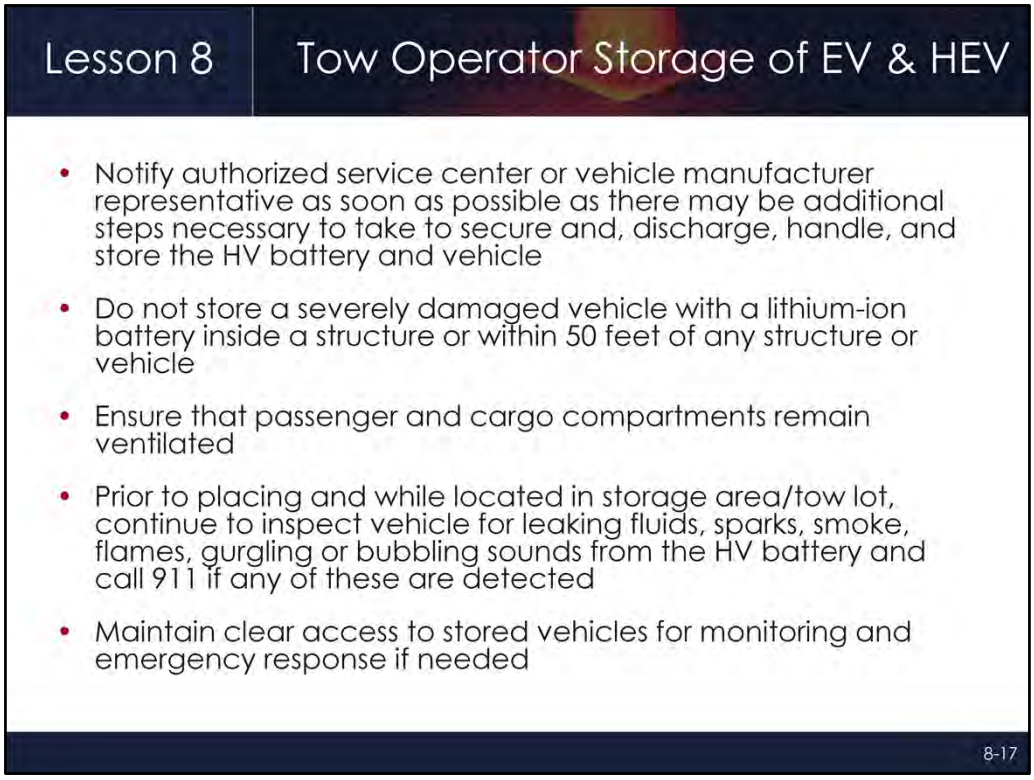
Lesson Objective: --

- Emphasize that local standard operating procedures (SOPs) for personal protection and safety should always be followed when responding to a crash that involves EV or HEV



Lesson Objective: --

- Paraphrase slide content

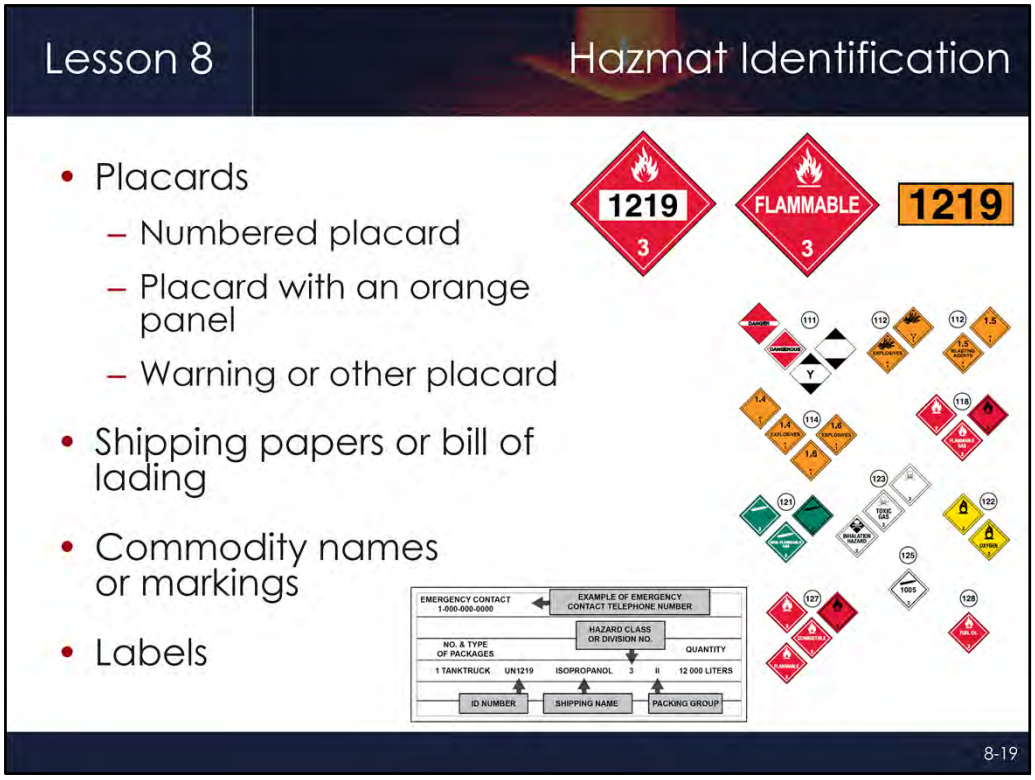


Lesson Objective: --

- Paraphrase slide content

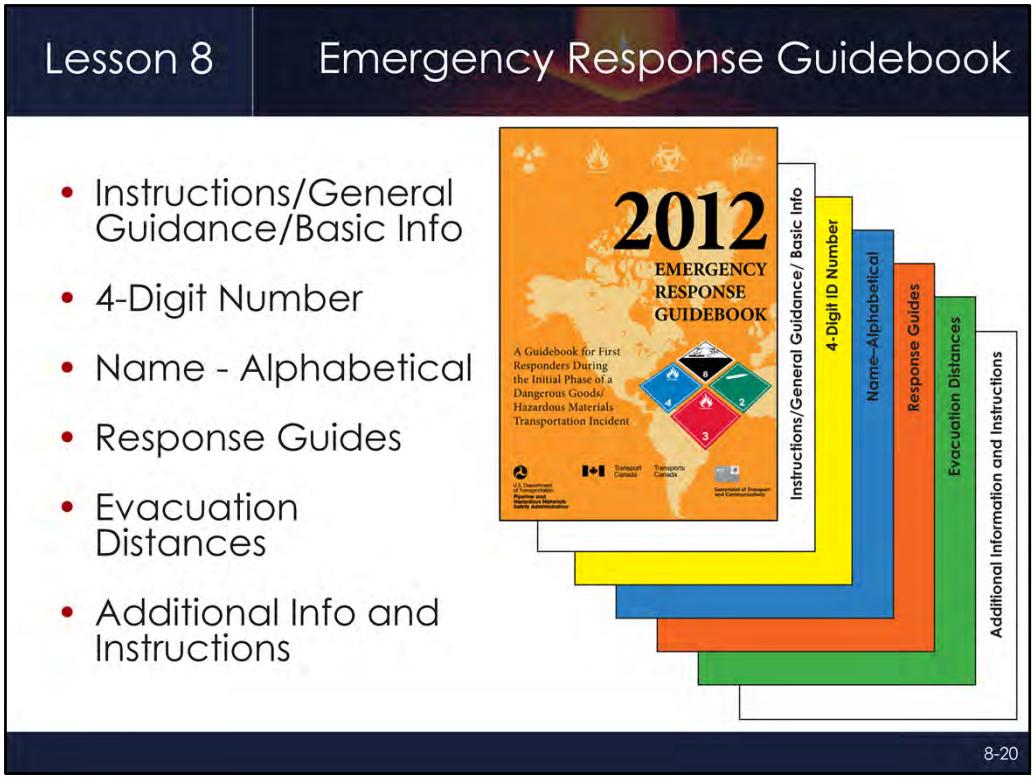
Lesson Objective: 8.2

- Recognize that most participants in this class have received hazmat training prior to this program
- 29 CFR 1910.120 is an OSHA regulation that went into effect in the 1980s that requires transportation workers (which includes responders) be trained in hazmat
- The purpose of this section of Lesson 8 is simply to discuss hazmat as it relates to TIM and provide a brief refresher



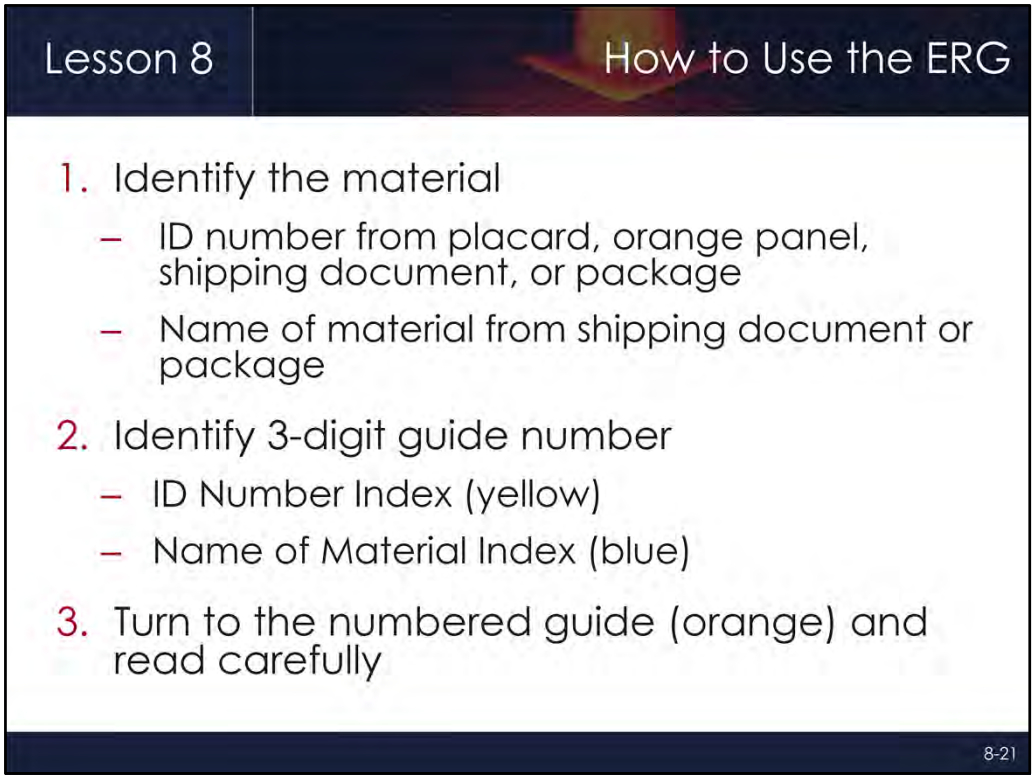
Lesson Objective: 8.2	4-Hour Version Slide: 4H-146

- Placards are the most familiar way to identify hazardous materials that are being transported
- The 4-digit ID Number may be shown on the diamond-shaped placard or on an adjacent orange panel displayed on the ends and sides of a cargo tank, vehicle or rail car
- Shipping papers, bill of lading, labels, names, and other markings can also help identify hazmat
- Shipping documents (papers) are synonymous and can be found as follows:
  - Road – kept in the cab of a motor vehicle
  - Rail – kept in possession of a crew member
- Shipping documents (papers) provide the vital information regarding the hazmat/dangerous goods needed to initiate protective actions



Lesson Objective: 8.2	4-Hour Version Slide: 4H-147

- The Emergency Response Guidebook (ERG) is an excellent resource for all incident responders
- The ERG is divided into sections, based on the color of the pages
  - White pages in the front of the book
    - Instructions / General Guidance / Basic Info
  - Yellow pages
    - 4-Digit ID Number
  - Blue pages
    - Name - Alphabetical
  - Orange pages
    - Actual response guides (more than 170)
    - In the event of an unknown material, Guide #111 should be followed
  - Green pages
    - Suggests initial evacuation or shelter in place distances for spills of materials that are Toxic-by-Inhalation
  - White pages in the back of the book
    - Additional instructions and information on protective clothing and equipment
- Electronic versions of the ERG, computer software, and mobile applications are also available



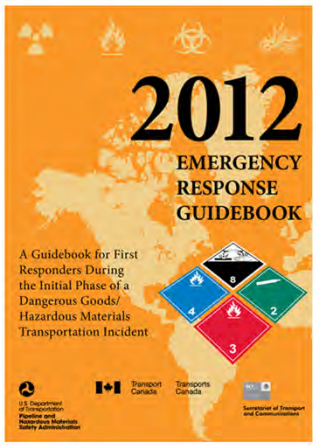
Lesson Objective: 8.2 | 4-Hour Version Slide: 4H-148

- Step One: identify the material and use any of the following:
  - Identification number (4-digit ID) from a:
    - Placard
    - Orange panel
    - Shipping document or package
  - Name of the material from a:
    - Shipping document or package
- Step Two: identify 3-digit guide number, use:
  - ID Number Index in yellow-bordered pages or
  - Name of Material Index in blue-bordered pages
  - Guide number supplemented with the letter (P) indicates that the material may undergo violent polymerization
  - Index entries highlighted in green are a toxic inhalation hazard (TIH) material
  - If a reference to a guide cannot be found and this incident is believed to involve dangerous goods:
    - Use Guide 111, until additional information becomes available
    - Use Guide 112, Explosives (other than 1.4 and 1.6)
    - Use Guide 114, Explosives (1.4 and 1.6)
- Step Three: Turn to the numbered guide (the orange-bordered pages) READ CAREFULLY

Lesson 8 | Student Activity

Hazmat Placard Review Activity

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



8-22

Lesson Objective: 8.2

- **Possible Handout:** Several copies of the ERG should be available to class participants for student activity

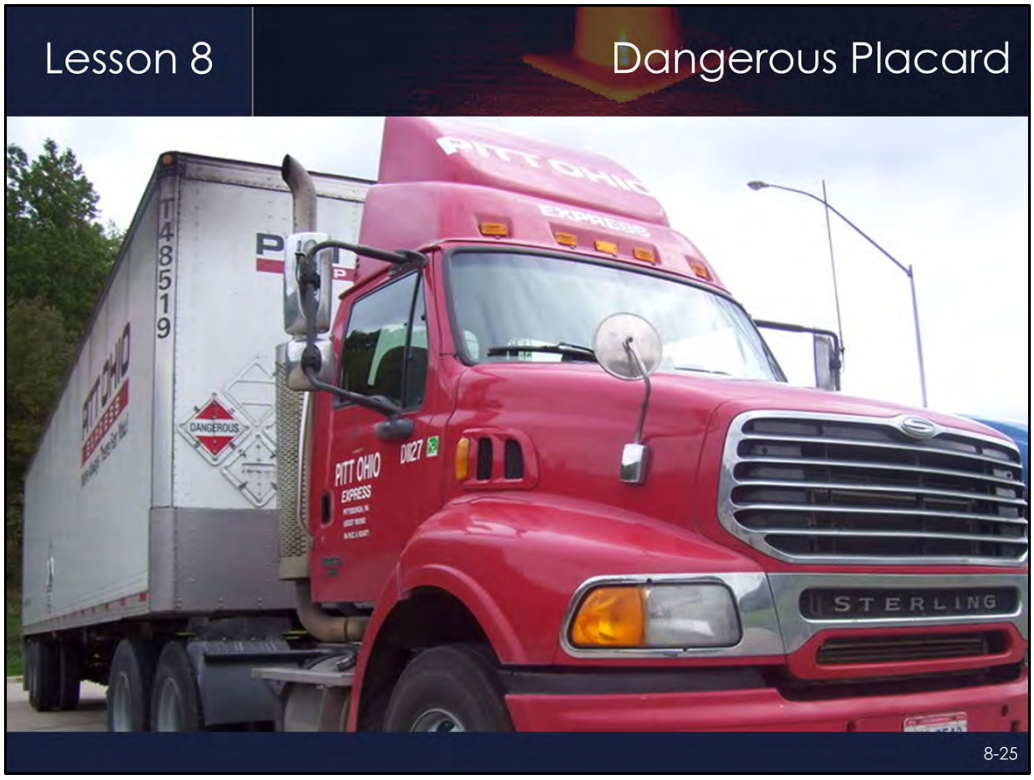
- **Ask/Discuss:** What would the 4-digit number or symbol on the placard mean to you if you came upon them at an incident?

Lesson Objective: 8.2	4-Hour Version Slide: 4H-149

- UN Number 1993:
  - Placard is a Class 3 – Flammable and Combustible Liquids
  - Appropriate response guide is number 128 (ERG page 194, 2012 Edition)
  - Possible substances listed in the ERG are:
    - Combustible liquid, n.o.s. (not otherwise specified)
    - Cleaning liquid
    - Tree or weed killing liquid
    - Diesel fuel
    - Flammable liquid, n.o.s.
    - Fuel oil
- Discuss initial precautions and actions found in ERG

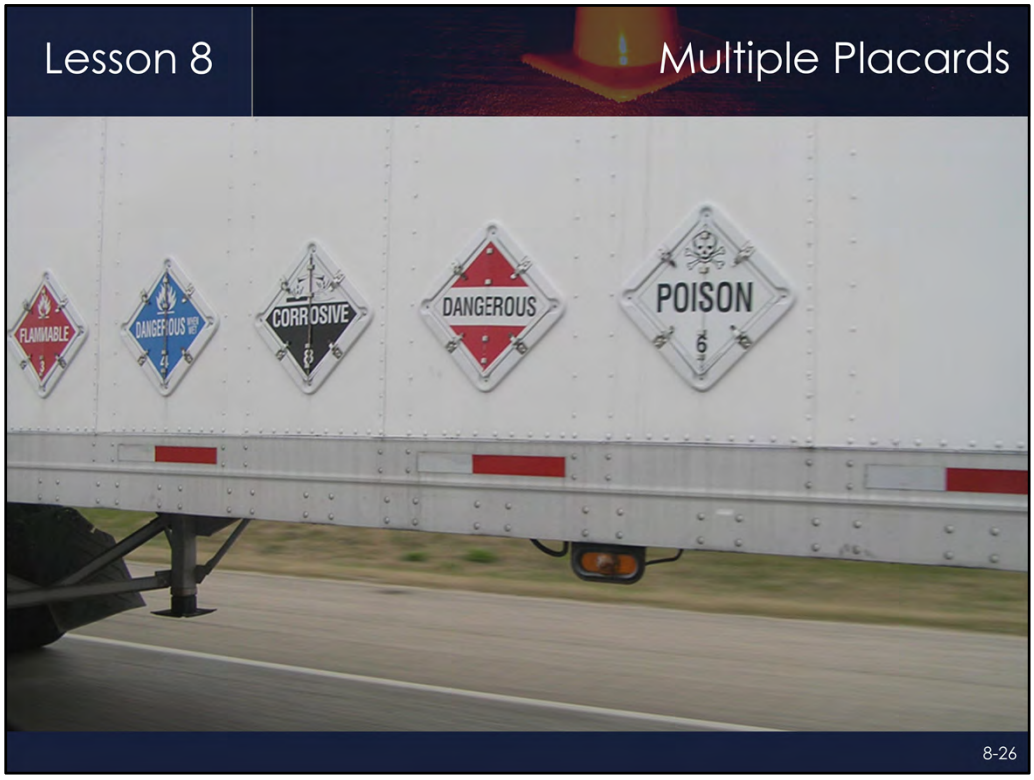
Lesson Objective: 8.2

- UN Number 3082:
  - Placard is a Class 9 – Miscellaneous
  - Appropriate response guide is number 171 (ERG page 280, 2012 Edition)
  - Possible substances listed in the ERG are:
    - Environmentally hazardous substances, liquid, n.o.s.
    - Hazardous waste, liquid, n.o.s.
    - Other regulated substances, liquid, n.o.s.
- Discuss initial precautions and actions found in ERG



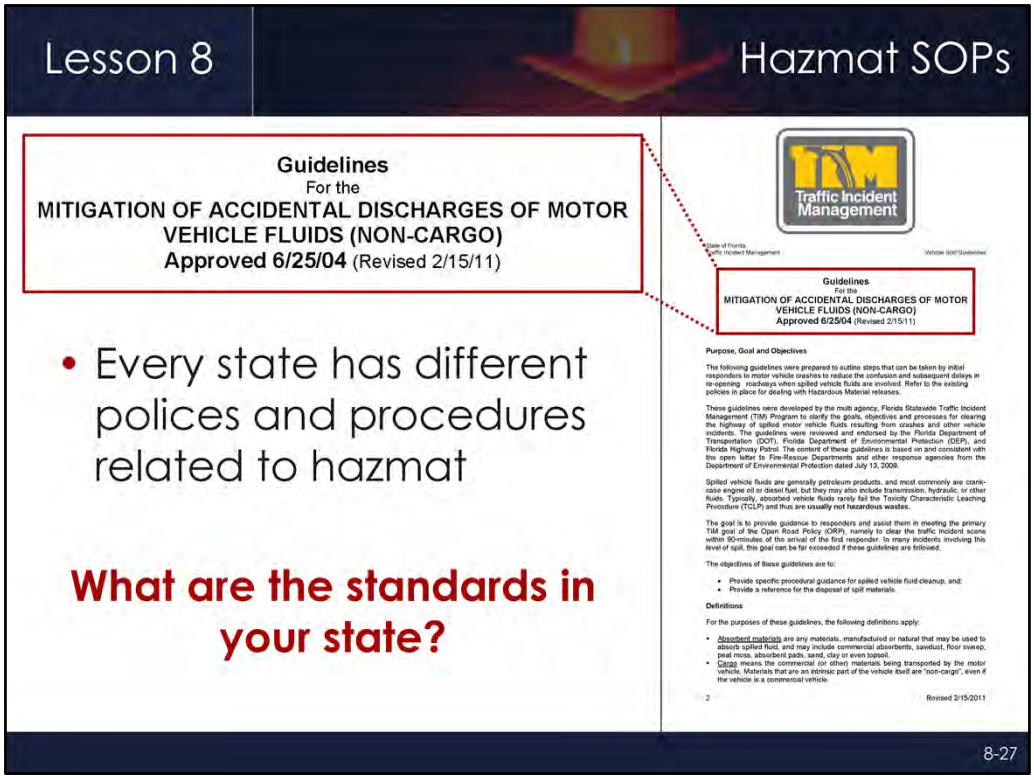
Lesson Objective: 8.2	4-Hour Version Slide: 4H-150

- Dangerous Placard:
  - Appropriate response guide is number 111 (ERG page 160, 2012 Edition)
- Reiterate that a dangerous placard can be utilized by trucks carrying multiple, non-bulk packages of hazardous materials



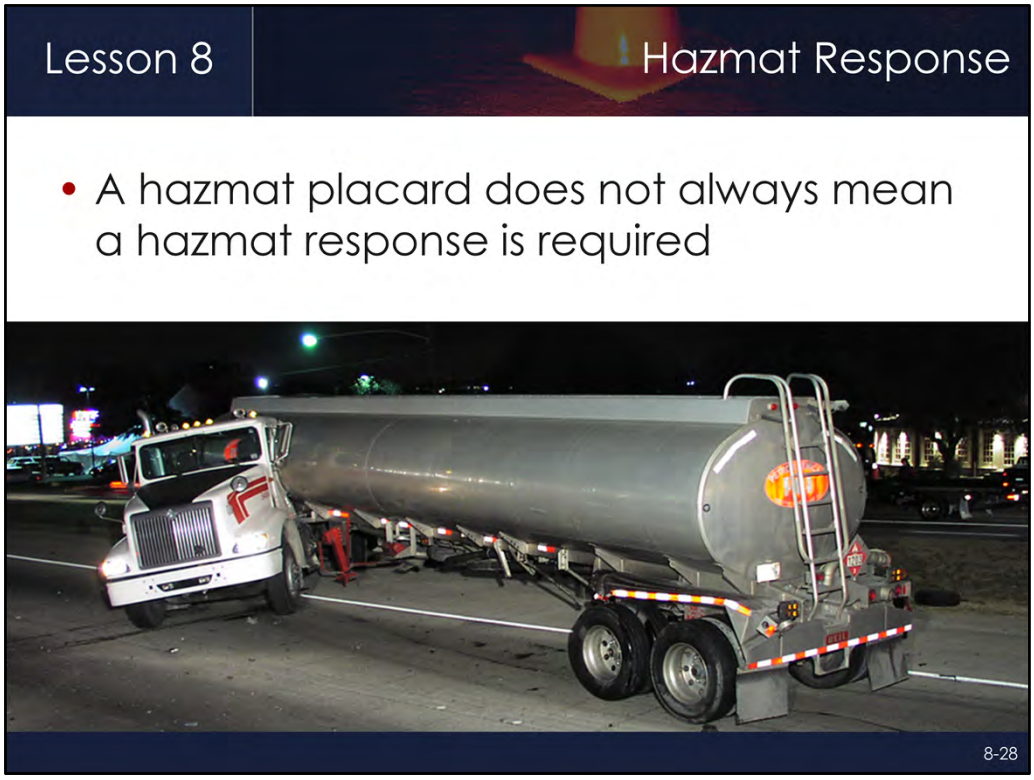
Lesson Objective: 8.2

- Poison 6 Placard – Poison (Toxic) and Poison Inhalation Hazard:
  - Appropriate response guide is number 153 (ERG page 244, 2012 Edition)
- Dangerous Placard:
  - Appropriate response guide is number 111 (ERG page 160, 2012 Edition)
- Corrosive 8 Placard:
  - Appropriate response guide is number 153 (ERG page 244, 2012 Edition)
- Dangerous 4 Placard – Flammable Solid, Spontaneously Combustible and Dangerous When Wet:
  - Appropriate response guide is number 139 (ERG page 216, 2012 Edition)
- Flammable 3 Placard – Flammable Liquid and Combustible Liquid:
  - Appropriate response guide is number 127 (ERG page 192, 2012 Edition)



Lesson Objective: 8.3	4-Hour Version Slide: 4H-151

- Each state defines reportable quantities for hazardous materials so ensure that participants are fully aware of the reportable amounts in the state
- Agencies should be capable of the following actions when hazardous materials are involved in a traffic incident:
  - Identify reportable quantities
  - Determine what response is required
  - Understand the capabilities of local responders
  - Have appropriate policies developed and put in place in advance of a hazmat incident

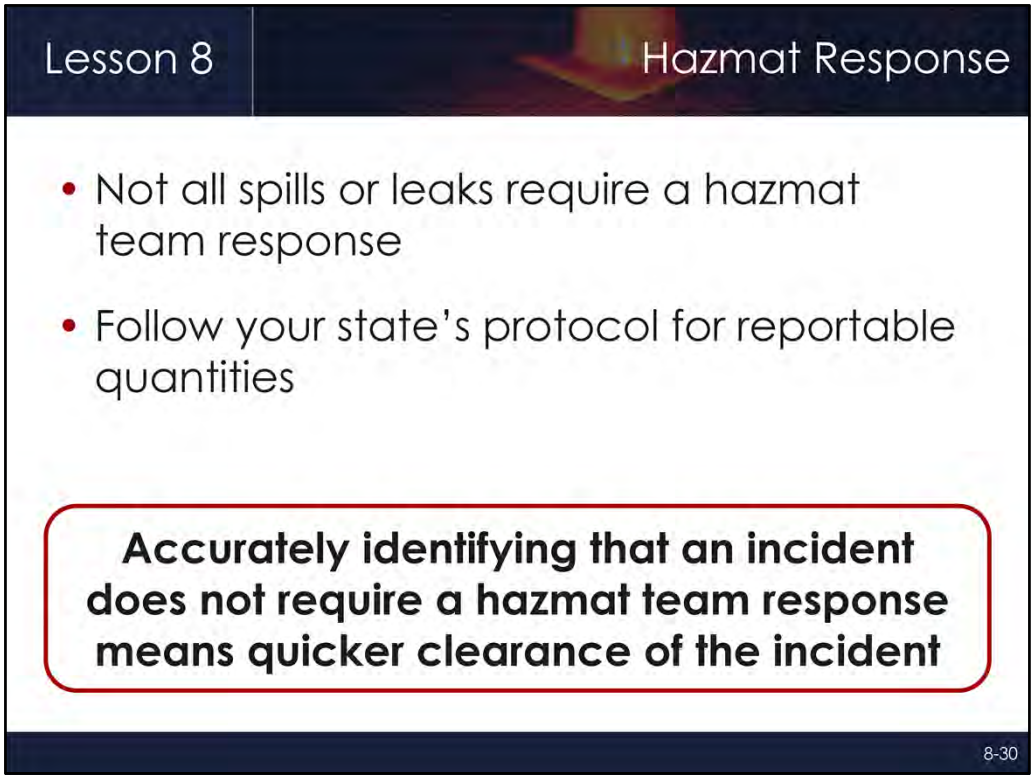


Lesson Objective: 8.3

- Not all incidents involving the transportation of hazardous materials are hazardous material incidents
- For example, although this vehicle has a hazmat placard, if there is no damage to the tank and nothing is leaking, it is unlikely that a hazmat response would be required

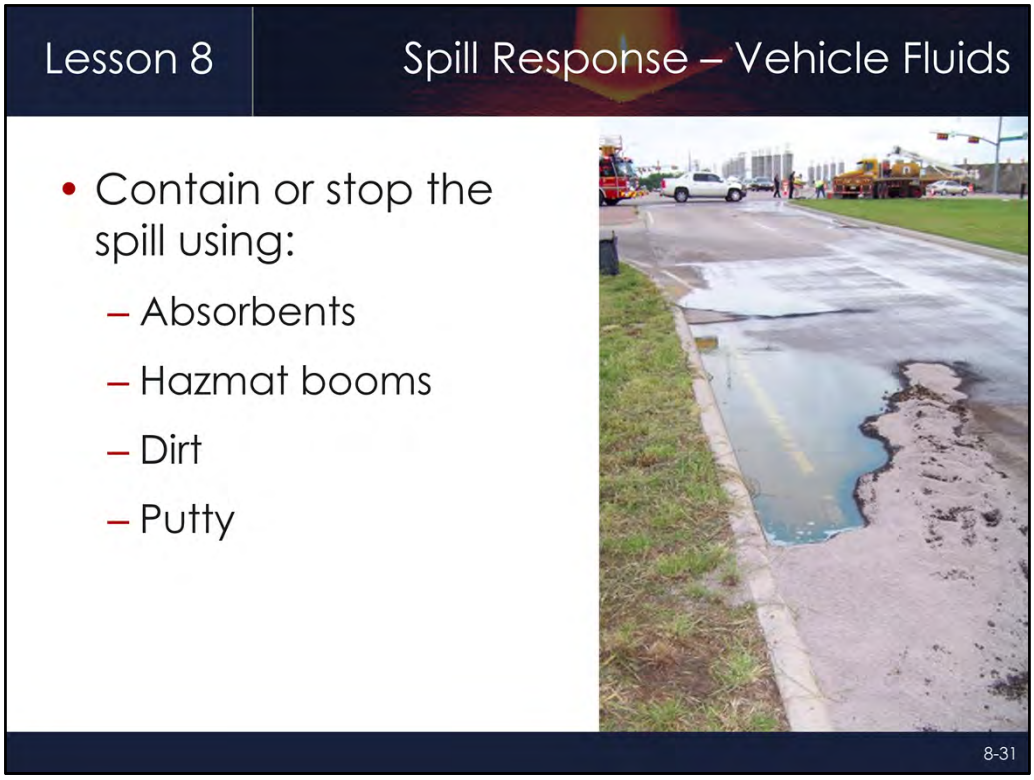
Lesson Objective: 8.3

- It is the responsibility of on-scene responders to determine what is leaking, and whether it requires a hazmat team response
- Query the participants to determine knowledge of the potential fluid leaks from the front of this vehicle including:
    - Red liquid – transmission fluid
    - Green liquid – antifreeze solution
    - Clear liquid – battery acid or windshield washer fluid
    - Brownish/Greenish liquid – vehicle fuel



Lesson Objective: 8.3 | 4-Hour Version Slide: 4H-152

- Responders should limit themselves to working on spills or leaks of a magnitude that are within their capabilities and training
  - Operations-level or Technician-level
- Dedicated hazmat teams should be called in to deal with those incidents which fall outside of the capabilities of on-scene responders



Lesson Objective: 8.3

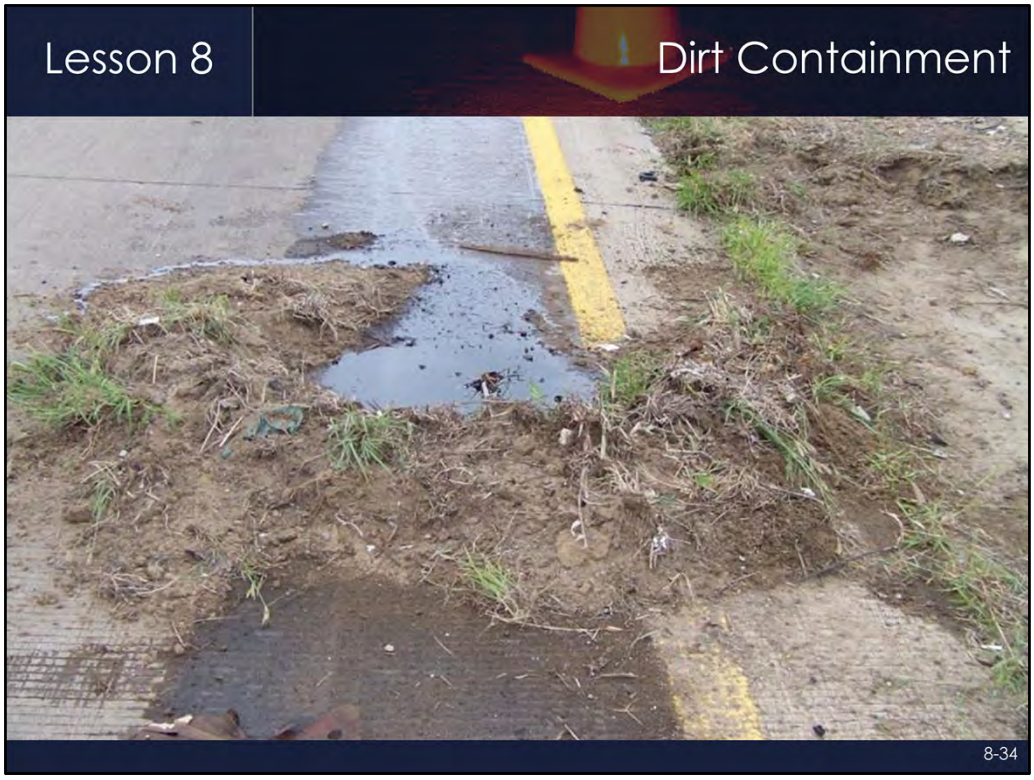
- Liquids used to power a vehicle are called motive fuels
- Operations-level qualified hazmat on-scene responders with proper staffing, equipment, and resources may be capable of taking prompt corrective action to:
  - Stop the spill at its source, or contain and limit the size of the spill
  - Limit the damage to the roadway pavement surface
  - Prevent any flammable material from reaching an ignition source
- Containing a spill with materials such as dirt scooped up from the side of the highway to dike the area can be a very effective temporary and initial tactic
- Containing a leak with absorbent material, hazmat booms or buckets, or using putty to plug a leak are also typical techniques used by hazmat trained responders

Lesson Objective: 8.3	4-Hour Version Slide: 4H-153

- Discuss the general steps in the process of dealing with motive fuels

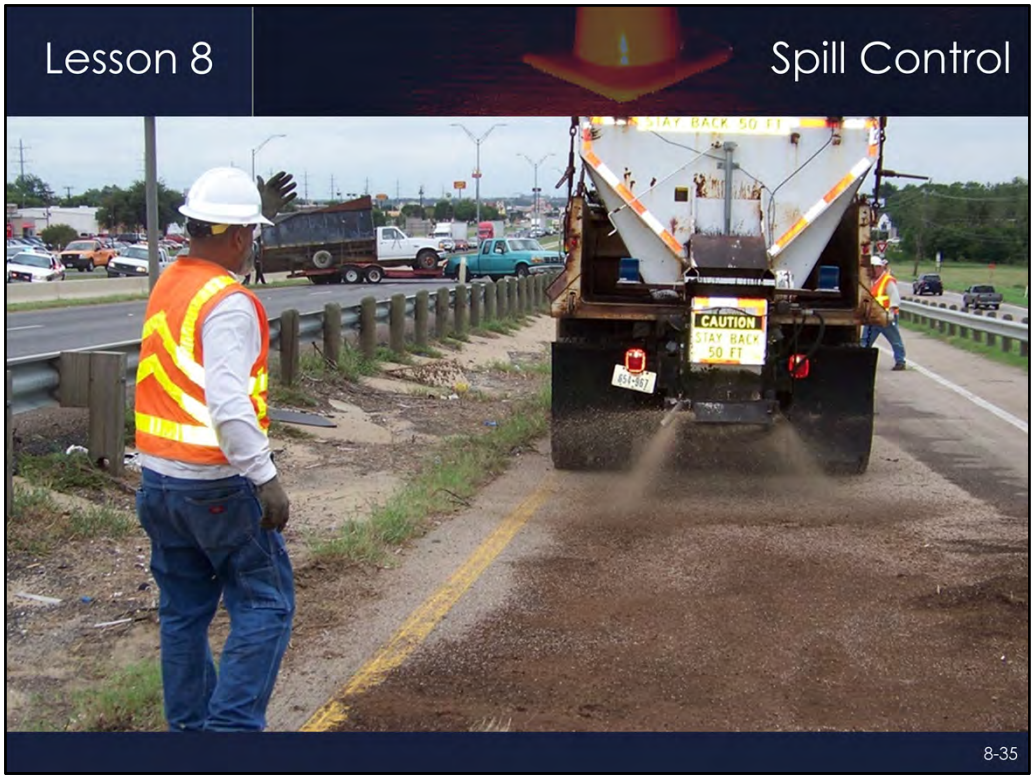
Lesson Objective: 8.3

- Material applied over a spilled liquid of any kind serves to:
  - Absorb the fluid so it can be taken away
  - Provide traction for motorists so they can use the roadway
- In the photograph dirt is being applied for the purposes of absorbing the spilled fuel



Lesson Objective: 8.3

- In this example, responders improvised and used dirt from the side of the highway to make a dike to stop a large quantity of leaking vehicle fuel from spreading
- Recall that such material becomes contaminated and should be disposed of properly



Lesson Objective: 8.3

- A dry, granular material is being applied to a highway off-ramp by a transportation department crew for the purposes of providing vehicle traction

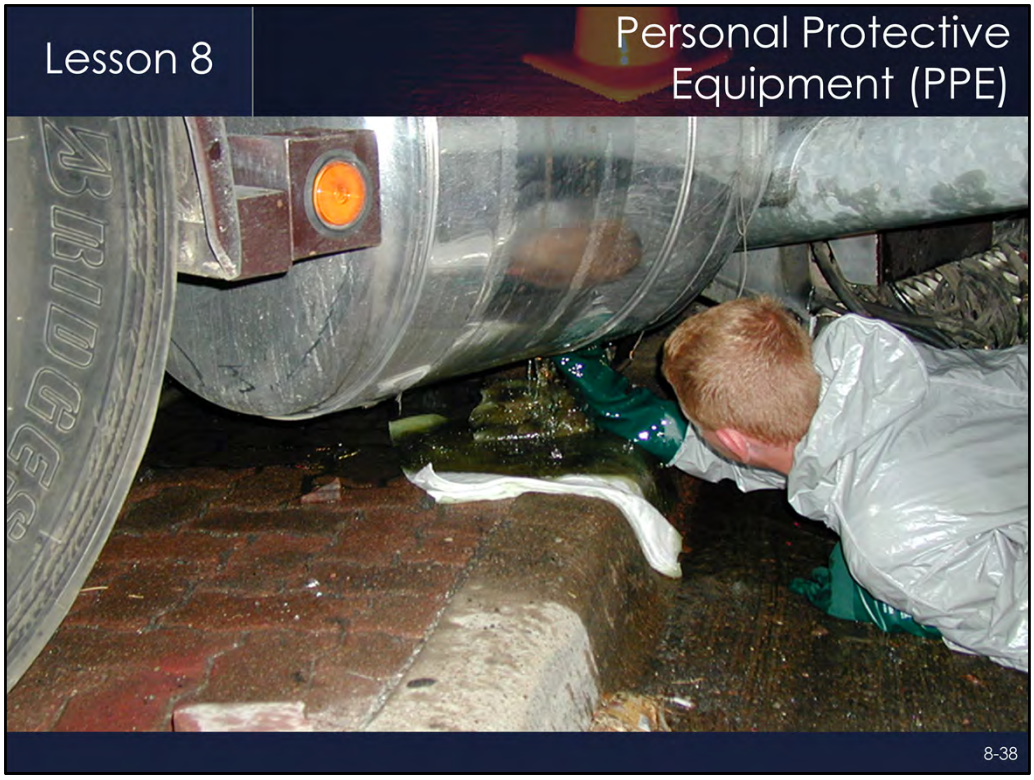
Lesson Objective: 8.3

- **Ask/Discuss:** How would you determine the potential quantity of fuel contained in one truck side saddle tank such as shown in this image?

- **Ask/Discuss:** Describe the actions that could be taken by on-scene responders in this situation
  - Plug the leak utilizing hazmat leak sealing putty, a cone, or a wedge
  - Contain the leak utilizing a 5-gallon bucket or a pool for example
  - Dike the spilled diesel fuel to prevent the fluid from spreading any further

Lesson Objective: 8.3

- Absorption pads are a synthetic material that serves as a means of containing a spill of hydrocarbon fluids such as diesel fuel shown here
- Remember that any materials used to dike or absorb spilled fluids are now considered contaminated and must be removed from the scene by qualified disposal personnel



Lesson Objective: 8.3

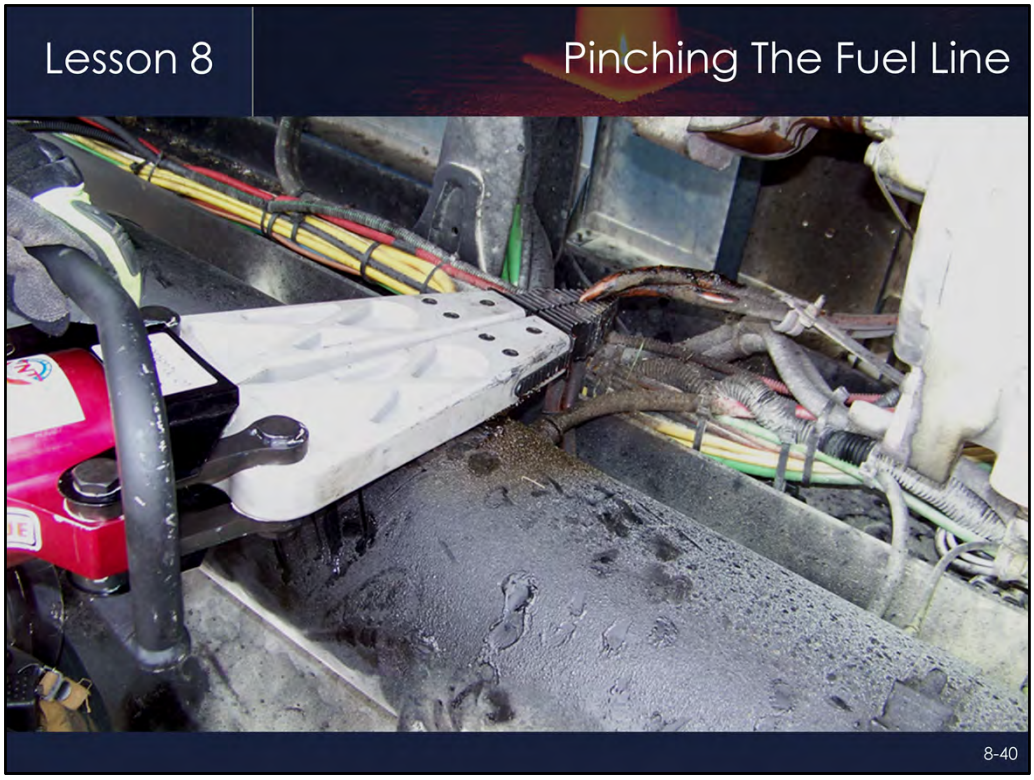
- Proper hazardous material personal protective equipment (PPE) must be worn when handling spills, etc. at incident scenes
- Hazmat protective apparel can include foot, body, hand, eye, head, and respiratory protection as appropriate
- Special impermeable suits or lighter-weight Tyvek-type suits may be utilized by hazmat team members during technician-level hazmat operations at a scene

Lesson Objective: 8.3

- **Video:** L8_V4 - 18-Wheeler Rollover.wmv

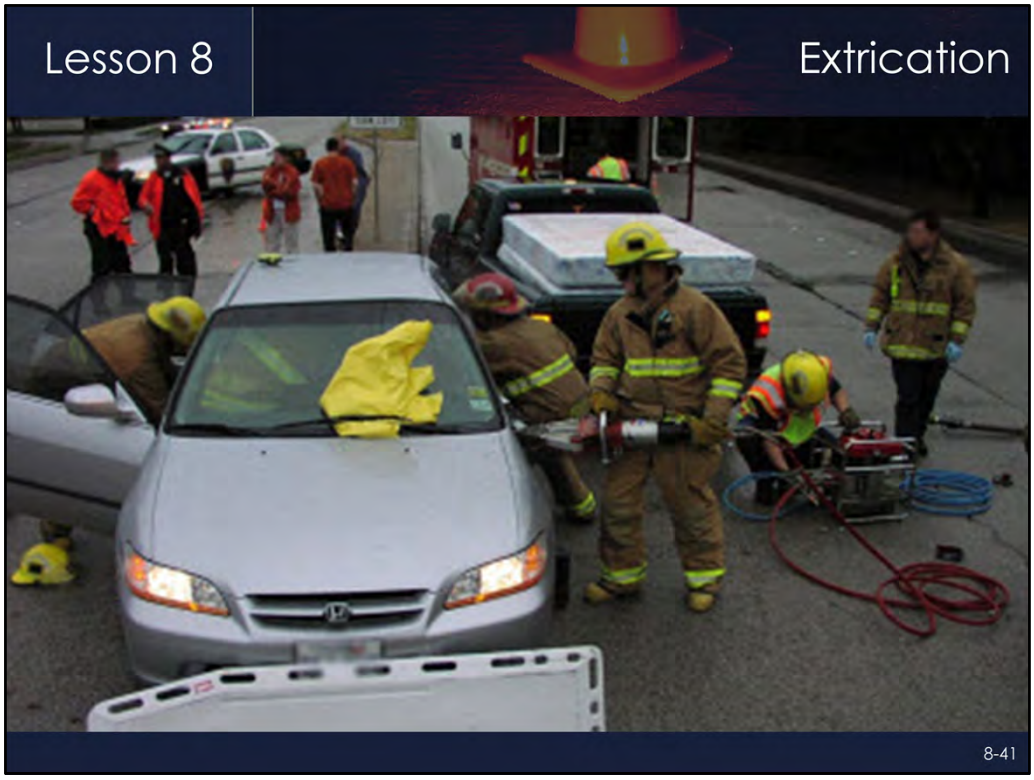
- A loaded 18-wheeler rolled over onto its driver's side on a two-lane divided highway
- One of the vehicle's saddle tanks was punctured causing a spill of diesel fuel
- The truck was still running, the transmission was still engaged, and the drive shaft and drive wheels were still turning
- Access to the cab and any interior controls was completely obstructed due to the fact that the tractor had impacted the end of a highway barrier
- Unsuccessful attempts were made to flood the air intake with CO2 and water to starve the motor of air

- **Transition**: Solution to the scenario on the next slide



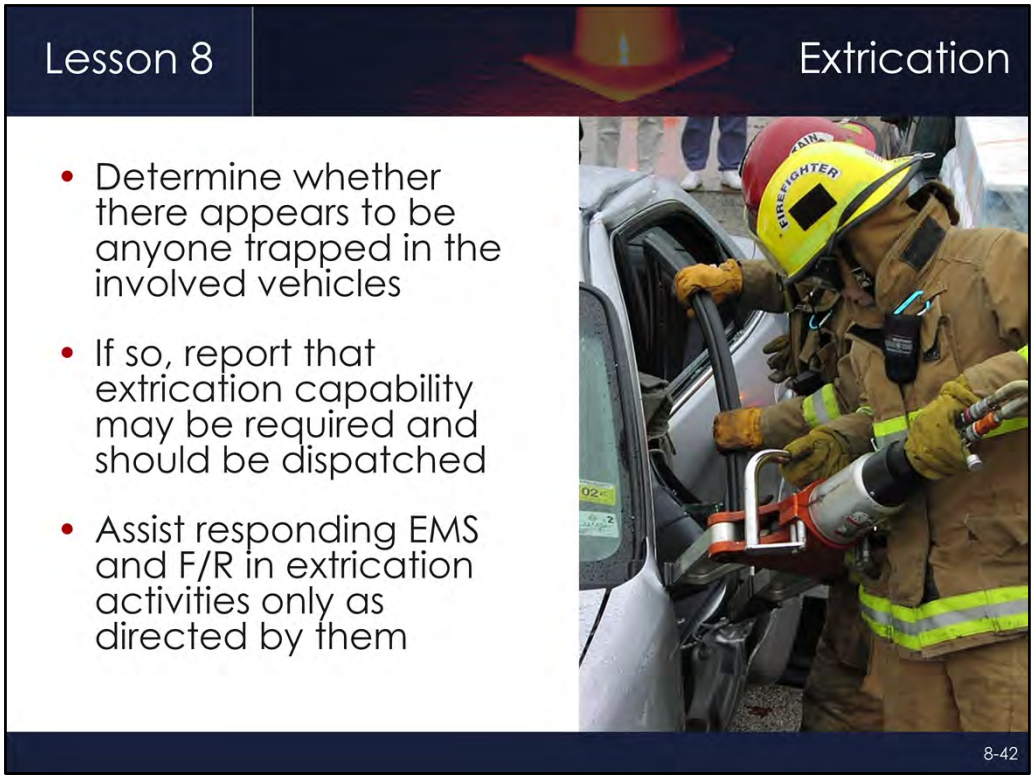
Lesson Objective: 8.3

- The fire department utilized a power rescue spreader tool to clamp the diesel fuel lines
- Once the immediate hazard of the running truck was dealt with, responders were able to deal with the punctured saddle tank
- All these efforts were accomplished without the activation of a hazardous materials response crew
- A specialized spill clean-up contractor was summoned to deal with the absorbent materials used



Lesson Objective: --

- The need to extricate trapped victims is another special circumstance



Lesson Objective: --

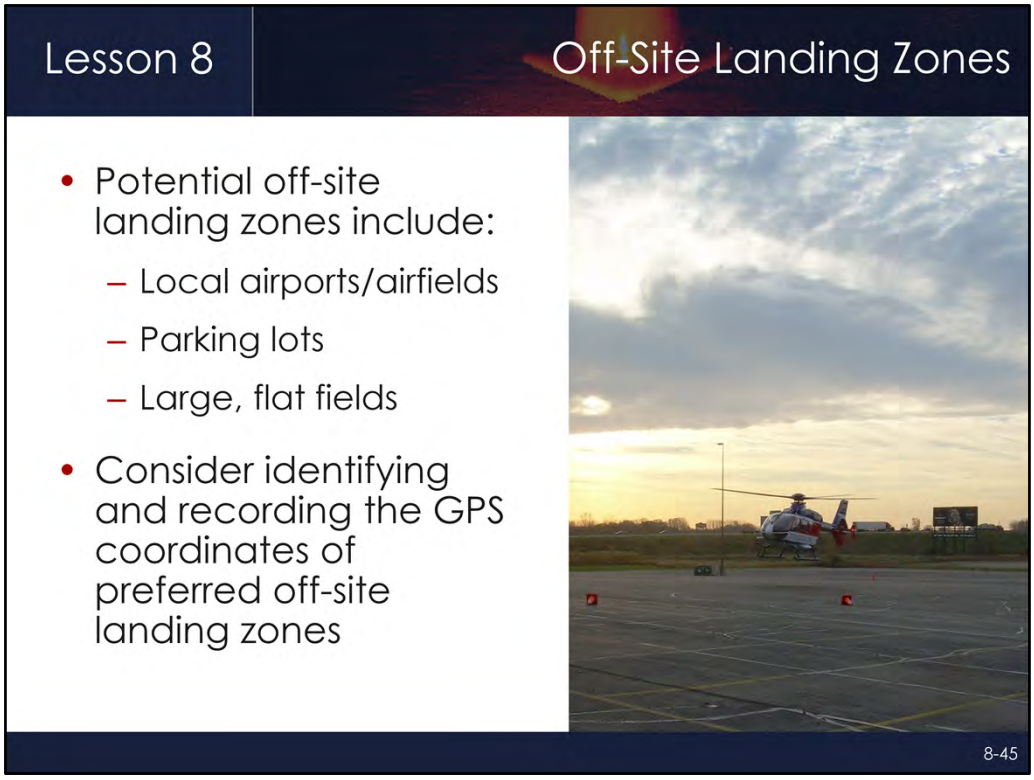
- Paraphrase slide content
- Diverse scene tasks can be performed at the same time at an incident scene
- Evidence collection, traffic control device deployment (cones, flares, signs, etc.), extrications, and other activities can be done simultaneously

Lesson Objective: --

- In cases where incident victims need urgent or time-sensitive treatment, medical helicopters are typically utilized
- When a medical helicopter utilizes the highway as a landing zone, traffic flow is restricted, which may increase congestion

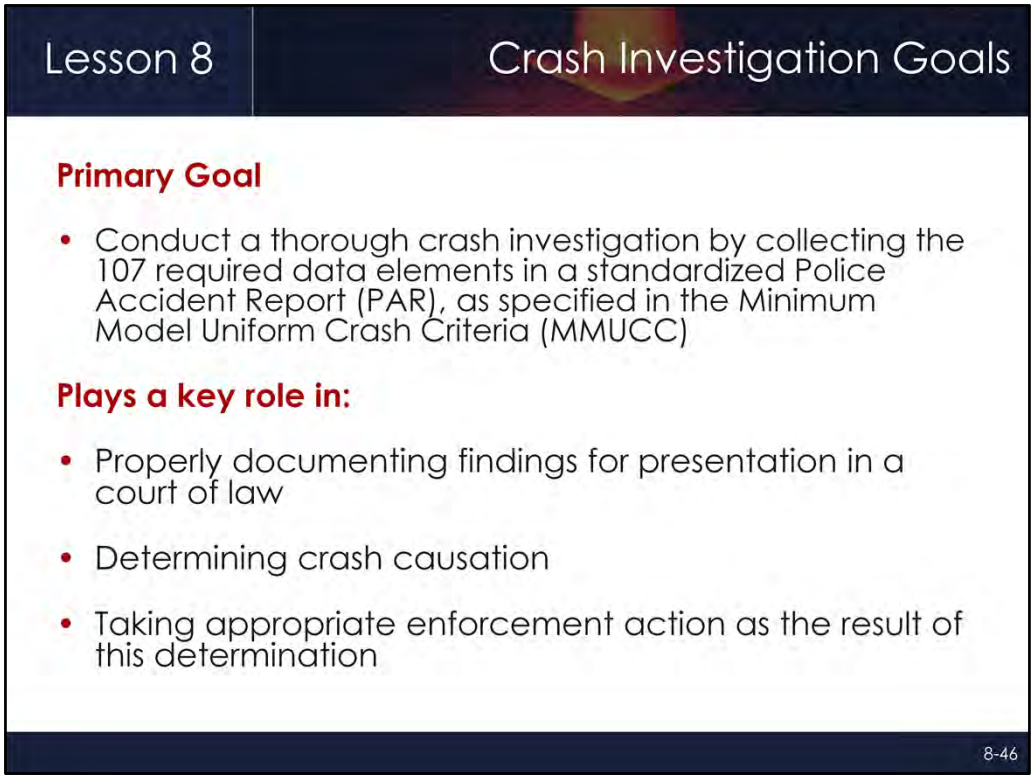
Lesson Objective: --	4-Hour Version Slide: 4H-154

- Emphasize that transport to an off-site landing zone may be preferable to improve responder safety and facilitate quick clearance
- Consideration does need to be given to the logistics of using an off-site landing zone
  - Need for resources to protect both the initial scene and the off-site landing zone
  - Transport of patients to the off-roadway, alternate landing zone location



Lesson Objective: --

- Agencies that routinely work with medical helicopters are encouraged to identify alternate landing zones

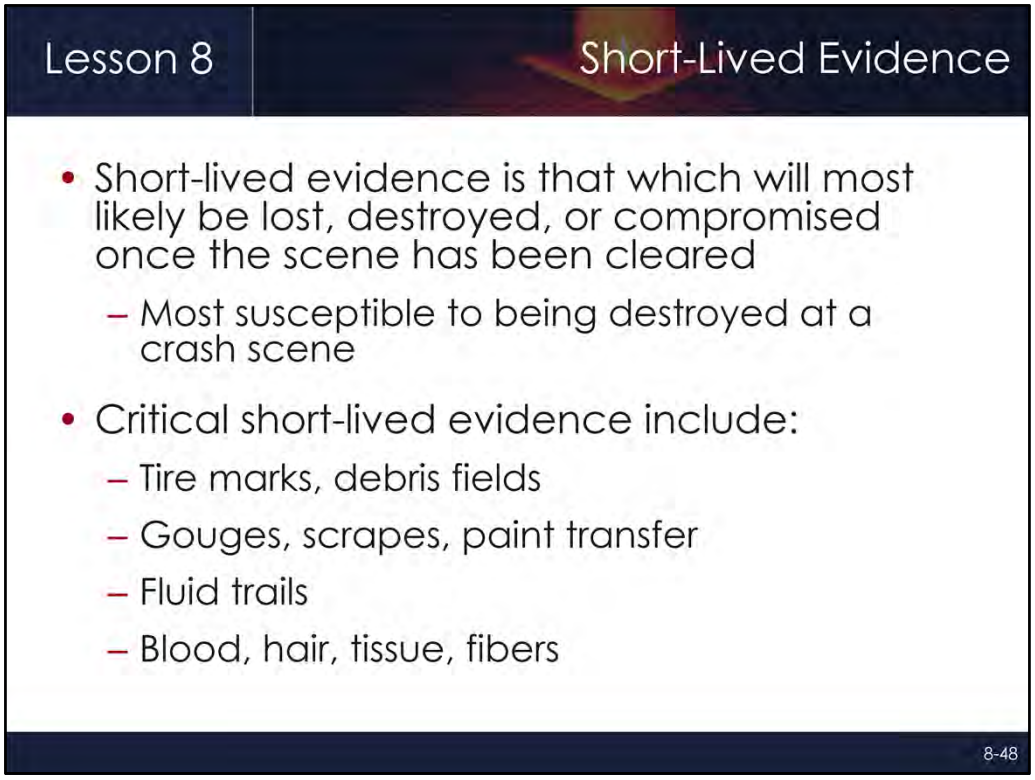


Lesson Objective: 8.4 | 4-Hour Version Slide: 4H-155

- Review the purposes of a crash investigation
  - Collect data that ultimately helps understand when, where, and why crashes occur
  - Identifies who is at fault for vehicle repairs and other compensation
  - Ensures that individuals who committed a crime are brought to justice (DUI, manslaughter, vehicular homicide, leaving the scene, etc.)

Lesson Objective: 8.4 | 4-Hour Version Slide: 4H-156

- It is the responsibility of all incident responders to ensure that the incident scene is preserved
  - Refraining from removing, moving, or eradicating physical evidence until approved by law enforcement personnel
  - Understanding the necessity for law enforcement personnel to collect physical evidence from the roadway and any involved vehicles
  - Understanding the value of not moving vehicles or other physical evidence until told to do so by law enforcement personnel



Lesson Objective: 8.4 | 4-Hour Version Slide: 4H-157

- All responders should be aware and conscious of short-lived evidence
- Critical short-lived evidence can disappear when walked on by responders, flushed away with water, unintentionally swept away with a broom, etc. and includes:
  - Tire marks, debris fields
  - Gouges, scrapes, paint transfer
  - Fluid trails
  - Blood, hair, tissue, fibers

Lesson Objective: 8.4

- A dirt tire print is an example of short-lived evidence – it could be easily lost as vehicles drive over it, responders walk on it, or by sweeping of the roadway during incident clearance

Lesson Objective: 8.4	4-Hour Version Slide: 4H-158

- Take only those actions needed to complete your own area of responsibility with minimal disturbance of the scene unless authorized or assigned
- Reinforce that all debris is evidence until proven otherwise by law enforcement personnel. When in doubt about something… ask!

Lesson Objective: 8.4

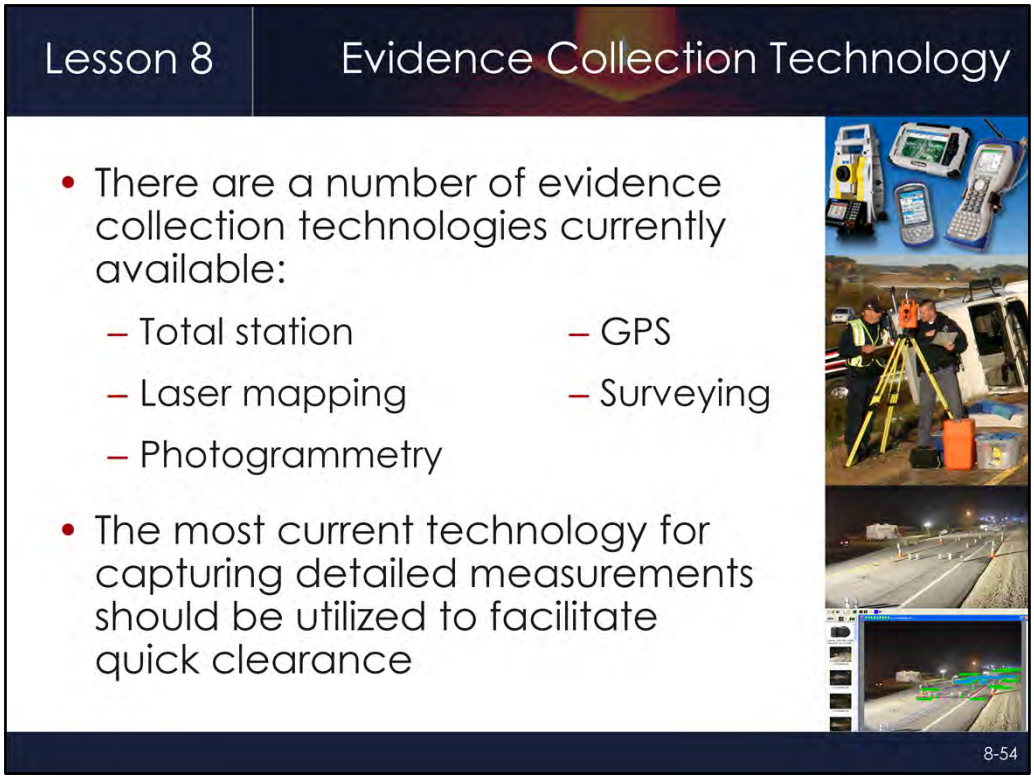
- If important scene investigation evidence needs to be moved, that item should be photographed and its location marked
  - Who marked and photographed the evidence should be documented
  - Use paint or other semi-permanent marking

Lesson Objective: 8.4

- It is preferable that law enforcement be able to review the vehicles before extrication activities begin
- However, this may not be practical or possible due to patient care and life safety priorities
    - Victim/patient care and extrication take priority over evidence preservation in this case

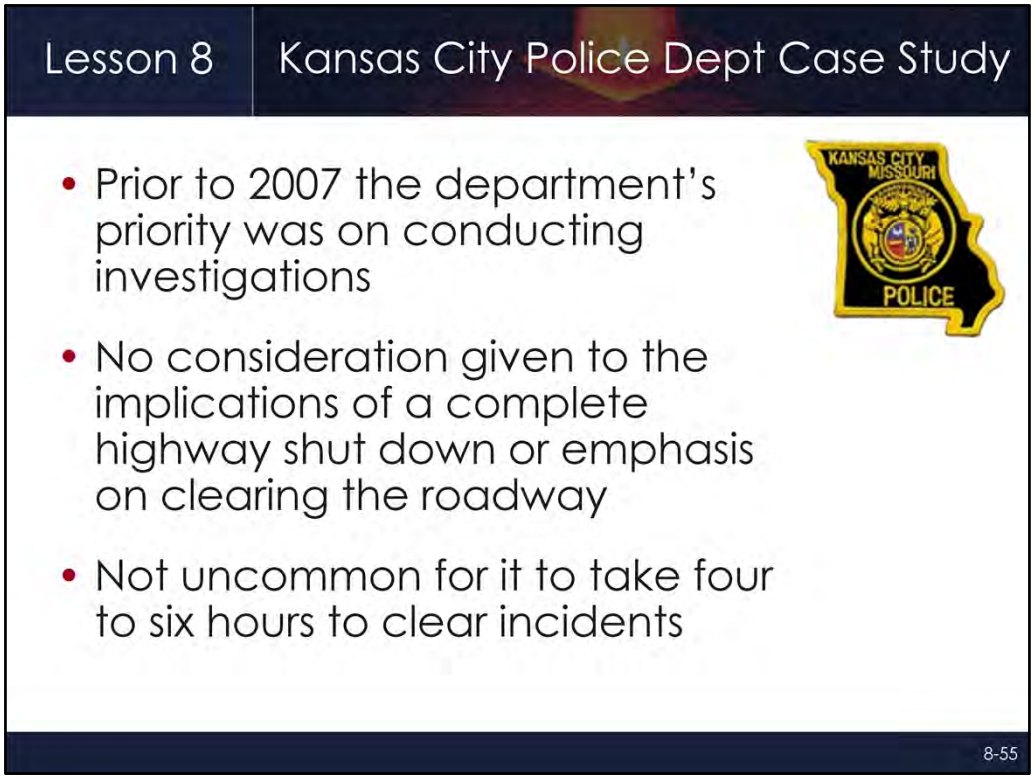
Lesson Objective: 8.4 | 4-Hour Version Slide: 4H-159

- Knowing the laws in the state that govern declaring death and removing fatally injured victims is critical
- Some states have memorandums of understanding that allow fatalities to be documented by the local law enforcement agency and removed from the scene without waiting for the medical examiner
- In some jurisdictions, the medical examiner will prioritize traffic fatalities above other deaths, like one in a home, to promote safe quick clearance



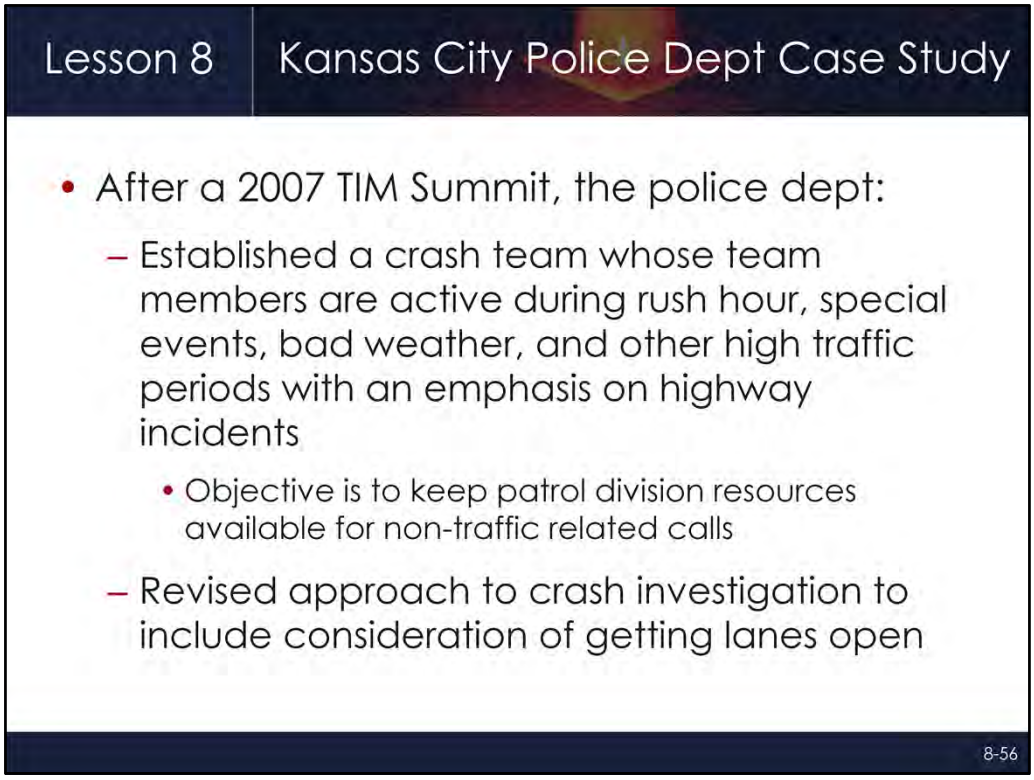
Lesson Objective: 8.4

- Measuring a crash scene is often a time consuming proposition that involves several responders
- Technology can be used to measure and document a crash scene for later diagramming
  - Laser mapping systems
  - Photogrammetry
- Evidence collection technology is constantly changing and evolving
- In many places, transportation agencies assist law enforcement agencies in purchasing equipment in order to promote safe, quick clearance



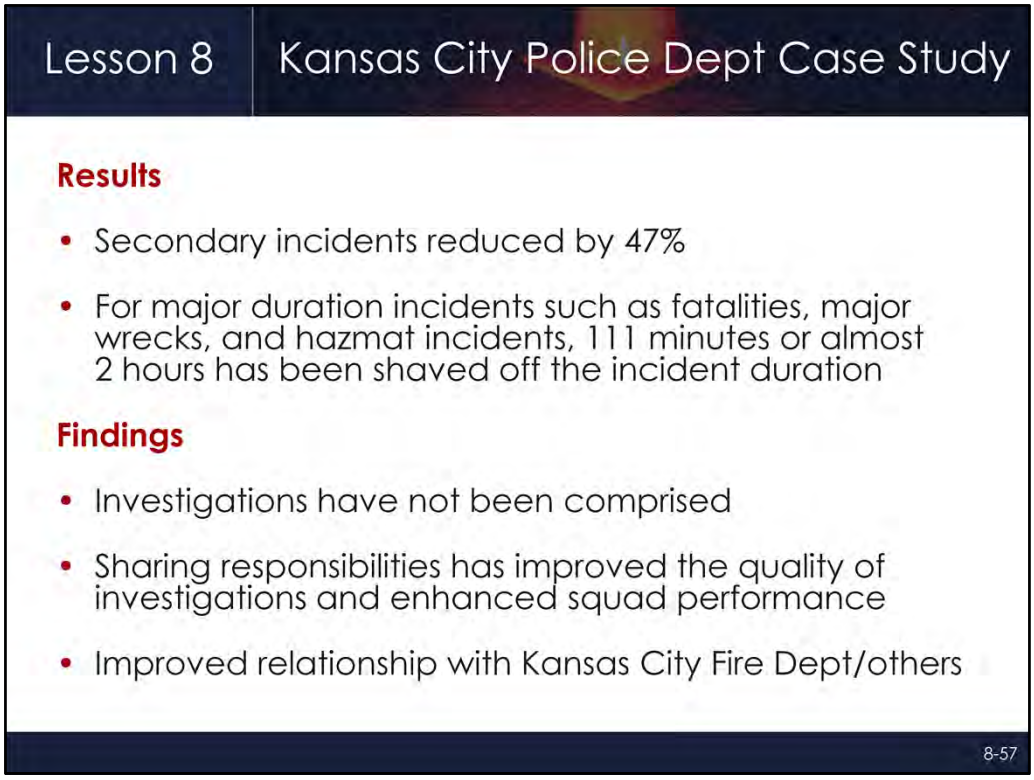
Lesson Objective: --

- Kansas City Police Department (KCPD) in Missouri, identified deficiencies in handling investigations
  - Too heavy of a reliance for traffic control on traffic enforcement crews, many of whom were district officers or on motorcycles
  - Less than optimal working relationship with Kansas City Fire Department
  - Poor internal and external communications
  - Did not use available resources to advantage
  - Lacked efficient scene management (no plan)
  - Medical examiner and/or towing/recovery not called until investigation complete
  - Available technology was not maximized
    - 2 of the 4 Total Stations used had reflector-less measuring
    - Different levels of competence with equipment
    - Responding personnel did not function as a team



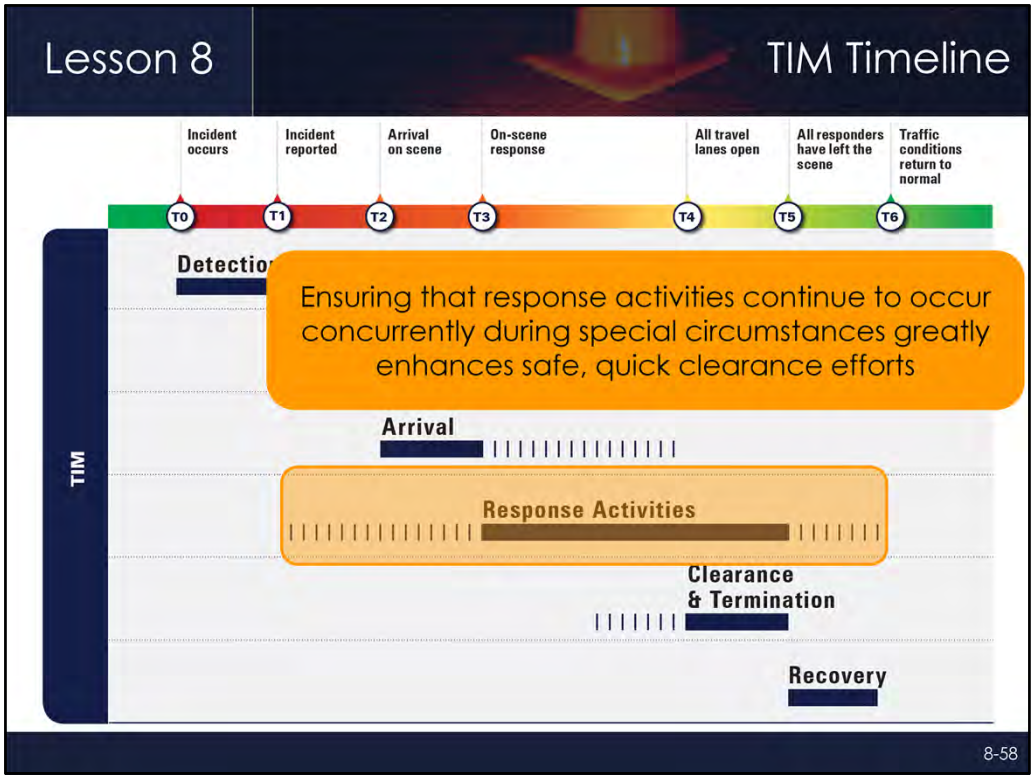
Lesson Objective: --

- KCPD established a crash team which shared responsibilities, coordinated a team approach, developed a plan, and set goals and objectives
  - Supervisor is more of a coordinator
  - Lead Officer handling crash dictated roles of other team members
  - All members work in concert to accomplish goals
  - Limiting the time a roadway is closed is now factored into the action plan with a targeted 90 minute clearance
  - Supervisor coordinates response
  - Team members are active during rush hour, special events, bad weather and other high traffic periods with an emphasis on highway incidents
  - Objective is to keep patrol division resources available for non traffic related calls



Lesson Objective: --

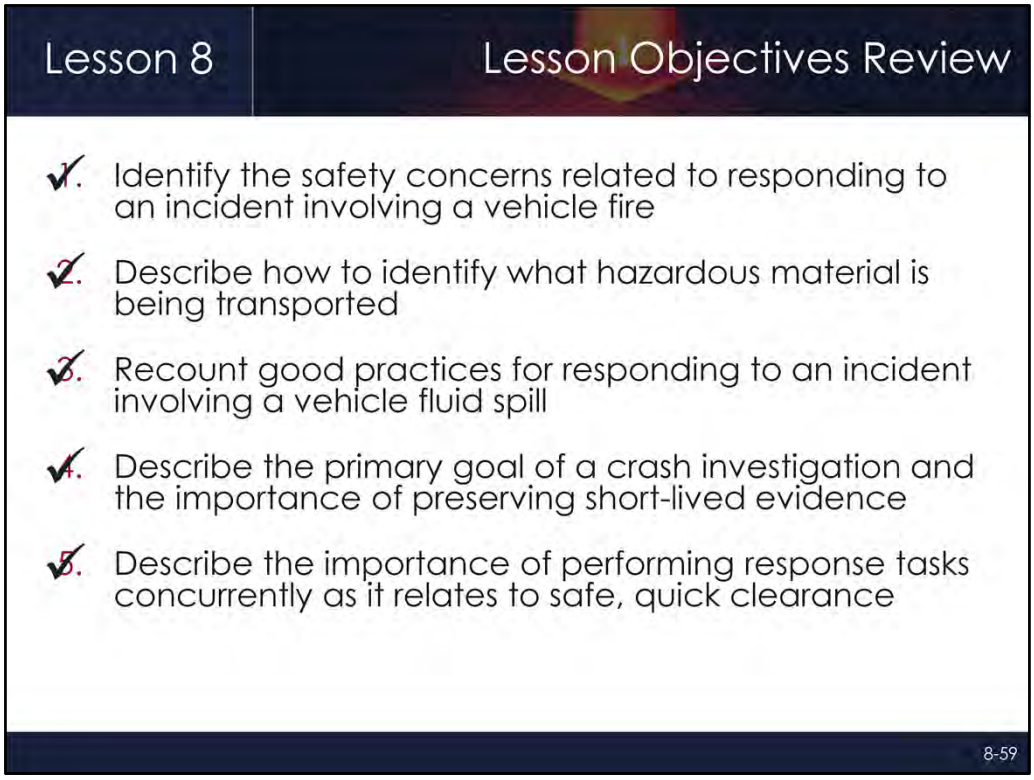
- Factors considered:
  - Timely notification of Medical Examiner
  - Map it now or come back later considerations:
    - Can it be mapped from an offsite location such as an overpass?
    - If mapping has to occur, document evidence located in the roadway first, and work across the roadway so individual lanes can be reopened before you measure things that can be done later such as shoulders, pavement edges, roadside signs, and objects
  - Document vehicle locations and positions and tow them away
  - Coordinate traffic control/incident signs for highway scenes with MODOT and update their Traffic Operations Center (TOC)
  - Arrange tows or turn scene over to MODOT for clean up
- Additional results:
  - Average time to clear incidents went from 39.1 minutes to 22.3 minutes, a 16.8 minute reduction in how long cars are in the roadway
  - The time to clear a back-up went from 11.1 minutes to 5.6, a 5.5 minute reduction in the time it takes to clear the back-up from incidents



TIM Timeline - Lesson Objective: 8.5 | 4-Hour Version Slide: 4H-160

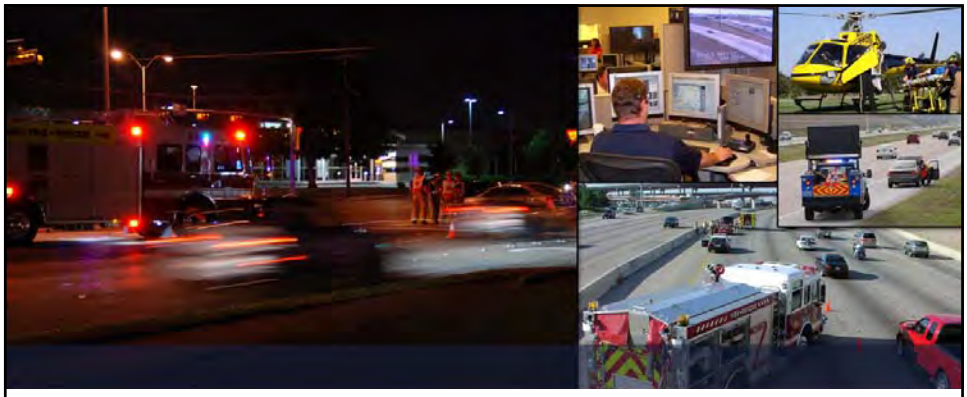
- **Animation:** Click forward to make orange box appear, second click brings up detailed view of Response Activities, and third click brings up orange text box

- Discuss how important it is for responders to communicate and coordinate during special activities
- Response activities should be occurring concurrently, not sequentially, whenever possible
    - Reference the pit crew analogy where every team member works simultaneously to accomplish the overall goal of the team
- Discuss common situations that contribute to incident clearance delays
    - Waiting to contact the medical examiner until after the crash investigation is almost complete
    - Waiting for accident investigators to arrive during after hours and weekends
    - Delayed request for dispatching of tow or recovery vehicles



Lesson Objectives Review

- **Animation:** Clicking forward reveals the five check marks one at a time
- Review each lesson objective, checking them off as you review them

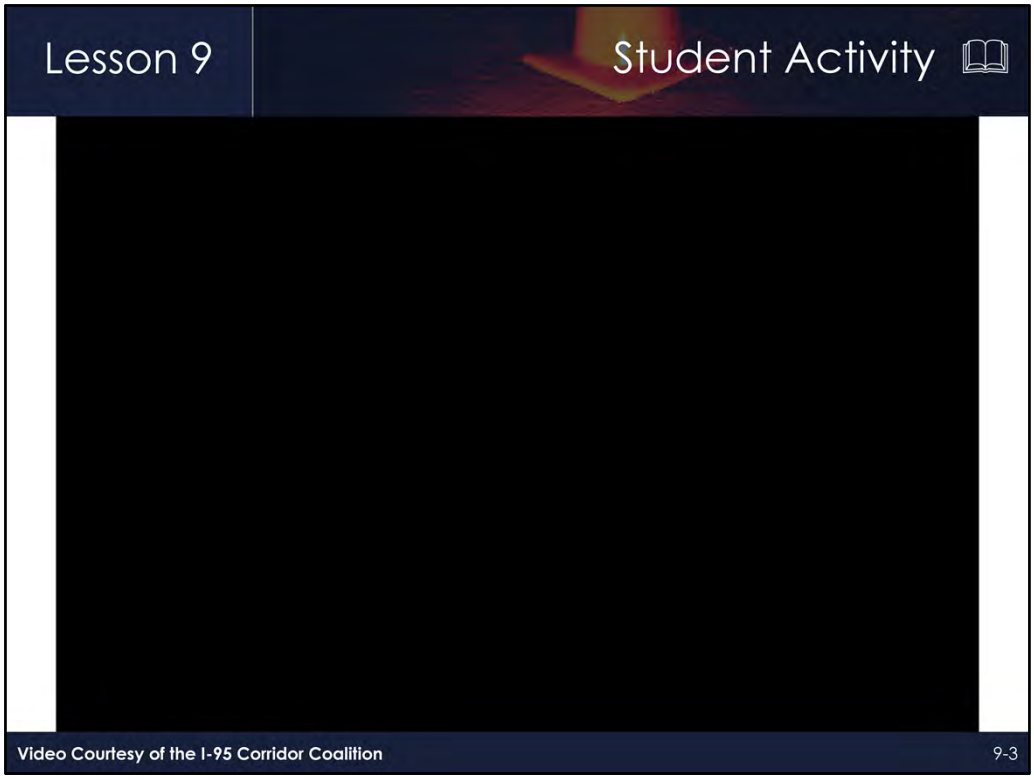


Lesson 9: Clearance and Termination

Lesson 9 — Lesson Objectives

At the conclusion of this lesson, participants will be able to:

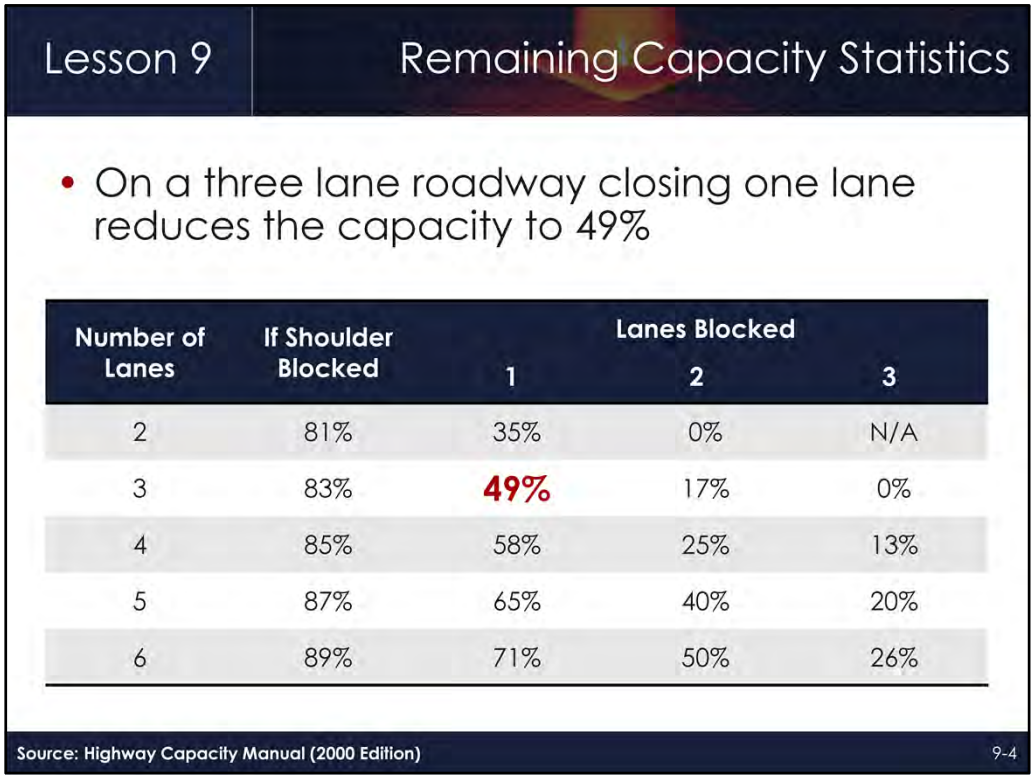
1. Describe quick clearance strategies for both minor incidents and incidents that involve tractor trailers and/or spilled cargo
2. List the type of information that needs to be provided to towing and recovery to facilitate their response
3. Describe the major activities that take place during termination and identify safety related considerations for scene breakdown



Lesson Objective: --

- **Video:** L9_V1 - WA Seattle Wave.wmv

- This video utilizes and combines camera images captured at the TMC with roadway speed sensor data
- The video highlights the impact incidents can have on the transportation system

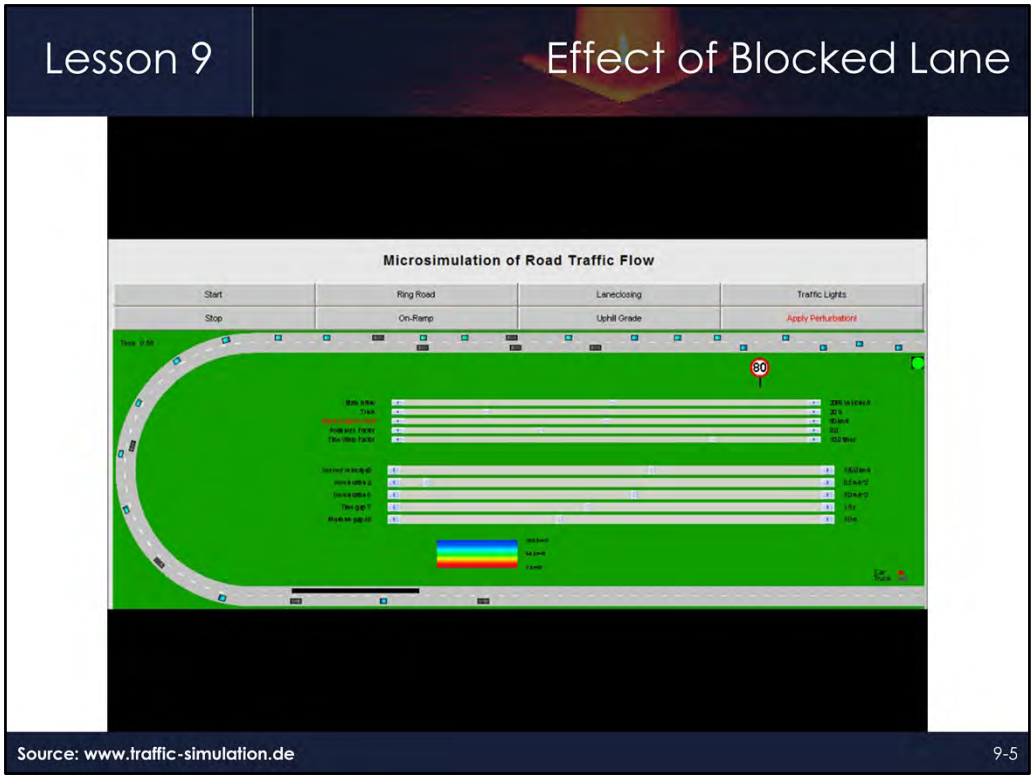


Lesson Objective: --

- Transportation engineers use the Highway Capacity Manual to measure the efficiency of roadways
- The teaching point of this slide is that the impacts of incidents are not mathematically proportional to the physical blockage of lanes
- One lane blocked or obstructed out of three is NOT a 33% reduction in flow; it is a 51% reduction

- **Ask/Discuss:** How do you explain this phenomenon?
  - Driver distraction
  - Lane changing/merging traffic
  - Rubberneckers passing the scene

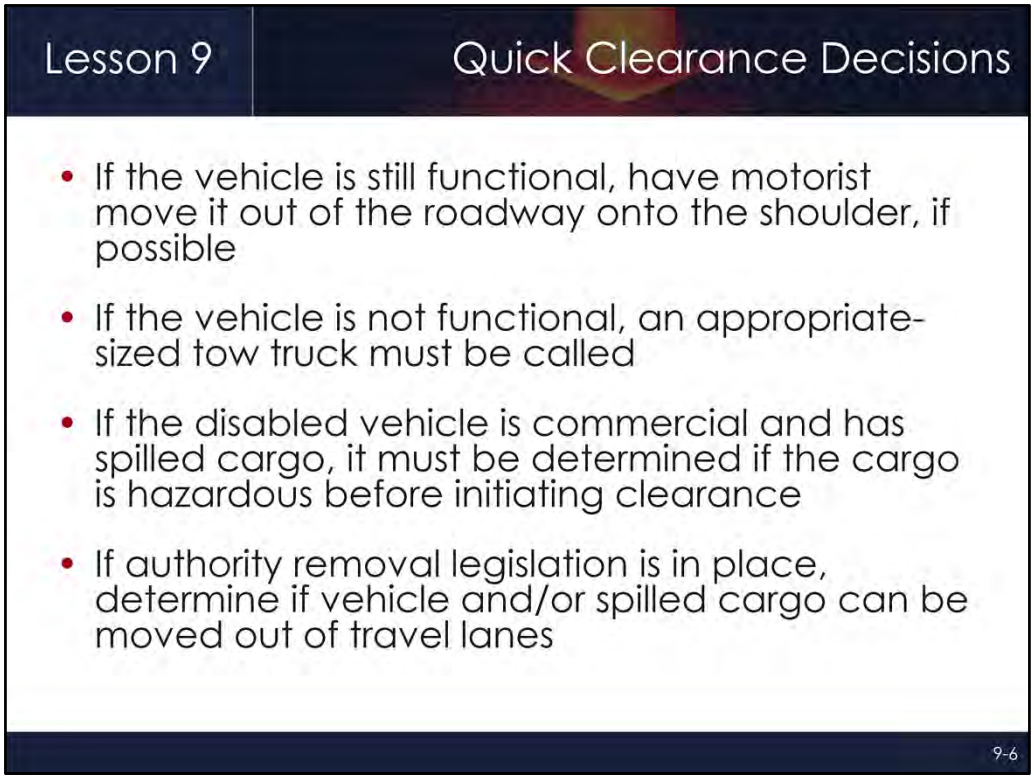
- Highlight that even an event on the shoulder reduces the capacity in travel lanes



Lesson Objective: --

- **Video:** L9_V2 - Traffic Simulation.wmv

- This traffic simulation illustrates the impact that a closed lane can have on traffic and how quickly a queue can build up
- An online, interactive version of this simulation is available at: http://www.traffic-simulation.de



Lesson Objective: 9.1	4-Hour Version Slide: 4H-163

- Discuss the key decisions that will need to be made at an incident that have a direct impact on getting lanes open as soon as possible
- Paraphrase slide content

Lesson Objective: 9.1

- Push bumpers can be used to move disabled vehicles out of traffic lanes

Lesson Objective: 9.1	4-Hour Version Slide: 4H-164

- Some places equip responder vehicles with push bumpers, but discourage or even prohibit their use in deference to the potential to cause damage or incur liability
- Recall that the Authority Removal Law in many states has a *hold harmless* component
- The cost-benefit of a scratched bumper far outweighs a more significant loss if a secondary crash occurs
- Responders and their vehicles are at risk when push bumpers are not used and they must work an incident in or near moving traffic

Lesson Objective: 9.1

- Another example of a push bumper on a law enforcement vehicle
- In some jurisdictions, push bumpers also serve as mounting places for other responder equipment and are not used for their intended purpose

Lesson Objective: 9.1 | 4-Hour Version Slide: 4H-165

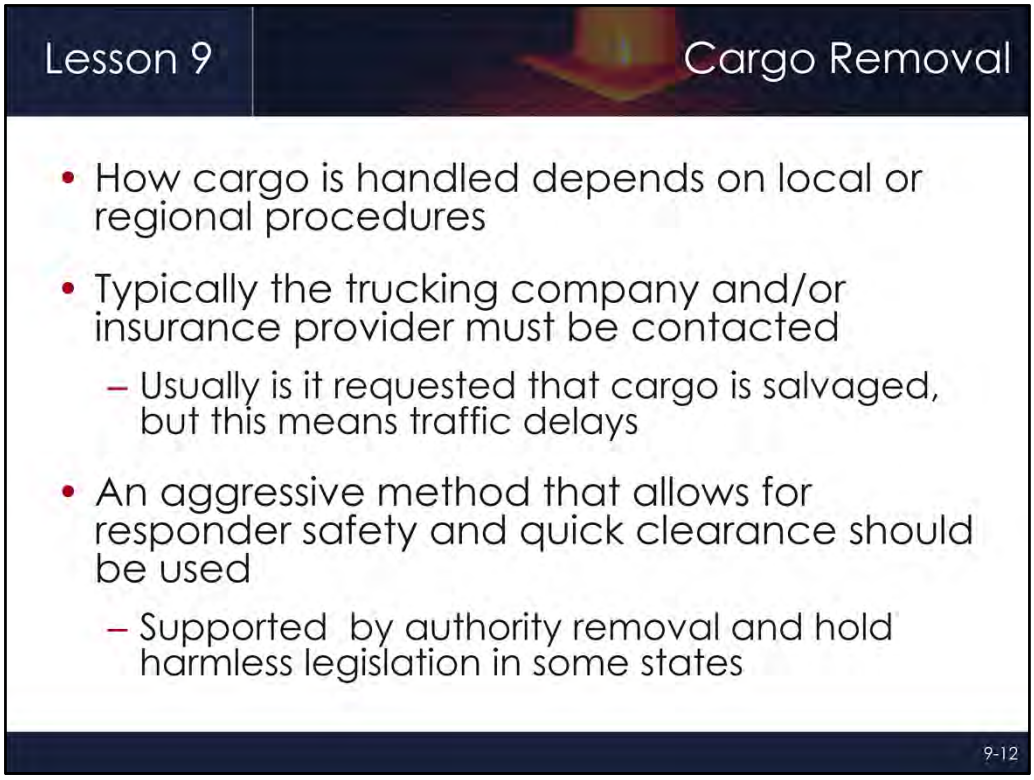
- **Video:** L9_V3 - WI Move It.wmv

- This video from Wisconsin shows officers utilizing a push bumper to relocate a disabled vehicle from the travel lanes to a paved shoulder
- Highlight the coordination between the two officers

Lesson Objective: 9.1	4-Hour Version Slide: 4H-166

- Provide the following incident details:
  - The overturned 18-wheeler's cargo consisted of 38,000 lbs. of empty wine bottles
  - Since the structural integrity of the trailer was compromised, the load had to be unloaded manually

- **Ask/Discuss:** What strategies could be employed for clearing this incident?



Lesson Objective: 9.1	4-Hour Version Slide: 4H-167

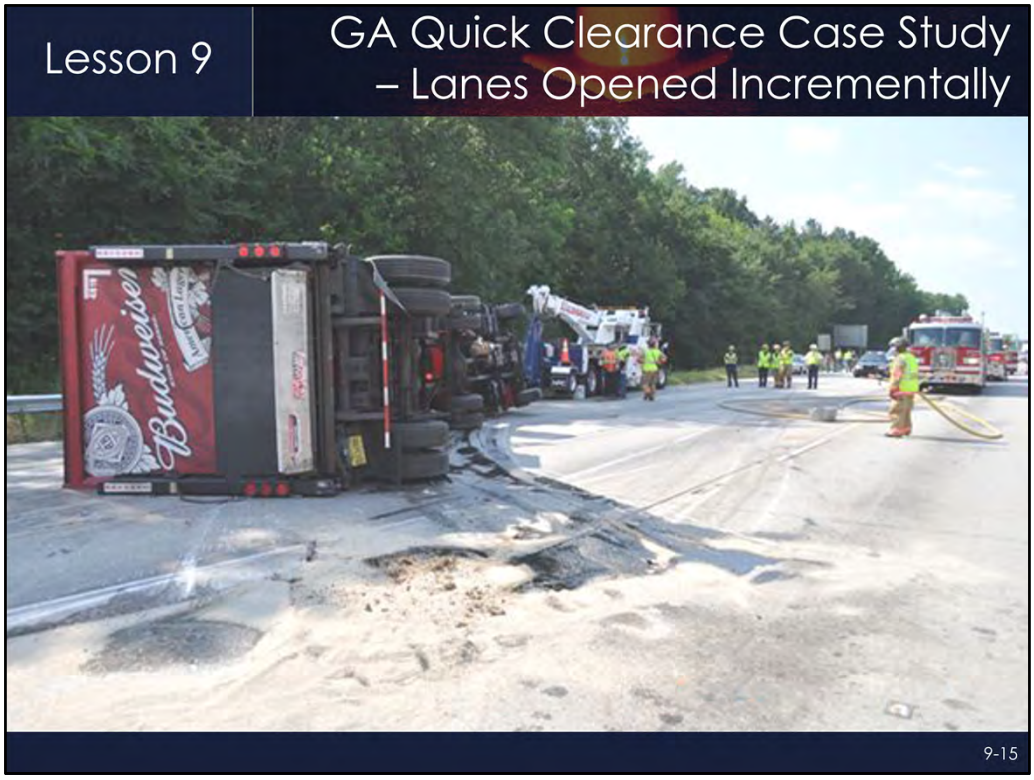
- Review these considerations as part of the strategy discussion for clearing the WA incident

Lesson Objective: 9.1 | 4-Hour Version Slide: 4H-168

- The time period from the start of the incident to when all lanes could be opened was 2 hours, 13 minutes
- The actual removal time was 37 minutes since two 50 ton rotators were able to relocate the wreckage off the roadway
- Once the 18-wheeler was relocated to the shoulder, the trailer could be unloaded which took 4 hours, 30 minutes making the entire incident duration 7 hours, 9 minutes
- The estimated lane blockage time saved was between 4.5 and 5 hours
- Operations like this need to be done with care to ensure that no significant damage is done to the roadway surface
- If during rush hour, a best practice might be to move the vehicle off the road, and work the incident later outside of rush hour

Lesson Objective: 9.1

- An 18-wheeler carrying 3,900 cases of beer overturned on the Interstate blocking all traffic lanes



Lesson Objective: 9.1

- The vehicle was re-located to the shoulder before being righted and/or off-loaded
- Traffic flow was established in several lanes during the recovery operation

Lesson Objective: 9.1

- Only 55 minutes elapsed from the time the incident occurred until all travel lanes were open
- This example illustrates a quick clearance best practice of not off-loading or up-righting in the travel lane if it is possible to relocate to the shoulder

Lesson Objective: 9.1 | 4-Hour Version Slide: 4H-169

- In September 2005 during evacuations from Houston, TX before Hurricane Rita, a 54-passenger motor coach transporting 44 assisted living residents plus nursing staff to Dallas, TX, became engulfed in flames while traveling northbound on I-45, close to Wilmer, TX
- Despite attempts to evacuate the passengers from the coach, many of whom were non-ambulatory or had cognitive impairments, 23 passengers were fatally injured
- The decision to clear the incident and have the coroners perform their work at an off-highway location meant that the roadway was open 8 hours sooner than it otherwise would have been

Lesson Objective: 9.1

- This station wagon has been involved in a minor fender bender that left it stalled in the intersection of this major roadway

- **Ask/Discuss:** What is your quick clearance strategy?
    - Utilizing push bumpers, this vehicle could have been pushed out of the intersection and then loaded on the tow truck

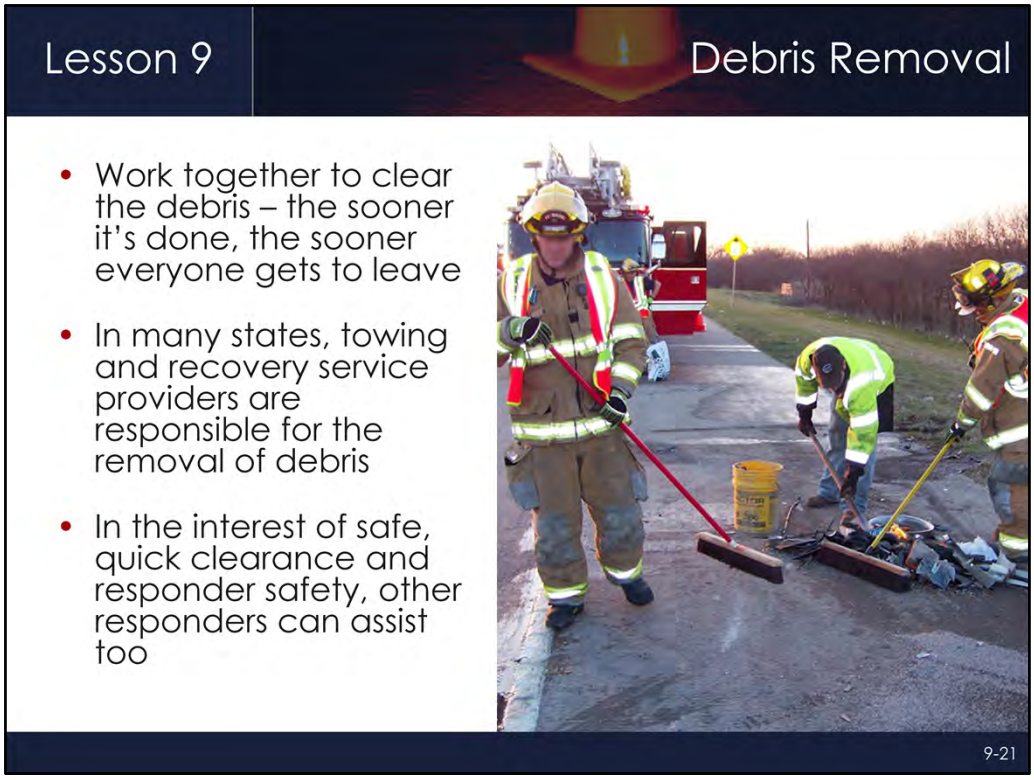
Lesson Objective: 9.1

- This 18-wheeler has flipped completely over, losing its load of lumber

- **Ask/Discuss:** What is your quick clearance strategy?
    - No quick clearance procedures should be necessary since the roadway is already clear

Lesson Objective: 9.1

- Wet road conditions caused this 18-wheeler to jack-knife on a major highway
- **Ask/Discuss:** What is your quick clearance strategy?
  - A heavy duty tow truck would need to be called to tow the truck out of the jack-knifed position and off the roadway



Lesson Objective: 9.1	4-Hour Version Slide: 4H-170

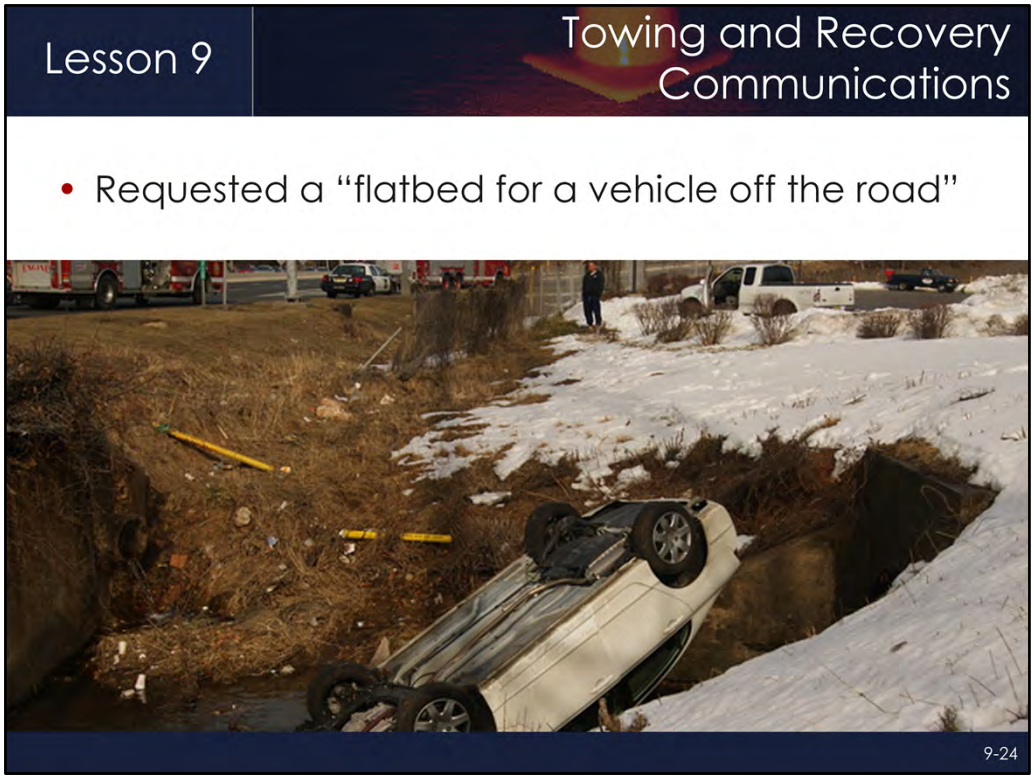
- Reiterate the importance of all responders working together to get the roadway cleared and open

Lesson Objective: 9.2 | 4-Hour Version Slide: 4H-171

- During incident response, tow operators play an invaluable role in promoting quick clearance by removing damaged vehicles
- Clearance goals for tow operators include:
  - Departing the scene as quickly as possible
  - Transporting occupants from towed vehicles to a safe location away from the incident
  - Handling financial negotiations off-site

Lesson Objective: 9.2	4-Hour Version Slide: 4H-172

- **Animation:** Click forward to make picture appear
- **Ask/Discuss:** Was the description of the incident provided accurate enough to ensure that the tow company responded with the appropriate equipment?

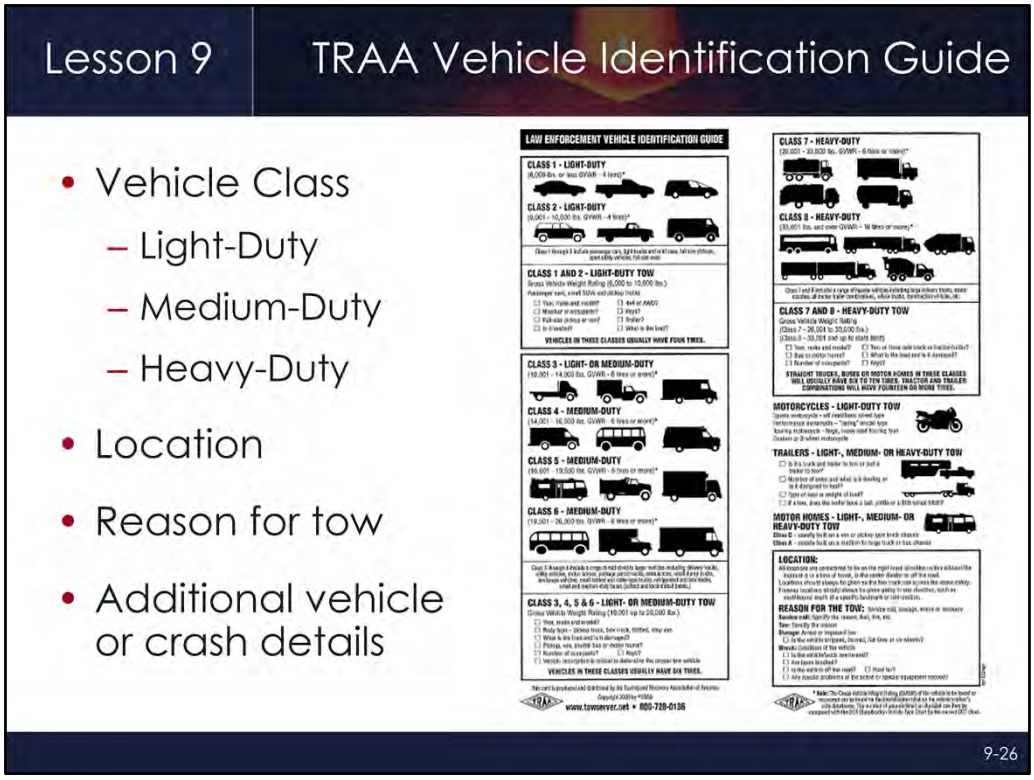


Lesson Objective: 9.2	4-Hour Version Slide: 4H-173

- **Animation:** Click forward to make picture appear
- **Ask/Discuss:** Was the description of the incident provided accurate enough to ensure that the tow company responded with the appropriate equipment?

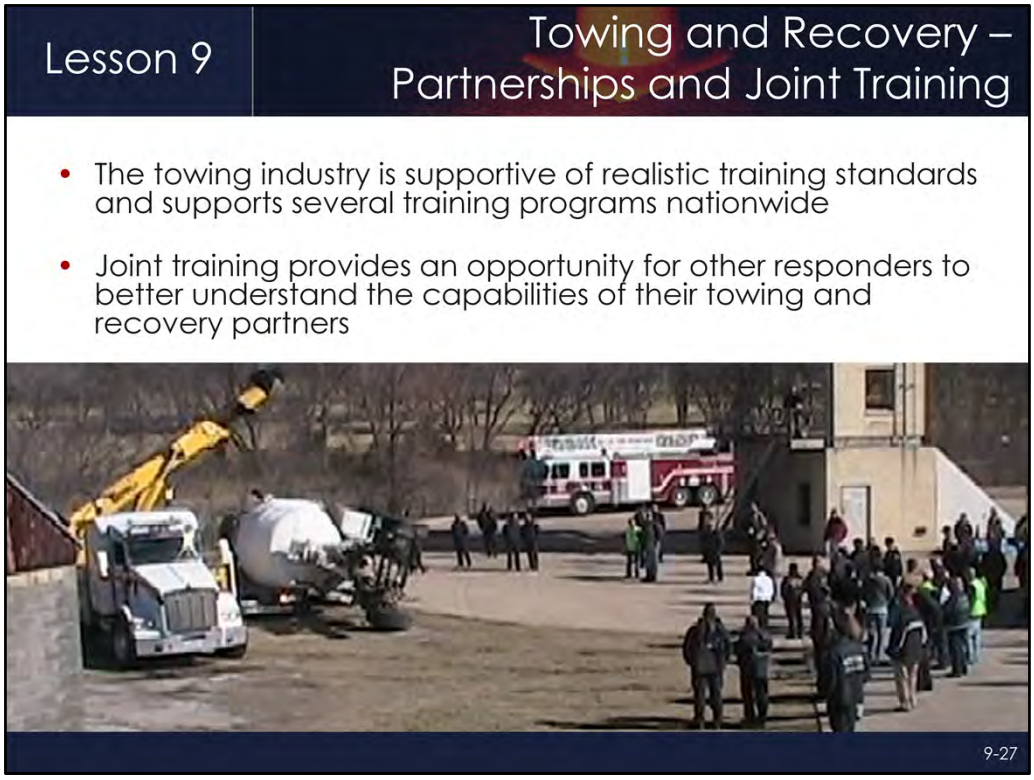
Lesson Objective: 9.2	4-Hour Version Slide: 4H-174

- **Animation:** Click forward to make picture appear
- **Ask/Discuss:** Was the description of the incident provided accurate enough to ensure that the tow company responded with the appropriate equipment?



Lesson Objective: 9.2	4-Hour Version Slide: 4H-175

- To assist non-towing responders, the Towing and Recovery Association of America (TRAA) has developed a Vehicle Identification Guide
- The guide:
  - Groups common vehicle silhouettes with the type of wrecker that is needed to safely and effectively tow it from an incident scene
  - Lists information that towing dispatchers require to dispatch the appropriate towing vehicle
  - Explains how the VIN number indicates the year of the vehicle, which is essential for a tower to know for correct towing procedures



Lesson Objective: --	4-Hour Version Slide: 4H-176

- While joint training that focuses on recovery capabilities is very important, towing and recovery professionals should be part of general TIM training as well

Lesson Objective: --

- Responders from all disciplines should jointly train with tow operators to become more familiar with the capabilities of these units

Lesson Objective: --

- Example of two heavy wreckers completing a one lane up-righting on an expressway on-ramp

Lesson Objective: --

- A semi traveling WB in Lane 1 on I-94 in Wisconsin struck the median, jack-knifed, and then went through the median and over the side of the bridge
- The trailer hit one of the support beams on the bridge, knocking it free
- The trailer came to a stop on the hill along the bank of the lake
- The cab of the semi came loose and went through the ice below
- A crane was required to remove the trailer and the responding towing and recovery company had the necessary contacts to get the crane to the scene within 12 hours

Lesson Objective: 9.1 | 4-Hour Version Slide: 4H-179

- **Video:** L9_V4 - WI QC Case Study.wmv
- **Ask/Discuss:** Debrief the video
- Incident timeline:
  - 15:16:17 - Incident occurs
  - 15:25:37 - Responders arrive on scene
  - 16:18:59 - Vehicles have cleared the area; towing and recovery providers have arrived on scene and are moving the truck that hit the semi
  - 16:29:05 - Beginning to move semi towards the shoulder to reopen lanes
  - 16:39:13 - Semi moved towards shoulder and out of Lanes 1 and 2
  - 17:15:44 - Highway department on scene and setting up cones along the entire Traffic Incident Management Area
  - 17:20:10 - Lanes 1 and 2 reopened to traffic
  - 17:39:35 - Towing and recovery professionals beginning to use air cushions to lift semi
  - 17:40:14 - Semi up-righted
  - 18:47:06 - Semi cab being removed from scene, Lane 3 has been reopened
  - 18:51:54 - Semi trailer being removed from scene
  - 18:57:23 - Highway department picking up cones

Lesson Objective: 9.1

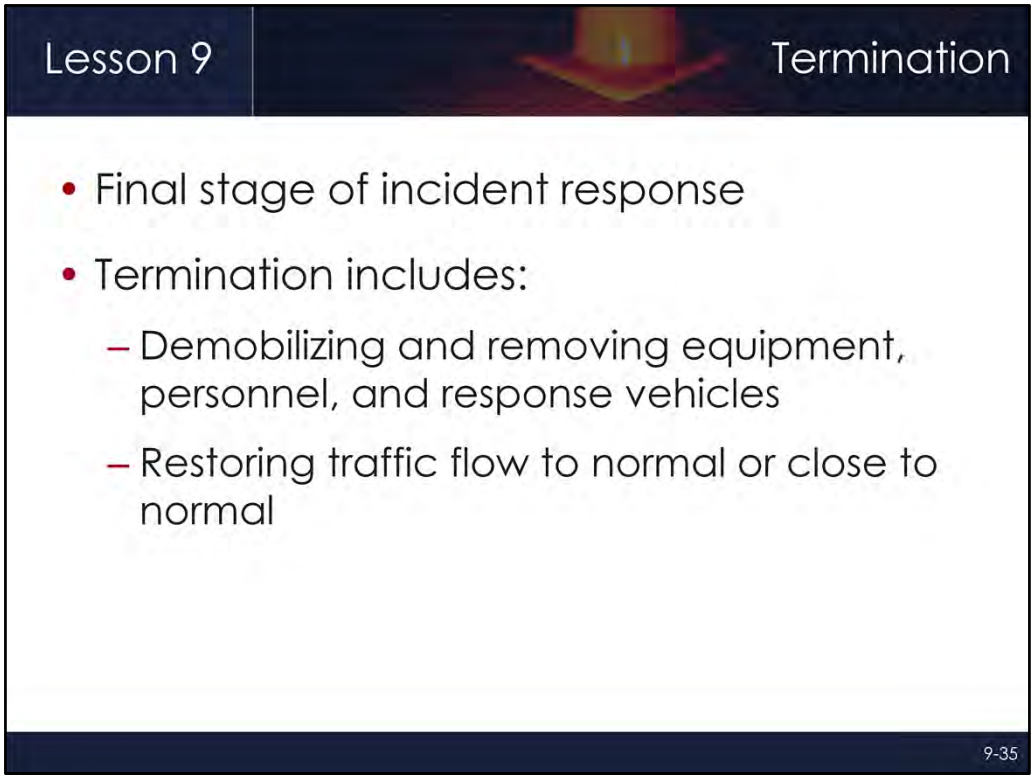
- These next three pictures provide an up-close look at the towing and recovery professionals utilizing air cushions to upright the 18-wheeler while it is still loaded
- Depending on the amount of structural damage to the trailer, up-righting an overturned semi in this manner is not always an option

Lesson Objective: 9.1

- Heavy wreckers working together to pull the 18-wheeler as the medium pressure air cushions lift from the roof side of the trailer

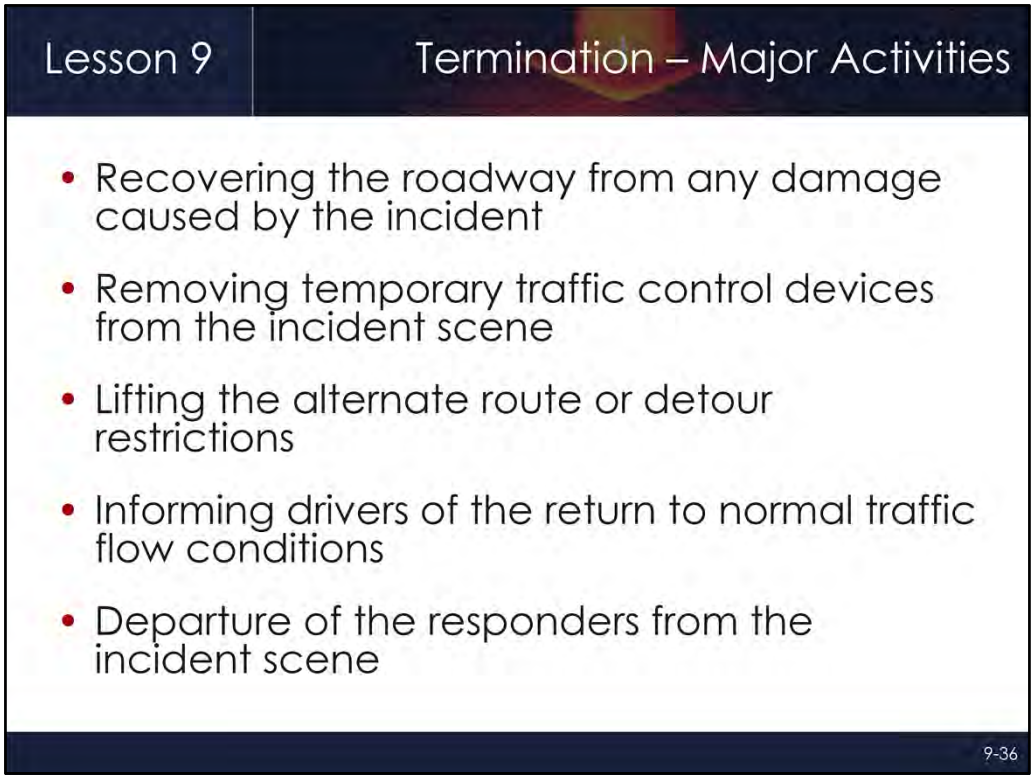
Lesson Objective: 9.1

- Completed up-righting showing air cushions in their lifting position



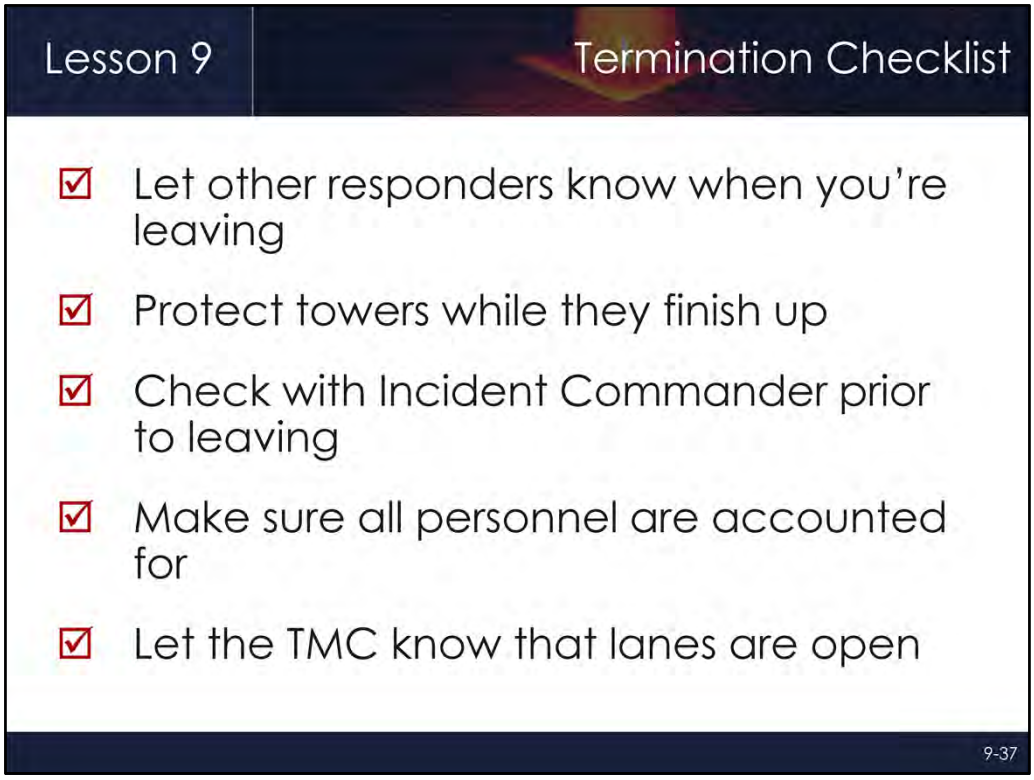
Lesson Objective: 9.3 | 4-Hour Version Slide: 4H-177

- All responders must exercise care when demobilizing, particularly if other responders remain present



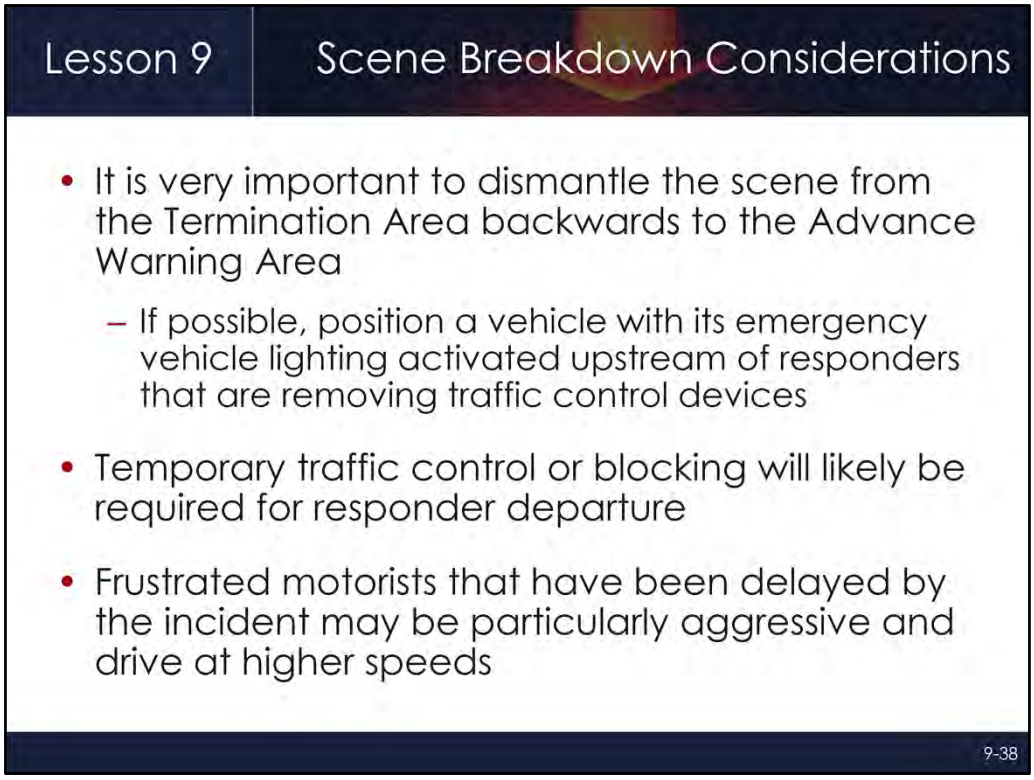
Lesson Objective: 9.3

- Equally important to properly establishing or setting up a Traffic Incident Management Area, and associated traffic control, is safely breaking down or dismantling the scene
- Scene breakdown includes demobilizing and removing equipment, personnel, and response vehicles



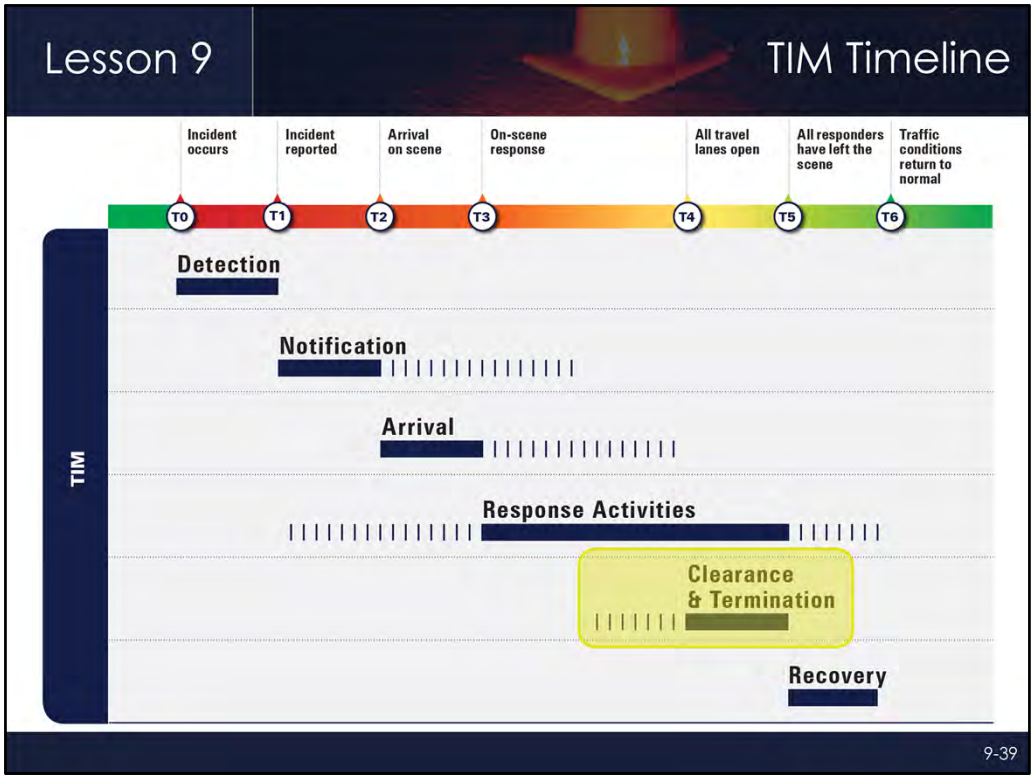
Lesson Objective: 9.3 | 4-Hour Version Slide: 4H-178

- As part of the quick clearance goals covered by the NUG, responder vehicles that are no longer required should leave the scene as soon as practical to minimize exposure to traffic
- As part of termination, the remaining responder vehicles should reposition their vehicles to keep the scene protected and to open lanes when it is practical and safe to do so
- Temporary traffic control should be repositioned to open travel lanes
- Emphasize that this 5-point checklist is very important and provides great guidance for safe and effective termination of an incident



Lesson Objective: 9.3

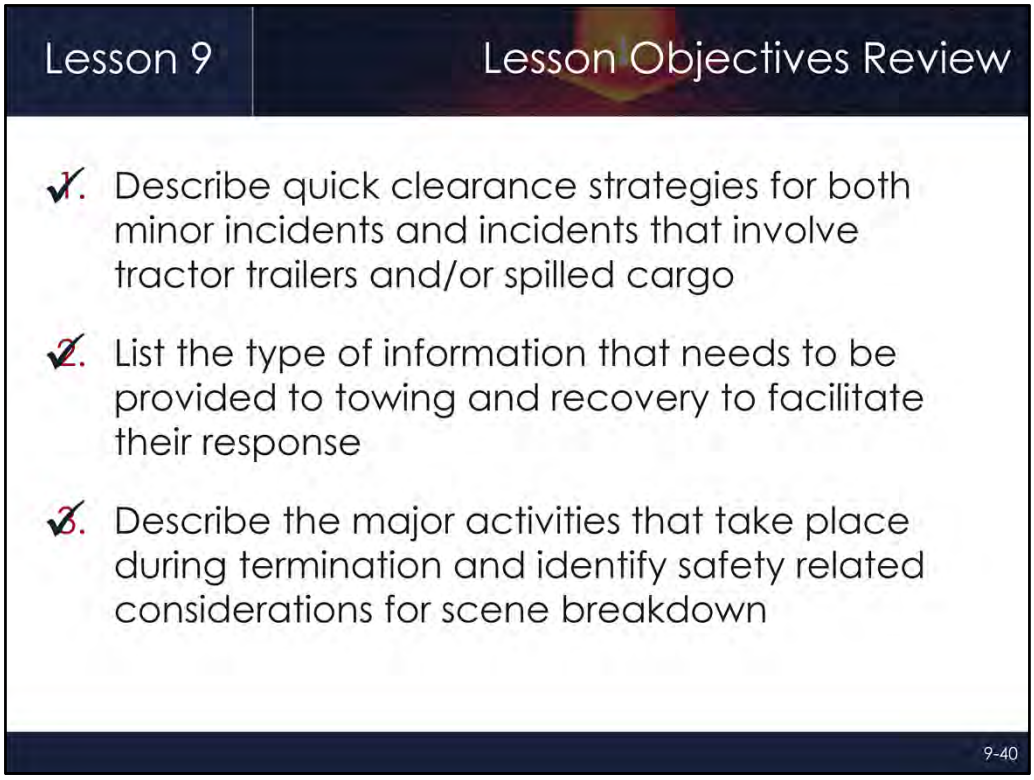
- When an incident scene has been fully cleared and all on-scene response is complete, ensure that the appropriate agencies (including communications/dispatch centers and the TMC) have been notified that the roadway is open



TIM Timeline	4-Hour Version Slide: 4H-180

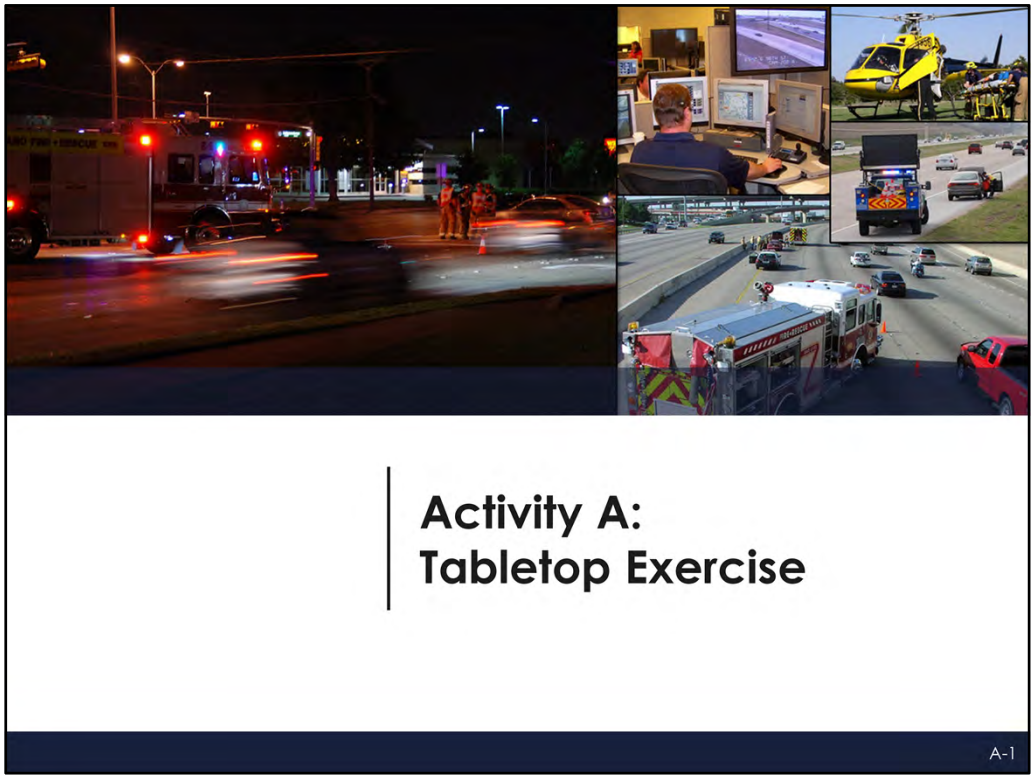
- **Animation:** Click forward to make yellow box appear

- **Ask/Discuss:** How can employing quick clearance strategies impact the TIM Timeline?
  - Reiterate the concept of Move It or Work It
  - Highlight that some clearance activities may be able to begin concurrently to response activities



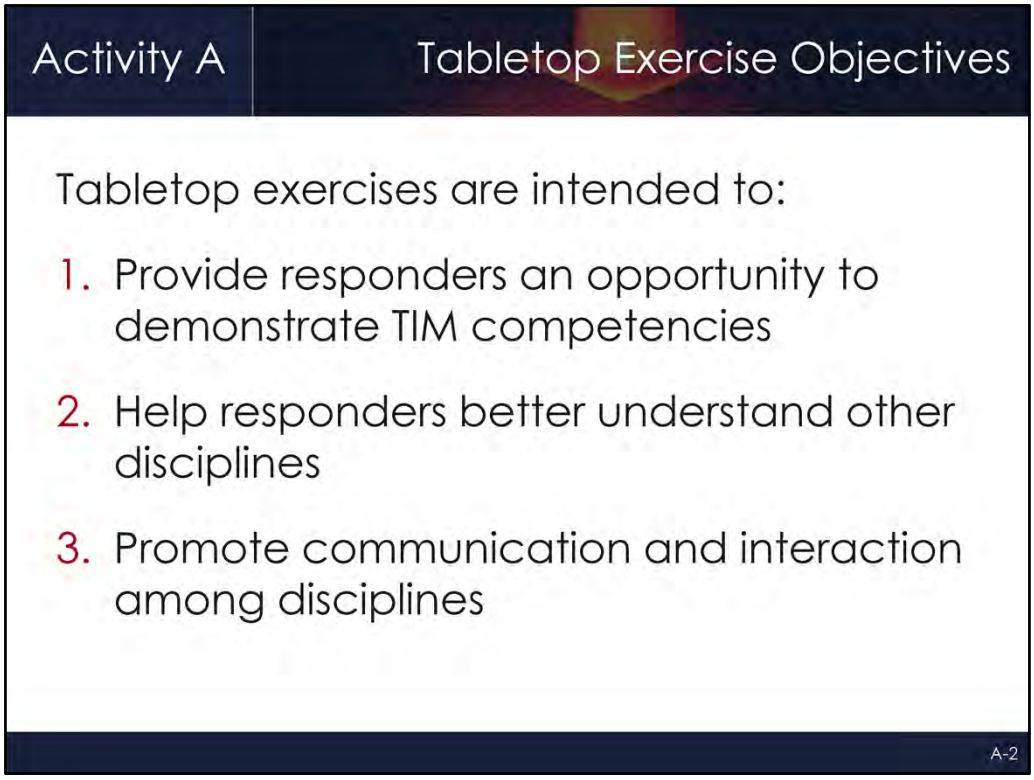
Lesson Objectives Review

- **Animation:** Clicking forward reveals the three check marks one at a time
- Review each lesson objective, checking them off as you go



Activity A

- *The PowerPoint for Activity A is designed to provide TIM trainers the information necessary to conduct a tabletop exercise and should not be used when hosting a tabletop exercise for responders*



Tabletop Exercise Objectives

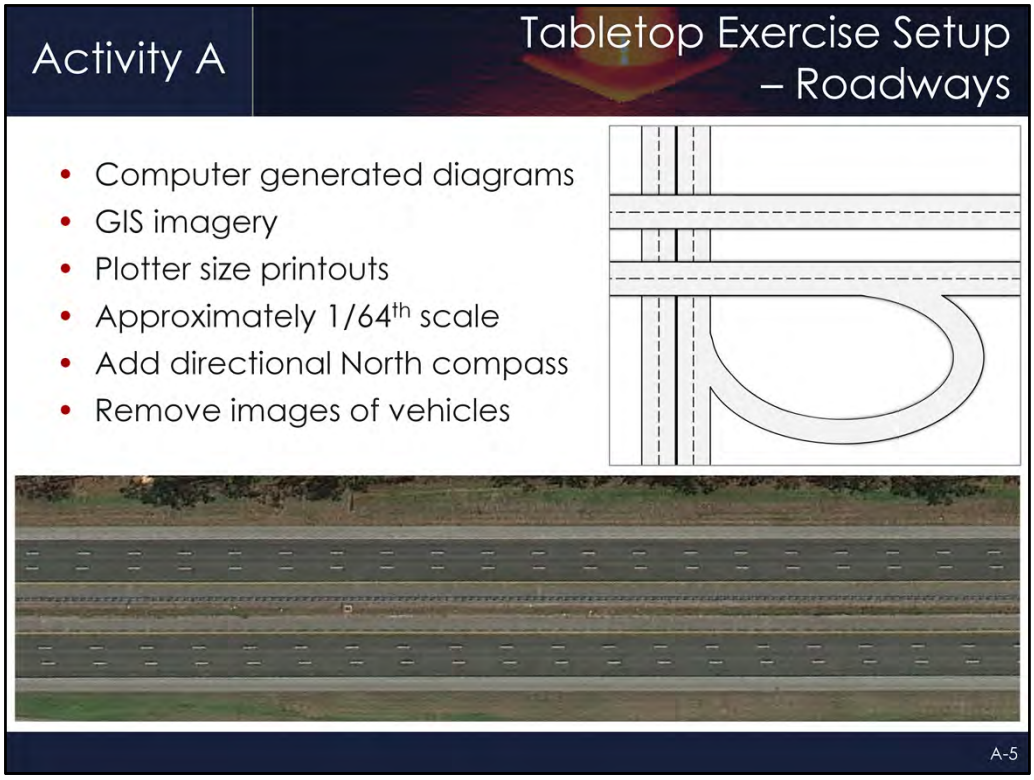
- Tabletop exercises tie together all the best practices and procedures presented during the training program
- Tabletop exercises are designed to promote multi-disciplinary teamwork to accomplish the safe, effective, and quick clearance of the traffic incidents simulated in the exercise

Tabletop Exercise Setup

- The tabletop exercise is an excellent way for students to bring together the nine lessons of the training course
- Depending on the size of the group, between 30 and 60 minutes should be allocated for the activity
- Multiple tabletop scenarios may be used, allowing participants to attempt more than one scenario
- TIM tabletop exercises differ slightly from those designed for planned special events and emergency management
    - Evaluate a dynamic event/incident with limited resources
    - Deploy a smaller group of responders and disciplines
    - Emulate scenarios that occur every day
- The list above summarizes all of the items necessary to properly facilitate a tabletop exercise
    - Sample roadway maps with corresponding scenarios, the checklists and the staging pads are all available on the National TIM Responder Training Program SharePoint site

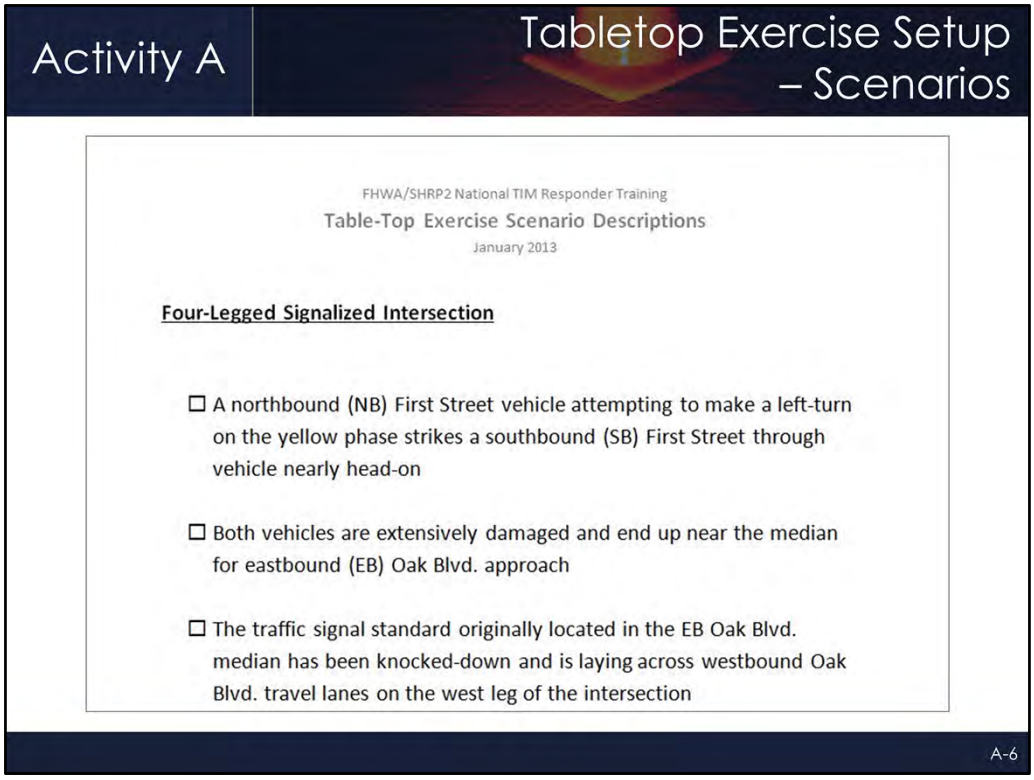
Tabletop Exercise Setup

- It is desirable to setup the tabletop exercises in a room separate from where classroom instruction has taken place
- If a separate room is not available, classroom seating may be modified to accommodate the tabletop exercise
- Large tables should be arranged without chairs so that students can stand around each table
    - Two or three smaller tables may need to be combined to achieve the required size



Tabletop Exercise Setup

- Roadway segments need to be printed in a large format like plotter sizes of paper
- A jurisdiction's planning, GIS, graphics, or engineering department may have the ability to print the tabletop layouts from a PDF or jpeg
- Computer generated roadway diagrams are easily created with drawing programs
    - Most police departments use computers to complete crash reports and officers are very proficient at diagraming intersection and roadway scenes
- Most states and many local governments have access to aerial photography of roadways
    - Aerial photography may require the use of Photoshop or similar software to remove actual vehicles that were present when the roadway photo was originally taken
- The approximate scale of a typical Matchbox or Hot Wheels die-cast vehicle is 1/64th
    - Roadway layouts with a lane width of approximately 1½ to 2 inches in width will approximately match the scale of the vehicles
- It is beneficial to include a directional compass or representation of North on the diagram
- A roadway image suitable for the exercises can be produced on a vinyl material or be printed and laminated for durability
- Hand drawing roadway scenes is another method for creating diagrams
    - One or more sheets of the paper from an easel pad can be used for hand drawn products



Tabletop Exercise Setup

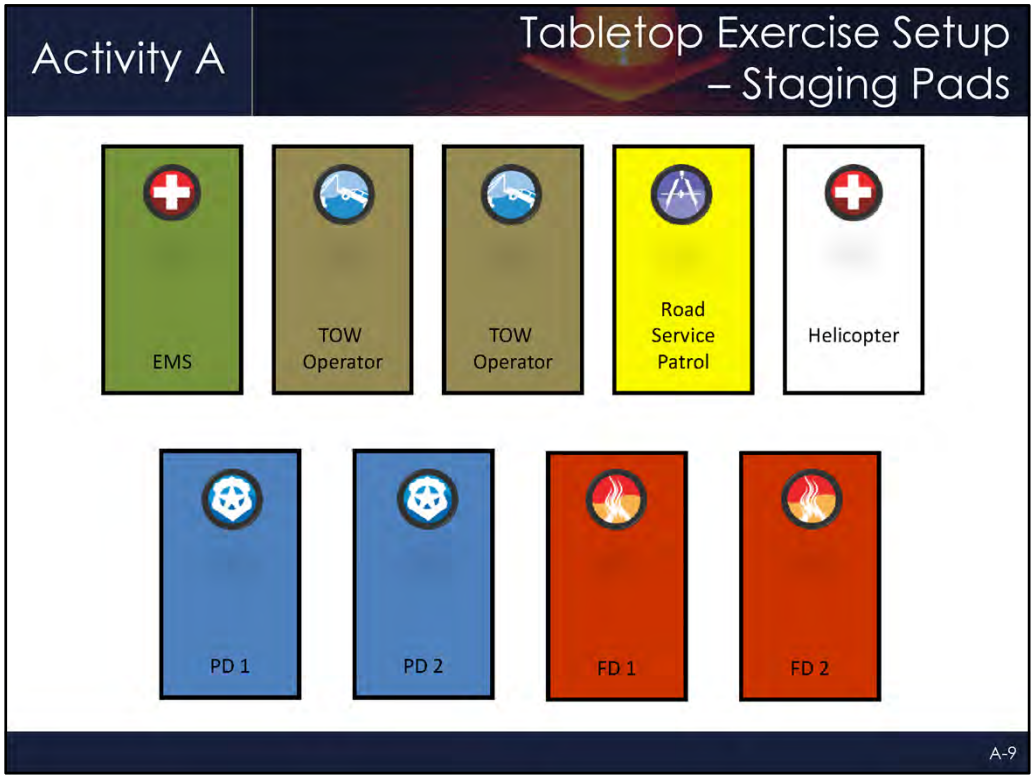
- In order to conduct a tabletop exercise, a written scenario or description of the incident is required
  - The written scenario at a given tabletop should match the geometry and layout of the roadway diagram at that tabletop
  - The time of day, weather, road lighting, and other environmental conditions should be established in the scenario description
  - A series of bulleted points should be used to describe the vehicles, their direction of travel and movements
  - The method of collision, the extent of vehicle damage, and the extent of injuries should be noted for each principle vehicle
  - Special circumstances should be noted as part of the scenario overview description including items such as;
    - Hazardous materials
    - Involvement of utilities such as energized wires, gas meters, etc.
    - Presence of a hybrid/electric vehicle as one of the crash-involved vehicles
    - Serious trauma patient or known fatality at incident scene
    - Medical helicopter operations

Tabletop Exercise Setup

- This chart should be used for each scenario to vary the arrival order of responder vehicles
  - In actual TIM operations, the arrival sequences of disciplines is variable and random
  - Randomizing responder arrival order for the tabletop exercises emulates that variability
- Using this chart, the trainer will assign the arrival order for the scenario(s)
- Participants at each table should position each responder vehicle and discuss their actions before simulating the arrival of the next responding unit

Tabletop Exercise Setup

- A Safety Priorities checklist and a Checklist of Responder Actions should be provided at each table and are beneficial when making decisions about the tactics used in each scenario
- A copy of the DOT Emergency Response Guidebook (ERG) is another good reference that should be made available at each table



Tabletop Exercise Setup

- A staging pad should also be provided at each scenario table and is where the responder vehicles are placed at the start of each exercise
- The use of the pad ensures that all required vehicles are present prior to the start of the tabletop exercise
    - Explain that if the tabletop exercise describes a rural road setting or a municipal street scene where a Road Service Patrol would not normally be, then this yellow box can remain empty
- The pad also minimizes student handling/playing before the exercise begins

Tabletop Exercise Setup

- 1/64th scale die-cast vehicles are readily available at retailers and toy stores for about $1 to $2 each
- There is not a single kit or set that can be purchased for TIM training; all individual vehicles have to be purchased and pieced together
- Matchbox-brand has many realistic responder vehicles, but Hot Wheels, Tonka, Maisto, and other brands can also be used
- Vehicles used for the tabletop exercises can be purchased as single vehicles or in multi-packs such as a 5-pack or a 10-pack
- New models of 1/64th scale vehicles are released throughout the calendar year meaning that all responder vehicle types may not be available all the time
- Online auctions and retailers can be used to fill out missing vehicle types fairly inexpensively
- Toy retailers also sell storage cases for these vehicles, or a plastic tackle box with movable dividers can be used

Tabletop Exercise Setup

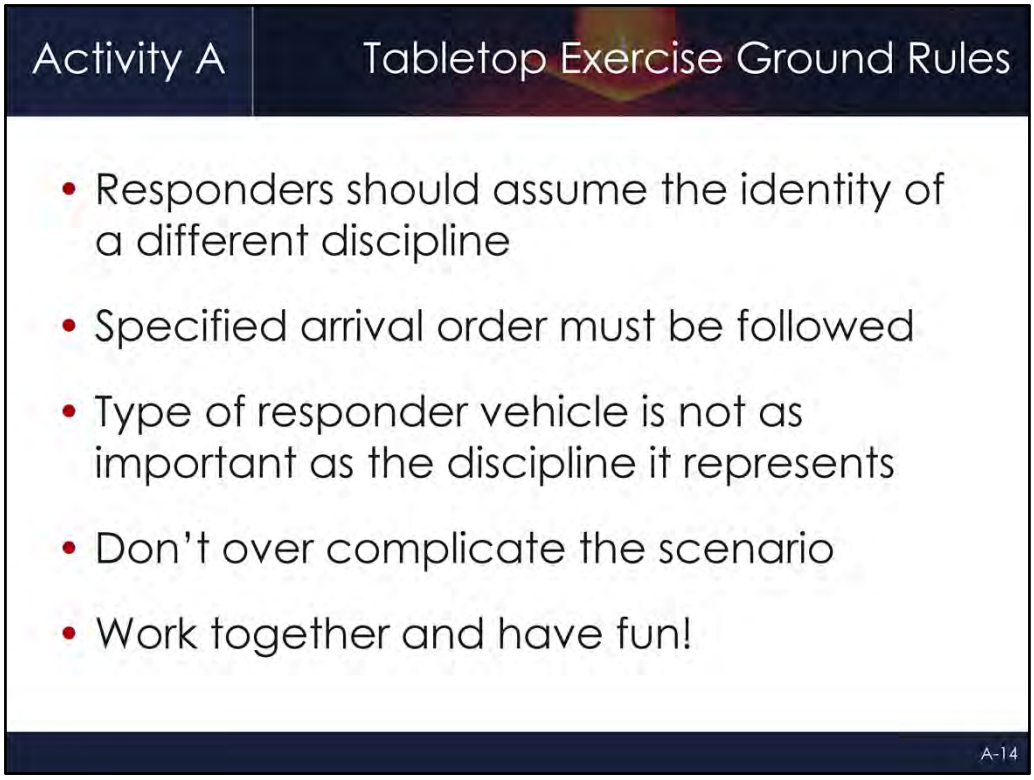
- At a minimum, each scenario requires 2 police (PD), 2 towing (TOW), 2 fire (FD), 1 EMS, 1 helicopter, and 1 type of DOT/Public works vehicle along with one or two crash vehicles
- Eight to twelve additional civilian vehicles per exercise provide the realism of surrounding traffic
- A Safety Service Patrol vehicle can be created with any pickup truck by putting a label on the roof of the vehicle
- Selected vehicles can be damaged with a grinder or file to emulate crash damage
- A tractor-trailer truck, farm vehicle, hybrid/electric automobile, HAZMAT response vehicle, motorcycle, 10-wheel, or 18-wheel tanker truck will add realism and depth to the scenarios
- Continue to acquire novel or unique vehicles over time and add to the training kit

Tabletop Exercise Setup

- Traffic cones are commonly used in TIM and therefore their placement is an important part of each tabletop exercise
  - Electrical wire nuts are similar in shape and scale to a traffic cone
- Representations of the fluorescent pink advanced warning signs should also be provided for each tabletop scenario
  - Fluorescent pink construction paper can be cut into small squares and glued or taped to L-brackets or wire nuts to emulate these advance warning signs
  - Safety Service Patrol programs and transportation agencies are increasingly using the signs
  - Fire departments are beginning to use them to comply with the National Fire Protection Association (NFPA) 1500 safety standard

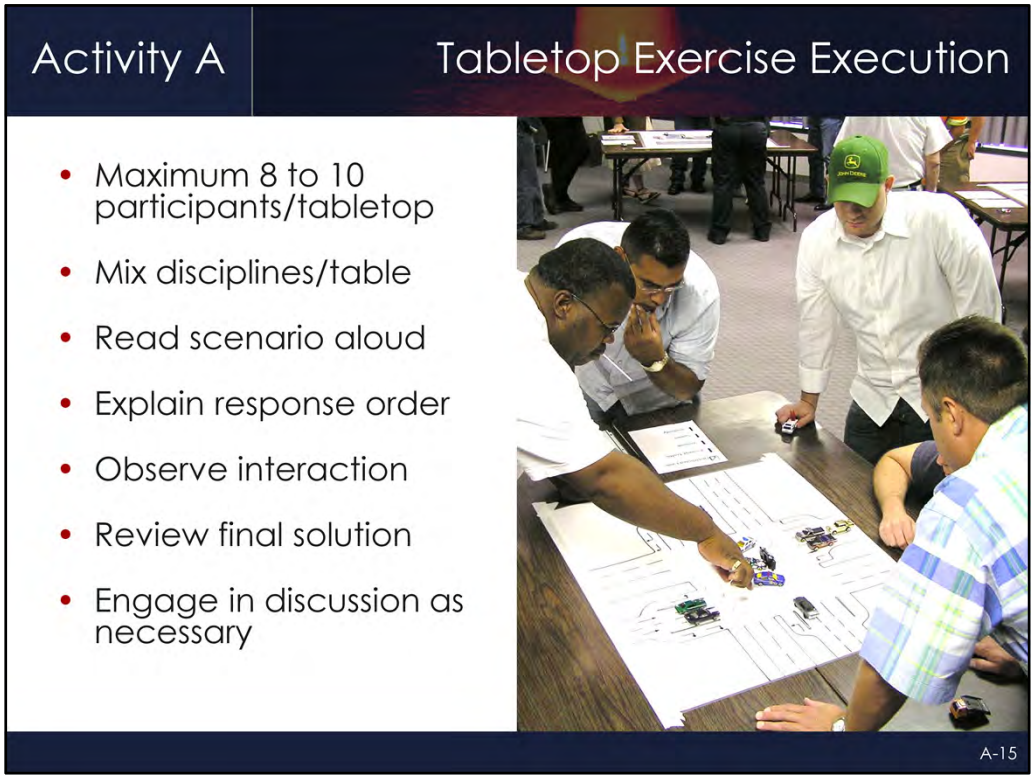
Tabletop Exercise Setup

- Readily available items can help complete the tabletop kits – use your imagination
- Debris can be simulated with shreds of paper, wood chips, or similar items
- Toothpicks, match sticks, pencil erasers, unused staples, thumb tacks, and similar small items make good spilled cargo
- Wooden chopsticks, straws, and coffee stirrers can simulate cargo, street lights, or power company utility poles
- Cutouts of dark brown paper, reddish brown paper, green paper, and translucent paper can simulate spilled vehicle fluids
- Sticks with labels for the four parts of a Traffic Incident Management Area can make good learning aids



Tabletop Exercise Ground Rules

- Emphasize that in the initial scenario, participants cannot operate the responder vehicle that represents their real-life discipline
- Explain that this requirement is to allow each participant an opportunity to learn about the roles of other disciplines on the TIM team
- Remind participants that the actual shape or design of the responder vehicles is not as important as the discipline that the vehicle represents

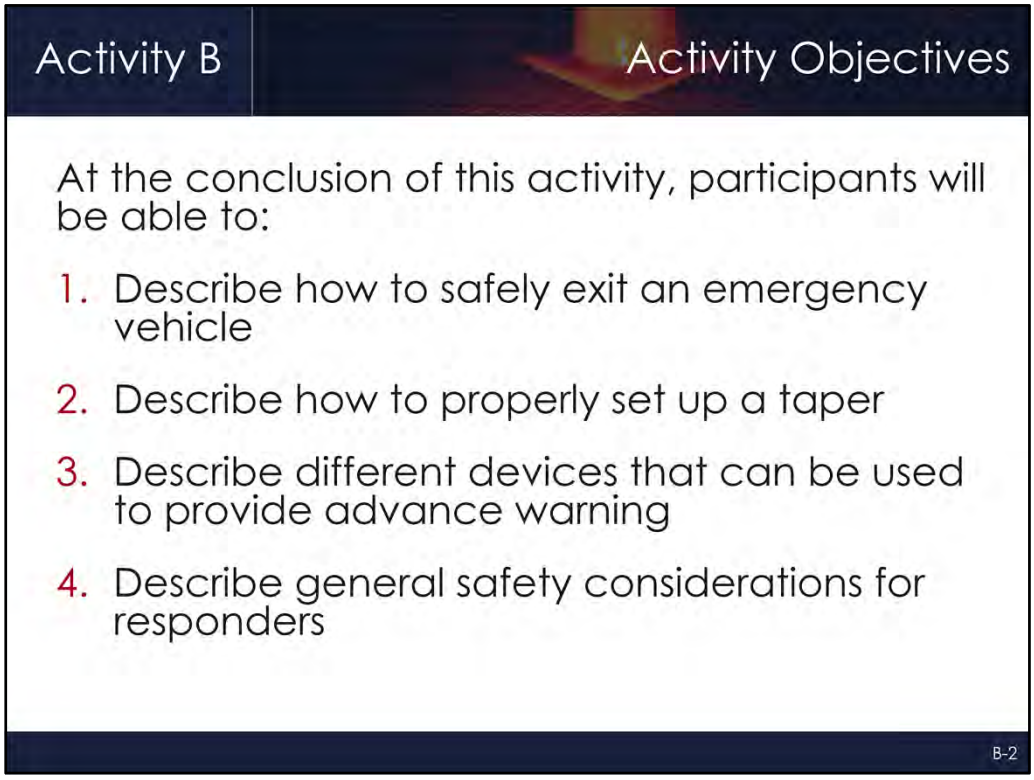


Tabletop Exercise Execution

- Direct participants to divide into equal groups at available tables
- No more than 8 to 10 participants should be at any one tabletop exercise
- A diversity of responder disciplines is sought at each table; PD, FD, EMS, TOW, DOT, etc. in each group
- Direct one participant to read the scenario description aloud for the benefit of all participants at that tabletop layout
- Each participant should pick up a responder vehicle from the staging pad and wait for their turn
- Responder vehicles are placed on the scenario according to the arrival order specified in the scenario description
- Trainers should observe interaction, but do not get involved unless requested
- When the participants indicate a solution has been achieved, the trainer should review and engage in any discussion needed
- Participants are directed to reset the scenario and move to the next table/scenario if more than one tabletop exercise will be attempted

Activity B

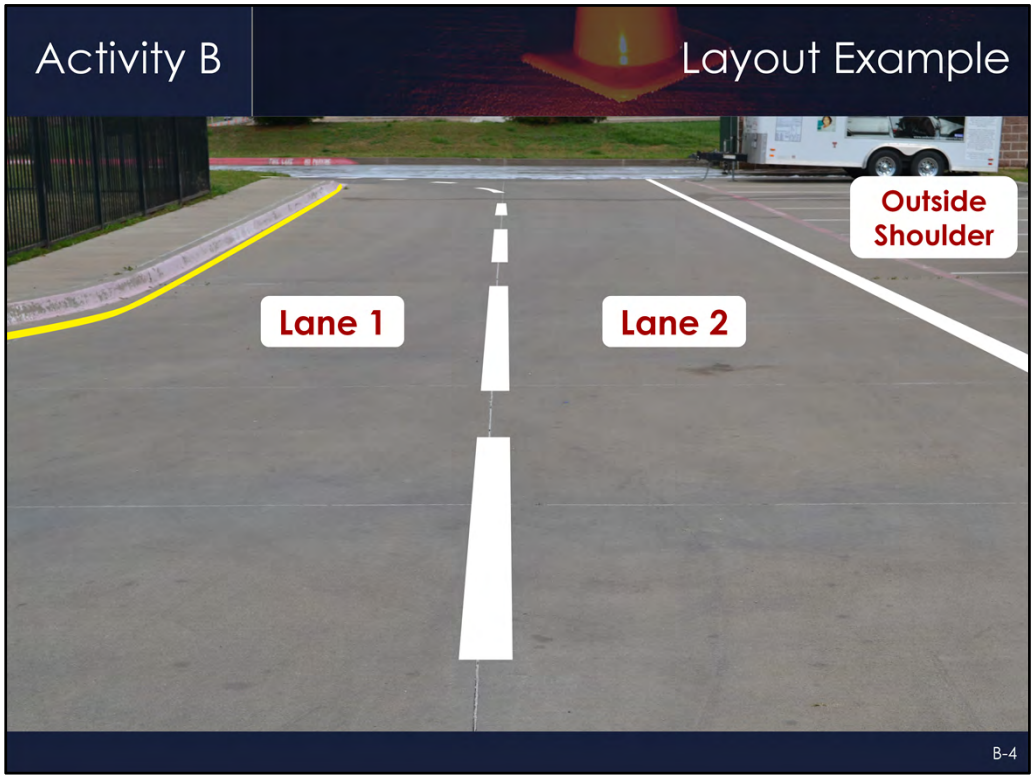
- *Activity B is designed to be an outdoor group activity*
- *The PowerPoint for Activity B is for use when conditions prohibit the outdoor demonstration*



Activity Objectives

Activity Objective: --

- The required training area is a flat, open area approximately 25 feet in width and 100+ feet in length
  - A parking lot adjacent to the classroom is ideal
  - The area must be isolated from moving traffic
- Existing pavement markings, expansion joints, or other features should be maximized to simulate roadway lanes



Activity Objective: --

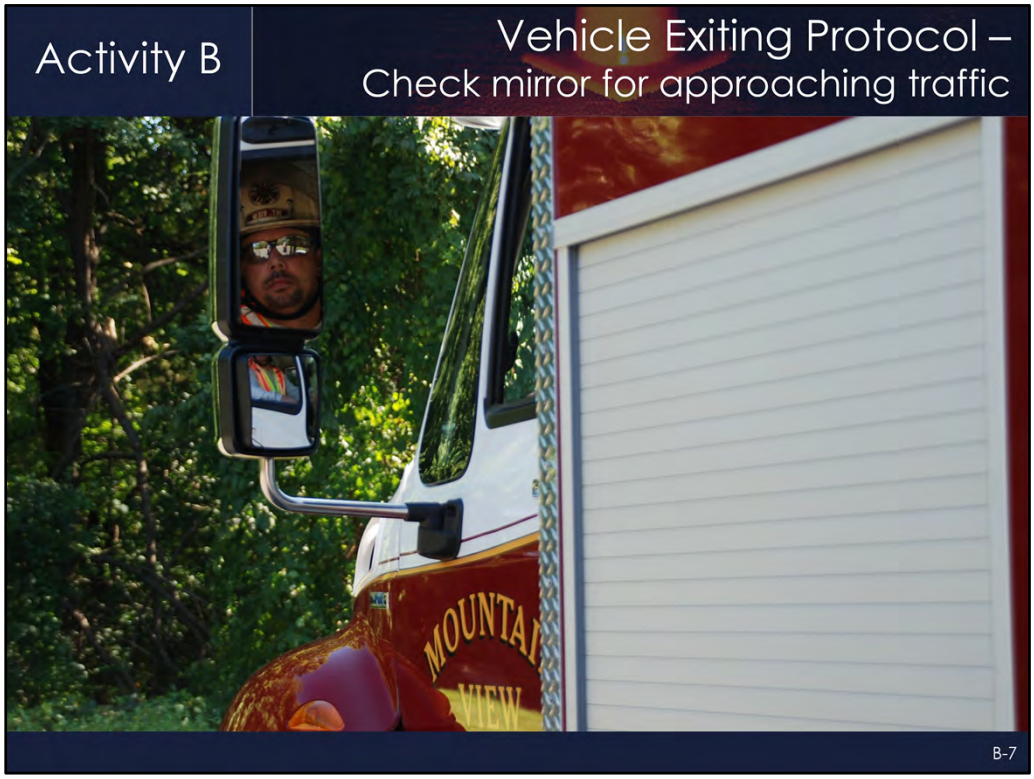
- Although conducted in a parking lot, various lane configurations can be setup and described to participants using appropriate terminology

Activity Objective: B.1

- Position a responder vehicle within the simulated lane at the training location
  - Any responder discipline vehicle can be used
- One participant sits seated and belted in the driver's seat
- Explain that vehicle is positioned linear and that the operator is exiting on the side exposed to moving traffic
- The participant acts out the six steps of exiting a responder vehicle as the trainer narrates and explains each step
  1. Don high-visibility garment
  2. Check mirror for approaching traffic
  3. Look back, check for traffic
  4. Open vehicle door slightly
  5. Open door only as much as needed and exit
  6. Close door and proceed to a safe area

Activity Objective: B.1

- Driver unbuckles seatbelt and dons Class II or III high-visibility safety apparel while still inside vehicle
    - Some fire agencies also require the use of a helmet or hard hat



Activity Objective: B.1

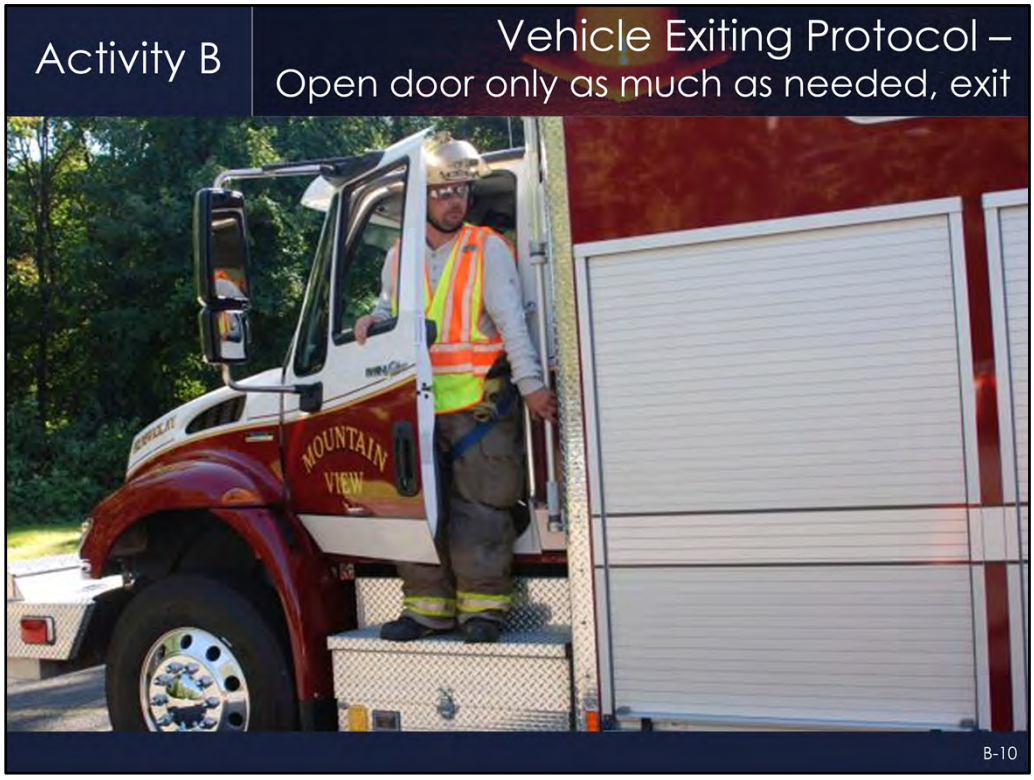
- Check outside mirror for approaching traffic conditions

Activity Objective: B.1

- Look over shoulder and/or out window to check that conditions are safe to exit

Activity Objective: B.1

- Open the vehicle door just a crack and peer through the crack to check approaching traffic conditions



Activity Objective: B.1

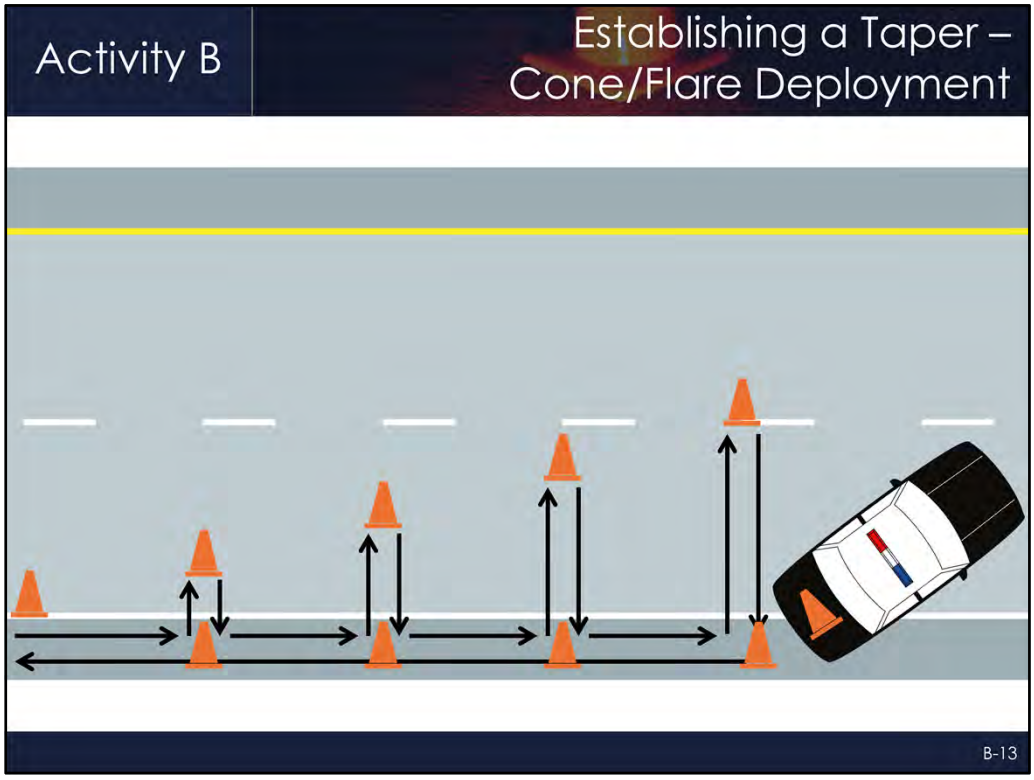
- Open the door only as much as necessary and exit the vehicle
- Maintain a low profile and keep an eye on traffic

Activity Objective: B.1

- The final step is to close the door and proceed to a safe area, while maintaining an eye on traffic

Activity Objective: B.2

- An emergency vehicle (fire or police vehicle preferred) is positioned at the far end of the designated training area, in a block to the left position
  - The vehicle's engine should be shut off to minimize ambient noise
- This vehicle is simulating that the outside (right) shoulder and Lane 2 are being shut down and traffic will be tapered or channelized to pass by the incident scene in Lane 1



Activity Objective: B.2

- Reference Lesson 7 of the classroom portion of the training that addressed cone deployment
- Note that this example shows cones being dropped as the responder walks upstream, an alternative is to carry all cones to the far end of the taper

Activity Objective: B.2

- One participant is selected in advance and dons proper high-visibility safety apparel
- This individual will demonstrate the recommended deployment techniques as the trainer narrates each step
- To start, the responder gathers five cones or flares and stands along the shoulder of the highway facing approaching traffic
- In this demonstration, collapsible cones are used for the deployment, however, the traffic control devices, or channelizing devices, can also be standard rubber 28” cones or a handful of flares or fusees

Activity Objective: B.2

- Responder walks upstream along the simulated shoulder, facing traffic, to the desired upstream point where the first cone will be deployed
- Either the roadway skip lines or 10 paces between cones can be used to guide spacing

Activity Objective: B.2

- The first cone is deployed on the shoulder of the highway

Activity Objective: B.2

- From that upstream-most point, the responder walks back towards the blocking emergency vehicle with the remaining four cones
- The responder must maintain eye contact with approaching traffic; typically walking backwards along the shoulder of the highway

Activity Objective: B.2

- The next cone is now placed in Lane 2 at a lateral distance of three feet or one adult pace
- Emphasize that this is the second cone but the first one to actually be in a lane of traffic
- The responder maintains eye contact with on-coming traffic
- The responder then returns to the shoulder of the highway and gathers the remaining cones

Activity Objective: B.2

- The responder continues to walk backwards toward the blocking vehicle, maintaining eye contact with approaching traffic
- At the point where the next cone will be deployed, the responder places the cone two paces or approximately six feet into the lane of traffic
- The responder then returns back to the shoulder of the highway, gathers the remaining cones and walks backwards towards the emergency vehicle

Activity Objective: B.2

- The fourth cone is deployed three adult paces or approximately nine feet into the obstructed lane
- The responder returns to the shoulder of the highway, gathers the remaining cone and walks backwards towards the blocking vehicle

Activity Objective: B.2

- The final cone is deployed four paces or approximately 12 feet from the edge of the shoulder
- This cone should effectively be on or near the center line of the two-lane highway example shown here

Activity Objective: B.2

- With task completed, the responder returns to the shoulder of the highway and moves to the protected side of the blocking vehicle

Activity Objective: B.3

- Advance warning signs should be deployed upstream of the taper
- Responders should stay on the shoulder when deploying advance warning signs

Activity Objective: B.3

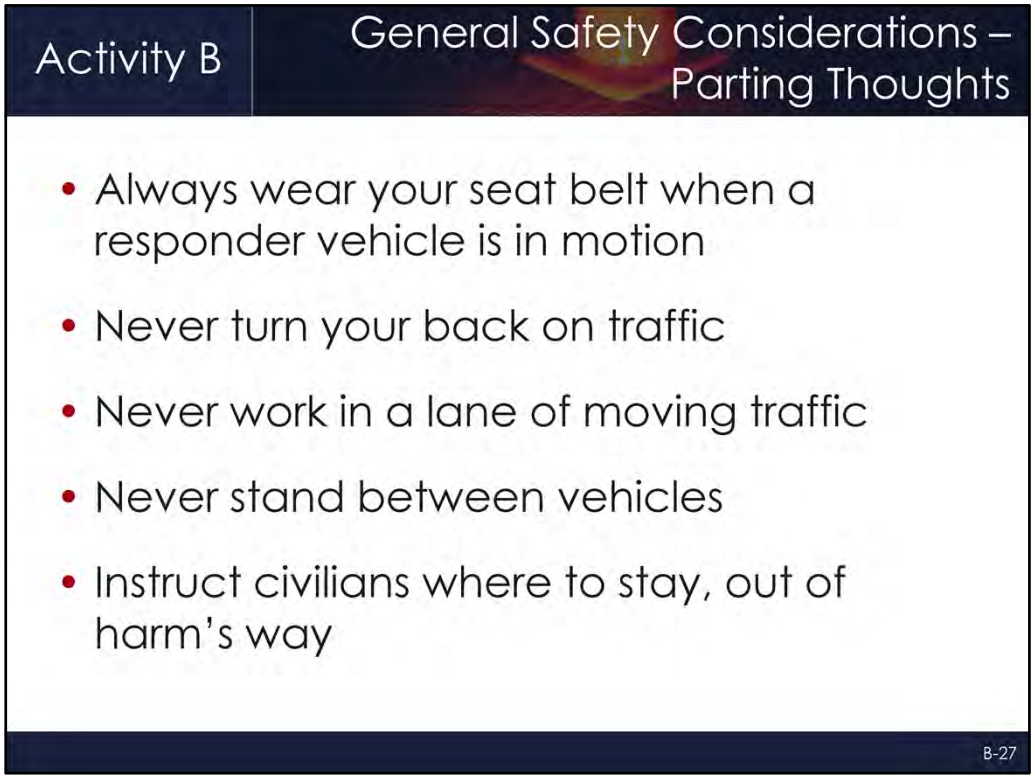
- If available, arrow boards are placed upstream of the blocking vehicle to provide advance warning or direct motorists
- Agency policy dictates how Safety Service Patrol and arrow board vehicles are used
- The arrow board on the left is in caution mode – four amber lights in the corners
    - When no lanes are closed and the vehicle is on the shoulder of the highway, the caution signal is prescribed by the MUTCD
- The arrow board on the right is displaying a directional arrow
    - Per the MUTCD, an arrow board in the arrow or chevron mode shall only be used for stationary or moving lane closures on multi-lane roadways
- Operators should be mindful of the angle of the arrow board relevant to oncoming traffic

Activity Objective: B.4

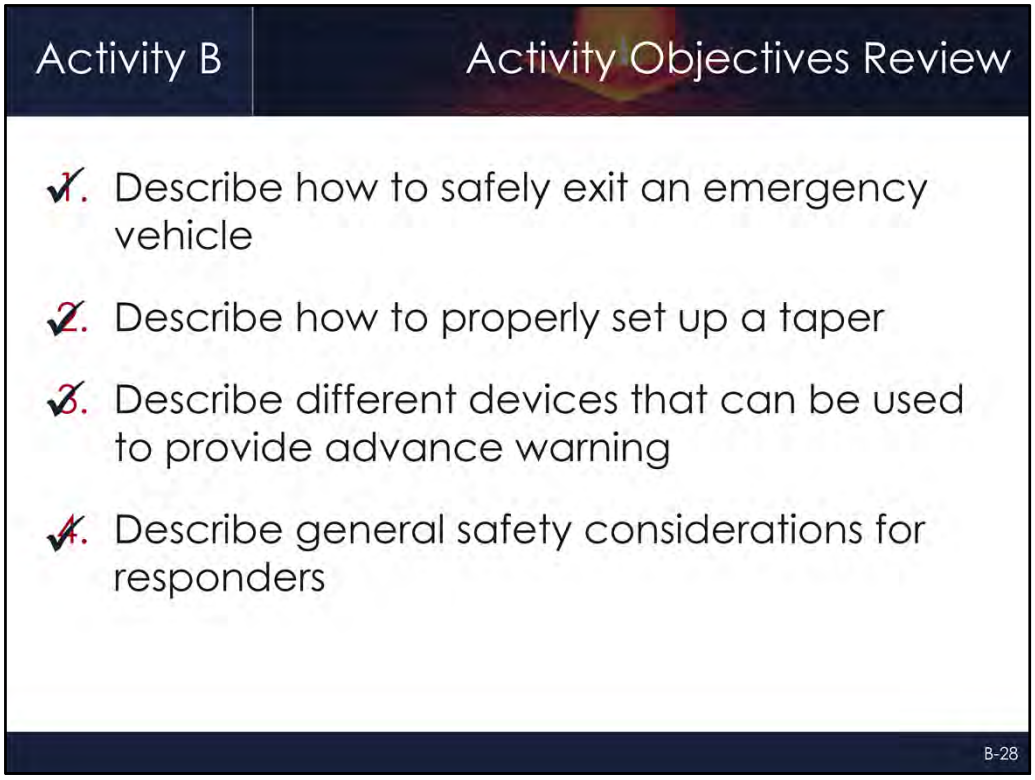
- When used for blocking, either the vehicle driver or right front passenger may exit near oncoming traffic, depending on the direction of the block
- With the four-door cab design, the responders riding in the rear crew area should NOT exit at the side of oncoming traffic
- If hose lines are to be used at an incident, the pump panel is staffed by the pump operator or engineer
- If water is to be used, the pump panel must be on the protected side when the vehicle is blocking

Activity Objective: B.4

- Towing operators are in a uniquely dangerous situation since they often operate as single responders to their incidents
- If tasks require operation in a moving lane of traffic, even momentarily, call for law enforcement assistance
- Operate equipment, controls, and attaching devices away from traffic
- Re-enter the traffic stream safely



Activity Objective: B.4



Activity Objectives Review

- **Animation:** Clicking forward reveals the four check marks one at a time
- Review each activity objective, checking them off as you go

APPENDICES

A. National Unified Goal for Traffic Incident Management Brochure

B. Manual on Uniform Traffic Control Devices

   a. Chapter 6I – Control of Traffic Through Traffic Incident Management Areas

   b. Section 6D.03 – Worker Safety Considerations

C. American Traffic Safety Services Association High-Visibility Safety Apparel Brochure

D. Law Enforcement Vehicle Identification Guide – *Provided Courtesy of the Towing and Recovery Association of America*

National Unified Goal
for Traffic Incident Management

Working Together for Improved Safety, Clearance and Communications

ntimc
National Traffic Incident Management Coalition

WHAT IS THE NATIONAL UNIFIED GOAL?

The Traffic Incident Management National Unified Goal is:

- Responder safety;
- Safe, quick clearance; and
- Prompt, reliable, interoperable communications.

COMMITMENT STATEMENT

The NTIMC is committed to working together to promote, develop, and sustain multidisciplinary, multijurisdictional Traffic Incident Management (TIM) programs to achieve enhanced responder safety; safe, quick traffic incident clearance; and more prompt, reliable, interoperable communications.

HOW WILL THE GOAL BE ACHIEVED?

NTIMC will achieve the three major objectives of the National Unified Goal through 18 strategies. Key strategies include recommended practices for multidisciplinary TIM operations and communications; multidisciplinary TIM training; goals for performance and progress; promotion of beneficial technologies; and partnerships to promote driver awareness.

CROSS-CUTTING STRATEGIES

- **Strategy 1. TIM Partnerships and Programs.** Traffic Incident Management partners at the national, state, regional and local levels should work together to promote, develop and sustain effective Traffic Incident Management Programs.

- **Strategy 2. Multidisciplinary NIMS and TIM Training.** Traffic Incident Management responders should receive multidisciplinary National Incident Management System (NIMS) and Traffic Incident Management (TIM) training.

- **Strategy 3. Goals for Performance and Progress.** Traffic Incident Management partners should work together to establish and implement performance goals at the state, regional and local levels for increasing the effectiveness of Traffic Incident Management, including methods for measuring and monitoring progress.

- **Strategy 4. TIM Technology.** Traffic Incident Management partners at the national, state, regional and local levels should work together for rapid and coordinated implementation of beneficial new technologies for Traffic Incident Management.

- **Strategy 5. Effective TIM Policies.** Traffic Incident Management partners at the national, state, regional and local levels should join together to raise awareness regarding proposed policies and legislation that affect achievement of the National Unified Goal objectives of Responder Safety; Safe, Quick Clearance; and Prompt, Reliable Traffic Incident Communications.

- **Strategy 6. Awareness and Education Partnerships.** Broad partnerships should be

developed to promote public awareness and education regarding the public's role in safe, efficient resolution of incidents on the roadways.

OBJECTIVE 1: RESPONDER SAFETY

- **Strategy 7. Recommended Practices for Responder Safety.** Recommended practices for responder safety and for traffic control at incident scenes should be developed, and widely published, distributed and adopted.

- **Strategy 8. Move Over/Slow Down Laws.** Drivers should be required to Move Over/Slow Down when approaching traffic incident response vehicles and traffic incident responders on the roadway.

- **Strategy 9. Driver Training and Awareness.** Driver training and awareness programs should teach drivers how to react to emergencies on the roadway in order to prevent secondary incidents, including traffic incident responder injuries and deaths.

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.

- **Strategy 11. Response and Clearance Time Goals.** Traffic Incident Management partners at the state, regional and local levels should commit to achievement of goals for traffic incident response and clearance times (as a component of broader goals for more effective Traffic Incident Management--see Strategy 3).

- **Strategy 12. 24/7 Availability.** Traffic Incident Management responders and resources should be available 24/7.

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.

- **Strategy 14. Prompt, Reliable Responder Notification.** All traffic incident responders should receive prompt, reliable notification of incidents to which they are expected to respond.

- **Strategy 15. Interoperable Voice and Data Networks.** State, regional and local Traffic Incident Management stakeholders should work together to develop interoperable voice and data networks.

- **Strategy 16. Broadband Emergency Communications Systems.** National Traffic Incident Management stakeholders (working through the National Traffic Incident Management Coalition) should work together to reduce the barriers to integrated broadband emergency communications systems development and integration (both wired and wireless).

- **Strategy 17. Prompt, Reliable Traveler Information Systems.** Traffic Incident Management partners should encourage development of more prompt and reliable traveler information systems that will enable drivers to make travel decisions to reduce the impacts of emergency incidents on traffic flow.

- **Strategy 18. Partnerships with News Media and Information Providers.** Traffic Incident Management partners should actively partner with news media and information service providers to provide prompt, reliable incident information to the public.

CHAPTER 6I. CONTROL OF TRAFFIC THROUGH TRAFFIC INCIDENT MANAGEMENT AREAS

Section 6I.01 General

Support:

01 The National Incident Management System (NIMS) requires the use of the Incident Command System (ICS) at traffic incident management scenes.

02 A traffic incident is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic.

03 A traffic incident management area is an area of a highway where temporary traffic controls are installed, as authorized by a public authority or the official having jurisdiction of the roadway, in response to a road user incident, natural disaster, hazardous material spill, or other unplanned incident. It is a type of TTC zone and extends from the first warning device (such as a sign, light, or cone) to the last TTC device or to a point where vehicles return to the original lane alignment and are clear of the incident.

04 Traffic incidents can be divided into three general classes of duration, each of which has unique traffic control characteristics and needs. These classes are:

A. Major—expected duration of more than 2 hours,
B. Intermediate—expected duration of 30 minutes to 2 hours, and
C. Minor—expected duration under 30 minutes.

05 The primary functions of TTC at a traffic incident management area are to inform road users of the incident and to provide guidance information on the path to follow through the incident area. Alerting road users and establishing a well defined path to guide road users through the incident area will serve to protect the incident responders and those involved in working at the incident scene and will aid in moving road users expeditiously past or around the traffic incident, will reduce the likelihood of secondary traffic crashes, and will preclude unnecessary use of the surrounding local road system. Examples include a stalled vehicle blocking a lane, a traffic crash blocking the traveled way, a hazardous material spill along a highway, and natural disasters such as floods and severe storm damage.

Guidance:

06 *In order to reduce response time for traffic incidents, highway agencies, appropriate public safety agencies (law enforcement, fire and rescue, emergency communications, emergency medical, and other emergency management), and private sector responders (towing and recovery and hazardous materials contractors) should mutually plan for occurrences of traffic incidents along the major and heavily traveled highway and street system.*

07 *On-scene responder organizations should train their personnel in TTC practices for accomplishing their tasks in and near traffic and in the requirements for traffic incident management contained in this Manual. On-scene responders should take measures to move the incident off the traveled roadway or to provide for appropriate warning. All on-scene responders and news media personnel should constantly be aware of their visibility to oncoming traffic and wear high-visibility apparel.*

08 *Emergency vehicles should be safe-positioned (see definition in Section 1A.13) such that traffic flow through the incident scene is optimized. All emergency vehicles that subsequently arrive should be positioned in a manner that does not interfere with the established temporary traffic flow.*

09 *Responders arriving at a traffic incident should estimate the magnitude of the traffic incident, the expected time duration of the traffic incident, and the expected vehicle queue length, and then should set up the appropriate temporary traffic controls for these estimates.*

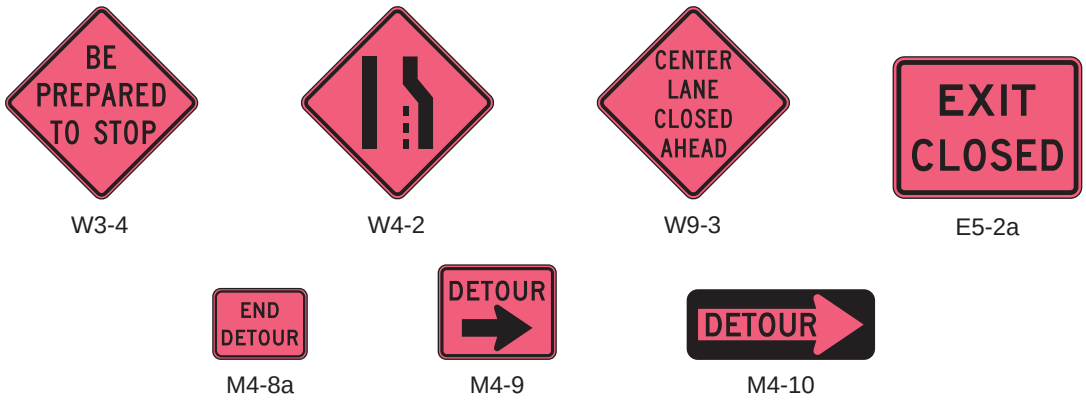
Option:

10 Warning and guide signs used for TTC traffic incident management situations may have a black legend and border on a fluorescent pink background (see Figure 6I-1).

Support:

11 While some traffic incidents might be anticipated and planned for, emergencies and disasters might pose more severe and unpredictable problems. The ability to quickly install proper temporary traffic controls might greatly reduce the effects of an incident, such as secondary crashes or excessive traffic delays. An essential part of fire, rescue, spill clean-up, highway agency, and enforcement activities is the proper control of road users through the traffic incident management area in order to protect responders, victims, and other personnel at the site. These operations might need corroborating legislative authority for the implementation and enforcement of appropriate road user regulations, parking controls, and speed zoning. It is desirable for these statutes to provide sufficient flexibility in the authority for, and implementation of, TTC to respond to the needs of changing conditions found in traffic incident management areas.

Figure 6I-1. Examples of Traffic Incident Management Area Signs



Option:

12 For traffic incidents, particularly those of an emergency nature, TTC devices on hand may be used for the initial response as long as they do not themselves create unnecessary additional hazards.

Section 6I.02 Major Traffic Incidents

Support:

01 Major traffic incidents are typically traffic incidents involving hazardous materials, fatal traffic crashes involving numerous vehicles, and other natural or man-made disasters. These traffic incidents typically involve closing all or part of a roadway facility for a period exceeding 2 hours.

Guidance:

02 *If the traffic incident is anticipated to last more than 24 hours, applicable procedures and devices set forth in other Chapters of Part 6 should be used.*

Support:

03 A road closure can be caused by a traffic incident such as a road user crash that blocks the traveled way. Road users are usually diverted through lane shifts or detoured around the traffic incident and back to the original roadway. A combination of traffic engineering and enforcement preparations is needed to determine the detour route, and to install, maintain or operate, and then to remove the necessary traffic control devices when the detour is terminated. Large trucks are a significant concern in such a detour, especially when detouring them from a controlled-access roadway onto local or arterial streets.

04 During traffic incidents, large trucks might need to follow a route separate from that of automobiles because of bridge, weight, clearance, or geometric restrictions. Also, vehicles carrying hazardous material might need to follow a different route from other vehicles.

05 Some traffic incidents such as hazardous material spills might require closure of an entire highway. Through road users must have adequate guidance around the traffic incident. Maintaining good public relations is desirable. The cooperation of the news media in publicizing the existence of, and reasons for, traffic incident management areas and their TTC can be of great assistance in keeping road users and the general public well informed.

06 The establishment, maintenance, and prompt removal of lane diversions can be effectively managed by interagency planning that includes representatives of highway and public safety agencies.

Guidance:

07 *All traffic control devices needed to set up the TTC at a traffic incident should be available so that they can be readily deployed for all major traffic incidents. The TTC should include the proper traffic diversions, tapered lane closures, and upstream warning devices to alert traffic approaching the queue and to encourage early diversion to an appropriate alternative route.*

08 *Attention should be paid to the upstream end of the traffic queue such that warning is given to road users approaching the back of the queue.*

09 *If manual traffic control is needed, it should be provided by qualified flaggers or uniformed law enforcement officers.*

Option:

10 If flaggers are used to provide traffic control for an incident management situation, the flaggers may use appropriate traffic control devices that are readily available or that can be brought to the traffic incident scene on short notice.

Guidance:

11 *When light sticks or flares are used to establish the initial traffic control at incident scenes, channelizing devices (see Section 6F.63) should be installed as soon thereafter as practical.*

Option:

12 The light sticks or flares may remain in place if they are being used to supplement the channelizing devices.

Guidance:

13 *The light sticks, flares, and channelizing devices should be removed after the incident is terminated.*

Section 6I.03 Intermediate Traffic Incidents

Support:

01 Intermediate traffic incidents typically affect travel lanes for a time period of 30 minutes to 2 hours, and usually require traffic control on the scene to divert road users past the blockage. Full roadway closures might be needed for short periods during traffic incident clearance to allow traffic incident responders to accomplish their tasks.

02 The establishment, maintenance, and prompt removal of lane diversions can be effectively managed by interagency planning that includes representatives of highway and public safety agencies.

Guidance:

03 *All traffic control devices needed to set up the TTC at a traffic incident should be available so that they can be readily deployed for intermediate traffic incidents. The TTC should include the proper traffic diversions, tapered lane closures, and upstream warning devices to alert traffic approaching the queue and to encourage early diversion to an appropriate alternative route.*

04 *Attention should be paid to the upstream end of the traffic queue such that warning is given to road users approaching the back of the queue.*

05 *If manual traffic control is needed, it should be provided by qualified flaggers or uniformed law enforcement officers.*

Option:

06 If flaggers are used to provide traffic control for an incident management situation, the flaggers may use appropriate traffic control devices that are readily available or that can be brought to the traffic incident scene on short notice.

Guidance:

07 *When light sticks or flares are used to establish the initial traffic control at incident scenes, channelizing devices (see Section 6F.63) should be installed as soon thereafter as practical.*

Option:

08 The light sticks or flares may remain in place if they are being used to supplement the channelizing devices.

Guidance:

09 *The light sticks, flares, and channelizing devices should be removed after the incident is terminated.*

Section 6I.04 Minor Traffic Incidents

Support:

01 Minor traffic incidents are typically disabled vehicles and minor crashes that result in lane closures of less than 30 minutes. On-scene responders are typically law enforcement and towing companies, and occasionally highway agency service patrol vehicles.

02 Diversion of traffic into other lanes is often not needed or is needed only briefly. It is not generally possible or practical to set up a lane closure with traffic control devices for a minor traffic incident. Traffic control is the responsibility of on-scene responders.

Guidance:

03 *When a minor traffic incident blocks a travel lane, it should be removed from that lane to the shoulder as quickly as possible.*

Section 6I.05 Use of Emergency-Vehicle Lighting

Support:

01 The use of emergency-vehicle lighting (such as high-intensity rotating, flashing, oscillating, or strobe lights) is essential, especially in the initial stages of a traffic incident, for the safety of emergency responders and persons involved in the traffic incident, as well as road users approaching the traffic incident. Emergency-vehicle lighting, however, provides warning only and provides no effective traffic control. The use of too many lights at an incident scene can be distracting and can create confusion for approaching road users, especially at night. Road users approaching the traffic incident from the opposite direction on a divided facility are often distracted by emergency-vehicle lighting and slow their vehicles to look at the traffic incident posing a hazard to themselves and others traveling in their direction.

02 The use of emergency-vehicle lighting can be reduced if good traffic control has been established at a traffic incident scene. This is especially true for major traffic incidents that might involve a number of emergency vehicles. If good traffic control is established through placement of advanced warning signs and traffic control devices to divert or detour traffic, then public safety agencies can perform their tasks on scene with minimal emergency-vehicle lighting.

Guidance:

03 *Public safety agencies should examine their policies on the use of emergency-vehicle lighting, especially after a traffic incident scene is secured, with the intent of reducing the use of this lighting as much as possible while not endangering those at the scene. Special consideration should be given to reducing or extinguishing forward facing emergency-vehicle lighting, especially on divided roadways, to reduce distractions to oncoming road users.*

04 *Because the glare from floodlights or vehicle headlights can impair the nighttime vision of approaching road users, any floodlights or vehicle headlights that are not needed for illumination, or to provide notice to other road users of an incident response vehicle being in an unexpected location, should be turned off at night.*

Guidance:

07 *If a pushbutton is used to provide equivalent TTC information to pedestrians with visual disabilities, the pushbutton should be equipped with a locator tone to notify pedestrians with visual disabilities that a special accommodation is available, and to help them locate the pushbutton.*

Section 6D.03 Worker Safety Considerations

Support:

01 Equally as important as the safety of road users traveling through the TTC zone is the safety of workers. TTC zones present temporary and constantly changing conditions that are unexpected by the road user. This creates an even higher degree of vulnerability for workers on or near the roadway.

02 Maintaining TTC zones with road user flow inhibited as little as possible, and using TTC devices that get the road user's attention and provide positive direction are of particular importance. Likewise, equipment and vehicles moving within the activity area create a risk to workers on foot. When possible, the separation of moving equipment and construction vehicles from workers on foot provides the operator of these vehicles with a greater separation clearance and improved sight lines to minimize exposure to the hazards of moving vehicles and equipment.

Guidance:

03 *The following are the key elements of worker safety and TTC management that should be considered to improve worker safety:*

- *A. Training—all workers should be trained on how to work next to motor vehicle traffic in a way that minimizes their vulnerability. Workers having specific TTC responsibilities should be trained in TTC techniques, device usage, and placement.*
- *B. Temporary Traffic Barriers—temporary traffic barriers should be placed along the work space depending on factors such as lateral clearance of workers from adjacent traffic, speed of traffic, duration and type of operations, time of day, and volume of traffic.*
- *C. Speed Reduction—reducing the speed of vehicular traffic, mainly through regulatory speed zoning, funneling, lane reduction, or the use of uniformed law enforcement officers or flaggers, should be considered.*
- *D. Activity Area—planning the internal work activity area to minimize backing-up maneuvers of construction vehicles should be considered to minimize the exposure to risk.*
- *E. Worker Safety Planning—a trained person designated by the employer should conduct a basic hazard assessment for the worksite and job classifications required in the activity area. This safety professional should determine whether engineering, administrative, or personal protection measures should be implemented. This plan should be in accordance with the Occupational Safety and Health Act of 1970, as amended, "General Duty Clause" Section 5(a)(1) - Public Law 91-596, 84 Stat. 1590, December 29, 1970, as amended, and with the requirement to assess worker risk exposures for each job site and job classification, as per 29 CFR 1926.20 (b)(2) of "Occupational Safety and Health Administration Regulations, General Safety and Health Provisions" (see Section 1A.11).*

Standard:

04 **All workers, including emergency responders, within the right-of-way who are exposed either to traffic (vehicles using the highway for purposes of travel) or to work vehicles and construction equipment within the TTC zone shall wear high-visibility safety apparel that meets the Performance Class 2 or 3 requirements of the ANSI/ISEA 107–2004 publication entitled "American National Standard for High-Visibility Safety Apparel and Headwear" (see Section 1A.11), or equivalent revisions, and labeled as meeting the ANSI 107-2004 standard performance for Class 2 or 3 risk exposure, except as provided in Paragraph 5. A person designated by the employer to be responsible for worker safety shall make the selection of the appropriate class of garment.**

Option:

05 Emergency and incident responders and law enforcement personnel within the TTC zone may wear high-visibility safety apparel that meets the performance requirements of the ANSI/ISEA 207-2006 publication entitled "American National Standard for High-Visibility Public Safety Vests" (see Section 1A.11), or equivalent revisions, and labeled as ANSI 207-2006, in lieu of ANSI/ISEA 107-2004 apparel.

Standard:

06 **When uniformed law enforcement personnel are used to direct traffic, to investigate crashes, or to handle lane closures, obstructed roadways, and disasters, high-visibility safety apparel as described in this Section shall be worn by the law enforcement personnel.**

07 **Except as provided in Paragraph 8, firefighters or other emergency responders working within the right-of-way shall wear high-visibility safety apparel as described in this Section.**

Option:

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

09 The following are additional elements of TTC management that may be considered to improve worker safety:

A. Shadow Vehicle—in the case of mobile and constantly moving operations, such as pothole patching and striping operations, a shadow vehicle, equipped with appropriate lights and warning signs, may be used to protect the workers from impacts by errant vehicles. The shadow vehicle may be equipped with a rear-mounted impact attenuator.
B. Road Closure—if alternate routes are available to handle road users, the road may be closed temporarily. This may also facilitate project completion and thus further reduce worker vulnerability.
C. Law Enforcement Use—in highly vulnerable work situations, particularly those of relatively short duration, law enforcement units may be stationed to heighten the awareness of passing vehicular traffic and to improve safety through the TTC zone.
D. Lighting—for nighttime work, the TTC zone and approaches may be lighted.
E. Special Devices—these include rumble strips, changeable message signs, hazard identification beacons, flags, and warning lights. Intrusion warning devices may be used to alert workers to the approach of errant vehicles.

Support:

10 Judicious use of the special devices described in Item E in Paragraph 9 might be helpful for certain difficult TTC situations, but misuse or overuse of special devices or techniques might lessen their effectiveness.

For Your Safety

High-visibility safety apparel makes the wearer more visible to traffic under any conditions.

High-visibility safety apparel is personal protective safety clothing that is intended to provide conspicuity [make the wearer more visible] during both daytime and nighttime usage, and that meets the Performance Class 2 or 3 requirements of American National Standards Institute (ANSI)/ International Safety Equipment Association (ISEA) 107-2004. [1]

All workers within the right-of-way of a Federal-aid highway who are exposed either to traffic, or to construction equipment within the work area shall wear high-visibility safety apparel. Workers affected by this requirement include, but are not limited to:

- Highway construction and maintenance crews, including flaggers
- Inspectors
- Engineering personnel
- Survey crews
- Utility crews
- Responders

When Should High-Visibility Safety Apparel Be Replaced?

High-visibility safety apparel should be replaced when it becomes faded, torn, dirty, soiled, worn, or defaced, or if it is not visible at 1,000 feet day or night. The typical useful service life of high-visibility safety apparel depends on the type of work an individual performs while wearing the apparel.

If you think your safety apparel is questionable, you should replace it.

Apparel that is worn on a daily basis has a service life expectancy of approximately 6 months, although apparel that is not worn on a daily basis may have a useful service life of up to 3 years.

[1] Federal Highway Administration worker visibility final rule

How Do I Replace My High-Visibility Safety Apparel?

When apparel is ready for replacement, notify your safety compliance officer or supervisor and request replacement apparel. Ensure that they know the kind of work you are doing (repaving, maintenance work, nighttime work, etc.) so that they will know which type of apparel to provide to you. Once you have received your new apparel, cut your old apparel in half so that it can't be reused and then dispose of it properly.

Purchasing agents should consider the following when buying new apparel:

- Working conditions (time of day,temperature, etc.).
- Class of apparel needed (Performance Class 2, or 3; Class 1 is unacceptable for any highway work. See brochure entitled: Worker Visibility Be Seen. Be Safe. New Requirements for High Visibility Garments- Contact ATSSA for more information.)
- Compliance with ANSI/ISEA 107-2004 and 207-2006.
- State and local standards and guidelines
- MUTCD section 6E, which gives the appropriate colors for the apparel.

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ATSSA SAFER ROADS SAVE LIVES
American Traffic Safety Services Association

U.S. Department of Transportation
Federal Highway Administration

High-Visibility Safety Apparel In Highway Work Zones

When does my high-visibility apparel no longer protect me and need to be replaced?

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U.S. Department of Transportation
Federal Highway Administration

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Acceptable

New high-visibility safety apparel is characterized by having vivid color contrast and high reflectivity.

Marginal

Characteristics: Good reflectivity although the vest has some soiling and light fading.

Unacceptable

Characteristics: little or no reflectivity, and soiled and faded material.

Acceptable

Apparel that is used but is in like-new condition is characterized as having excellent color contrast, excellent reflectivity, and is not faded or soiled.

Marginal *

Characteristics: Good reflectivity but has some soiling and light fading of material. *Note: This picture was taken with a flash and simulates nighttime conditions.

Unacceptable

Characteristics: Poor color contrast, low or no reflectivity, significant fading or soiling, and deteriorated reflective strips.

Pictures provided by Michigan Department of Transportation and Washington Department of Transportation

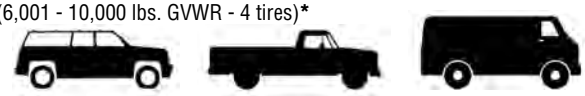
Factors that may cause the apparel to wear out more quickly, depending on the amount of use, include:

- Higher elevations due to increased ultra-violet rays
- Hot climates
- Work done while wearing apparel (some jobs are more dirty or strenuous and could be more likely to lead to soiling or tears)
- Care of the high visibility apparel: how you wash and store your apparel (refer to the label inside the apparel for proper care instructions)

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.

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?

t#1904

*** 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.

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