


Introduction To Traffic Incident Management / Stats / Real World Examples



Instructor Introductions

- Rick Chron – General Manager, United Road Towing Dallas, Inc. *(Retired)*
- Tim Fornash – Police Officer, Fort Worth Police Department
- John James – Dispatch Operations Manager – NTX Wrecker Service
- John Key – Fire Captain, Irving Fire Department *(Retired)*
- Ron Moore – Independent Fire Instructor
- Daniel Plumer – Captain, Dallas County Sherriff's Office
- Anthony White – Special Jobs Coordinator II, TXDOT
- Kareem Williams – Roadside Safety Services Manager, NTTA
- Charles Yancey – Fire Captain, Irving Fire Department

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Class Introductions

Student Information	
Name	
Agency	
Years on the Job	
****Chief Traffic Complaint**	

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Course Overview

Outline
1.) Introduction, Real World Examples
2.) Terminology, Statistics, Laws
3.) Detection & Verification, TMCs
4.) Response: Arrival and Size-up, Move It-Work It, Linear-Block, Zero Buffer
5.) Responder Safety: Apparel and PPE / Chevrons / Vests / Light Shedding
6.) Command
7.) Traffic Management, Student Activities
9.) *Situational Awareness*
10.) HOV, Managed and Express Lanes
11.) Special TIM Scenarios: Hazmat, Fatalities, Vehicle Fires, Hybrid/Evs
12.) Clearance, Towing, Investigations, Termination
13.) *Table-top Scenarios*
14.) Closing: Web-based, EMS CEUs, TCOLE, Evaluations, Certificates

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Definition Of Traffic Incident Management

Traffic Incident Management is a set of actions and procedures by multiple agencies and private sector partners acting cooperatively and in a coordinated way to:

- Prepare for incidents
- Quickly detect incidents
- Respond to incidents
- Remove the incident
- Effectively address lingering effects of traffic incidents on traffic flow and safety

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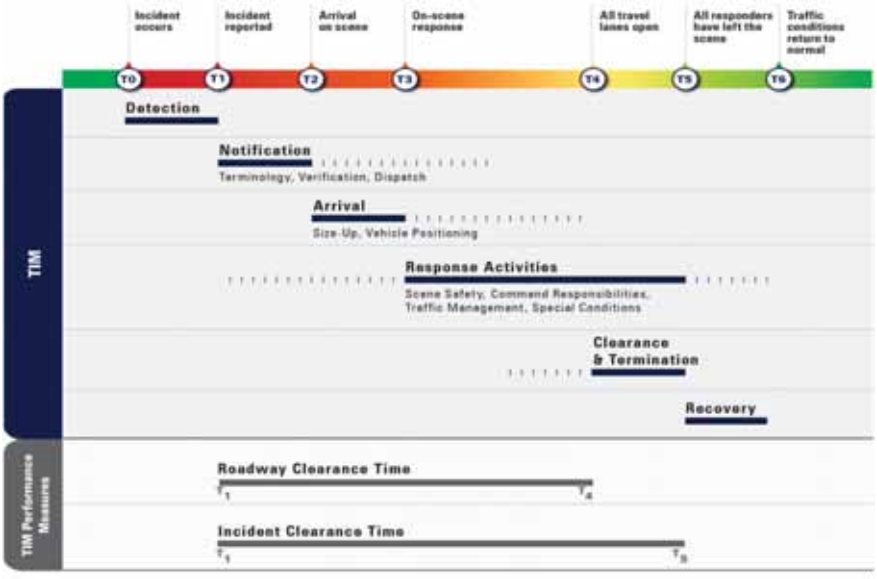
Major Stages In Incident Management



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Definition Of Traffic Incidents

- Any unplanned event that causes a reduction of roadway capacity
- Caused by disabled vehicles or major crashes
- Secondary collisions occur as a result of traffic backup from a previous traffic incident

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Goals for Improving Incident Management

- Improve safety for motorists and responders
- Improve air quality
  - Environmental Protection Agency (EPA) sets air quality goals
  - Dallas-Fort Worth is an air quality nonattainment area
- Reduce congestion and improve roadway efficiency
- Increase inter-agency coordination
- Increase motorist awareness
- Build a positive public image

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The Problem

- Traffic congestion is consistently ranked as a top concern of people in Texas ***on all roadways***
- Three municipalities; Austin, Dallas-Fort Worth, and Houston are all on the list of the top 20 most congested cities in the US
- Congestion lasts long after the road is cleared
- Non-recurring congestion reduces efficiency
  - 50 percent is recurring congestion – road use routinely exceeds existing capacity
  - 50 percent is due to non-recurring congestion – temporary disruptions
- Traffic congestion cost motorists in the North Central Texas Metropolitan Planning Area $12.1 billion per year in wasted travel time in 2018 – **that figure is expected to increase $27.2 billion per year by 2045**

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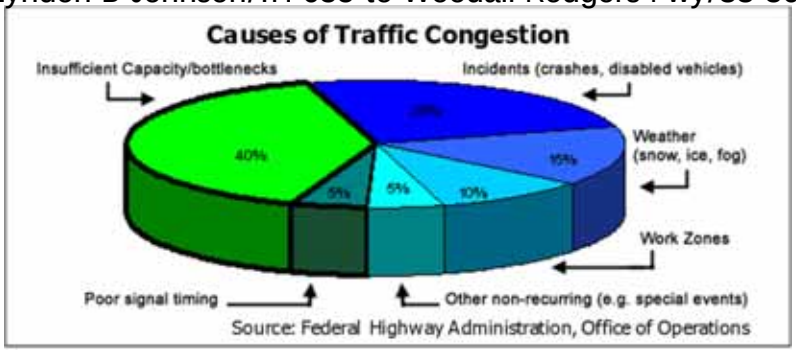
The Problem (Cont.)

- Unplanned Events
- Dallas County has 3 of the Top 10 Most Congested Roads in Texas
  - Woodall Rodgers Fwy/SS 366 (From US 75 to N Beckley Ave)
  - Stemmons Fwy/IH 35E/US 77 (John Carpenter/SH 183 to Tom Landry Fwy/IH 30)
  - US 75 (Lyndon B Johnson/IH 635 to Woodall Rodgers Fwy/SS 366)



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Identify Partners In The Incident Management Program

- Law enforcement
- Fire and rescue
- Emergency medical services (EMS)
- Transportation agencies, dedicated patrols, and mobility assistance patrols
- Traffic control centers
- Towing and recovery service providers
- Motor Carriers
- Insurance Adjusters
- Dispatchers/Calls Takers
- Media
- Information service providers
- Coroners and medical examiners
- First receiver's (Hospital personnel receiving patients)
- Hazardous materials cleanup providers ***Each Has a Role to Play***

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The National Unified Goal

Under leadership of the National Traffic Incident Management Coalition (NTIMC) and major national organizations representing traffic incident responders, three key objectives and 18 strategies related to those objectives were developed.

- The three objectives of the National Unified Goal (NUG) for Traffic Incident Management are:
  - Responder safety
  - Safe, quick clearance
  - Prompt, reliable communications

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Why Better Incident Management Is Necessary

- Thousands of incidents occur every day
- Incidents cause queue formation and secondary accidents
- Unplanned Events Responsible for about 25 percent of all traffic congestion
- Secondary crashes kill or injure hundreds annually in the Dallas-Fort Worth area
- Economic loss is more than $90 billion nationwide each year
- Improve safety for motorists and responders
- Increase interagency coordination

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Pit-Crew Video

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Conclusion And Next Steps

- Safety is the Number One priority
- Gain awareness of all aspects of incident management
- Next we'll discuss the best practices available for technology, training, and tactics

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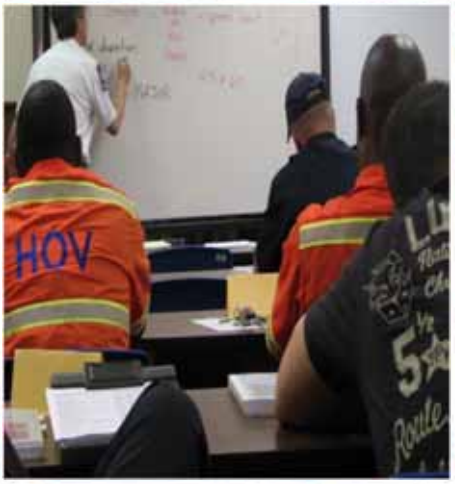
Terminology / Statistics / Laws



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Terms You Need To Know

- NIMS – National Incident Management System
- NFPA – National Fire Protection Association
- TIM – Traffic Incident Management
- TMUTCD – Texas Manual of Uniform Traffic Control Devices

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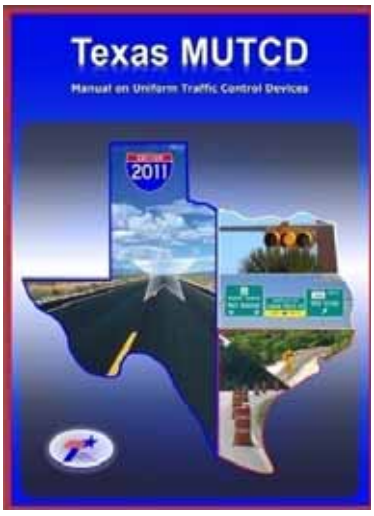
Texas Manual on Uniform Traffic Control Devices (TMUTCD)

- The Texas Manual on Uniform Traffic Control Devices (TMUTCD) sets standards for:
  - Early traffic control
  - Formal traffic control
  - Lane closures
  - Major vs. minor incidents
  - Traffic control devices
  - Personnel safety equipment
- TMUTCD is the state guideline for all traffic control statewide
- It also covers all 'workers' on all streets, roadways or highways



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Texas Manual on Uniform Traffic Control Devices (TMUTCD) (Cont.)

- Chapter 6I
  - Highway emergency scenes are now *"Traffic Incident Management Areas" (TIMAs)*
  - Responders are now classified as *"highway workers"*
- Chapter 6I defines minor, intermediate, and major duration incidents
  - Minor duration -< 30 minutes
  - Intermediate duration – 30 minutes to 2 hours
  - Major duration -> 2 hours
- Major versus minor incidents
- Temporary work zone: 60 minutes or less
- Simplified traffic control procedures
- Section 6C.02 of the TMUTCD

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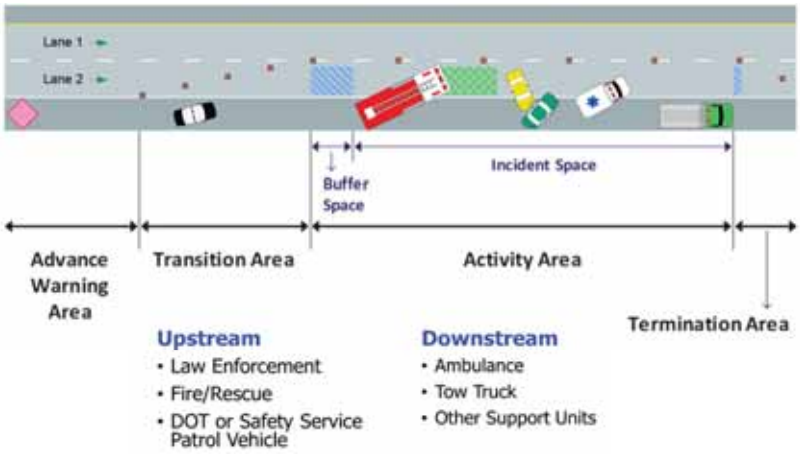
Traffic Incident Management Area

- A traffic incident management (TIM) area is an area of a highway where temporary traffic controls are imposed by authorized officials in response to an unplanned incident



TMUTCD also requires PD, FD, EMS & Tow to establish a TMUTCD-compliant "Traffic Incident Management Area"

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Rural Road Response Terminology

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Rural Road Response Terminology (Cont.)

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Common Response Terminology

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Common Response Terminology (Cont.)

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Common Response Terminology (Cont.)

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Common Response Terminology (Cont.)

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Common Response Terminology (Cont.)

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Common Response Terminology (Cont.)

28

Common Response Terminology (Cont.)

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Common Response Terminology (Cont.)

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Common Response Terminology (Cont.)

Examples Include:

- On-ramp/Off-ramp
- Service road/Access road
- Distributor/Collector road
- Overpass/Underpass

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Common Response Terminology (Cont.)

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Common Response Terminology (Cont.)

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Common Response Terminology (Cont.)

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Lane Designation Terminology – Recommended Lane (Cont.)

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Lane Designation Terminology – Recommended Lane (Cont.)

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Ohio Officer Secondary Crash Video

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Data To Collect

- Response times
- Clearance times
- Numbers of incidents which are secondary incidents
- Use data to evaluate agency performance over time
- What performance measure does your agency need to improve?

**Filling out crash reports accurately and efficiently is very important in order to analyze crashes and crash factors in order to look at ways to reduce crashes*

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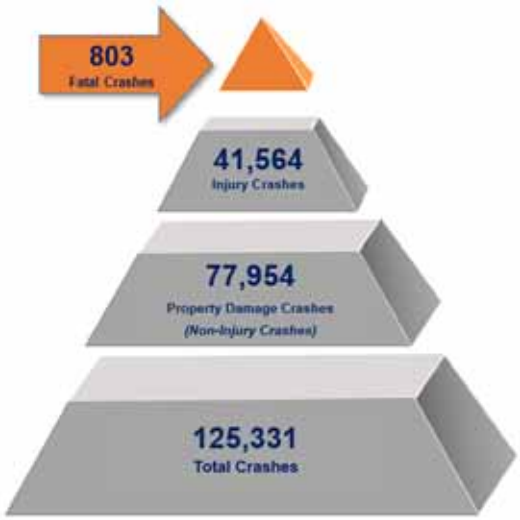
The 2023 Crash Pyramid (12-county MPA)



Five Injury Crashes Every Hour

IN TEXAS, there were 14,299 serious injury crashes, with 17,546 people seriously injured

IN TEXAS –

- 1 person was killed every 2 hours, 21 minutes!
- 1 person was injured every 2 minutes, 4 seconds!

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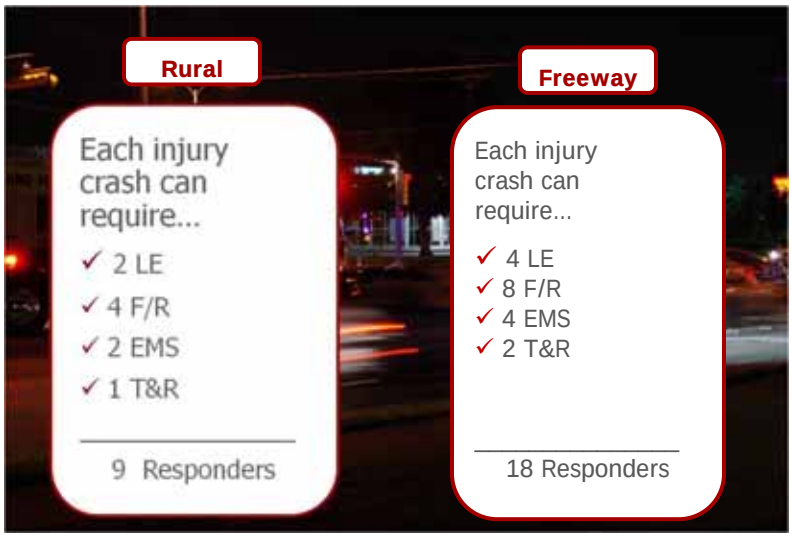
Injury Crash



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Injury Crash (Cont.)

- That's potentially 27-54 responders "working in or near moving traffic" every minute of every hour, 24/7/365!

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"D" Drivers

"D" Drivers Are Killing Us...

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

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"D" – Distracted Drivers

- **House Bill 62**
  - 1st Time Offenders – Punishable by a Fine of $24-$99
  - Repeat Offenders – Punishable by a Fine of $100-$200
    - If Crash Results in Death or Serious Body Injury, *Texting Driver Can be Charged with Class a Misdemeanor*
- Texas is the 47th State to Officially Ban Texting While Driving

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Responder Exposure

In 2015

- There were 6,296,000 police-reported crashes:
  - 32,166 Fatality crashes
  - 1,715,000 Injury crashes
  - 4,548,000 Property-damage only crashes
- AAA assisted 32 million motorists
- NFPA reported a total of 174,000 highway vehicle fires

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Responder Safety

In a typical year, the following number of responders are struck and killed

- 10 Law enforcement officers
- 4 Fire and rescue personnel
- An Estimated 40-60 Towing and Recovery Professionals
- Several transportation professionals from DOTs, Public Works, and Safety Service Patrol Programs

- Resources for Responder Involved Incident Statistics
  www.respondersafety.com
  www.firefighterclosecalls.com

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"Struck-By" Incidents

- Vehicle on PA Turnpike lost control and slid into a drainage ditch...911 is called

Example of a 1998 "Struck-By" incident that killed one firefighter and injured nine additional responders

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"Struck-By" Incidents (Cont.)

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"Struck-By" Incidents (Cont.)

- Out-of-control 18-wheeler slams into unprotected incident scene as patient is being loaded in ambulance

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"Struck-By" Incidents (Cont.)

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"Struck-By" Incidents (Cont.)

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"Struck-By" Incidents: The Aftermath

- Eight firefighters and two EMT's struck by the 18-wheeler as it slid into the incident scene
  - One firefighter killed
  - Nine other responders seriously injured

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Triple Fatality Struck-By: Chelsea Richard

At a Crash Scene

- Trooper Chelsea Richard, tow truck operator John Duggan, and civilian George Robert Phillips were struck and killed on I-75 near Ocala, FL on May 3, 2014
- All three were at the scene of a single vehicle crash when a passing vehicle lost control and struck them

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Triple Fatality Struck-By: Chelsea Richard (Cont.)

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Department of Transportation Struck-By: Clifton Scott

Providing Traffic Control

- Motorist Assist Operator Clifton J. Scott (50), died after being struck by a drunk driver on I-70 in Independence, MO on September 21, 2012
- Scott, a 15-year Missouri DOT employee, was helping reroute traffic around the scene of a four-vehicle crash when he was struck

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Department of Transportation Struck-By: Clifton Scott (Cont.)

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EMS Struck-By: EMT Esteban Bahena

Setting Out Flares

- EMT Esteban Bahena, 24, died after being struck by a vehicle on State Route 163 in Hillcrest, CA on April 1, 2010
- Bahena was laying out flares after his crew had assessed the patients, following a single-vehicle crash when he was struck

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EMS Struck-By: EMT Esteban Bahena (Cont.)

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Towing and Recovery Struck-By: Tow Truck Operator Blake Gresham

Loading a Vehicle

- Tow truck operator Blake Gresham, 18, died after being struck by a box truck on I-35 in Kansas City, MO on August 27, 2012
- Gresham had loaded a vehicle onto his flatbed truck and was tightening the chains to secure the vehicle when he was struck

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Towing and Recovery Struck-By: Tow Truck Operator Blake Gresham (Cont.)

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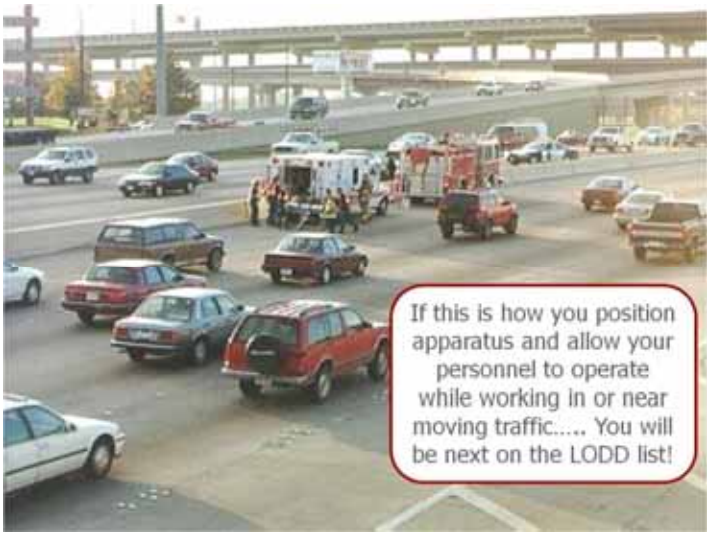
Positioning



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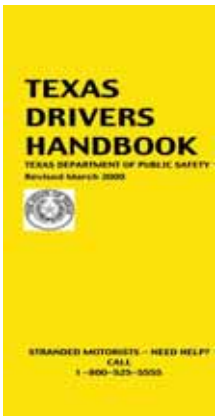
Traffic Safety Campaigns And Public Information

- Currently only Washington D.C. does not have a "Move Over" law
- Requires drivers approaching a scene where emergency responders are present to either change lanes when possible and/or reduce vehicle speed
- Pro: Can reduce line of duty deaths
- Con: Can give a false sense of security



***Vision Zero Position – "Even one death on the transportation system is unacceptable".**

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Texas "Move Over" Law: Updated 2011 and 2013

- **In 2011**, the Texas Move Over Law was updated to include **tow trucks & wreckers,** under direction of a law enforcement officer at the scene of an accident
  - **or** while hooking up to a disabled vehicle on a roadway
  - **or** a tow truck with a mounted light bar with turn signals and stop lamps, in addition to flashing lights

Effective: **September 1, 2013**

- The 2013 Texas "Move Over" Law currently requires drivers to move over or slow down for stopped **Texas Department of Transportation(TxDOT) vehicles** with overhead flashing blue or amber lights (and not separated from the roadway by a traffic-control device)

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Driver Removal Laws

- Also referred to as
  - Fender Bender
  - Move It
  - Steer It, Clear It
- In Texas, driver removal legislation applies to incidents that occur on the mainline, ramp, median, shoulder, or adjacent area of a freeway in a metropolitan area
- Minor, non-injury crashes, drivers exchange information, and move vehicles from travel lanes
- Often contain a hold harmless clause
- Dispatch should encourage motorists to move the vehicles

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Driver Removal Laws (Cont.)

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Authority Removal – "Red Tag Law"

- In Texas, a motor vehicle is abandoned if the motor vehicle:
  - Is inoperable, is more than five years old, and has been left unattended on public property for more than 48 hours
  - Has remained illegally on public property for more than 48 hours
  - Has remained on private property without consent of owner or person in charge of the property for more than 48 hours
  - Has been left unattended on right-of-way of a designated county, State, or federal highway for more than 48 hours
  - Has been left unattended for more than 24 hours on right-of-way of a turnpike project constructed and maintained by the Texas Turnpike Authority
- A law enforcement agency may take into custody an abandoned motor vehicle, aircraft, watercraft, or outboard motor found on public or private property
- A law enforcement agency may use agency personnel, equipment, and facilities or contract for other personnel, equipment, and facilities to remove, preserve, store, send notice regarding, and dispose of an abandoned motor vehicle, aircraft, watercraft, or outboard motor taken into custody by the agency
- An authority or law enforcement agency may remove personal property from a roadway or right-of-way if the authority or law enforcement agency determines that the property blocks the roadway or endangers public safety
- Personal property may be removed without the consent of the owner or carrier of the property
- Notwithstanding any other provision of law, an authority or a law enforcement agency is not liable for:
  - Damage to personal property removed from a roadway or right-of-way, unless the removal is carried out recklessly or in a grossly negligent manner
  - Damage resulting from the failure to exercise the authority granted

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Texas Authority Removal Laws

- TX Transportation Code
- Title 7. Vehicles and Traffic
- Subtitle C. Rules of the Road
- Chapter 545. Operation and Movement of Vehicles

Sec § 545.3051 Removal of Personal Property from Roadway or Right-of-Way

- A transit authority or law enforcement agency may remove personal property from a roadway or right-of-way

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HB 993

Closure of a road or highway by certain firefighters

- A fire department operated by an emergency services district
- A volunteer fire department
- A fire department of a general-law municipality
  - A firefighter, when performing the firefighter's official duties, may close one or more lanes of a road or highway to protect the safety of persons or property
  - The closure shall be limited to the affected lane or lanes and one additional lane unless the safety of emergency personnel operating on the road or highway requires more lanes to be closed

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Truck Lane Restrictions

- Objective - Except for Passing, Restricts Trucks with 3-Axles or More to Middle and Right Lanes Only, in a Three-Lane Highway
- Requirements
  - Total truck volume of at least 4%
  - 5% of total truck volume traveling on left lane
  - 6 lanes or wider freeway cross-section
  - No left (inside) side ramps within the limits
  - Minimum freeway section length of 6 miles

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Detection and Verification / TMCs

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Definition of Detection And Verification

- Detection is the determination by response agencies that an incident of some type has occurred
- Verification is the determination of the precise location and nature of the incident

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Determining the Incident Location

- Passing motorists frequently report a location downstream of actual incident on a limited access highway
- When incident is reported by a citizen caller, knowing color and type of vehicles is valuable
- On limited access highways, query caller to identify the specific geographic location of incident (referencing highway mile markers, nearest exit/entrance ramp signs, etc.)

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Determining the Incident Location (Cont.)

- Passing Motorist...

  How is the Location Reported?

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Strategies For Improving Detection And Verification

- Dedicated roving patrols
- Supplemental signing for location identification
- Dedicated incident phone number
- Have dispatch get vehicle make/model/color
- Have public give you mile markers

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Strategies For Improving Detection And Verification: Emerging Technology

- Automated collision notification and automated vehicle location systems (Mayday)
- Automatic Vehicle Identification (AVI)
- Cellular geolocation
- Microwave radar detectors
- Portable detection and surveillance systems

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Verification Activity

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Verification Activity (Cont.)

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Verification Activity (Cont.)

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Traffic Management Centers (TMCs) Video

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Goals Of Intelligent Transportation Systems (ITS) and Traffic Management Centers (TMC)

- Improve safety and travel times
- Enhance local and regional mobility
- Manage congestion
- Maximize the capacity of the existing infrastructure without having to build new freeway lanes

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Traffic Management Center (TMC)

TMCs are information, communication, and traffic control hubs with live operators...

- Operating 24/7
- Providing system monitoring and incident detection
- Controlling various traffic management and motorist information systems

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Local TMCs

- TransVISION (TxDOT Fort Worth District) http://its.txdot.gov/ITS_WEB/FrontEnd/default.html?r=FTW&p=Fort%20Worth&t=map
- DalTrans (TxDOT Dallas District) http://dfwtraffic.dot.state.tx.us
- NTTA
- LBJ Express
- North Tarrant Express
- Cities

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Benefits

- Provide quality service to response agencies, information providers, and the motoring public
- Provide recommendations for improvement of traffic incident response, site management, and clearance
- Provide real-time accurate motorist information to information providers and the public
- Support transportation agency field activities

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Dallas-Fort Worth Area ITS Equipment: Closed Circuit Television (CCTV), Dynamic Message Signs (DMS), Vehicle Detectors

- Observe freeways, frontage roads, and arterials
- Provide a quick assessment of traffic incident severity
- Transmit data via fiber optic cables or wireless communications technology

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HELP Alert System

- The HELP Alert System is an emergency alerting service used during extreme weather situations and incidents when travelers are stuck on the road for an extended period (> 4 hrs.)
  - Saves Lives
  - Integrated with Federal Emergency Management Agency's (FEMA) Integrated Public Alert and Warning System (IPAWS)
  - Mitigates Risks
- No App Needed
- Accurate Updates Directly to the Traveler
- Clear Picture of Event Queue Length
- Reduced Non-Emergency Calls

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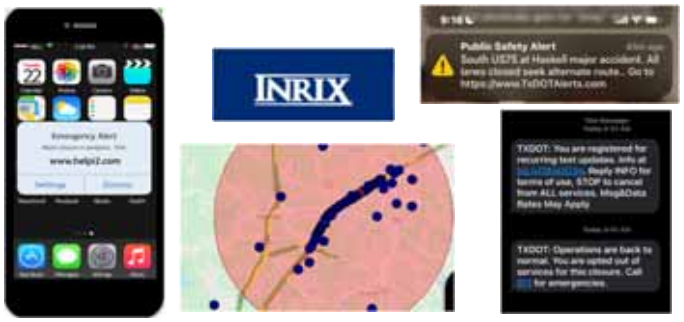
HELP Alert System (Cont.)

- How HELP Alerts Work
  - Contact the TxDOT Fort Worth TMC as soon as it's determined that an incident will take more than 4 hours
  - Geo-targeted alerting means only people in and around the incident scene are alerted to the system activation



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TMC Contact Numbers

- TxDOT Dallas TMC – DalsTrans Control Center 214-319-3601
  Counties: Collin, Dallas, Denton, Ellis, Kaufman, Navarro, and Rockwall

- TxDOT Fort Worth TMC - TransVision Main 817-370-3661
- TxDOT Fort Worth TMC – TransVision Control Center .. 817-370-6656
  Counties: Erath, Hood, Jack, Johnson, Palo Pinto, Parker, Somervell, Tarrant, and Wise

- NTTA Main 972-461-2000
- NTTA Safety Operations Center 214-224-2203

Managed Lane Facility Operators (CDAs)

- DFW Connector 877-411-4212
- LBJ Infrastructure 214-960-5711
- North Tarrant Express 817-710-0505

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Detection and Verification Conclusion

- More ITS equipment will become available
- 511 system

Dallas-Fort Worth will rely more and more on ITS for

- Detection of incidents
- Coordinating response
- Informing the public
- Data collection

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Response

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Response Overkill

One car crashes into a broken down car parked on the shoulder...
five patients...


Two die in I-480 crash

6 Fire Departments respond...
with 22 emergency vehicles!

Highway closed for 5+ hours...

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Definition of an Effective Incident Response

- The activation of a “planned” strategy for the safe and rapid deployment of the most appropriate personnel and resources to the scene

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Regional Congestion

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Public Response to First Responders - GERMANY

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Emergency Vehicle Operation

- Risk to responding vehicles

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Miami Ambulance / Fire-Truck Collision Video

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St. Louis Fire Trucks Collision Video

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Improving Response: Mobility Assistance Patrols

- Responds in less time to an incident scene
- Initiate early traffic control measures
- Provide the first assessment of the incident
- Call other agencies to the scene

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Mobility Assistance Patrol Contact Numbers

- Dallas County Operations
  Mobility Assistance Patrol 214-320-4444
- Tarrant County Operations
  Mobility Assistance Patrol 817-884-1213
- NTTA Operations
  Mobility Assistance Patrol 214-224-2203
- LBJ Express Operations
  Mobility Assistance Patrol 877-525-3979
- North Tarrant Express Operations
  Mobility Assistance Patrol 682-334-5470

DALLAS COUNTY	TARRANT COUNTY	NTTA
Mon - Fri 5 am - 9:30 pm	Mon - Sun 6 am - 10 pm	Mon - Sun 24 hours/day
Sat - Sun 11 am - 7:30 pm		

CDA (NTE)	CDA (LBJ)	CDA (DFW)
Mon - Sun 24 hours/day	Mon - Sun 24 hours/day	Mon - Fri 6:30 am - 9:30 am and 3:30 pm - 7 pm

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Safe Vehicle Positioning: Arrival Or "Windshield" Size-Up

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What Is Initial Size-Up?

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

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Initial Size-Up Reports

Typical Arrival Size-Up Report Factors

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

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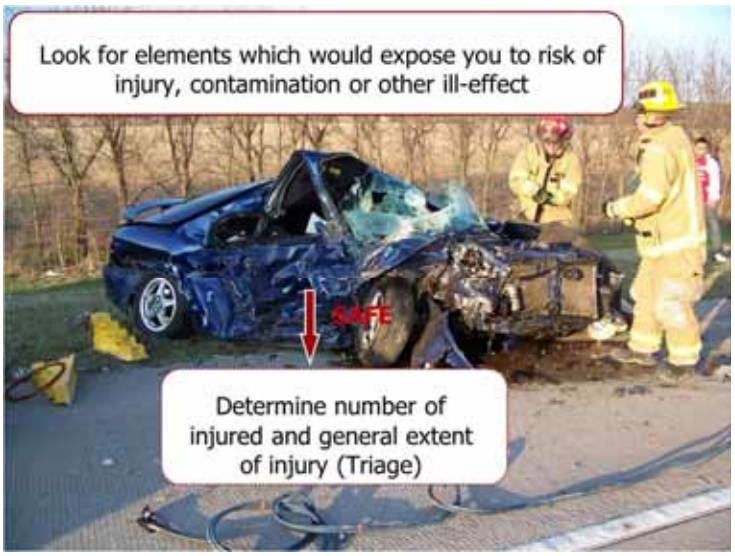
Approaching An Incident Scene



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What Is Your On-Scene Report?

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Move It Or Work It

- Move It: This refers to moving vehicles involved in an incident to a secondary location before being worked
- Work It: This refers to a situation where the vehicles involved cannot be moved to a secondary location before being worked
- When possible, moving the incident is preferred since it clears the incident from the roadway and obstructs traffic less - a very effective quick clearance strategy

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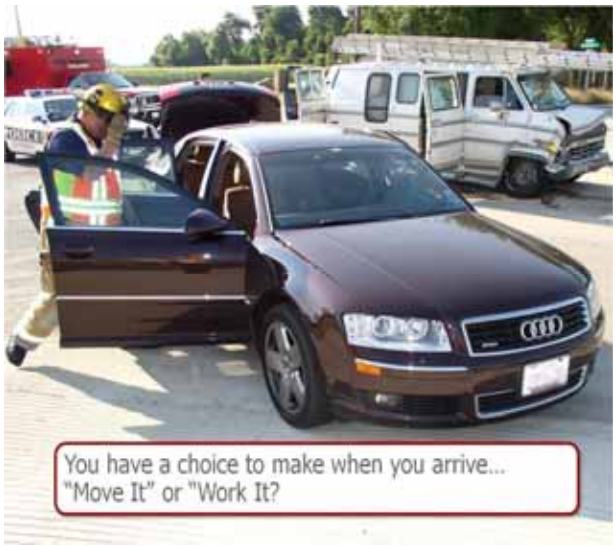
Move It or Work It (Cont.)



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Move It Or Work It (Cont.)

105

Move It Or Work It (Cont.)

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Linear / Block Tactical Positioning

- Linear Positioning: incident responder vehicles are positioned in a straight line at the incident scene
- Block Positioning: incident responder vehicles are positioned at angles that create a protected work area for responders and vehicle occupants

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A 'Linear' Service Patrol

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A 'Linear' EMS Call In a Residential Neighborhood

109

A 'Linear' EMS Incident

- A very dangerous 'linear' EMS incident

110

A 'Linear' EMS Incident (Cont.)

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

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A 'Linear' Crash Scene Video

112

Fire Apparatus Safe Positioning

- Vehicle firefighting also requires “Lane + 1” blocking

113

Lane + 1 Blocking

- To increase safety, use the “Lane + 1” blocking protocol initially to create an adequate “buffer” for responders

114

Safe Positioning

- “Safe positioning” begins with a ‘block’

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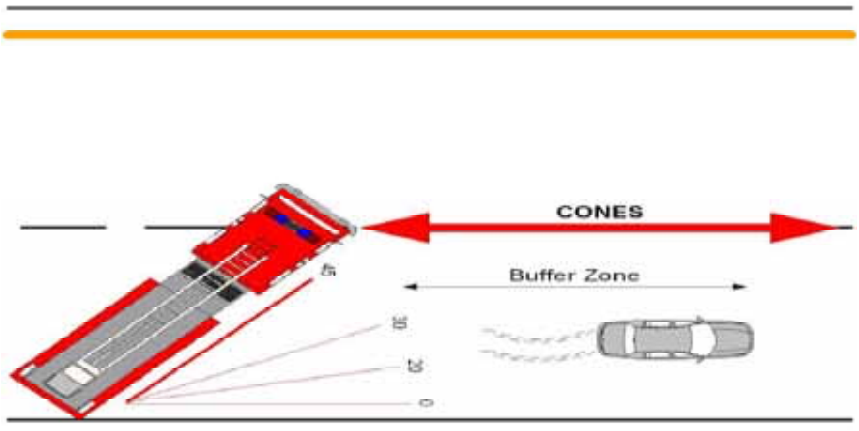
Blocking

- “Blocking ” is the action of positioning a vehicle at an angle to halt the flow of moving traffic in one or more lanes



116

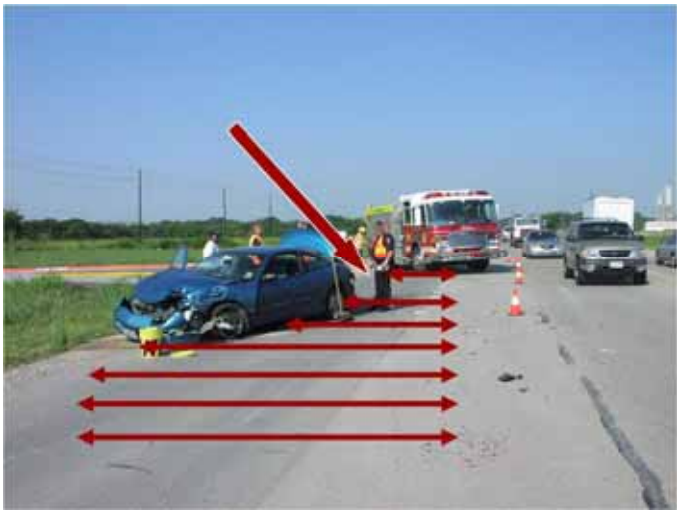
Blocking (Cont.)

- Large, heavy fire apparatus provide the best ‘blocks’

117

Blocking (Cont.)

- Blocking creates a protected “work area”



118

Lane + 1 Blocking

- Remember, the shoulder counts as a lane

119

Critical Wheel Angle

- Turn front wheels of blocking vehicles away from work area!

120

Law Enforcement (LE) Unit Safe Parking

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

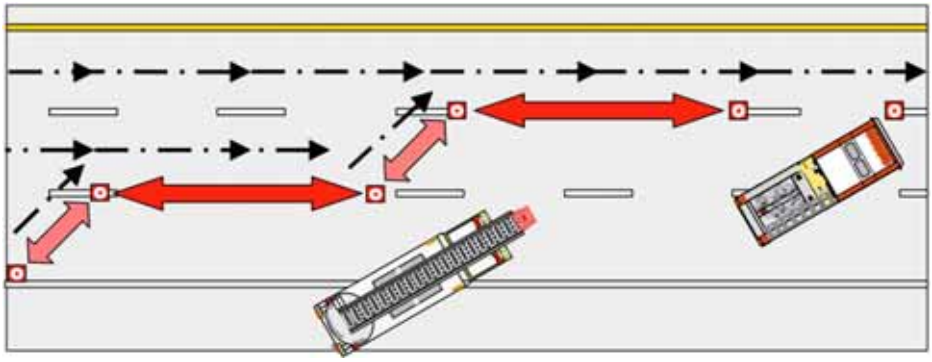
121

Blocking (Cont.)

- Typical – Engine company cannot adequately block on a multi-lane highway

122

Blocking (Cont.)



123

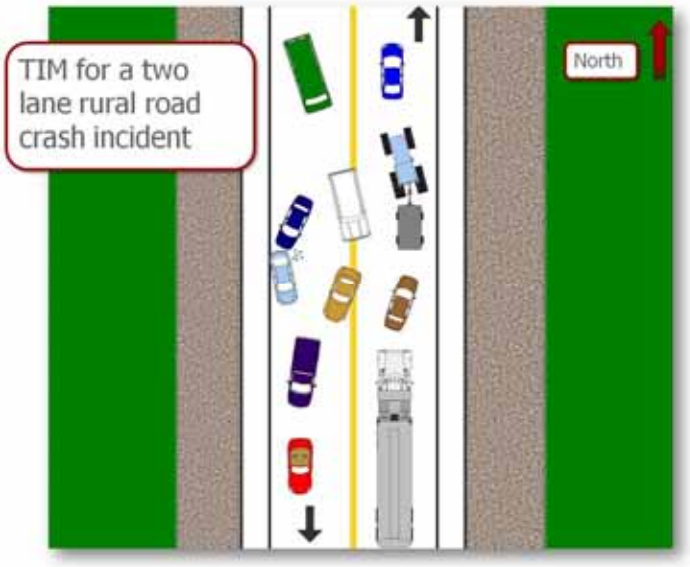
Blocking (Cont.)

124

Blocking (Cont.)

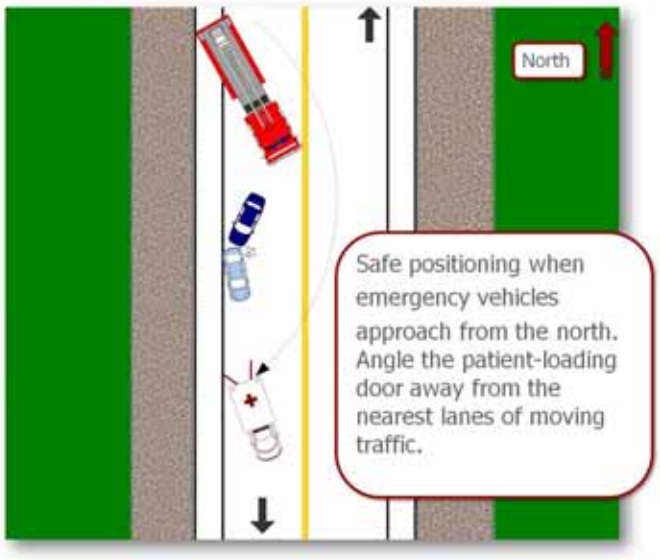
125

Safe Positioning: 2-Lane Road



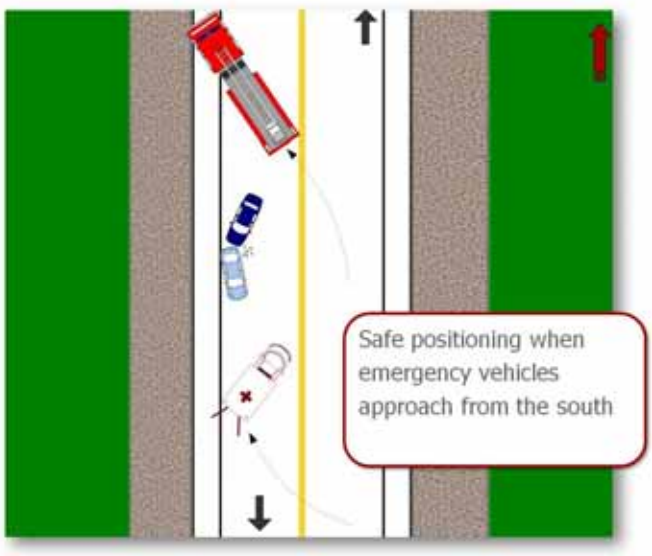
126

Safe Positioning: 2-Lane Road (Cont.)



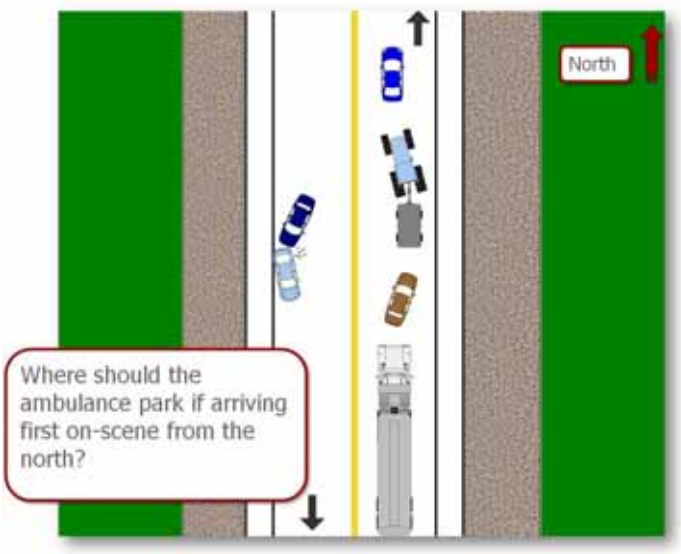
127

Safe Positioning: 2-Lane Road (Cont.)



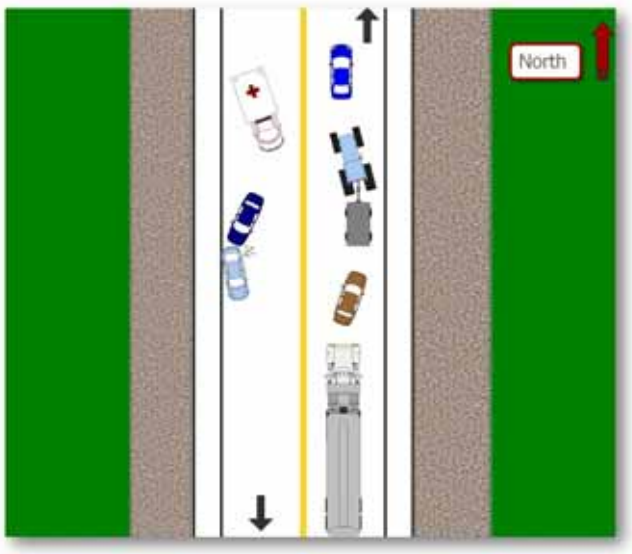
128

Safe Positioning: 2-Lane Road (Cont.)



129

Safe Positioning: 2-Lane Road (Cont.)



130

Safe Positioning: 2-Lane Road (Cont.)

131

Ambulance Safe Parking

- Park downstream in protected work area
- Keep loading zone away from moving traffic
- A slight block to the left provides additional buffer space for ambulance loading zone

132

Split Scene

133

Split Scene (Cont.)

134

Split Scene (Cont.)

135

Zero Buffer

- All blocks have a zero buffer zone
- If you have to move through a zero buffer, STOP and look first

136

Zero Buffer (Cont.)

- There is a 'zero' buffer with almost every block

137

The 'Zero Buffer' Zone Video

138

A ‘Zero Buffer’ Struck By Video

139

A ‘Zero Buffer’ Struck By Video (Cont.)

140

Avoiding the Zero Buffer Area

- LE traffic stop with non-traffic side occupant contact to avoid the zero buffer hazard area

141

The Zero Buffer Area

142

Blocking

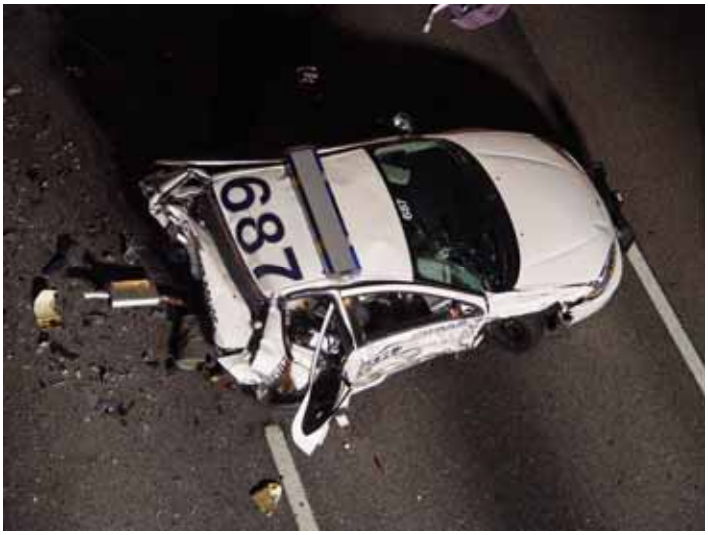
- What is your agency's policy?

143

The Block Gets Hit

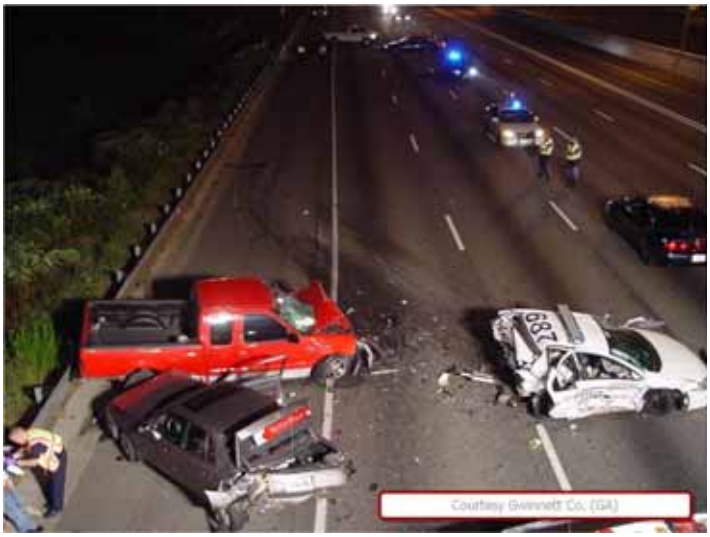
144

The Block Gets Hit (Cont.)



145

The Block Gets Hit (Cont.)



146

Blocking: Irving Fire Department Struck-By

- Irving Fire Department (IFD) Ladder Truck angle blocking a single car collision on Hwy 183
- IFD truck struck by an 18-wheeler at highway speed
- The Ladder Truck was sent rear end over front end, striking the 3 firefighters
  - Driver killed on impact
  - The 3 firefighters injured
    (returned to work within 7 months)
  - Although the PD unit was in the lane of travel with the 18-wheeler, the angled position of the Ladder Truck diverted further impact to the accident scene

147

Blocking: Irving Fire Department Struck-By (Cont.)

148

Blocking: Irving Fire Department Struck-By (Cont.)

149

Irving Motorcycle Officer Traffic Stop

150

Irving Motorcycle Officer Dodges Car Video

151

The Block Gets Hit

152

The Block Gets Hit (Cont.)

Courtesy BCCC Rescue Squad (MD)

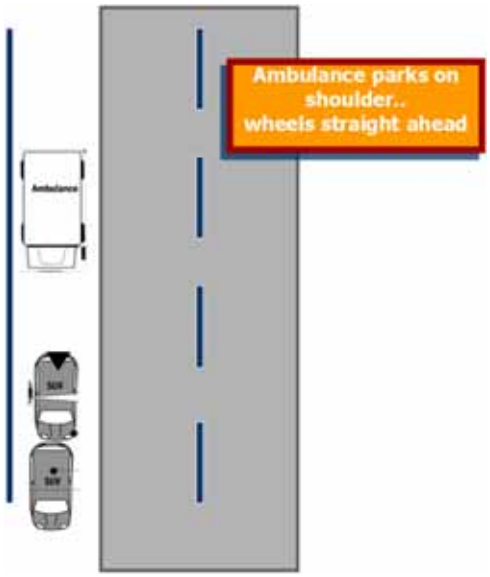
153

The Block Gets Hit (Cont.)

Courtesy BCCC Rescue Squad (MD)

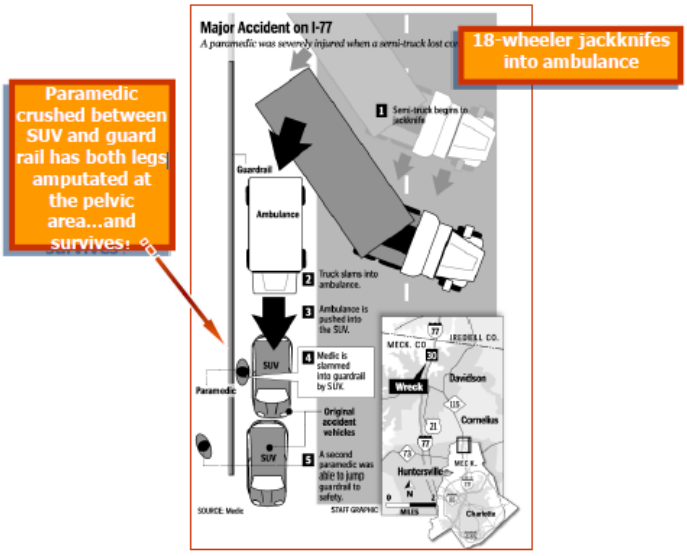
154

The Block Gets Hit (Cont.)



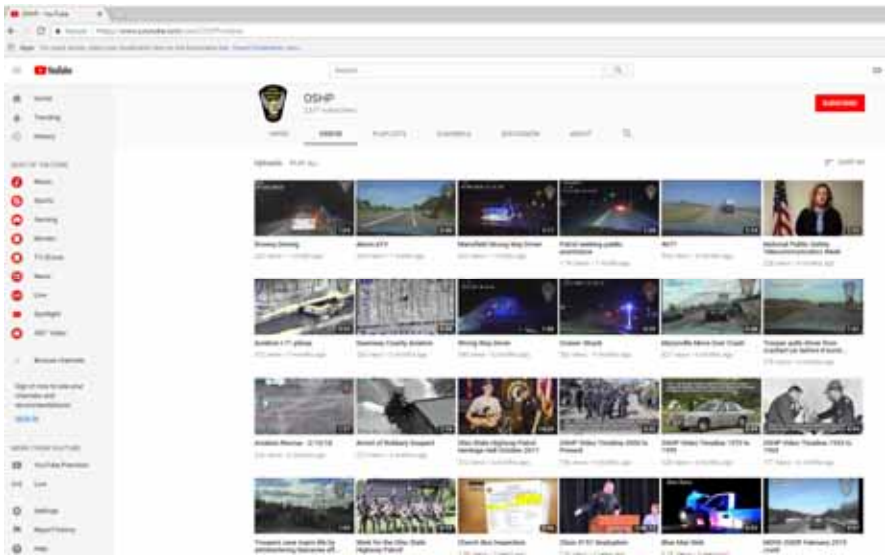
155

The Block Gets Hit (Cont.)



156

Ohio State Highway Patrol:
www.youtube.com/user/OSHP/videos



157

Response Conclusion

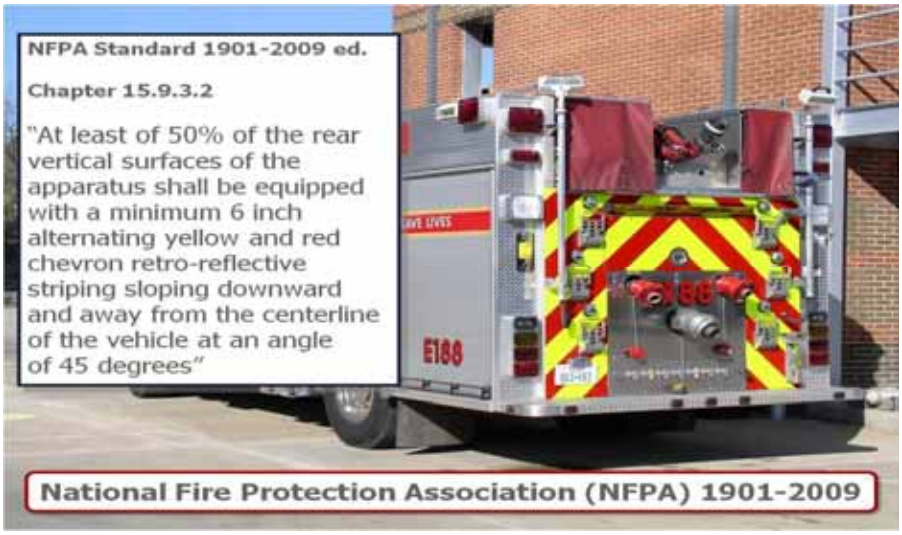
- Communicate to ensure an appropriate response
- Respond quickly to reach the scene before the traffic backup is lengthy
- Train to achieve a state of continued readiness for deployment
- Assess your department resources for a more appropriate response

158

Responder Safety

159

Responder Safety: Vehicle Visibility



160

Responder Safety: Vehicle Visibility (Cont.)

- The NFPA Standard now requires chevron markings on ambulances as well

161

Light Shedding: Use of Emergency-Vehicle Lighting

- Though essential for safety, use of too many lights at an incident scene can be distracting and can create confusion for approaching road users and other responders

162

Light Shedding: Forward-Facing Lights

163

Responder Safety: Personnel Identification And Visibility

- All responders must be readily identifiable
- Non-uniformed personnel need reflective vests
- Reflective material required for long-term incidents
- Vests may indicate the roles of responders

164

Responder Safety: High-Visibility Safety Apparel

165

Responder Safety: High-Visibility Safety Apparel (Cont.)

166

Responder Safety: High-Visibility Safety Apparel (Cont.)

167

Responder Safety: High-Visibility Safety Apparel (Cont.)

- ANSI 107 Class II Vest:
  - High-visibility green body with red trim, or…

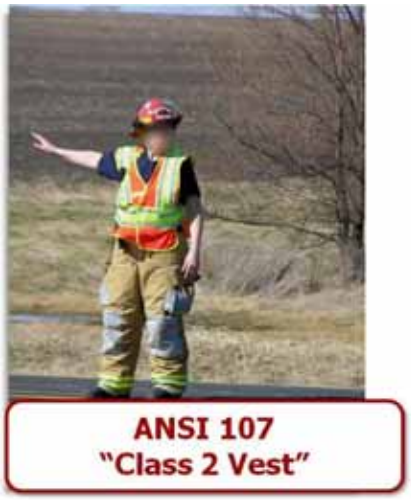
168

Responder Safety: High-Visibility Safety Apparel (Cont.)

- ANSI 107 Class II Vest:
  - High-visibility red/orange body with green trim

169

Responder Safety: High-Visibility Safety Apparel (Cont.)



ANSI 107
"Class 2 Vest"

ANSI 207
"Public Safety Vest"

170

Responder Safety: High-Visibility Safety Apparel (Cont.)

- Class III vests are a requirement for tow truck operators in the State of Texas

171

Responder Safety: High-Visibility Safety Apparel (Cont.)

172

Responder Safety: High-Visibility Safety Apparel (Cont.)

173

Responder Safety: High Visibility Safety Apparel Standard: ANSI / ISEA 107-2015

Garment Type Designation	~~Type "O" Off-road~~	Type "R" Roadway		Type "P" Fire, Police, EMS Personnel	
Performance Class	~~Class 1~~	Class 2	Class 3	Class 2	Class 3
Background Material Amounts	~~217 in²~~	775 in²	1240 in²	450 in²	775 in²
Reflective Material Amounts	~~155 in²~~	201 in²	310 in²	201 in²	310 in²
Width Minimums of Reflective Material	~~1"~~	1.38"	2"	2"	2"
Previous Standard and Class	~~ANSI 107 Class 1~~	ANSI 107 Class 2	ANSI 107 Class 3	ANSI 207 PSV	NEW!

218

Responder Safety: High-Visibility Safety Apparel

- Vests may be a concern at car fires during extrications or at Hazmat incidents

175

TMUTCD 6D.03

- Firefighters ... engaged in emergency operations that directly expose them to flame, fire, heat, and/or hazardous materials may wear retro-reflective turnout gear ...

- Firefighters ...engaged in any other types of operations shall wear high-visibility safety apparel

**Exemption for PD when performing "tactical operations"... No Vest Required*

176

High-Visibility Safety Apparel: End of Service Life

According to the FHWA and ATTSA, high-visibility safety apparel should be replaced when it becomes:

- Faded, torn, dirty, soiled, worn, defaced, or not visible at 1,000 feet day or night

177

Command

178

Unified Command

Communications Upon Arrival

- Notify communications center you have arrived on-scene
- Confirm geographical location, approach specifics, and any other pertinent information helpful to later-arriving units

179

Many Hats of Highway Incident Management Video

180

Unified Command Structure

- A practical way to solve the "Who is in charge?" issue
  - Ensure "person of authority" is on scene and in command
- Command may be changed when an agency has completed their duties
- Have a clear understanding of the duties of each participant
- Understand how command is handled

181

Command

- "Command" should estimate incident duration and report 'time to clear' to dispatch within 15 minutes of arrival
- How long are we going to be out here...?

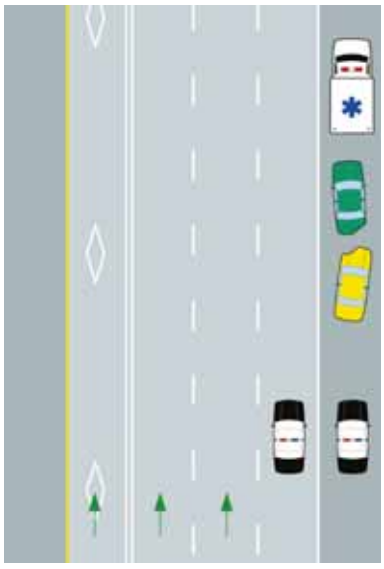
182

Who Is In Charge Of What Is Happening Now?

- The task at hand always takes priority
- "Who is in charge of the scene?" – That's not the issue
- Focus on what is happening now, not who is in charge
- There is a need for a unified or flexible site command structure

183

Incident Management Case Study

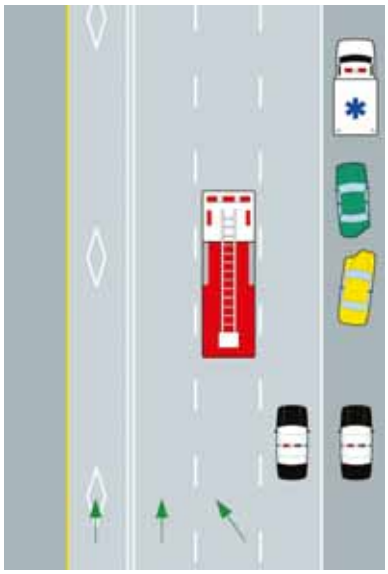


Hazelwood, Missouri
Interstate 270
May 2003

- An injured driver is in their vehicle complaining of a back injury resulting from a rear-end crash
- Two law enforcement vehicles arrive on scene and block Lane 3 and the shoulder

184

Incident Management Case Study (Cont.)



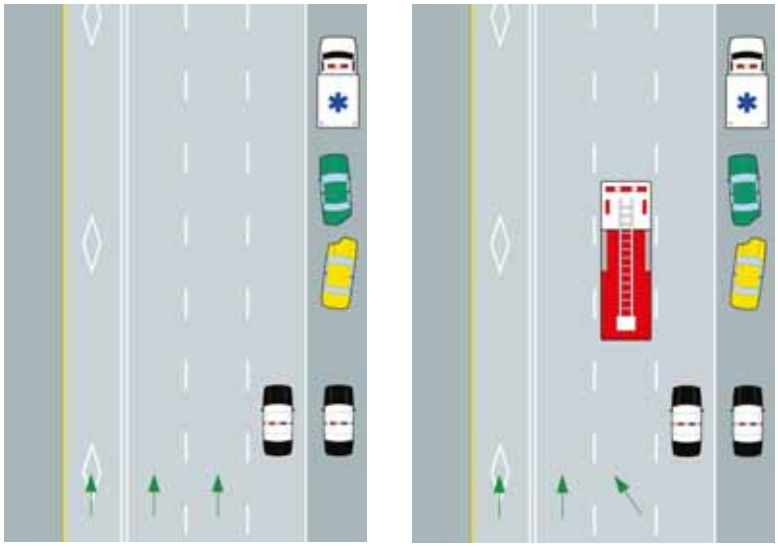
- Fire arrives and blocks the middle lane (Lane 2)

185

Incident Management Case Study Video

186

Incident Management Case Study (Cont.)



187

Chula Vista (CA) Video

188

Implement Interagency Agreements And Contracts

- Pre-defines priorities and standards
- Pre-defines duties of participants
- Sets proper tone for responders
- Eliminates confusion at the scene
- Helps responders make tough decisions

**Develop and implement regional Memorandum of Understanding (MOU) for Incident Management*

189

Traffic Management / Student Activities

190

Dayton OH Video

191

Anna TX Close Call Video (Collin County)

192

Initiating Early Stage Traffic Control

- Determine the extent of traffic control needed
- Provide some control
- Flares and cones
- TMUTCD exemptions

193

CHP Traffic Break Video

194

Increase Motorist Awareness

- Motorist education and public information campaigns
- Proper vehicle operation near incidents
- Prevent rubber-necking and gawking

195

LAPD Abandon Motorist on Freeway Video

196

Definition Of Motorist Information

In addition to receiving information from motorists on an incident, it is also our responsibility to relay information to the motorists

- Includes the dissemination of incident-related information to motorists who are:
- At the scene
- Approaching the scene
- Not yet on the road

197

Benefits Of Early Motorist Information

Atlanta, GA: Survey found that 92 percent to 98 percent of commuters found information on accidents, alternative routes, road closures, and congestion to be useful and desirable.

Marin County, CA: A study showed that presenting commuters with alternate routes and travel time estimates would result in 69 percent of trips diverted and a savings of 17 minutes in travel time.

198

Traffic Control Devices – Flares, Cones, Barrels

- Flares and Lights
- Traffic Cones
- Barrels
- Stop/Slow Paddles
- Flaggers and Flags

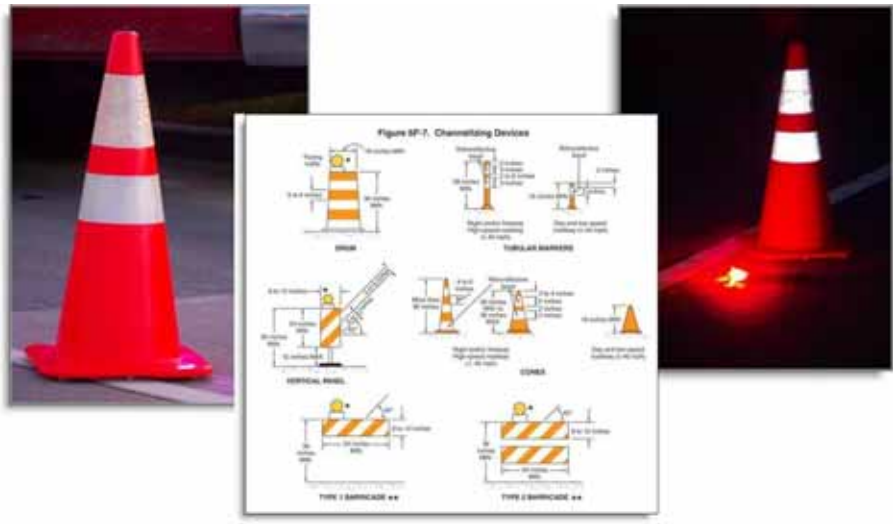
199

Transition Area and Taper

- Per MUTCD 6I requirements, cones that are used at night or on highways with a posted speed limit over 45 mph have to be 28 inches tall with two reflective stripes

200

Cone Use: Daytime and Night



201

Advance Warning

Typical FD advance warning consists of flashing lights, traffic cones, and/or flares

NFPA recommendation of five (5) cones on each fire apparatus

202

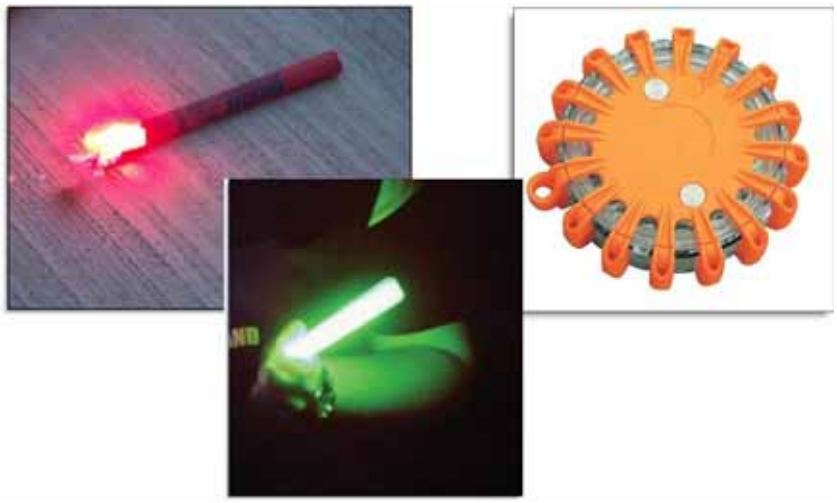
Advance Warning (Cont.)

203

Advance Warning: Collapsible Cones!

204

Advance Warning: Flares and Light Sticks



205

Advance Warning

- Use flares to illuminate cones at night or during bad weather

206

Advance Warning (Cont.)

- End result is to appear to the motorist as a line indicating the direction to merge

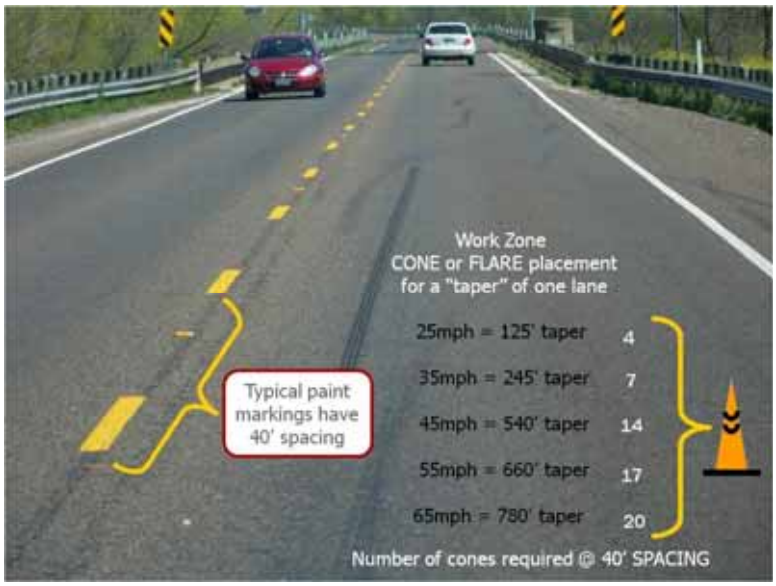
207

Advance Warning: Cone Tapers

Miles Per Hour	1st Warning Sign (A)	2nd Warning Sign (B)	Transition Area Taper	Buffer Space	Work Space	Termination Area Taper
30	100	100	70	625	Length of Incident	100 Feet per Lane
40	350	350	125	825	Length of Incident	100 Feet per Lane
50	500	500	375	1000	Length of Incident	100 Feet per Lane
60	1500	1000	450	1300	Length of Incident	100 Feet per Lane
70	1500	1000	525	1450	Length of Incident	100 Feet per Lane

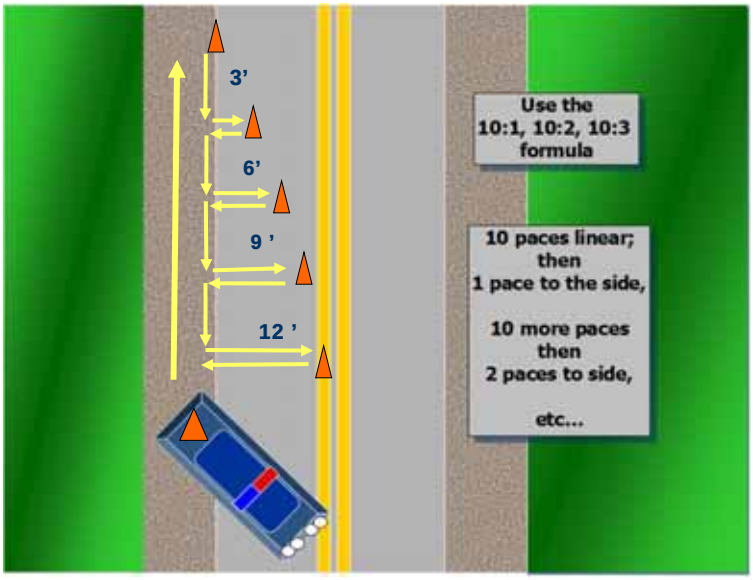
208

Advance Warning: Cone Tapers (Cont.)



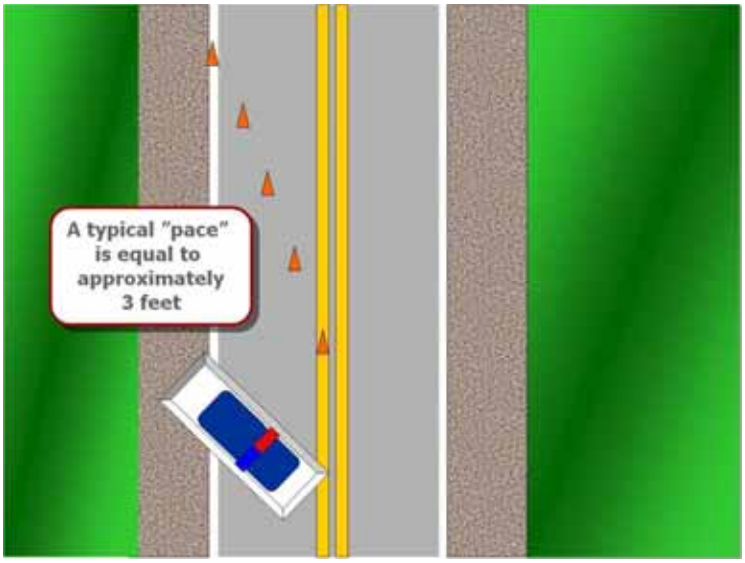
209

Advance Warning: Cone Tapers (Cont.)



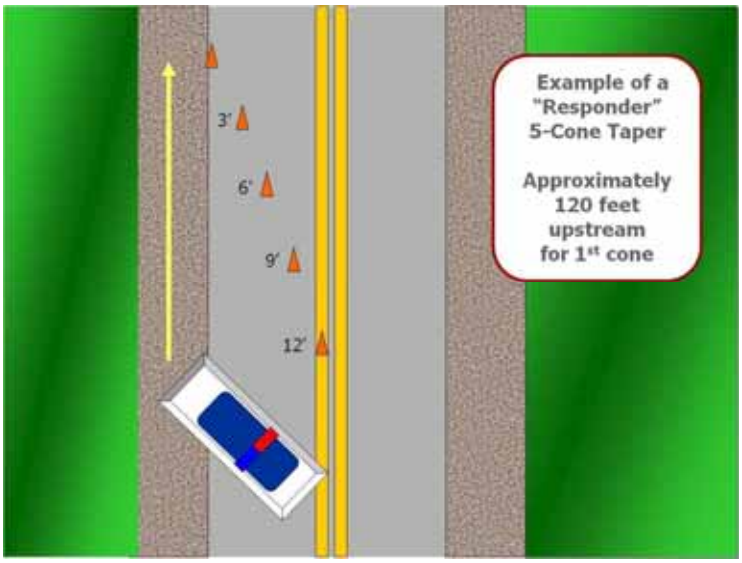
210

Advance Warning: Cone Tapers (Cont.)



211

Advance Warning: Cone Tapers (Cont.)



212

Situational Awareness

213

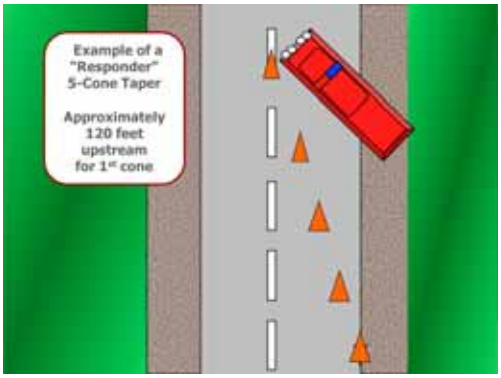
Exiting Responder Vehicle

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

214

Cone Placement: Five-Cone Taper

- Exiting responder vehicle best practices
  - Linear positioned, exit into general traffic lane
- Establishing five-cone taper
  - One lane closure
- Tow truck vehicle familiarization
- Arrowboard signs and signals



215

Cone Placement: One Lane Taper Procedure

- Gather five cones
- Proceed along shoulder to upstream location
- Deploy first cone along shoulder
- Move along shoulder and deploy second cone
- Deploy each cone and return to shoulder
- Deploy each cone further into lane being closed
- Deploy final cone and move to protected side of blocking vehicle

216

Advance Warning

- The danger of working ‘upstream’ of your ‘block’

217

Advance Warning (Cont.)

218

Advance Warning (Cont.)

219

Advance Warning (Cont.)

- FD engine blocks to the right

220

Advance Warning (Cont.)

- Cones do not “block” lanes.....

  These people are at risk!!!

221

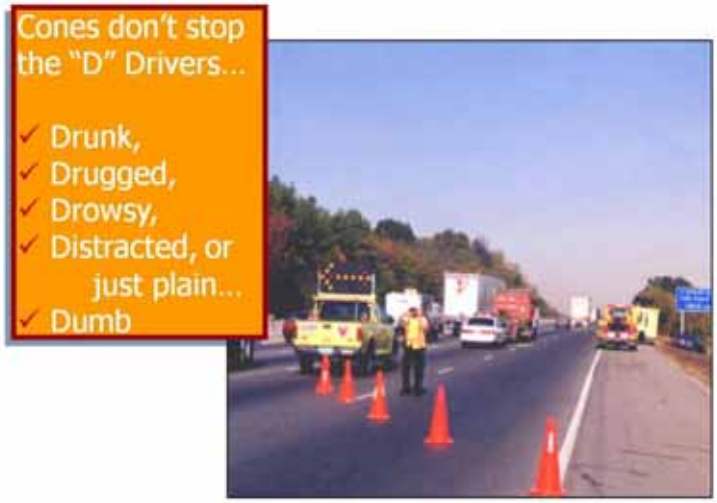
Advance Warning (Cont.)

A protected scene?

222

Advance Warning (Cont.)

- Traffic management at the incident site



223

Advance Warning (Cont.)

224

Advance Warning (Cont.)

225

Advance Warning (Cont.)

226

Advance Warning (Cont.)

227

Advance Warning (Cont.)

National Fire Protection Association

Standard #1500

228

Advance Warning (Cont.)

229

Advance Warning (Cont.)

230

Advance Warning (Cont.)

231

Advance Warning (Cont.)

- Increase your “advance warning” area during bad weather

232

Advance Warning (Cont.)

233

Advance Warning (Cont.)

- This ‘bad weather’ occurs twice a day, every day

234

Advance Warning (Cont.)

235

Advance Warning (Cont.)

236

Advance Warning: Stopping Distance

Braking Power/Stopping Distances

Average Dry Stopping Distance (Assuming two-thirds of a second reaction time)[4]:

Speed	Thinking Distance	Braking Distance	Total Stopping Distance
20 mph	20 feet	20 feet	40 feet
30 mph	30 feet	45 feet	75 feet
40 mph	40 feet	80 feet	120 feet
50 mph	50 feet	125 feet	175 feet
60 mph	60 feet	180 feet	240 feet
70 mph	70 feet	245 feet	315 feet
80 mph	80 feet	320 feet	400 feet

Average Wet Stopping Distance (Assuming two-thirds of a second r

Speed	Thinking Distance	Braking Distance	Total Stopping Di
20 mph	20 feet	40 feet	60 feet
30 mph	30 feet	90 feet	120 feet
40 mph	40 feet	160 feet	200 feet
50 mph	50 feet	250 feet	300 feet
60 mph	60 feet	360 feet	420 feet
70 mph	70 feet	490 feet	560 feet
80 mph	80 feet	640 feet	720 feet

When road is wet, average stopping distance for passenger automobiles is twice what it is on a dry road.

Poor visibility can lengthen driver reaction time.

237

Advance Warning: Driving at Night

Driving at Night –

At 60 mph;

Vehicle travels 88 feet/second

Reaction distance is 132'

Total stopping distance is 359'

Low beam headlights only illuminate 160 feet ahead of the vehicle…

U.S. Department of Transportation
National Highway Traffic Safety Administration

238

Limited Sight Distances

239

Limited Sight Distances (Cont.)

- To compensate for the hill, the F/R has placed a response vehicle at the top of the road so that it's apparent to oncoming traffic that they're approaching an emergency situation

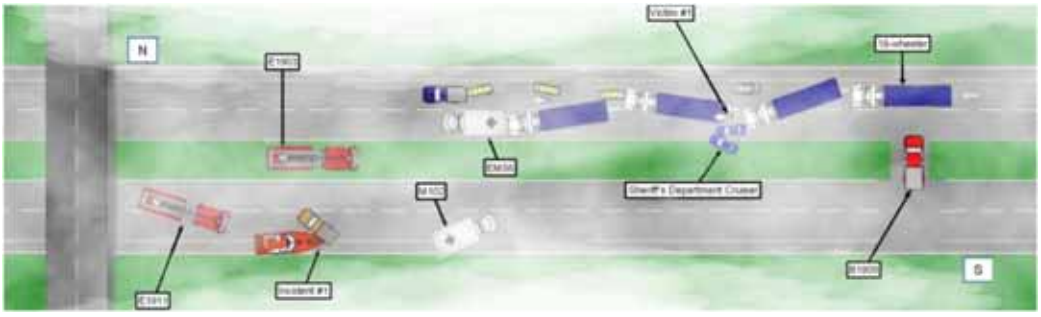
240

Incident Management Scenario

- Failure to Control Traffic

241

Scene Layout



242

Tow and Recovery Vehicle Familiarization

243

Communication with Dispatch

- If originally reported incident location is incorrect, once responders arrive on scene, they must inform communications center of the exact location
- This information is especially important for later arriving units or if a responder were struck and injured at the scene

244

Secondary Collision

245

Secondary Collision Video

246

On-Scene Emergency Lighting

- Too many lights at an incident scene can be distracting and can create confusion for approaching road users
- Once good traffic control is established, TMUTCD Chapter 6I recommends reducing the amount of lighting
- "Light Shedding"

247

Student Activities: Quick Clearance

248

Quick Clearance

249

Quick Clearance (Cont.)

250

Quick Clearance (Cont.)

251

Quick Clearance (Cont.)

252

Building Partnerships

253

Liability

- Towers liability
- Towers as of this time are not removed from total liability as a responder
- Nationally, the TRAA is working to change the laws, as well as the TTSA on the State level

254

Legislative Or Administrative Action

- Quick Clearance Law
- Reduced Liability Law
- Heavy Tow Truck Policy Revisions (certification and training)

- New Programs in Texas
  - Tow & Go Program – Houston/Harris County
  - Florida Turnpike
  - Georgia TRIP Program
  - Austin IH 35 corridor

255

Education

- TRAA certification

- TTSA training program

- Industry leader trained

- Incident management trained

- TIM TOW Guide

256

Teamwork

257

Safety

- 49% of towing operators were struck and killed while working on the shoulder of a major freeway
- 21% of towing operators are killed in traffic accidents
- 4% are killed while doing recovery work
- 26% are in the other category - health, lightning, etc...

258

Characteristics Of Component Heavy Duty Operators

- Recovery techniques

259

Characteristics Of Component Heavy Duty Operators (Cont.)

- Showcasing a Shoulder Plus 1 Lane Recovery Technique of a Tractor Trailer

260

Incident Management Scenario 1: Load Shift With Rollover

261

Incident Management Scenario 1 (Cont.)

262

Incident Management Scenario 1 (Cont.)

263

Incident Management Scenario 1 (Cont.)

264

Incident Management Scenario 1 (Cont.)

265

Incident Management Scenario 1 (Cont.)

What Agencies Should Respond?

Time Required To Clear Lanes of Travel?

266

Incident Management Scenario 1 (Cont.)

267

Incident Management Scenario 1 (Cont.)

268

Incident Management Scenario 2: Spilled Cargo

269

Incident Management Scenario 2 (Cont.)

270

Incident Management Scenario 2 (Cont.)

271

Incident Management Scenario 2 (Cont.)

272

Additional Case Studies: Legal Guidelines And Considerations


NIOSH

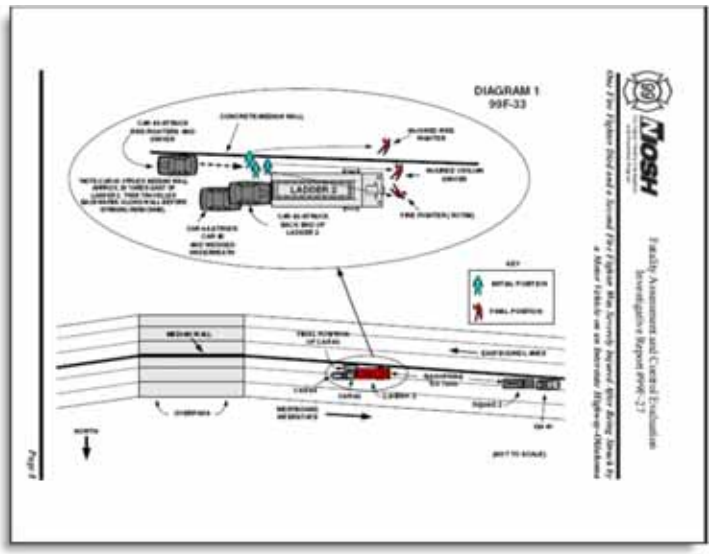
Death in the line of duty...

One Fire Fighter Died and a Second Fire Fighter Was Severely Injured After Being Struck by a Motor Vehicle on an Interstate Highway–Oklahoma

SUMMARY

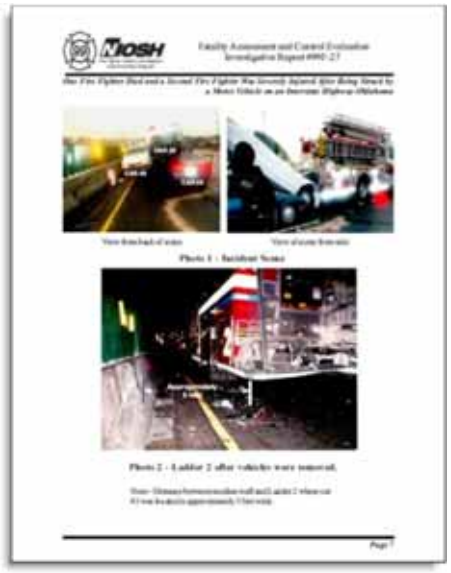
273

Legal Guidelines And Considerations (Cont.)



274

Legal Guidelines And Considerations (Cont.)


NIOSH

275

Legal Guidelines And Considerations (Cont.)

276

Legal Guidelines And Considerations (Cont.)

277

Legal Guidelines And Considerations (Cont.)

- What could have been done differently by the responders?
- What responder actions could have contributed to the outcome of this incident?
- How would the outcome of these incidents influence laws, policies, and standards?

278

Midwest City Audio

279

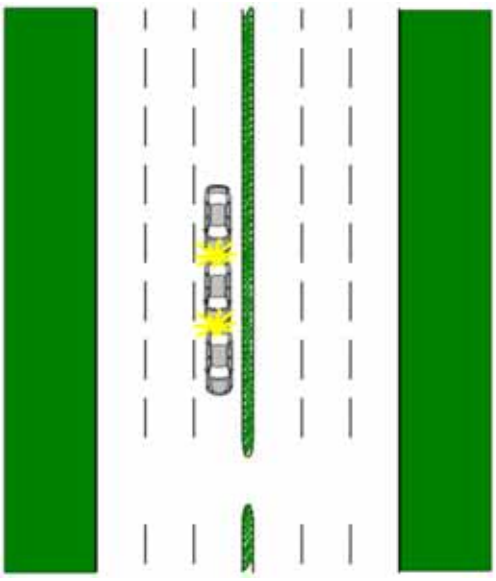
Incident Management Case Study 1: Limited Site Distance

280

Incident Management Case Study 1 (Cont.)

281

Incident Management Case Study 2: Ambulance Positioning



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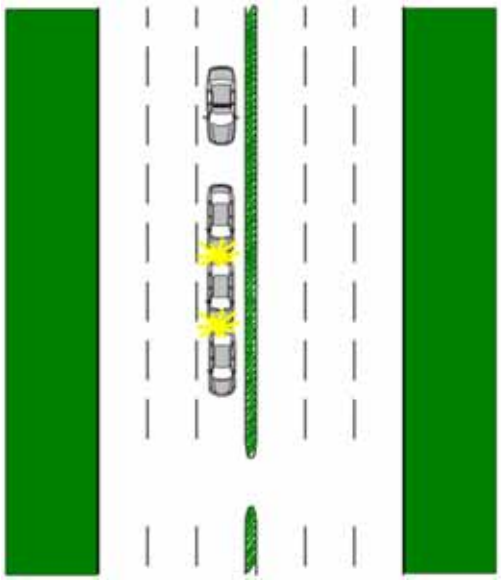
Incident Management Case Study 2 (Cont.)



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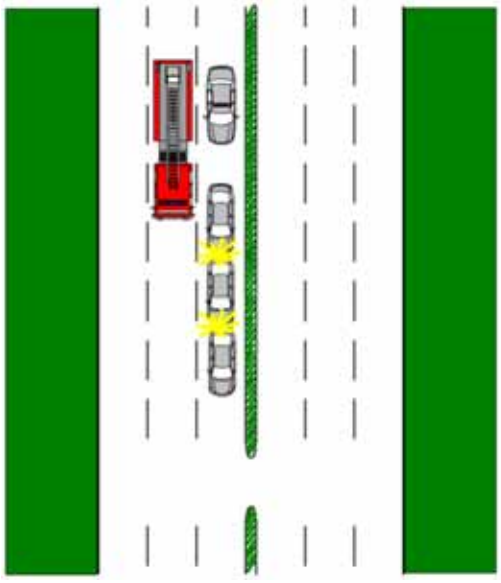
Incident Management Case Study 2 (Cont.)



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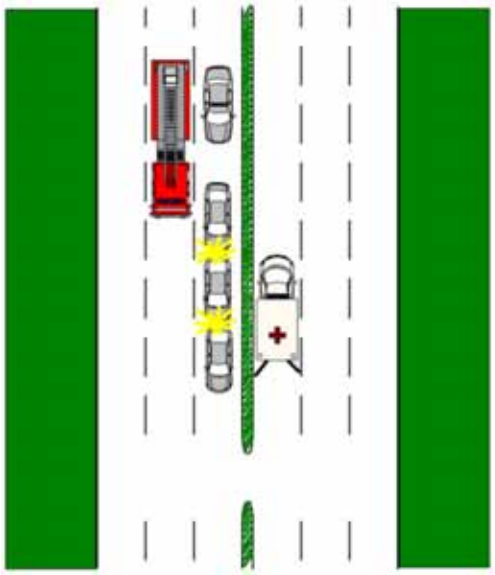
Incident Management Case Study 2 (Cont.)



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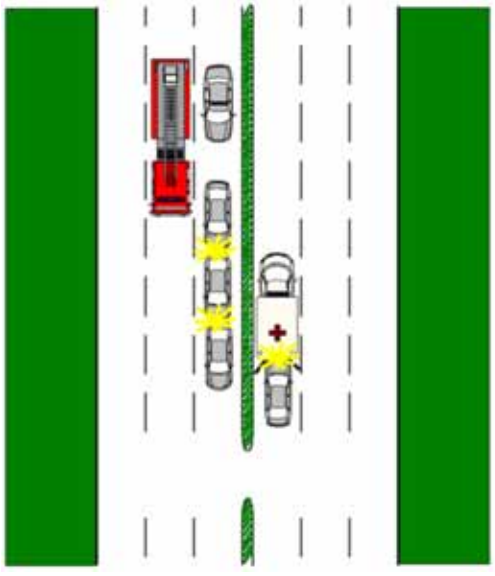
Incident Management Case Study 2 (Cont.)



286

Traffic Incident Management Area

Upstream
- Law Enforcement
- Fire/Rescue
- DOT or Safety Service Patrol Vehicle

Downstream
- Ambulance
- Tow Truck
- Other Support Units

- TMUTCD recognized five components of a TIM Area (TIMA)
  - Advanced Warning Area
  - Transition Area (Channels Traffic)
  - Buffer Space (Extra Margin of Safety)
  - Work Area
  - Termination Area

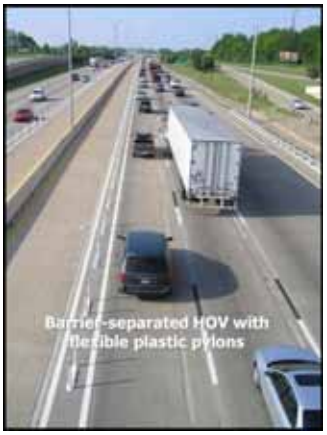
287

HOV / Managed and Express Lanes

288

High Occupancy Vehicle (HOV) / Managed Lanes

- Special lanes reserved for use by carpools, vanpools, buses, and other eligible vehicles
- Lane management
- Emphasizes *person movement*
- Special events



289

HOV / Managed Lane Goals

- Increase vehicle occupancy
- Increase person-movement capacity
- Cost effectiveness
- Generate public support
- Improve air quality
- Reduce fuel consumption

290

Types Of HOV / Managed Lanes

A. Reversible Lane

B. Concurrent Lane

291

Operations of HOV / Managed Lanes

- IH 30
- IH 635
- IH 35 E/US Hwy 67
- US Hwy 75

292

Express Lane Corridors

- LBJ Express
- NTE
- Midtown Express
- Southern Gateway
- IH35W
- 35Express
- IH30 Tom Landry

293

Express Lane Goals

- Located between the non-tolled general purpose lanes
- Barrier separated
- Limited Entrances and Exits
- Managed to keep traffic moving at least 50 MPH
- A choice
- Tolled

294

Issues In HOV/Managed Lane Incident Management

- Crashes on main lanes impact HOV lanes
- Various responding agencies have different procedures and priorities
- Verify incident location and best routes to the scene
- Make sure to close HOV/Managed entrances when needed

295

Response In HOV/Managed Facilities

Many responding agencies include:

- Managed lane operations personnel
- City police
- Emergency personnel
- TxDOT courtesy patrol
- Tow trucks
- Hazmat cleanup contractors
- Other personnel

296

Site Management In HOV/Managed Facilities

- Contact lane operator to close facility
- Incident communicated to all necessary agencies/personnel
- Access provided to emergency personnel
- Staging of equipment/clearance encouraged
- Responders encouraged to clear scene quickly
- Traffic control provided

297

Clearance In HOV/Managed Facilities

- Motorist assistance and quick removal of disabled vehicles
- Abandoned vehicles must be towed in reversible lanes
- Reopen lane before reopening entrances
- Contact lane operator to reopen entrances

298

What is an Emergency Gate?

- Emergency gates are in place to allow access to the Managed lanes *(lanes confined within concrete barriers)*
- These gates are unlocked
- **Only** Emergency Personnel are authorized to use them

299

Emergency Gates

300

Emergency Gates (Cont.)

301

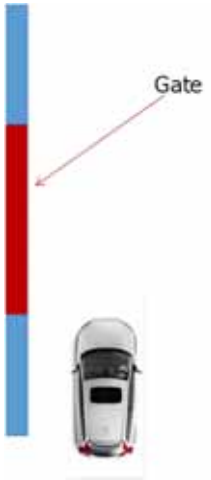
Emergency Gates: Castor Wheel

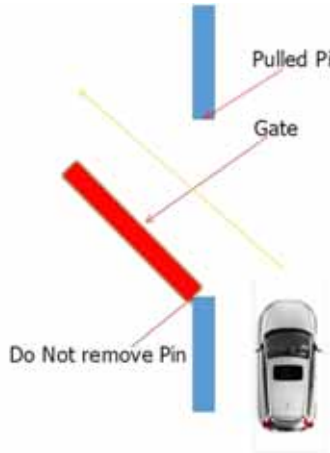
- Castor Wheel Can Steer

302

Emergency Gates (Cont.)

- The gate needs only 1 pin pulled to Open the gate in the direction of traffic flow





303

Emergency Gates (Cont.)

- Do not open towards traffic as it can cause a vehicle to strike it head on

304

Emergency Gates (Cont.)

- Locate the Pin of the Non-Pivot Side

305

Emergency Gates (Cont.)

- Grab the Pin

306

Emergency Gates (Cont.)

- Pull the Pin

307

Emergency Gates (Cont.)

- This will be the side you open

308

Emergency Gates (Cont.)

- The gate is very heavy!

309

Emergency Gates (Cont.)

- You may need to use a vehicle to push the gate open

310

Emergency Gates Use

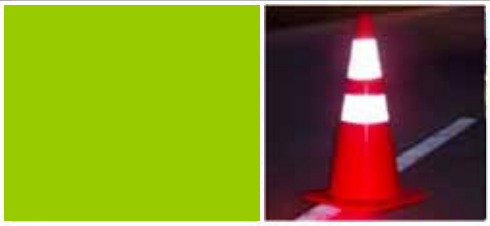
- If there is an accident in either the Managed Express lanes or Highway, they can be opened to let traffic flow

311

HOV / Managed Lane Conclusion

- Coordination and communication is essential
- Efficient use of available resources
- Keep motorists informed of delays
- Maintain situational awareness with general purpose lanes

312



Special TIM Scenarios

313

Clearance Of Debris And Hazardous Material

Issue:

- Not Required Before Vehicle Removal

Solutions:

- Need a clear policy statement
- Motor vehicle fluids exempt from Hazmat
- Most can be disposed of in a land fill
- Owner responsible

314

National Examples: Hazmat Quick Clearance

- Good fuel spill policies in Washington, Virginia, Florida, and Illinois
- Up-righting loaded tankers
- Clearing and opening lanes first
- Clean up after rush hour

315

Condemning A Spilled Load

- Not required before vehicle removal
- Usually applies to food or agricultural products

316

Spilled Load

- 'Simple' vehicle fluid leaks can be dealt with by responders at the "Ops" level

317

Hazmat

318

Hazmat (Cont.)

A hazard placard doesn't always mean a **hazmat response**

- Incorrectly judging whether spills require Hazmat response is one of the single biggest causes of lane closures

319

Hazmat (Cont.)

What requires a hazmat response?

320

Defensive Strategy

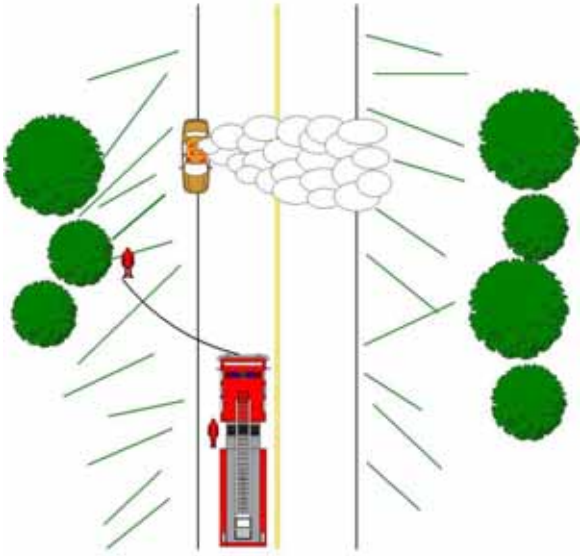
- Have response procedures in place for incidents requiring a true hazardous response
- On scene responders, recognizing the presence of hazardous materials, will shift to a defensive strategy
- Establish “Closure Responsibility” as soon as possible, so that contractors can be contacted as soon as possible, in order to clear the roadway quickly

321

Minivan Fuel Tank Failure Video

322

Vehicle Fire Case Study



323

Vehicle Fire Case Study Video

324

Incident Considerations

- Critical to keep personnel out of area in front of vehicle
  - An explosion would place them directly in the line of a projectile
- The approach position of the fire apparatus is incorrect (a double solid yellow line is present)
  - Positioned facing the opposing lane of traffic
- Parked downside of the smoke
  - Oncoming traffic will be unable to see them

325

Vehicle Fire Dangers

326

New Hazard For all Responders

327

Fatality Incident

- Managing fatality incidents is a challenge.

  GOAL: All lanes open within 90 minutes!

328

Formal Declaration Of Death

- Dramatically delays removal of the deceased
- Policy exceptions make sense
- Quick removal from the scene benefits victim's families and transplant patients

329

Criminal Code Procedure 49.25: Death Investigation and Removal of Bodies

Medical Examiners

- Removal of Bodies
  - Section 8 - When any death under circumstances set out in Section 6 shall have occurred
    - The body shall not be disturbed or removed from the position in which it is found by any person without authorization from the medical examiner or authorized deputy
      - ***Except for the purpose of preserving such body from loss or destruction or maintaining the flow of traffic on a highway, railroad or airport*****

330

Incident Management Case Study: Sulfur Springs

National Transportation Safety Board

Highway Accident Brief

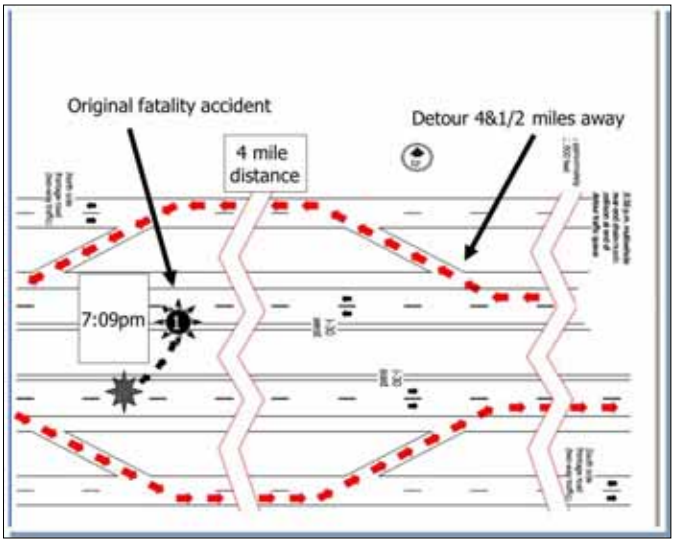
Accident Number:	HWY-04-MH-028
Accident Type:	Rear-end chain-reaction collision
Location:	Interstate Highway 30 west, near Sulphur Springs, Texas
Date and Time:	June 13, 2004, 8:39 p.m.
Vehicles:	1991 Kenworth tractor-auto transporter 2002 Hyundai Santa Fe sport utility vehicle 2000 Peterbilt tractor-semitrailer combination unit 2003 Lincoln Navigator sport utility vehicle 2000 Volvo tractor-semitrailer combination unit
Owners/Operators:	Waggoners Trucking Company (USDOT 30176) Southwest Motor Freight Pilot Logistics Private owners
Fatalities/Injuries:	3 fatalities 2 minor injuries

Accident Description

On June 13, 2004, about 8:39 p.m., a 1991 Kenworth tractor-auto transporter, traveling west on Interstate 30 (I-30), near Sulphur Springs, Texas (see figure 1), collided with a 2002 Hyundai Santa Fe sport utility vehicle (SUV) that was stopped in a 0.5-mile-long traffic queue in the right-hand lane at milepost 132.1. The force of the collision pushed the Hyundai forward, into and under the trailer of a 2000 Peterbilt tractor-semitrailer combination unit (see figure 2), which was in turn pushed forward into a 2003 Lincoln Navigator SUV. The Lincoln was subsequently pushed forward into the trailer of a 2000 Volvo tractor-semitrailer combination unit. A fire erupted, involving the Hyundai and the Peterbilt trailer. All four occupants of the Hyundai and the driver of the Kenworth truck were fatally injured. The two occupants of the Lincoln received minor injuries, and the occupants of the Peterbilt and Volvo trucks were not injured. At the time of the accident, the temperature was 80° Fahrenheit, the sky was clear with a visibility of 10 miles,[1] and winds were southeast at 5.8 mph.

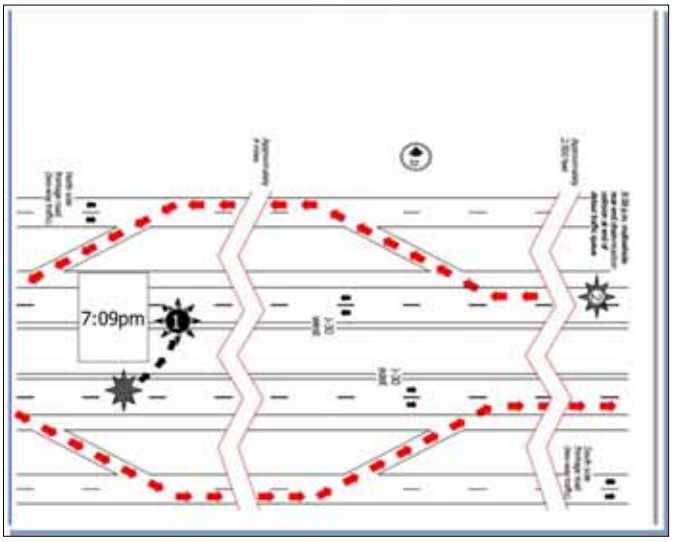
331

Incident Management Case Study: Sulfur Springs (Cont.)



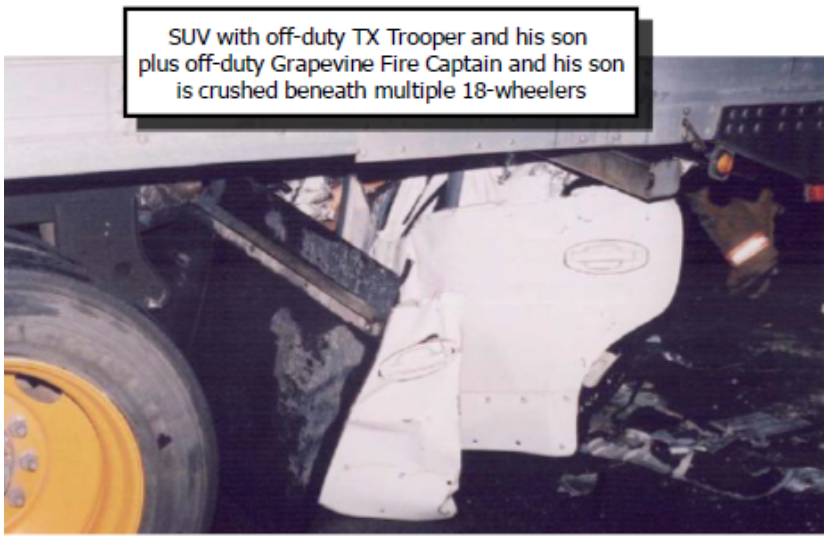
332

Incident Management Case Study: Sulfur Springs (Cont.)



333

Incident Management Case Study: Sulfur Springs (Cont.)



334

Incident Management Case Study: Sulfur Springs (Cont.)

It took approximately 1 hour for responders to document the 7:09 p.m. accident and remove the three victims from the left lane and median of I-30 east. The *Texas Codes of Criminal Procedure* give the DPS the authority to remove bodies from a highway accident scene to maintain traffic flow.[26] The DPS did not exercise this authority and waited 30 minutes for the Hopkins County Justice of the Peace to arrive and pronounce the state of the deceased before contacting the funeral home to remove the bodies.[27] It took another 30 minutes for representatives of the funeral home to arrive at the scene. About 8:00 p.m., the towing service was in the process of loading the accident vehicle onto a tow truck; the second accident, which is the subject of this brief, occurred about 8:39 p.m. In a postaccident interview, TxDOT personnel indicated that, even had the second accident not occurred, I-30 probably would not have been reopened to traffic until about 9:00 p.m., almost 2 hours after the 7:09 p.m. accident.

Several regions across the nation have incorporated a clearance goal of 90 minutes or less into their TIM policies.[28,29] In Dallas, Texas, first responders have met an objective of reducing the average clearance time for all types of incidents to 20 minutes. Studies have shown that quick clearance of an incident is the "most effective method to decrease first responder injuries,

335

Bus Fire

336

Bus Fire - Response

337

Bus Fire - Response (Cont.)

338

Bus Fire - Gouges

339

Bus Fire - Wheel Size

340

Bus Fire - Tire Roadside

341

Bus Fire - Wheel Chained

342

Bus Fire - Shop

343

Bus Fire - On the Way

344

Bus Fire - DCSO

345

Bus Fire - Coordination

346

Bus Fire - Forklift

347

Bus Fire - Forklift Reefer

348

Bus Fire - Cargo

349

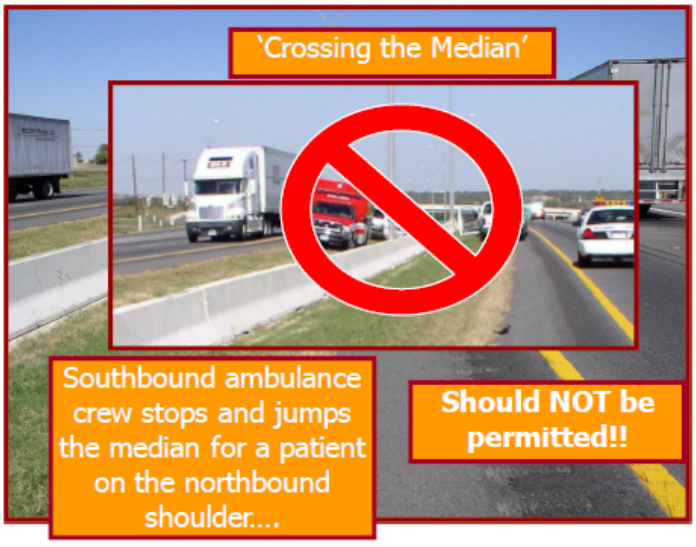
Bus Fire - Cargo (Cont.)

350

Bus Fire - NTSB

351

Special TIM Activity

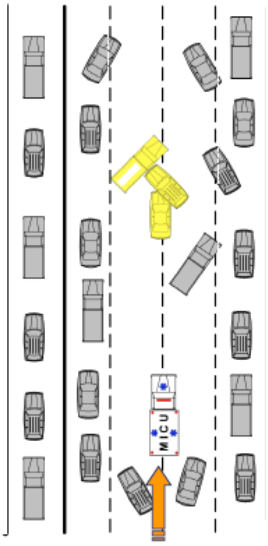


352

Special TIM Activity (Cont.)

You're arriving first-due in the ambulance at this incident on a 5-lane limited access expressway.

How do you position????

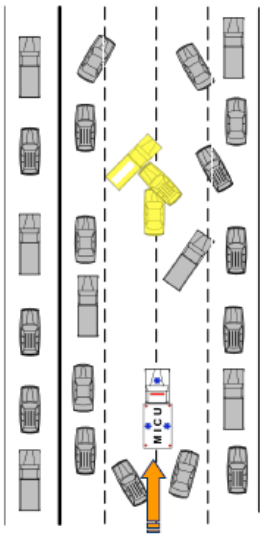


353

Special TIM Activity (Cont.)

You "block" with your unit to temporarily create a protected work area...

at least until larger FD apparatus arrive to throw you a proper Block.



You aren't going to use your 'Loading Zone' right away anyway!

354

Special TIM Activity (Cont.)

355

Hybrid Vehicles

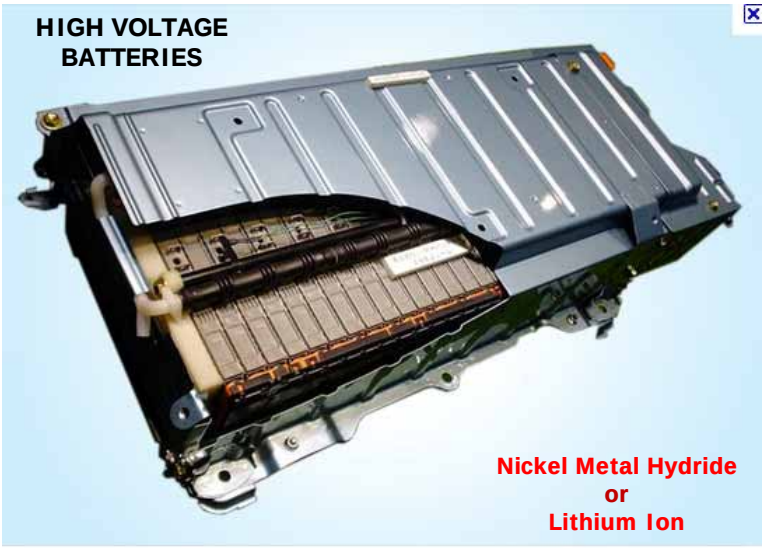
356

EV Traffic Incident Management Challenges

- Electric Vehicle (EV)..."Disabled & in Roadway"
- Electric Vehicle (EV)..."Collision/Entrapment"
- Electric Vehicle (EV)..."Submersion; Fresh or Saltwater"
-]Electric Vehicle (EV)..."Fire"

357

EV TIM Challenges (Cont.)



358

EV TIM Challenges (Cont.)

Floorpan-mounted Lithium Ion HV Battery

"Skateboard"

shown: VW ID. 4

359

EV TIM Challenges (Cont.)

Emergency Response Guides (ERGs)

Rescue Sheets

360

EV TIM Challenges (Cont.)

7-Step

Lock Out/Tag Out

Protocol for

Hybrids, Plug-ins,

& EVs

361

EV 'Service Call' Examples

- Dead Battery – 12V or High Voltage (HV)
- Flat Tire
- Vehicle Lockout
- Debris Entanglement

362

EV…"Collision"

- Body Damage Only
- HV Battery Damaged
- Occupant Injuries
- Entrapment/Extrication

363

EV TIM Challenges

Interim Guidance for Electric and Hybrid-Electric Vehicles Equipped With High-Voltage Batteries
(Towing and Recovery Operators and Vehicle Storage Facilities)

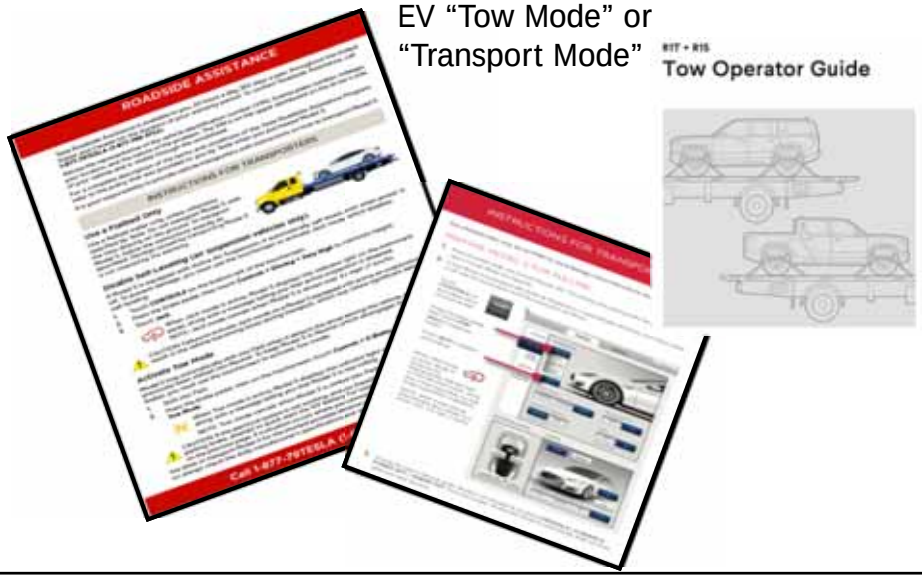
www.NHTSA.gov

"Special" Considerations:
EV Towing & Recovery

364

EV TIM Challenges (Cont.)

EV “Tow Mode” or
“Transport Mode”



365

EV TIM Challenges (Cont.)

366

TIM Case Study

367

Clearance and Termination

368

Quick Clearance

- Quick Clearance is the practice of rapidly, safely, and aggressively removing temporary obstructions from the roadway
- Restoration of the roadway to full capacity
- *Partial Clearance - opening lanes of traffic one-at-a-time as each lane becomes available, instead of waiting until lanes are cleared and opening the entire roadway at one time*

369

Strategies For Improving Clearance

- Dedication and support from committed personnel
- Document agency practices that work
- Formalize successful practices into agency policy and procedure
- Learn techniques proven effective elsewhere to quickly mitigate incidents

370

Liability For Not Taking Action

- Don't leave yourself open to liability
- Deliberate indifference
- Failure to warn
- Failure to protect

371

Liability Protection: Hold Harmless Policies and Proper Documentation

Hold Harmless Policies

- Exempt responders from liability for using quick clearance methods
- DOT, police, and anyone operating under their direction

Proper Documentation

- Best defense against lawsuits and claims
- Validates that the actions taken were in the "interest of safety"
- Note actions of all personnel on scene
- Document road conditions and equipment setup

372

Clearance of Obstruction of Roadway: Legislative Act, State of Texas

CHAPTER § 545.3051. Removal of Personal Property from Roadway or Right-of-Way

- A transit authority or law enforcement agency may remove personal property from a roadway or right-of- way
  - If the property blocks the roadway or endangers public safety
  - May be done without the consent of the owner or carrier of the property
  - The owner or carrier is liable for the cost of removal
  - The authority or agency is not liable for any damage caused, unless the removal is carried out recklessly or in a grossly negligent manner

https://statutes.capitol.texas.gov/Docs/TN/htm/TN.545.htm#545.3051

373

Abandoned Vehicle Struck Video

374

Tools And Strategies For Improving Clearance: Mobility Assistance Patrols

- Effective in directing traffic
- Clear debris and assist with spill containment
- Establish and operate alternate routes

375

Objectives And Benefits of Clearance

- Ensure safety of responders, victims, and other motorists by:
  - Removing the incident from the road as quickly as possible
  - Restoring roadways to full capacity quickly
  - Reducing the chances of secondary incidents
  - Minimize delays and motorist frustration

376

Quick Clearance Methods

- Practice positive traffic control
- Call for tow trucks or other time sensitive resources immediately
- Use advanced collection techniques and technologies
- The more quick clearance methods are applied, the more accepted they will become

377

Quick Clearance Methods (Cont.)

- Any vehicle that can be moved off the road should be moved
- Vehicles should be equipped with push bars, tow straps, and other equipment
- Push or drive damaged vehicles out of the roadway, even with broken radiators and flat tires
- DOT patrol vehicles can and should clear lanes of debris

378

Push Bumpers

- Should be used on all patrol vehicles
- Removal of vehicles blocking the roadway
- Liability not a problem when used properly

If you want true "Quick Clearance"...

Use your pushbars!

Push...Pull...or Drag!

379

Push Bumpers (Cont.)

- Move object to nearest position that is safely clear of traffic
- Check before and after the move for damage
- Users should be properly trained

380

Push Bumpers (Cont.)

381

Push Bumpers (Cont.)

382

Push Bumpers (Cont.)

383

Push Bumpers (Cont.)

384

Quick Clearance

- What is the safe, quick clearance protocol for this situation?

385

Police Push Tour Bus Video

386

Quick Clearance

- For true "Quick Clearance"...Consider transporting patients to a Landing Zone that is OFF the highway!

387

Quick Clearance (Cont.)

388

Towing

389

Legislative Update: HB 2094

- Texas Department of Licensing and Regulation (TDLR)
  - Took effect September 1, 2008

390

Types of Licensing

- Consent Towing
- Private Property Towing (must be certified)
- Incident Management Towing (must be certified)

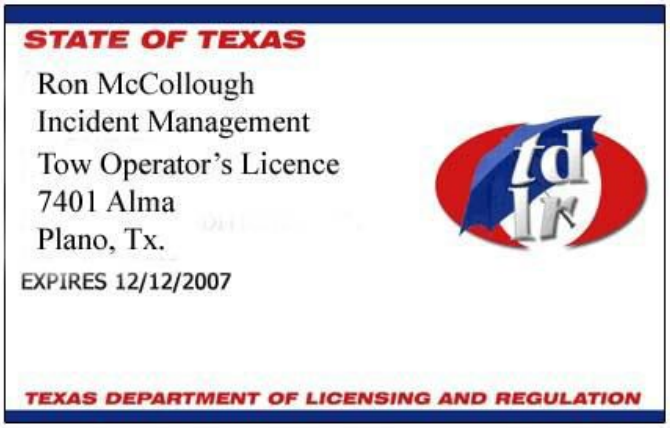
391

TDLR Regulations For Towers

- Companies must be licensed
- Must have drug testing procedures (pre-employment, random, and annual)
- Criminal background checks
- Every employee to be licensed
- Every vehicle to be annually inspected and certified
- Tow truck operators to be certified

392

Tow Operator License



- Annual re-training (8 hours classroom and hands-on)

393

TDLR

- Trucks must display TDLR # with IM at the end

394

Wrecker Service Equipment Standards

- Heavy-duty towing standards
- Cargo trucks require better equipment to upright and remove
- Reward towers that clear incidents quickly

395

Wrecker Service Skill Level

- Not all wrecker operators have the same skill-set
- Overturned cargo trucks require more personnel training
- Heavy-duty towing recovery workshops

396

Upgraded Towing Regulations

- Focus is on faster clearance
- Recovery classifications are needed
- California, Utah, and now TEXAS have training and certification programs
- Policies are being revised in other states

397

National Examples: Immediate Tow Zones

- Clear Zone concept is defeated if abandoned vehicles are allowed on roadside
- 2-4 hour zones for non-peak or daylight hours
- Washington State – All downtown Seattle freeways immediate tow zones
- Houston, TX – Tow & Go Program

398

Atlanta, Georgia

- Emergency mobilization, arrival of three trucks and full team in 60 minutes 24/7
- Clearing travel lanes in 90 minutes from “notice to proceed”
- NTTA Added Bonus Program for Towers – 3 Hr. Window
- Additional payment for specialized heavy equipment
  - Towing company compensated $2,500 and an additional $1,000 if other approved heavy equipment is utilized
  - Towing company can be penalized for not meeting 90 minute clearance time
    - Towing company required to pay the state $10 per minute after 90 minutes until lanes are open

399

Roadway and Incident Scene Clearance

- Programs introduced to ensure quick clearance
- Major program components
  - Assures prompt, predictable response and 24/7 equipment availability
  - Contains detailed specifications for modern, powerful 35 and 50 recovery wreckers with full sets of tools
  - Requires support vehicle with extensive array of equipment and full traffic control and vehicle fluid spill mitigation capability
  - The agreement also requires other specialized heavy equipment (i.e. loaders, bobcats, tractors and trailers)
  - **Operators must be fully trained and certified in heavy towing and recovery as well as TMUTCD requirements**

400

Recovery Technique Example

- Demonstration of a COMPOUND recovery technique

401

Light And Medium Duty Recovery

- 84% of incidents on freeways involve passenger and light truck vehicles

402

Loading

- Loading demonstration once vehicle is up-righted

403

Loading (Cont.)

- One lane upright with a two-car carrier

404

Loading (Cont.)

- Reverse roll recovery using a conventional wrecker and catching the vehicle

405

Loading (Cont.)

- Operating on the shoulder of a highway without taking a travel lane and conducting recovery of this vehicle from the ditch

406

Loading (Cont.)

- Conducting an upright recovery off the side of a wrecker on a shoulder of highway

407

Loading (Cont.)

- Demonstration of OVER A CREEK OR DITCH RECOVERY using the Clothesline Technique

408

Scene Clearance

- Recovery of damaged vehicles should be done by working within protected lane and shoulder area, keeping other lanes and shoulder 'OPEN' to moving traffic...

409

Scene Clearance (Cont.)

- This tow truck operator "required" all lanes plus all shoulders of highway to be shut down?

410

Investigation


411




National Examples: Creative Accident Investigation Sites (AIS)

- Illinois DOT “Minutemen” use AIS
- Planned AIS into freeway construction
- Relocates truck wrecks to locations where recovery and inspection can take place
- Authorized by businesses to use their property for completing investigations
- Provide a location to which vehicles can be moved
- Select sites to reduce impact on traffic
- Don’t slow traffic unnecessarily with unused emergency vehicles on the shoulder
- Safe place to recover vehicles or cargo
- Safe place for completing investigations

412

Conduct Investigations In Off-Peak Hours

- Some investigations can or should be delayed
- Cases of heavy congestion or inclement weather
- Some evidence is durable
- Return for measurements when it is safe and traffic conditions are improved

413

Temporary Road Closure For Accident Investigations

- Wait to close until ready to mark or measure
- Close road only when resources are available to meet TMUTCD standards

414

Alternate Means Of Marking Evidence

- Painting scenes
- Evidence markers
- More cameras and training for first responders

415

National Examples: Photo Measurement Saves Time

- Fatalities and felonies documented in minutes instead of hours
- Cheaper and faster since pictures are taken anyway

416

Alternate Means Of Analyzing Evidence: Photogrammetry

- Cones are used to mark the site
- Photogrammetry can be conducted while extrication is taking place
- Photogrammetry analysis is done back at the office

417

NCTCOG Photogrammetry Training

- Basic and Advanced Training Opportunities
- Basic: Five-Day Training (Includes Equipment)
  - "Training Only" Option available
- Advanced: Two-Day Follow-up Training
- Training Offered Twice Per Year
- Equipment Provided to Each Officer At No Cost
  - Digital Camera
  - Special Photogrammetric Markers
  - iWitness™ Close-Range Photogrammetry Software
- If approved to attend, participating agencies agree to utilize the equipment provided or it must be returned to NCTCOG
- https://www.nctcog.org/trans/quality/safety/transportation-safety/traffic-incident-management/photogrammetry-training

418

Alternate Means Of Analyzing Evidence: Computer-Based Measurement Systems

- Total stations
- Lasers
- Geographic information systems (GIS)
- Photogrammetry

419

Alternate Means Of Analyzing Evidence: Laser Scanners Video

420

Termination

421

Termination

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

Major activities:

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

422

Termination Checklist

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

423

Reopening Travel Lanes

- Reposition responder vehicles to reopen lanes

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

424

Termination Communication

Effective termination communication includes:

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

425

Termination Conclusion

- Restore traffic flow at the earliest possible time
- Make a difference by making clearance a priority
- Make procedure changes and use quick clearance methods
- Push-bumpers, towing contracts, no parking areas, accident investigation sites
- When are these solutions appropriate

426

**Importance of After-Action Reviews

- Purpose – To Evaluate the Decisions Made and Actions Taken During an Incident and to Identify Both Best Practices and Opportunities for Improvement

- Typical Format
  - Review Basic Incident Details
  - Roundtable Discussion – Agency Perspectives
  - Identify At Least One Action Item Per AAR

427

Closing: Web Based / EMS CEUs / TCOLE / Evaluations / Certificates

428

How to Access Electronic Reference Material

- To See your Transcript and Access Electronic Materials
  - Log in to www.NorthTexasTDI.org to find online learning portal

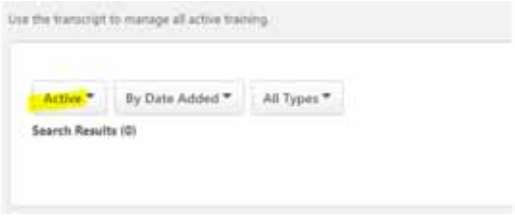
Please HOVER over top tabs to view dropdown menus

Once logged in, the below screen will have the below tabs, hover over “My Transcript” and click on “View Your Transcript”

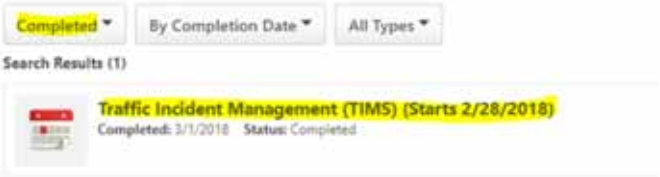
429

How to Access Electronic Reference Material (Cont.)

- Make sure when you arrive at your transcript, that you change the dropdown from “Active” to “Completed”.



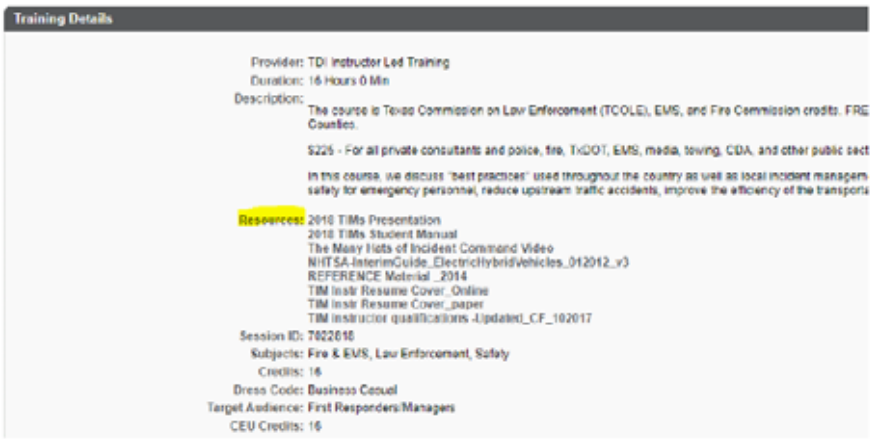
- After you have selected “Completed” from the dropdown, all the completed courses taken will reflect. Click on the course for training details.



430

How to Access Electronic Reference Material (Cont.)

- Once you have clicked on the course, the training details will appear. One of the details will state resources as highlighted below and each resource listed is a clickable link that will take you to that resource.



431

Web-Based Training: https://www.nhi.fhwa.dot.gov/home.aspx

432

Web-Based Training (Cont.)

433

EMS CE, TCOLE, Evaluations, & Certificates

- Let TDI Staff Know if You're Interested in Receiving EMS CEUs
  - Take/Pass the EMS Test to Receive CEUs/CEU Certificate
- Fill out TCOLE Forms to Receive TCOLE Credits
- Please Complete Course Evaluations at the End of Class ☺
- Pick up Course Certificates at the End of Class ✓

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