EMERGENCY VEHICLE OPERATOR

CLASS “B”

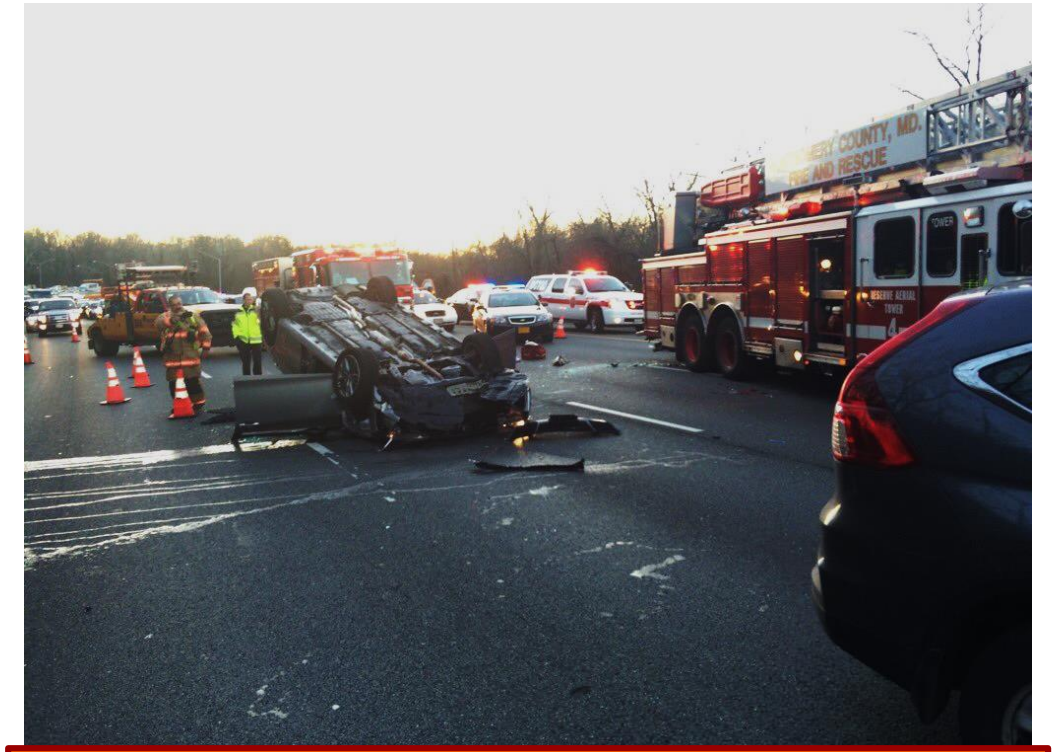
Module 3

Apparatus Positioning & Roadway Safety

Motivation

- In 2015, MCFRS answered 116,424 incidents
- Nearly every incident requires operators to position for:
  - Operational efficiency
  - Crew safety
- Operational efficiency
  - EMS equipment
  - Hoseline deployment
  - Ground and aerial ladder deployment
  - Master stream reach
- Crew safety
  - Between 2000 and 2013, 61 firefighters have been killed when struck by vehicles
  - Nearly half of the deaths were on non-fire incidents

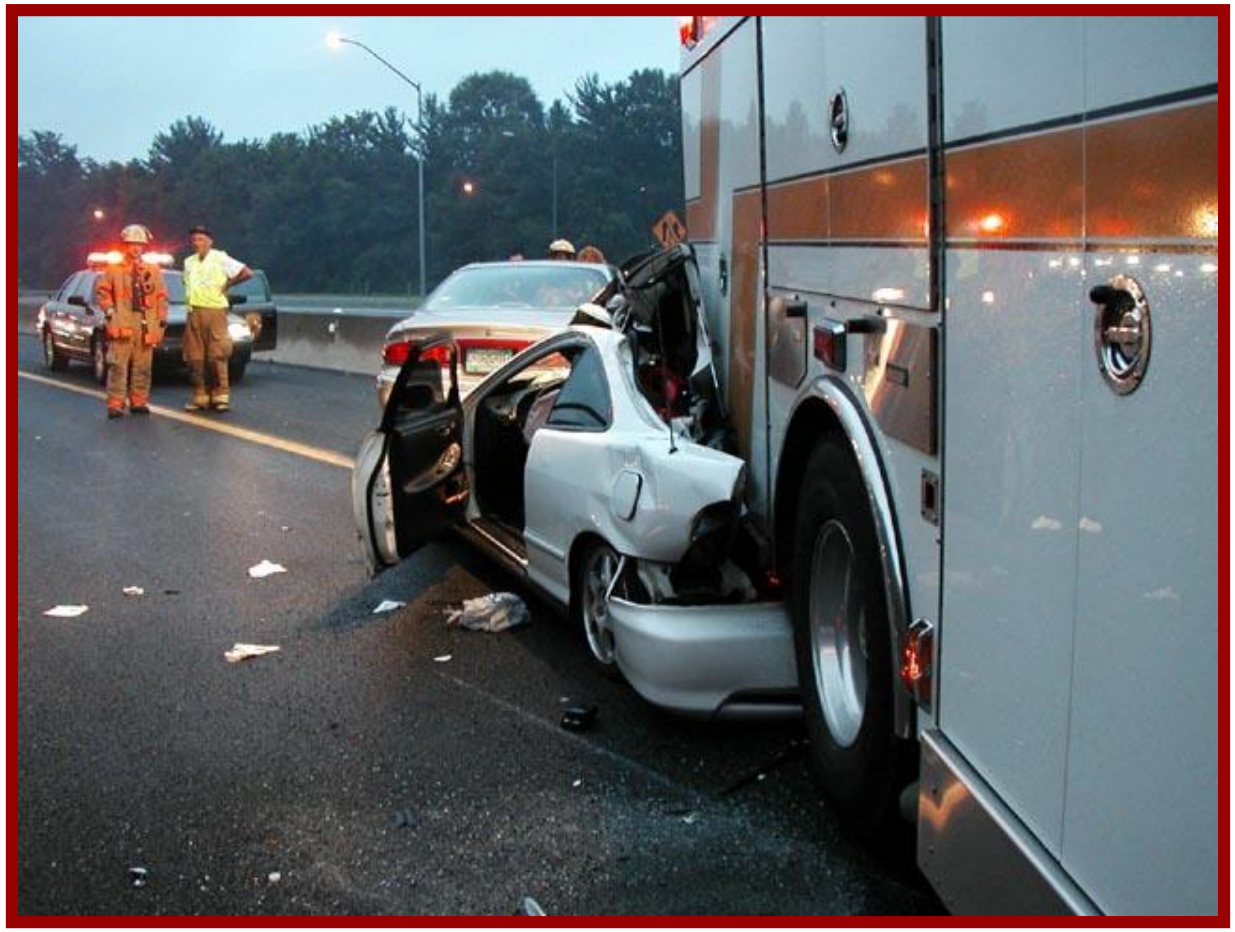
Montgomery County Experience



January 6, 2016 @ 1615hrs – AT719 struck while blocking

February 15, 2015 @ 0015hrs – A711 struck while on the shoulder

MONTGOMERY COUNTY EXPERIENCE



"…we stopped and were hit within 30 seconds."

FEDERAL & STATE STANDARDS

Definition of a "Traffic Incident"

A <u>traffic incident</u> is defined as any non-recurrent event, (vehicle crash, vehicle breakdown, special event) that causes a reduction of roadway capacity or an abnormal increase in traffic demand or congestion.

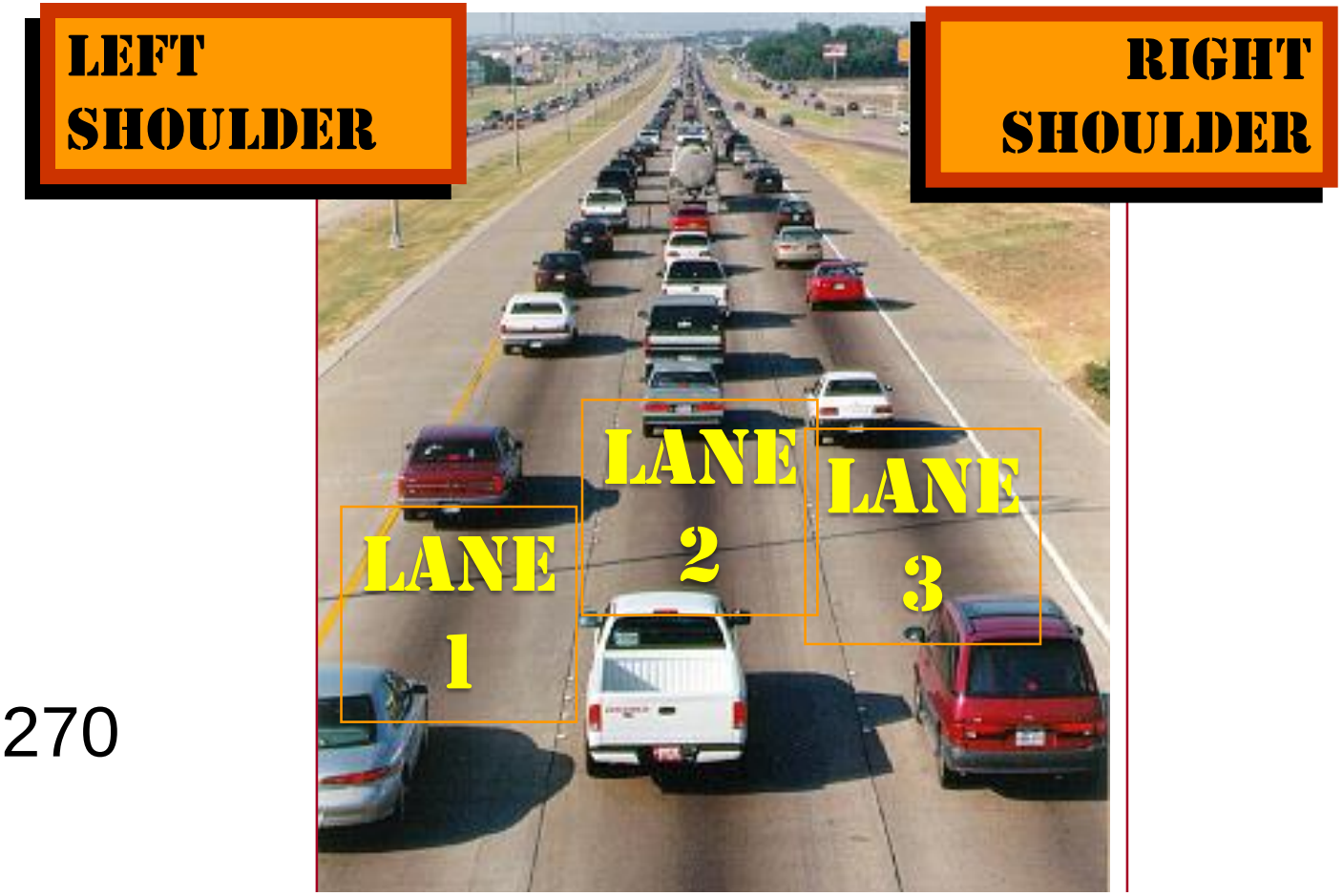
Maryland Manual on Uniform Traffic Control Devices – Section 6I

Work Zone

- Every incident requires establishing a work zone to some degree
- Focus is traditionally on vehicle crashes or on highways
- Upon approach to a scene the apparatus operator must assess how best to protect their crew and the scene from oncoming traffic
- Any time apparatus will impede or effect open traffic lanes some form of work zone must be established

Roadway Terms

- Lane Identification
  - Number left to right
- "CD" lanes
  - Route 270
  - Collector distributor
  - Local lanes
- "Main" lanes
  - Through lanes on Route 270

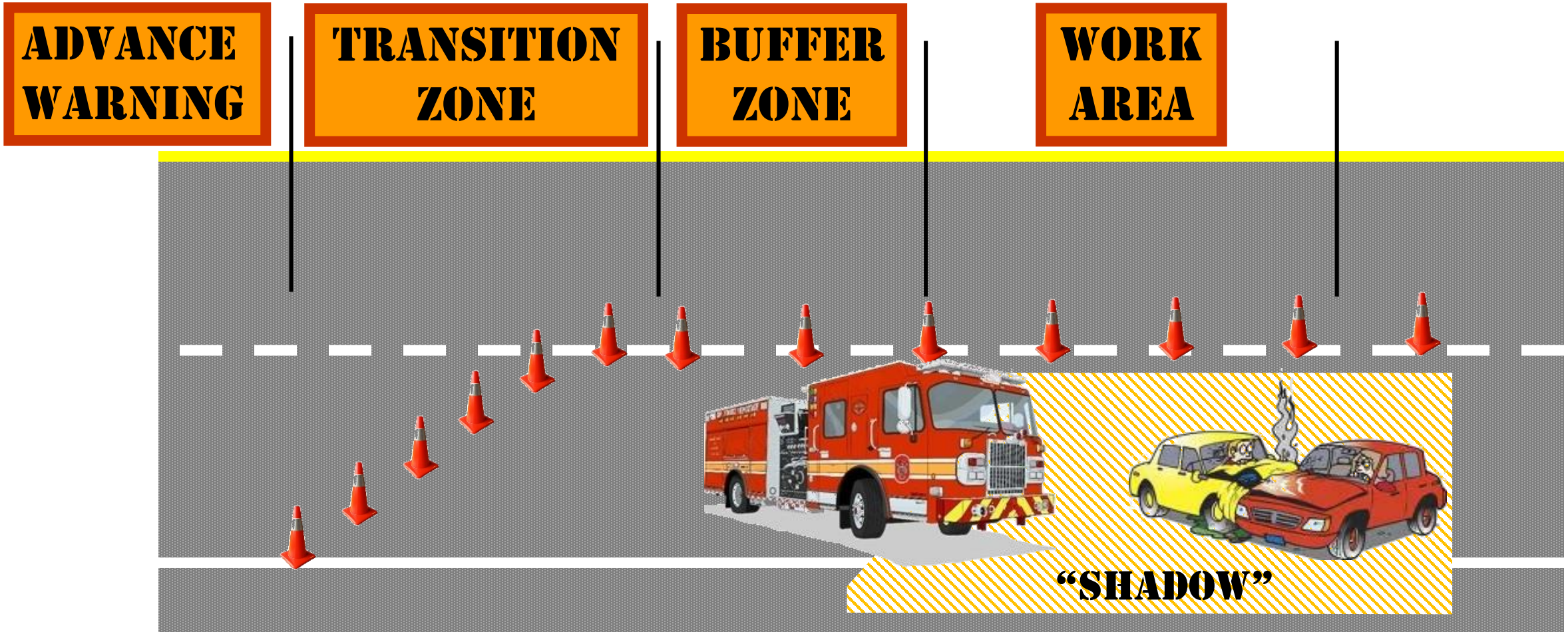


Roadway Terms

Roadway Terms

'Upstream' or 'downstream' refers to the direction of normal vehicle travel on the road, street or highway.

Work Zone Terms



Controlling the Exposure

- Time
  - Clear the scene efficiently
  - Reduce the assignment
- Distance
  - Use a space buffer between you and traffic
  - Provide advanced notice downstream
- Shielding
  - Blocking apparatus
  - Traffic control devices

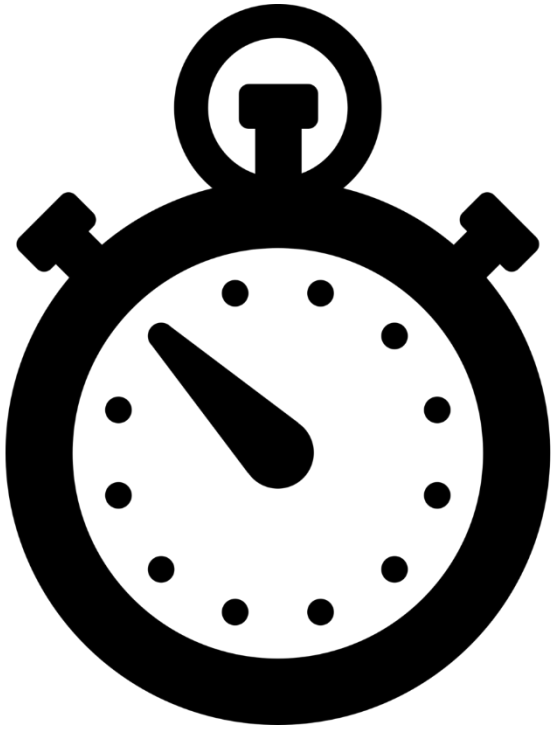
Traffic Control Devices
Cones, Flares, Signs

Use flares to illuminate cones at night or bad weather

MUTCD provides standards for cones – size and reflectivity

Exposure Time
"Quick Clearance"

- DOT and PD want the road open
- Citizens want the road open
- Operational goals should include:
  - Minimize time on scene
  - Open lanes to return traffic to normal
  - Reduce the potential for secondary crashes downstream



Buffer Space
Lane + 1

If moving traffic occupies this lane, is there an adequate "buffer"?

Priorities of the First Arriving Unit

- Block
- Prioritize the moving traffic hazards
- Set out traffic control devices
- Protect the loading area for the ambulance and work area for crews

Blocking Apparatus

"Blocking " is the action of positioning an apparatus or vehicle at an angle to halt or divert the flow of moving traffic in one or more lanes.

Blocking apparatus may be a unit with other duties or solely dispatched for traffic control

Blocking Apparatus

- Blocking apparatus should not be occupied
- Avoid blocking partial lanes
- Beware that gaps behind or in front of the apparatus allow cars to enter your work area

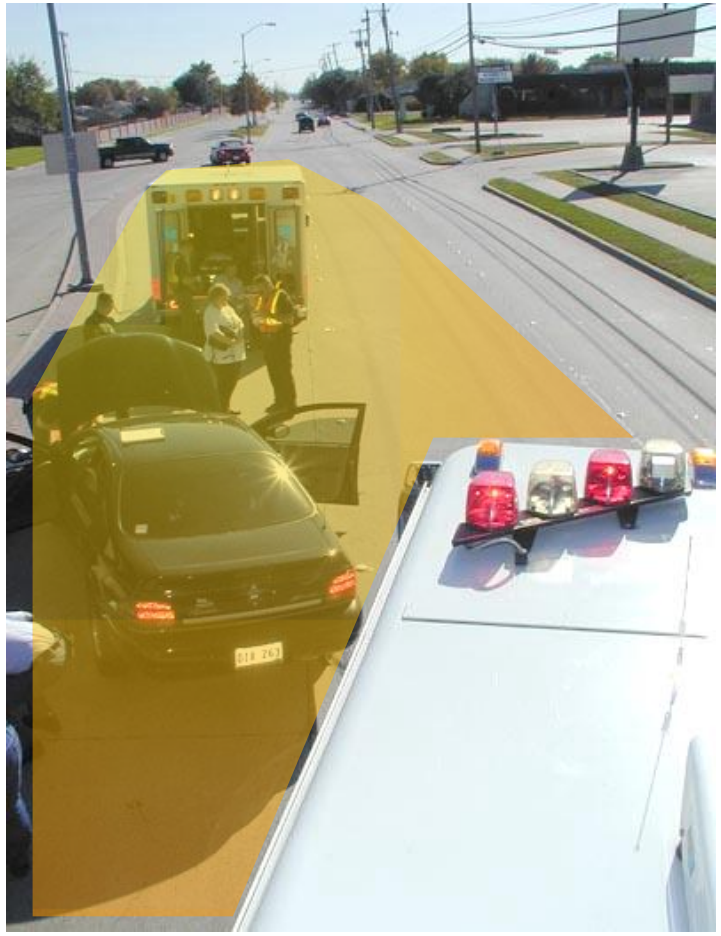
Blocking Apparatus

This Engine blocks the left and center lanes.
This "block to the right" directs all upstream traffic into the right lane.

Blocking Apparatus

A "Shadow " is the area immediately downstream of any apparatus or vehicle that blocks moving traffic

Work within this "shadow" area for greatest degree of safety and protection from moving traffic.



Temporary Traffic Control Zone

- TTC zone is created by the blocking apparatus
- All response activities must occur within this protected zone

PROTECT THE AMBULANCES

The patient "loading area" at the rear of the ambulance <u>must</u> be within the protected area

Ambulances may be parked at an angle that puts the loading area deep in the shadow

Advance Warning

- Beware of short sight distances
- Curves, hills, access ramps, vegetation
- Position apparatus, traffic control devices, and/or warning signs ahead of the scene

Advance Warning

- Familiarize yourself with known dangerous locations
  - I-495 b/n River Road and Wisconsin Ave
  - Any other examples?
- May require placing apparatus further from the scene than normal

Advance Warning

- On extended incidents, advance warning signage may be set up
- Federal standards provide guidance on the signage
  - Fluorescent pink reflective
  - Minimum of 36” x 36”

Cone Spacing Guidelines

- In general, cone spacing depends on the posted speed and the function of the cone within the work zone
- Rules of thumb for cone spacing
  - <45mph – 20’
  - >45mph – 40’
- You may have to prioritize/triage cone placement due to the limited quantity of cones on the apparatus
  - The apparatus may mark the transition and the cones parallel to the work area

You Are a Soft Target

- ✓ Drunk,
- ✓ Drugged,
- ✓ Drowsy,
- ✓ Distracted
- ✓ Dumb
- ✓ Disoriented

Traffic vests and turnout gear do not stop the "D" Drivers…

Cones and flares do not stop the "D" Drivers…

Subject of the Report

2007 - One firefighter was struck by a vehicle and killed. He was at the scene of a vehicle fire shortly after 4:00 am, loading hose back onto fire apparatus in the right-hand lane on an interstate highway when he was struck by a bus traveling approximately 65 mph. The driver of the bus had not noticed the emergency lights of fire apparatus parked on the shoulder and in the right-hand travel lane or traffic cones set up near the fire scene, and was traveling in the right-hand lane. When he belatedly tried to change lanes, he sideswiped the first apparatus and struck the firefighter. The fire department had declined traffic control on the highway during their operations at the vehicle fire because there was no traffic on the road.

Subject of the Report

2010 - A firefighter who was directing traffic at the scene of a motor vehicle crash was struck by a vehicle whose driver drove over traffic cones that had been set out to close the road. A flare had been placed near the cones. The victim was wearing coveralls with some reflective material and a high-visibility hat, and was using a flashlight with a traffic wand. However, he had his back to oncoming traffic and had positioned his vehicle, with emergency lights operating, beyond the point where the road was closed. Factors in the death included no advance warning to drivers, inconspicuousness of the victim and careless driving.

Subject of the Report

2011 - A firefighter directing traffic at a motor vehicle crash on a highway was struck while trying to keep the left-hand lane closed to traffic. A driver came over the hill, tried to maneuver around slowed traffic and struck the victim, who was wearing personal protective equipment and a reflective vest. Speed and alcohol were not factors in the incident.

Subject of the Report

2012 – The firefighter was killed at the scene of a motor vehicle crash when another driver deliberately struck him and two other emergency responders. The victim was wearing a high visibility vest, was standing close to traffic and was not protected by the positioning of the emergency apparatus.

Subject of the Report

2006 - The victim was spray painting markings on a highway to indicate the location of hydrants. He stopped his brush truck in the passing lane of the roadway, leaving the hazard lights operating, and worked in front of the truck. A vehicle approaching at close to the speed limit in the same lane rear-ended the truck, which crushed the firefighter.

Bad weather

Anything that impacts visibility or traction increases the need for traffic control.

Good Weather

Sun glare impacts visibility in good weather!!

Know Your Role

- What was your dispatched arrival order?
- What is your actual arrival order?
- Has any other unit taken up a blocking position?
  - Is traffic approaching from more than one direction?
- What is the primary assignment?
  - Will you be accessing your compartments or hose loads?
  - Can your unit be abandoned and left as a road block?

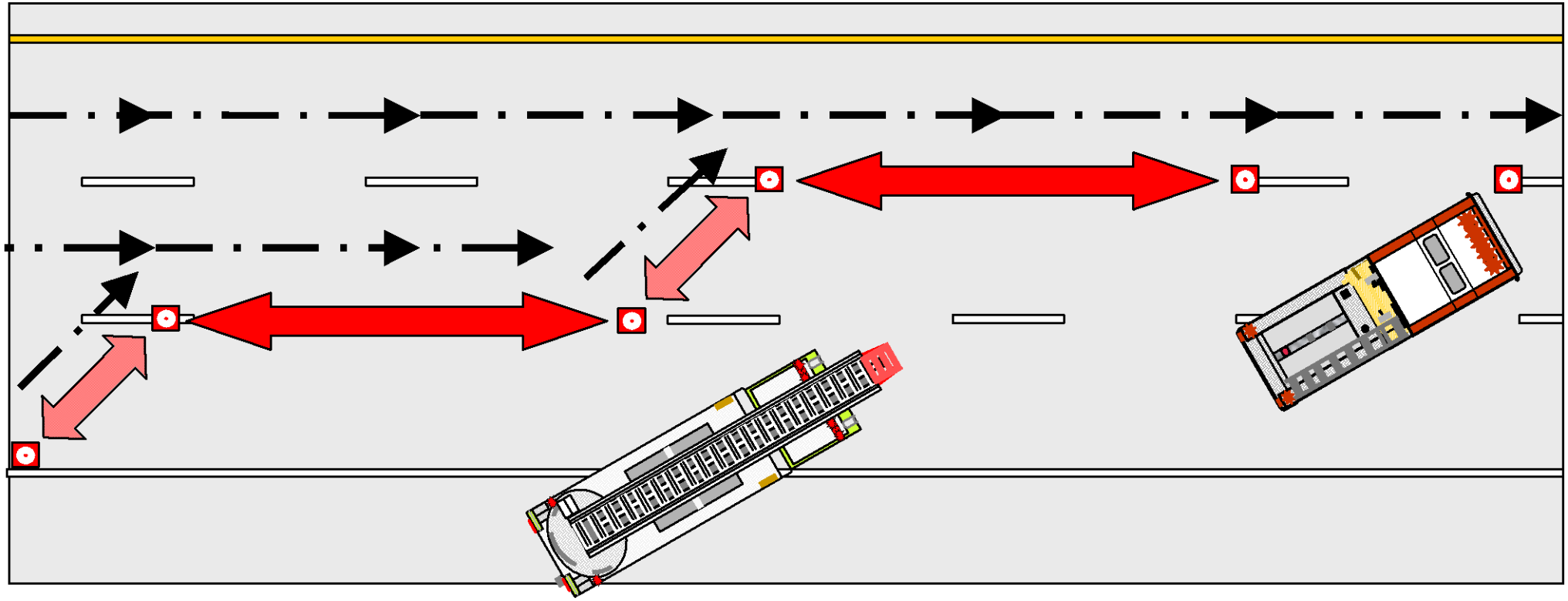
Blocking Unit

Typical engine company cannot adequately block on a multi-lane highway

Blocking Unit

Use a second heavy apparatus to block.

Staggered Blocking



Gap Analysis

- Where can another vehicle come through to the scene?
- Is this a good blocking position?

Jumping the Barrier

Southbound ambulance crew stops and jumps the median for a patient on the northbound shoulder….

Should NOT be permitted!!

Median Crossings & Turnarounds

Policy forbids turning around at median crossings or breaks in the center barrier when traffic is uncontrolled

Median Crossings
PGFD Experience

- E828 used a break in the median
- Returning to quarters
- I-495 near Route 50
- Struck from behind by a tractor-trailer
- 4 FF injured; one severely

Scene Lighting

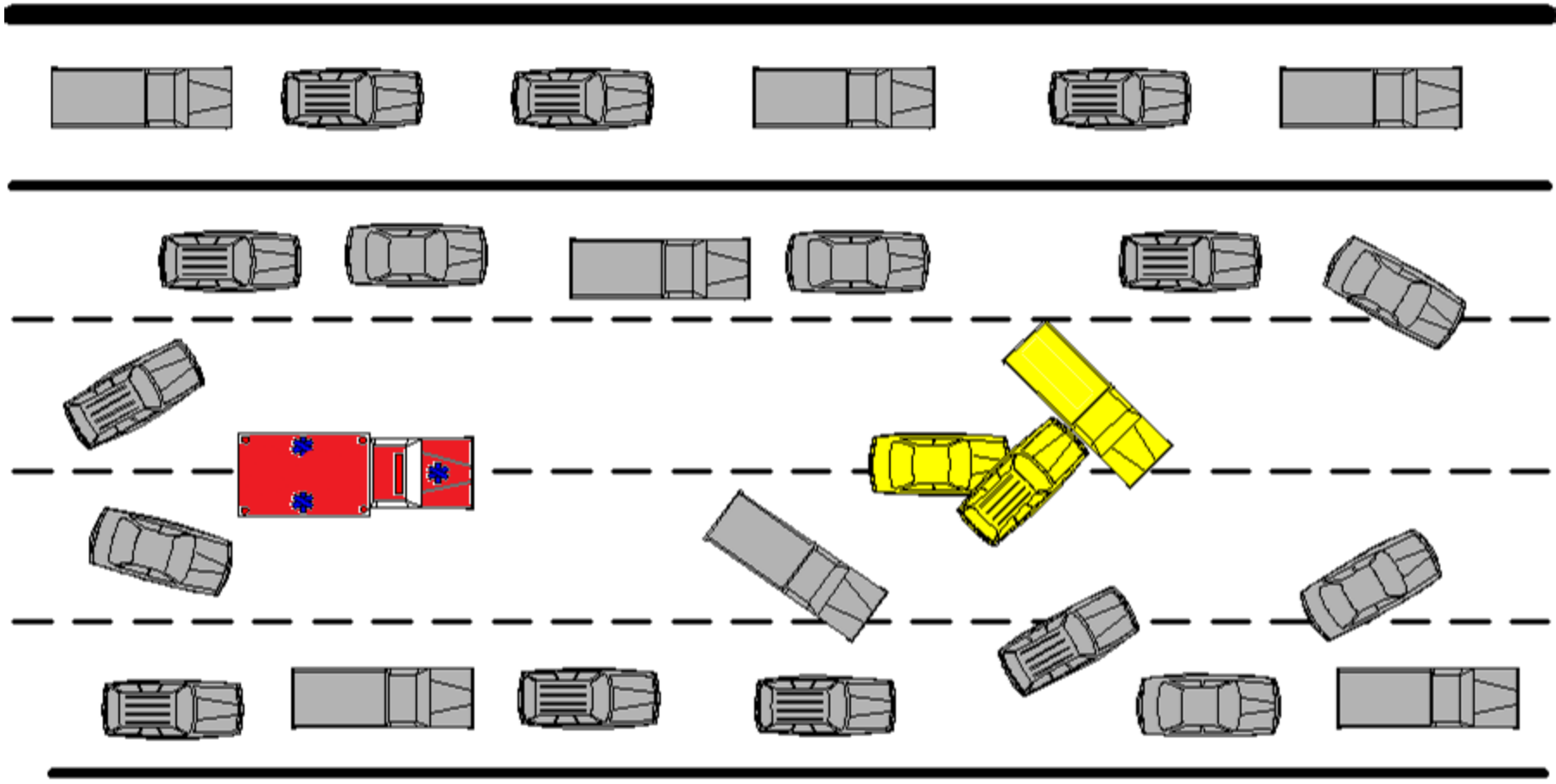
- Pro's
  - Makes the scene and personnel visible
  - Identifies the work area
  - Augments apparatus warning lights
- Con's
  - Blinding to oncoming motorists
  - Makes the scene visible

First Arriving?

You arrive first on a crash on the interstate.

Where do you park and why?

What are your priorities?



Roadway Survival

- Apparatus position does not eliminate the need for personal situational awareness
- Personnel are exposed when:
  - Getting out of the unit
  - Walking around the unit
  - Retrieving equipment from the unit
  - Getting into the unit
  - Spotting for the unit

Don't forget the civilians!

Roadway Survival

- Give consideration for protecting the most people most of the time
  - Which side(s) of the apparatus contain the equipment you will need?
  - Will the pump operator need to be protected at the panel?
- Most fire apparatus crew areas allow members to exit out either side of the unit
- The driver should check side mirrors just before people dismount – look for incoming vehicles

Roadway Survival

- Stop, look, and listen…..before you walk around the corner of an apparatus
- Try to position yourself to face oncoming traffic when getting equipment from the apparatus
- Always avoid placing yourself between oncoming traffic and your apparatus – the rock and the hard place
- Consider angling the apparatus every time you park on a roadway, even at the curb

Roadway Survival
Exiting the Cab

Maintain a "Low Profile"

Do NOT open door fully

Do NOT walk around end of open door

Drivers and Officers cannot choose the side they exit

Roadway Survival
Exiting the Patient Compartment

Maintain "Low Profile"

Do NOT open door fully

Do NOT walk around end of an open door

Minimize your time in the doorway

Roadway Survival
EMS Unit Loading

Protect the rear of EMS Transport Units.

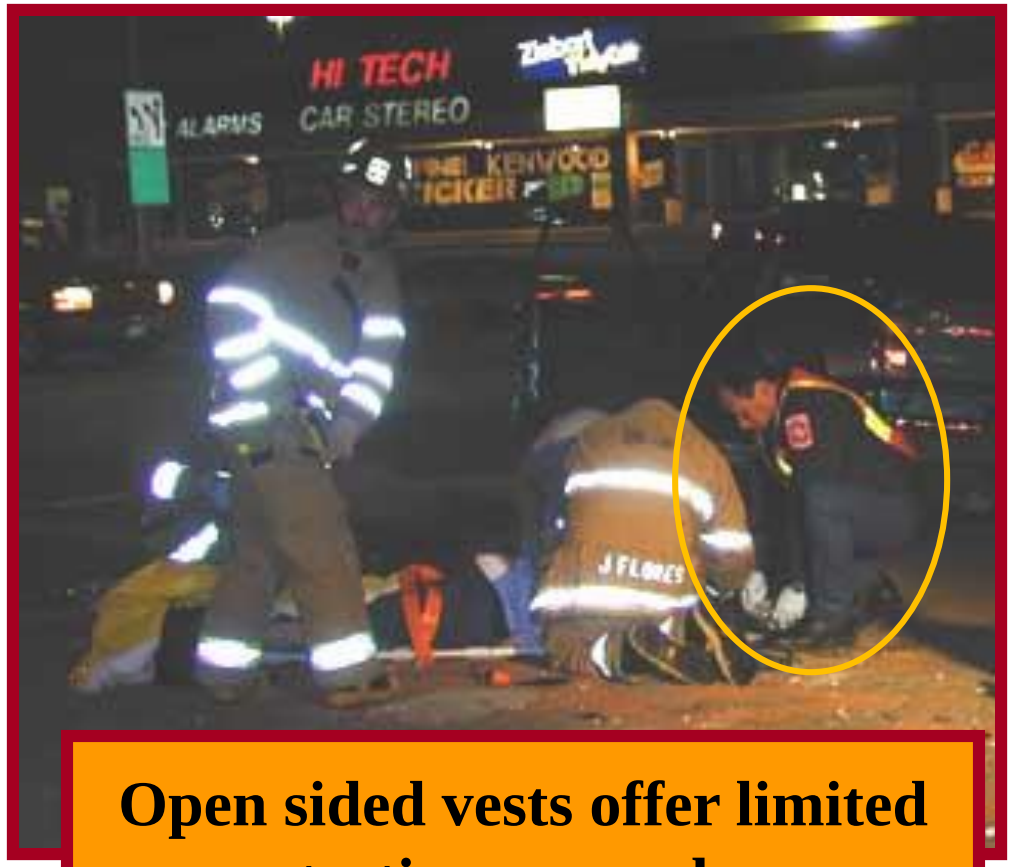
If the rear loading area is not within the shadow of another unit, consider positioning at an angle or in a protected area.

Roadway Survival
Personal Visibility

- MCFRS Policy 26-07AM – Use of Traffic Vests
  - incident scenes on arterials/highways/streets
  - All personnel on scene must wear a:
    - traffic safety vest ;or
    - structural firefighting coat ;or
    - sector/command vest
- Flashlights
  - Attention grabber
  - Be cautious not to blind drivers

Roadway Survival
Personal Visibility

Do you see all of the responders?



Open sided vests offer limited protection on roadways

Roadway Survival
Personal Visibility

Who can you see?

Apparatus Positioning
Maryland Code - § 21-405

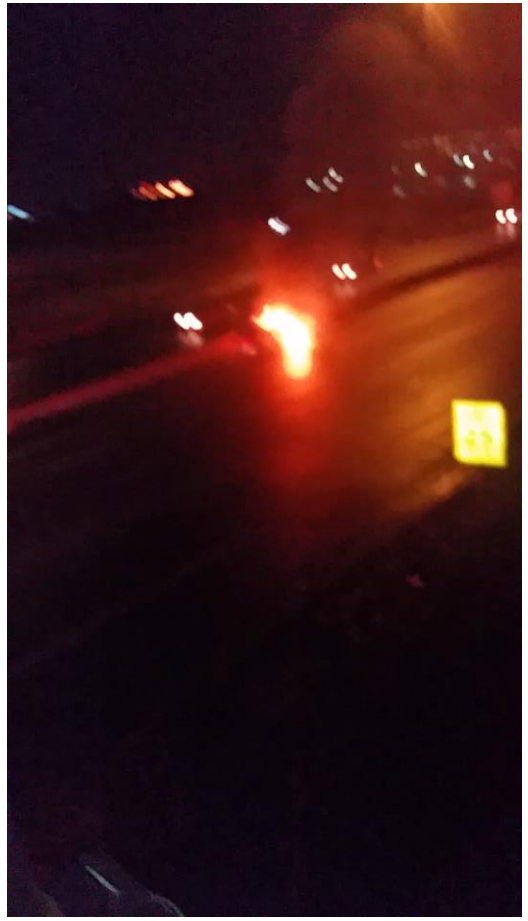
(e) Unless otherwise directed by a police officer or a traffic control device, when an emergency vehicle using any visual signal is stopped, standing, or parked on a highway, the driver of a motor vehicle approaching the emergency vehicle from the rear shall:

(1) make a **lane change** into an available lane not immediately adjacent to the emergency vehicle; or

(2) **slow to a reasonable** and prudent speed that is safe for existing weather, road, and vehicular or pedestrian traffic conditions.

Auto Fire Video

- Limited access roadway
- 55mph speed limit
- Foggy and misty weather
- Christmas night
- 2 engines, 1 EMS unit



SUMMARY

Position yourself and your apparatus for maximum visibility and protection.

Do not rely upon traffic cones or flares to stop a vehicle.

Treat the roadway like an IDLH atmosphere.

Every time you are in the road – not just on calls.