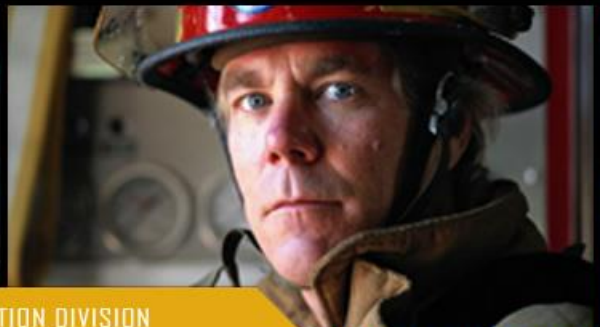




Highway Safety: High Speed, High Risk... ...Putting the Odds in Your Favor

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A “Routine” Incident

- March 9, 1998 at 2:10 p.m. – Raining, wet roadways
- Vehicle on PA Turnpike lost control and slid into a drainage ditch... 911 is called



A “Routine” Incident – Aftermath



A “Routine” Incident – Aftermath

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



Lesson Objectives

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

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

The Why?

- We lose one emergency service worker every other week on the roadway that is outside of the vehicle.
- Even more are injured every day.
- To help make responders more aware of the new techniques and training that is available.

A photograph showing a scene of destruction with debris scattered on the ground. Several firefighters in yellow gear are visible, some standing and some working. A damaged structure, possibly a vehicle or a small building, is partially visible in the background. The overall scene is one of a major disaster or accident.

“Firefighters responding to calls need to operate as if someone is trying to run them over.”

-James Joyce
Commissioner, Chicago FD

Safe-Positioned – MUTCD Definition

The positioning of emergency vehicles at an incident in a manner that attempts to:

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



MUTCD Duration Classes

Types of Incidents:

- **Minor:** Usually less than 30 minutes
 - One incident lane
 - Only requires flashing warning lights.
- **Intermediate:** Usually 30 min to 2 hrs duration
 - Requiring lane diversion
 - Upstream warning devices
 - Tapering of lanes with cones
- **Major:** usually 2 hours or more
 - Roadway closure
 - Full set-up

Minor



- Usually less than 30 minutes
- Car stops
- Disabled vehicles

Intermediate

- Usually 30 minutes to 2 hours in duration
- Requires upstream notification
- Requires lane diversion

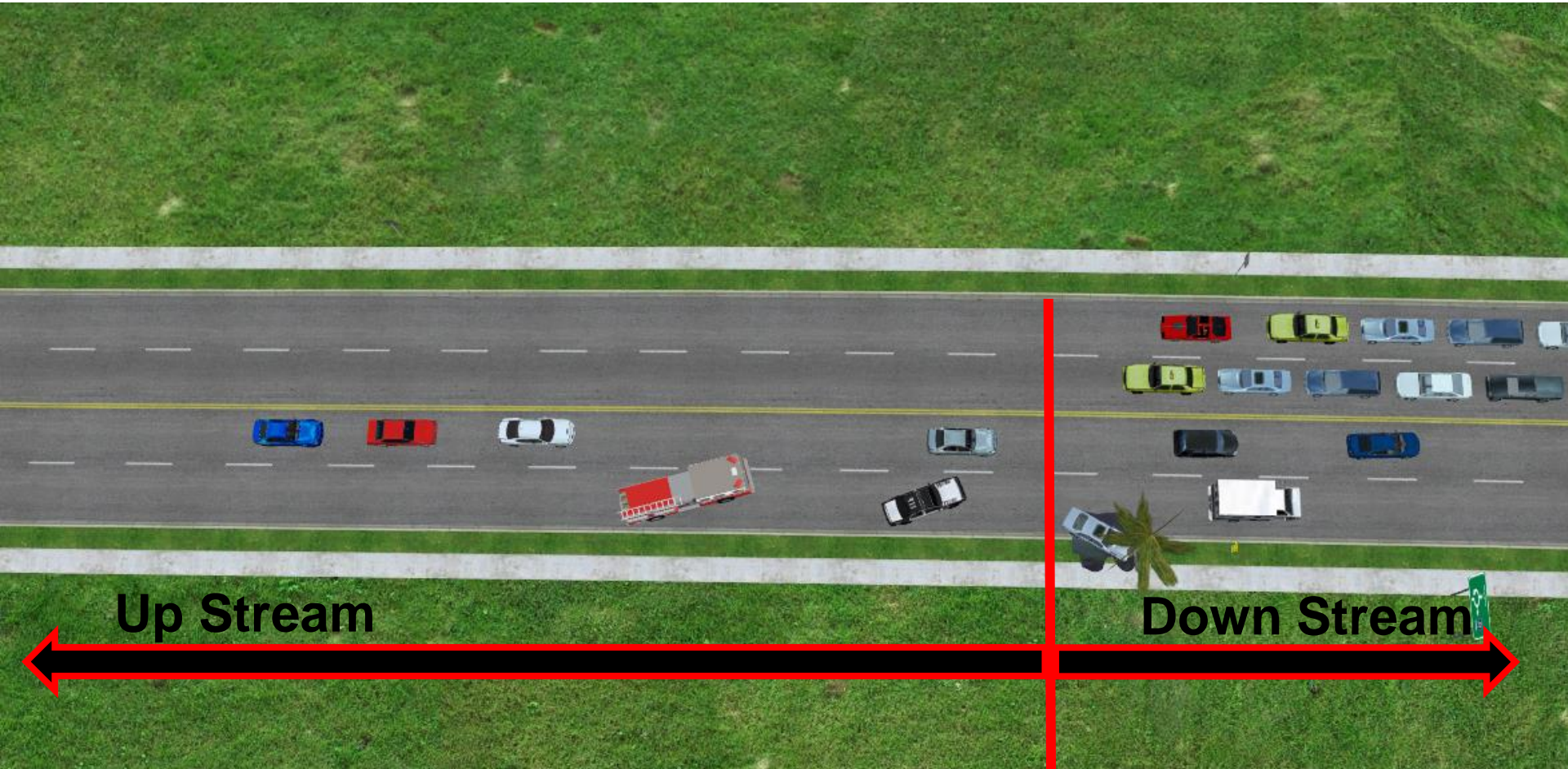


Major

- Usually 2 hours or more
- Examples: HazMat spill, multi-vehicle collision, Fatalities, Investigation.

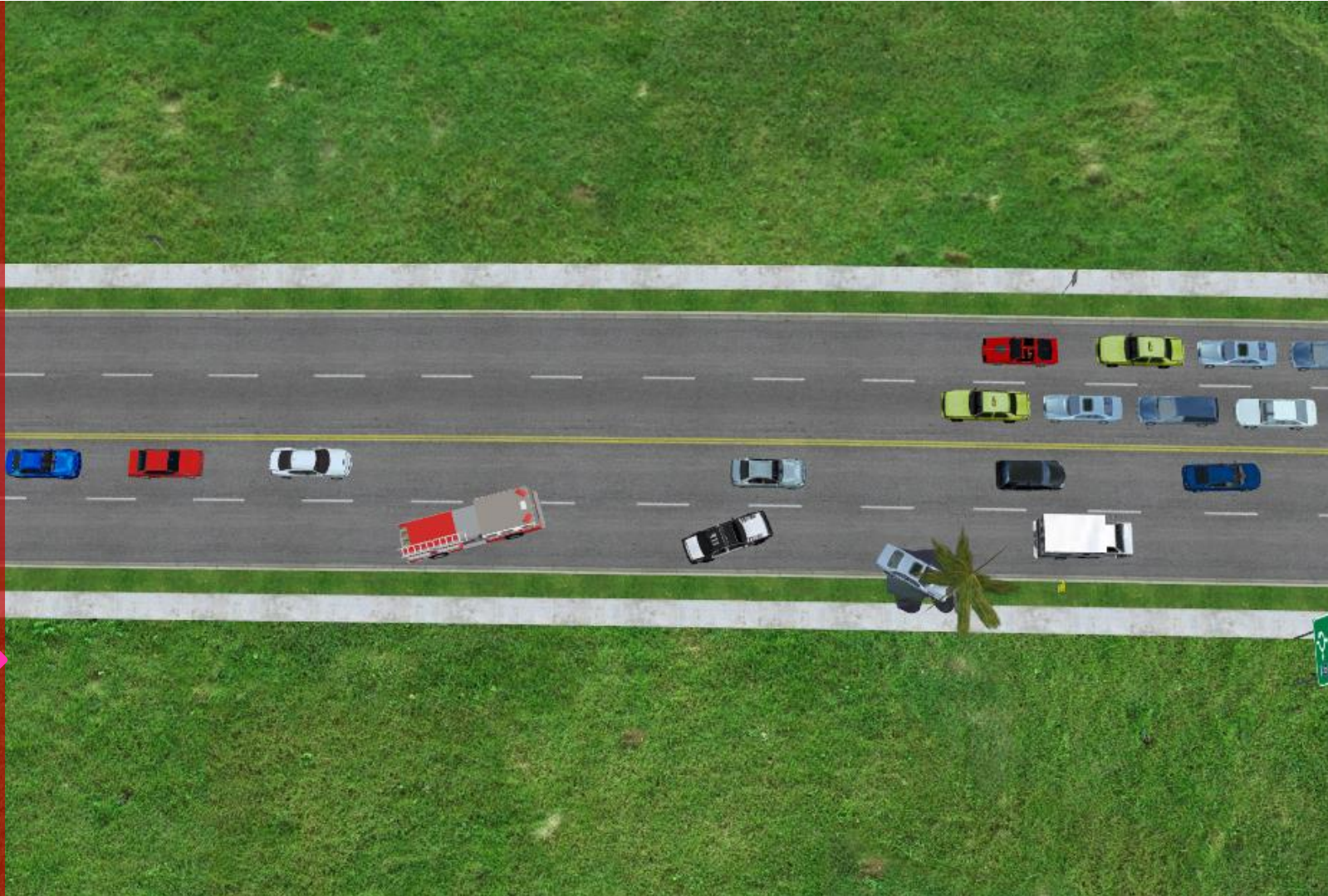


Temporary Traffic Control Zone



Advanced Warning Area

Advanced
Warning Area



EMERGENCY
INCIDENT
AHEAD

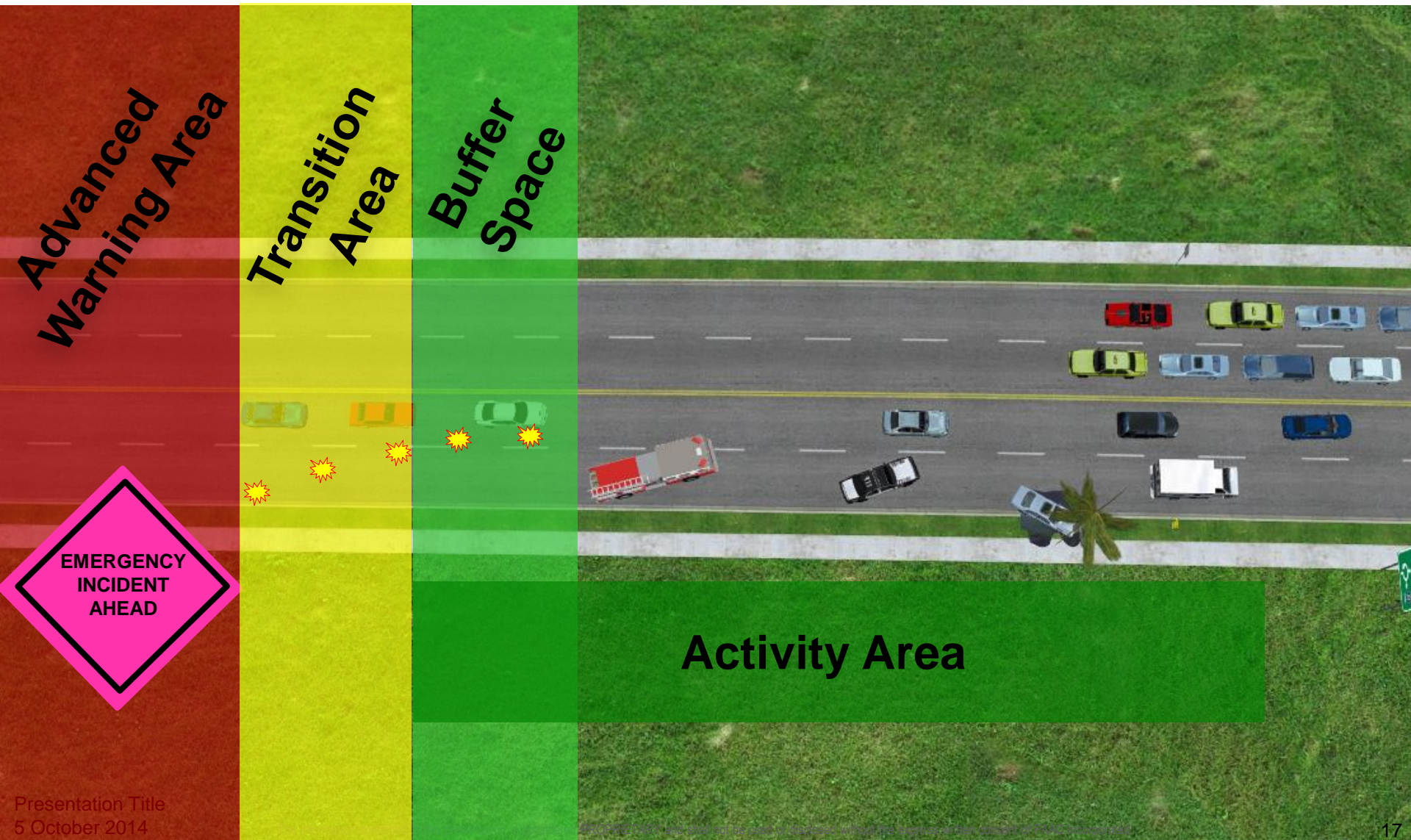
Advanced Warning Signs

Drop Signs

- New concept.
- Usually second unit sets it up.
- Minimum storage, Easy open
- Set a minimum of 300 feet upstream from the incident.



Transition Area & Buffer Space



Buffer Space



**Cone/Flare
Placement**

Cone/Flare Placement

Safety First!

- ALWAYS face traffic
- Wear DOT approved High Visibility Vest
- Stay to the side of the road.
- Watch for spilled fluids, debris and potholes that may cause a fall.



Wrong Way to Use a Flare



Cone/Flare Placement

- 1st cone set 300 feet upstream from incident.
 - Count approx, 90 paces or
 - 10 skip lines
- 10:1 pace placement
 - Set the 1st cone at the curb
 - Walk 10 paces downstream and one pace into the roadway and set the 2nd cone and continue.



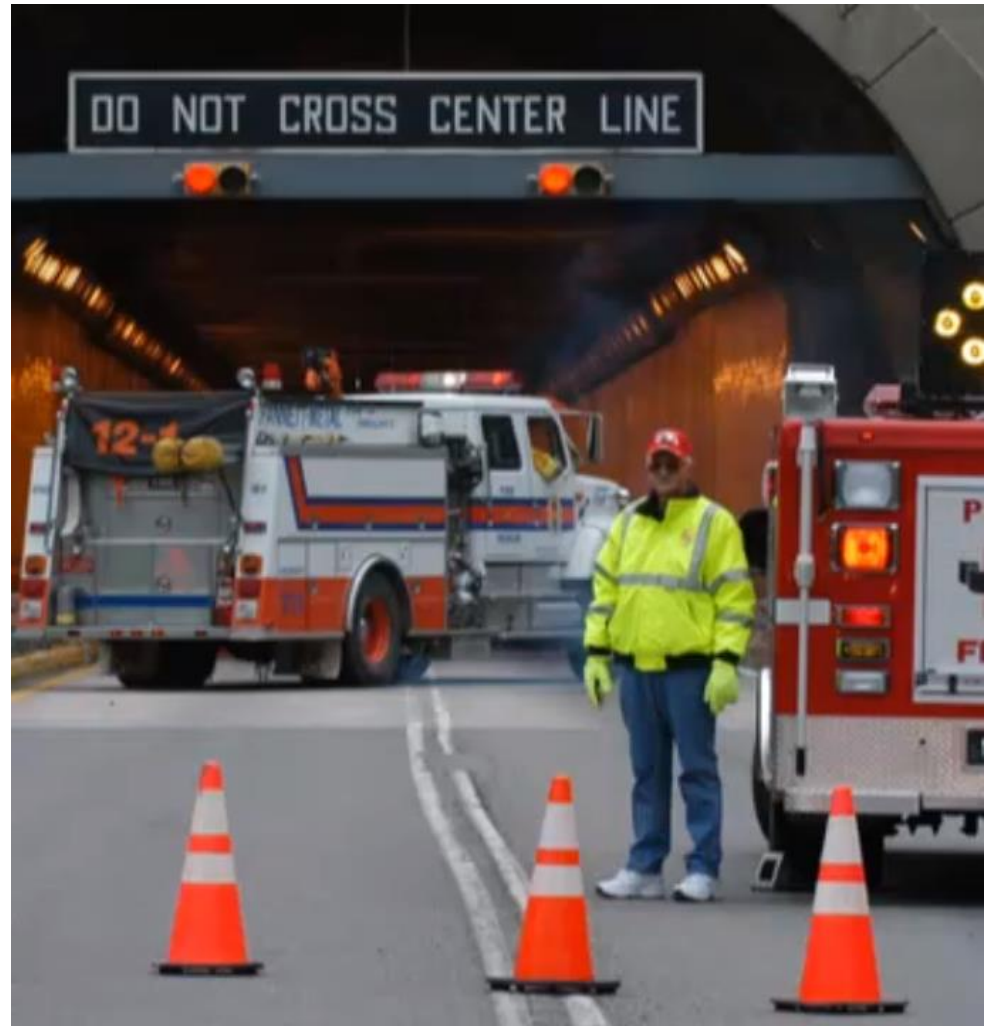
Cone Placement

- Extend on hills and around curves
- Directional boards (arrow sticks) should be used when available
- Ensure arrow sticks are pointing in the correct direction



Road Closure

- Position vehicle across lanes perpendicular to traffic
- Motorist identify:
 - Emergency vehicle sooner
 - That the EV is not moving in any direction
 - It may have more reflective surface



Box in the Scene

Major Incidents may require:

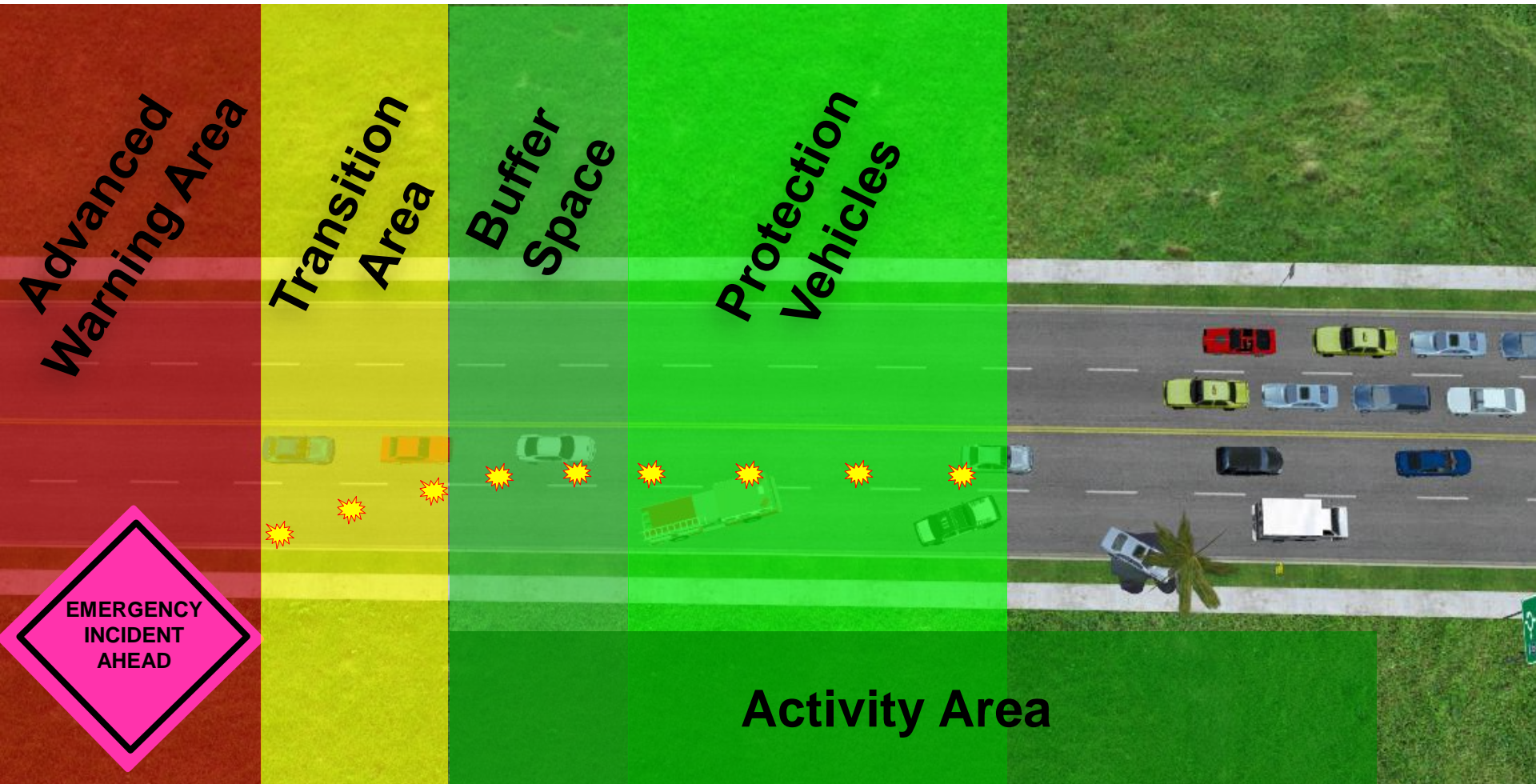
- Road closures
- Advanced warning that road is closed
- Coordination between agencies

Diverting traffic can be as:

- Simple as tapering traffic onto an off-ramp
- To the more complicated and resource intensive road closure.



Protection Vehicles



Lighting & Markings

- Studies have shown that too much lighting is confusing to the motorist and dangerous to the responders on scene.

Lighting & Markings

- Studies suggest that the blocking vehicle upstream have its warning lights fully engaged and apparatus at the scene have minimal emergency lights and flood lights on.

Lighting & Markings

- Lighting should be based on the:
 - Time of day
 - Weather conditions
 - Roadway conditions
 - Traffic conditions

Vehicle Markings



Chevron markings need to be:

- 6" wide
- Set at a 45° angle downward from the centerline
- Have a reflective distance of 500 feet under normal conditions.

Vehicle Markings

- Helps to give early warning
- Helps to identify vehicles
- Proper markings help motorists to group objects for earlier and easier identification.



Blocking

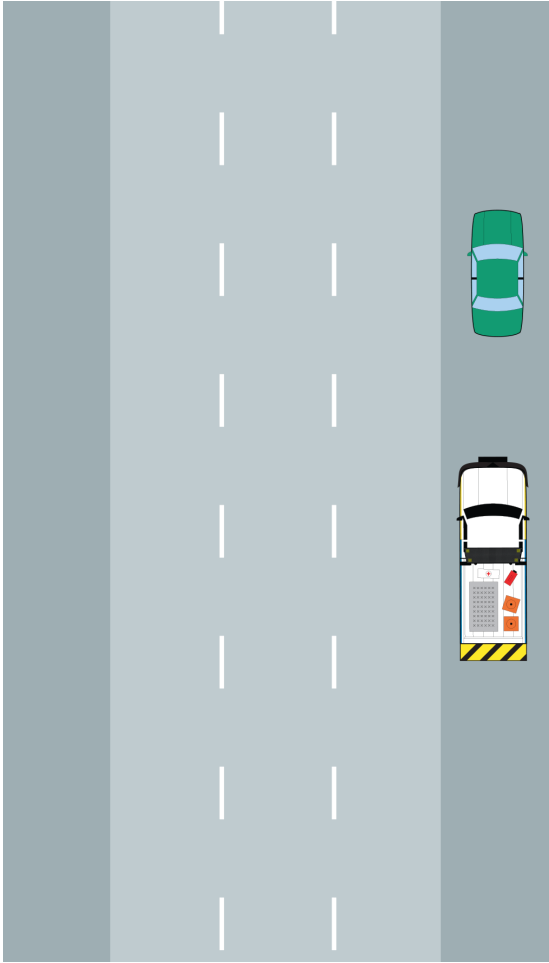
- Blocking is the action of positioning a responder vehicle in advance of an incident to obstruct the flow of moving traffic in one or more lanes
 - Linear Block – occurs when a responder positions their vehicle to block a single lane or the shoulder
 - Multi-Lane Block – occurs when the first responder positions their vehicle to block multiple involved lanes

Vehicle Positioning

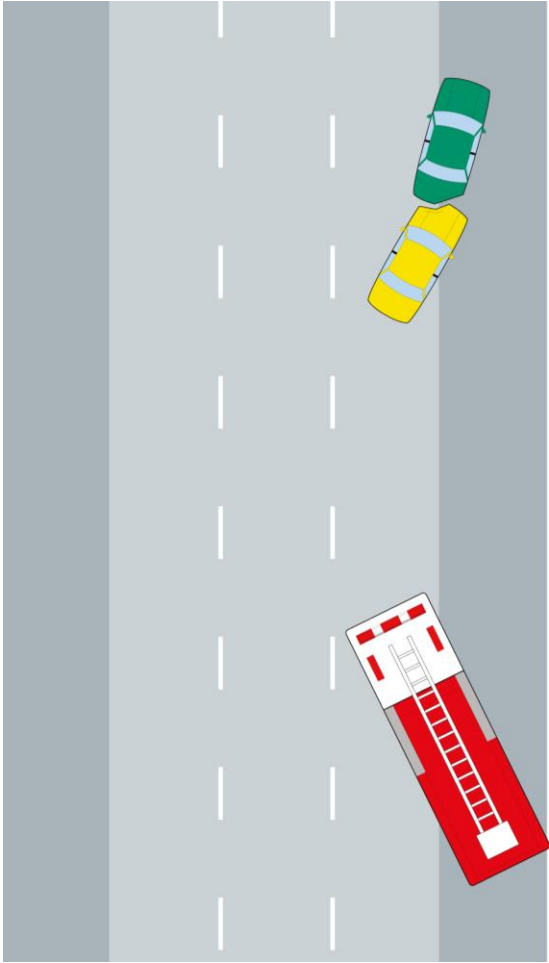
- Two ways an emergency response vehicle is commonly positioned on the roadway
 - Angled
 - Parallel (straight)
- Considerations for positioning a vehicle include:
 - Current conditions, such as roadway geometry, sight distance, weather, etc.
 - Safety of other responders, crash victims, and passing motorists
 - Impact to vehicle visibility, including vehicle markings and emergency vehicle lighting

Linear vs. Multi-Lane Blocking

Linear Blocking



Multi-Lane Blocking



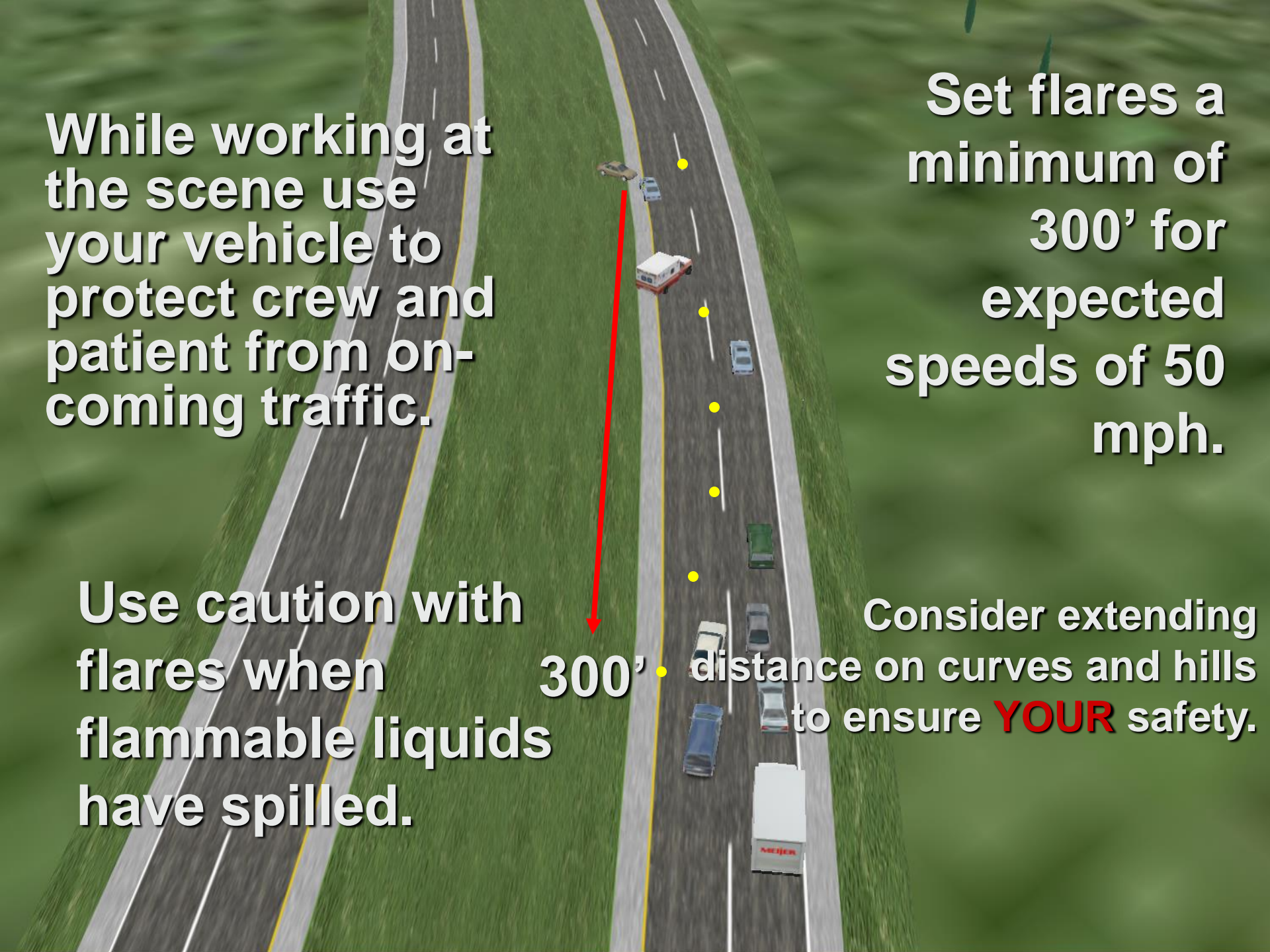
While working at the scene use your vehicle to protect crew and patient from on-coming traffic.

Use caution with flares when flammable liquids have spilled.

300'

Set flares a minimum of 300' for expected speeds of 50 mph.

Consider extending distance on curves and hills to ensure **YOUR** safety.



Linear Blocking



- Minor incident: traffic stops, disabled vehicles, etc.
- Linear blocking usually involves only the incident lane
- The blocking vehicle remains in the lane.



1168

16:45:04
L11-06-05

Parallel Linear Blocking



Parallel Linear Blocking



Angled Linear Blocking



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



Angled Linear Blocking



Multi-lane Blocking



02782 4:27 MPD 189
07/05/2007 L 13:05:18
M1 M2

NW00

Mesquite Fire Department

Multi-lane Blocking

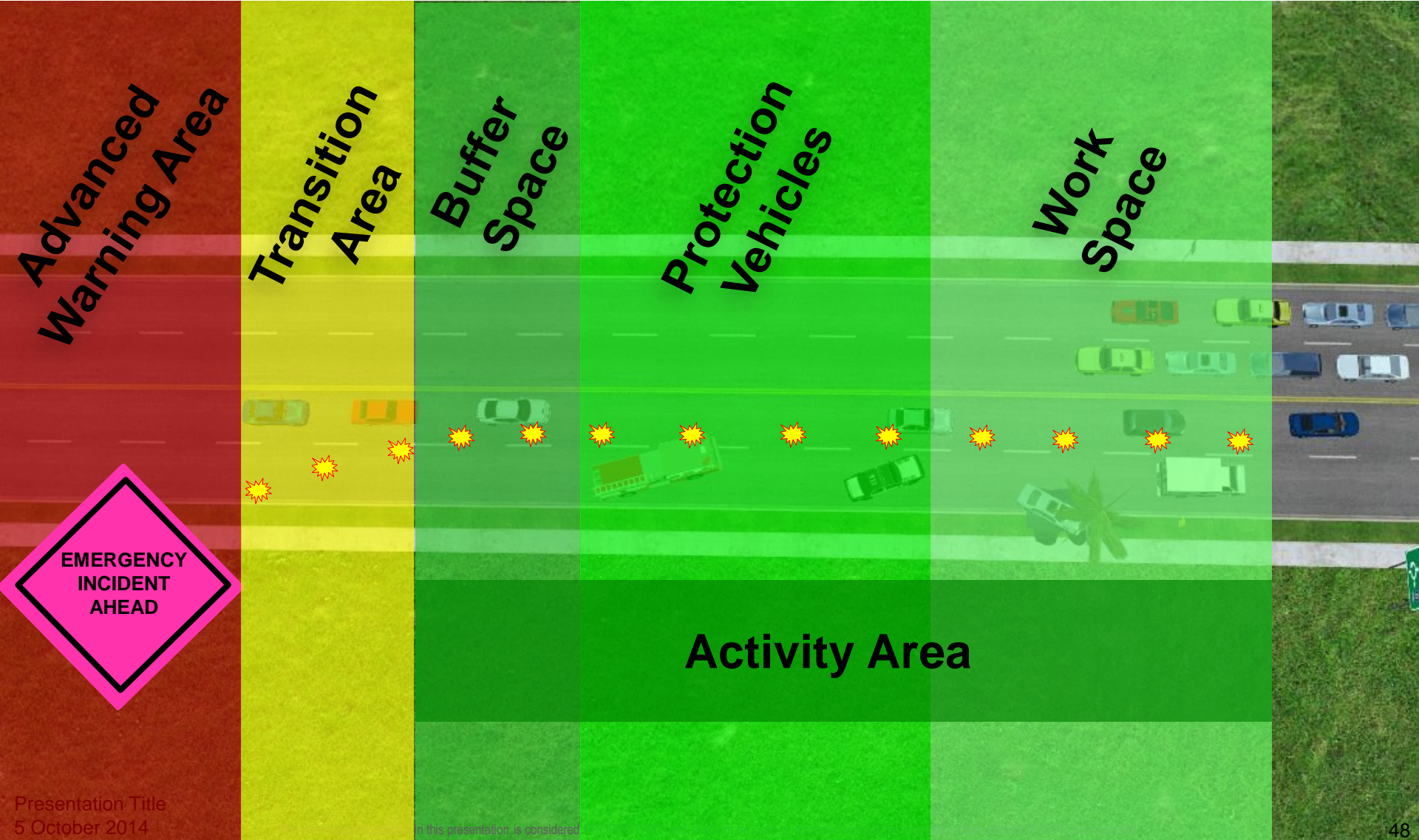


- Incident lane + one.
 - May use cones for tapering.
 - Position vehicles to both block & direct traffic.

Angled Multi-Lane Blocking



Work Space Area



RUBBERNECKERS



5 Categories

1. Gawkers
 - What happened?
2. Do Gooders (good sams)
 - Can I help, should I help
3. Other EMS personnel
 - See you at the next meeting
4. Family & Friends
 - OMG! Is that my family
5. The Complainer
 - Has to prove they are right

Reduced Exposure Time

Benefits of Safe, Quick Clearance:

- Responder safety is increased
- Potential for secondary crashes is decreased
- Responder and motorist deaths and injuries are reduced
- Congestion is relieved when the road is cleared quickly

Goal of Safe, Quick Clearance

- Restore roadway to pre-incident capacity as quickly and safely as possible
- Minimize traffic delays by opening lanes when safety permits
- Prompt, reliable, interoperable communications

Elements of Clearance

- Legislative framework
- Coordinated, multiagency approach
- Mutual procedure agreements
- Unified command
- Incident action plan
- Safety is Priority!
- Sense of urgency
- Continual reassessment & adjustment of traffic patterns.
- Utilization of resources
- Simultaneous execution of actions

Lane +1 Blocking

- By the very nature of fire/rescue and EMS work, additional space to work is typically required
- Lane +1 blocking occurs when responders block the involved lane(s) plus one additional lane to provide a protected lateral space for safety



Lane +1 Blocking – Protected Incident Space



What the Driver Sees



Lane +1 Blocking – Patient Loading



08703 4107 SR 248
08/14/2003 L 15 22:20
M2



Lane +1 Blocking – Vehicle Fires



Lane +1 Blocking



04694 --- RECORD BEGIN
03/28/2002 L 14:13:36



www.eBaumsWorld.com



An aerial, top-down view of a two-lane asphalt road that curves through a lush green landscape. The road has white dashed lane markings and a solid yellow center line. Several vehicles are visible on the road, including a white bus, a white car, a blue car, a green car, and a brown car. A yellow dot is placed on the road surface near the bus. The text "Wear Your Gear!" is superimposed over the lower half of the image in a large, bold, yellow font with a red outline.

Wear Your Gear!

Wear Your Gear!

Provides
Protection



How many rescuers are there?

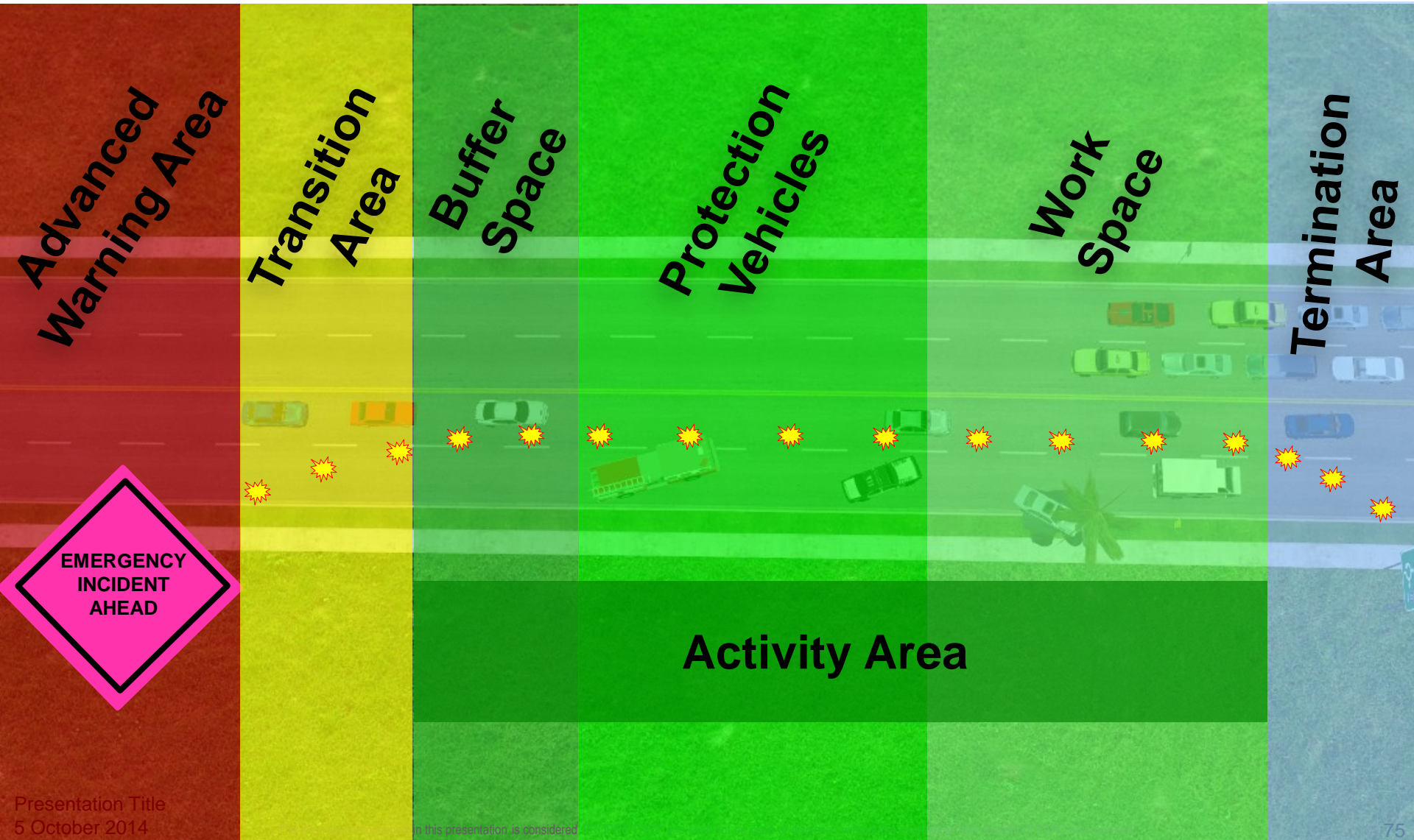


Increases Visibility

Under no circumstances shall fewer than two emergency vehicles operate at an incident on an express highway or other potentially dangerous roadway. Call for additional units, patient into ambulance.



Advanced Warning Area



Termination Area

- Tow trucks and other ancillary vehicles
 - Recovery trucks
 - Highway (DOT) trucks
 - Coroner & Medical Examiner vehicles
 - media
- Extend termination area a safe distance beyond the scene

Advanced Warning Area

