

# Traffic Safety at Motor Vehicle Accidents

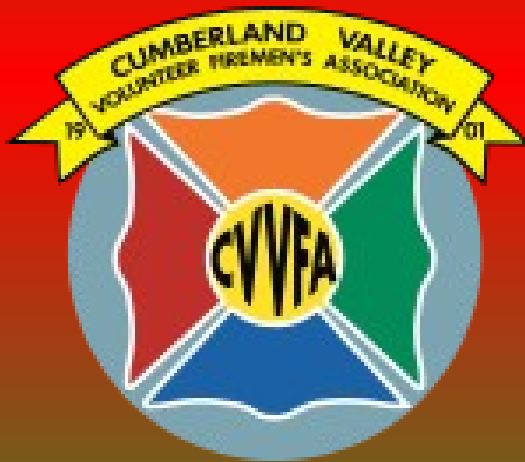
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# Traffic Safety at Motor Vehicle Accidents

[www.respondersafety.com](http://www.respondersafety.com)



This presentation is adapted from materials from [www.respondersafety.com](http://www.respondersafety.com)

# Overview

- Responding to Highway Incidents is inherently dangerous
- All the tools available must be used to ensure the safety of responders and to avoid tragedy

# Responder Safety

- Traffic speeds and congestion are continually increasing
- Responders are being struck by, and seriously injured or killed, by traffic at an alarming, and increasing rate
- There are many things that can be done to prevent these injuries and deaths

# Training

- Establish Policies and Procedures
- Initial Training
- Review Policies and Procedures
- Annual Refresher
- Table-top Exercises or Online Simulations

# Policies and Procedures

- Follow Department guidelines to establish Policies and Procedures
- Components of a Policy
  - Terminology
  - Incident Command
  - Safety
  - Apparatus Placement
  - Operations – High Volume and Limited Access roadways



# Policies and Procedures

- Terminology
  - Establish terminology and agreed definitions to reduce confusion
- Incident Command
  - Identify Incident Command roles required for this type of incident
    - Example – A Traffic Control Sector in Operations or the Position of Spotter in Safety

# Policies and Procedures

- Safety

- Include minimum safety requirements or benchmarks for the incident
- Establish minimum PPE requirements
- Identify equipment required to safely respond to roadway incidents



# Policies and Procedures

- Apparatus Placement
  - Establish apparatus response guidelines
  - Identify apparatus appropriate for blocking
- Operations
  - Identify the issues with the roadways in the jurisdiction
  - Pre-plan for traffic control and diversion in problem areas

# Policies and Procedures

- Review Process
  - Conduct periodic review based on training and response debriefings to assess the effectiveness of Departmental Policies and Procedures
  - Make appropriate changes based upon the above review
  - Update training to account for any changes made to Departmental Policies and Procedures

# Definitions

**Roadway** – Any place on which a vehicle-related incident could occur (Including but not limited to highways, secondary roads, dirt roads, driveways, and parking lots)



# Definitions

Highway – A limited access, divided roadway with high speed traffic



# Definitions

**Advance Warning –** notification procedures that advise approaching motorists to transition from normal driving status to that required by the temporary emergency traffic control measures ahead of them



# Definitions

**Block** — positioning of emergency vehicles on an angle to the lanes of traffic creating a physical barrier between traffic and the work area. Includes: upstream, downstream, block to the left, and block to the right



'Block right'



'Block left'





# Definitions

**Shadow** – the protected work area at a vehicle-related roadway incident that is shielded by the block from emergency vehicles. Also known as Safe Zone or Work Zone



# Definitions

**Taper** – the action of merging several lanes of moving traffic into fewer moving lanes





# Definitions

**Temporary Traffic Control (TTC)** – Equipment and apparatus placed on the roadway to temporarily alter the flow of traffic to make a scene safe. This may include but is not limited to: signs, cones, flares, and attenuator vehicles



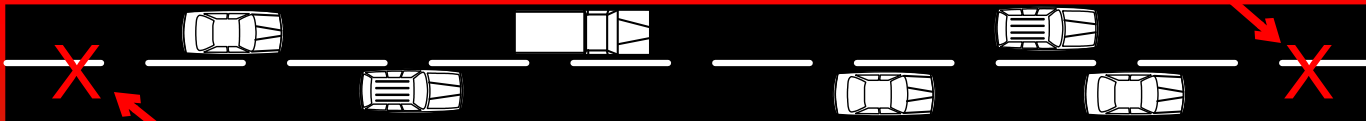
# Definitions

Traffic Incident Management (TIM) – The systematic, planned and coordinated use of human, institutional, mechanical, and technical resources to reduce the duration and impact of incidents, and improve the safety of motorists, crash victims, and incident responders



# Definitions

- **Downstream** – beyond the incident in the direction traffic normally flows



- **Upstream** – prior to the incident in the direction traffic normally flows

# Definitions

- **Minor Incident** – any incident that will be cleared in 30 minutes or less
- **Intermediate Incident** – any incident that will be cleared in between 30 minutes up to 2 hours
- **Major Incident** – any incident that will be cleared in 2 hours or more

# Personal Protective Equipment (PPE)

## Personal Protective Equipment

- Wear appropriate PPE including ANSI high visibility vests as required by department policy.
  - Recommended minimum:
    - Structural Firefighting Helmet
    - ANSI high visibility vest
    - Turnout gear if possible



# Public Safety Vests

- Provide access to equipment while worn
- Can be easily worn over firefighting PPE
- Optional breakaway safety feature





# 4/5 Point Breakaway Feature



**FIRE**  
MISSION

# Personal Protective Equipment (PPE)

Helmets – Should be worn due to the possibility of traumatic injury while operating along a roadway





# Apparatus Marking

- Apparatus marking and lighting are important factors in responder safety



# Apparatus Marking

- Apparatus should be marked so that it is easily recognized as an emergency vehicle
  - Chevrons or a “Vertical Panel” on rear of vehicle
  - Effective emergency lighting



# Apparatus Marking

Halfway, MD

Amber traffic advisory light

Chevrons on compartment interior



# Apparatus Marking

## Montgomery County, MD

Amber traffic advisory lights on each side of apparatus for use during blocking



Chevrons on front and rear of apparatus





# Temporary Traffic Control (TTC)

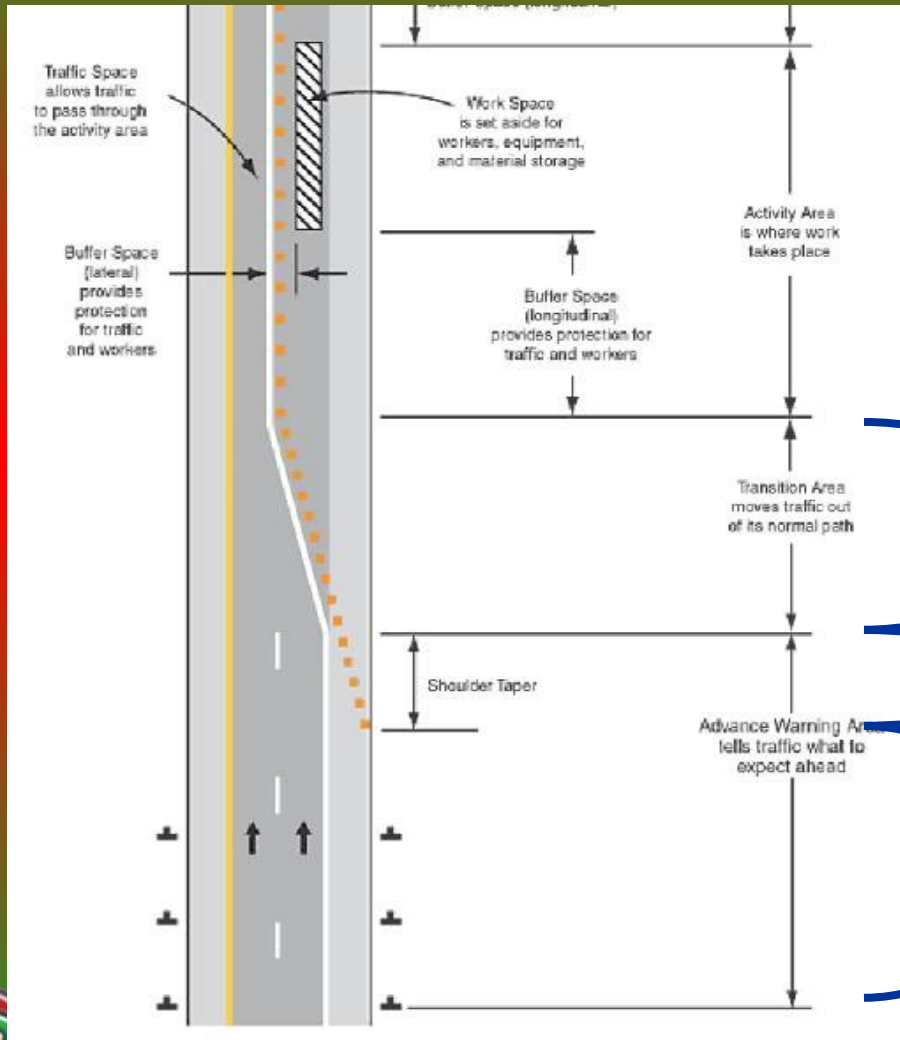


## Temporary traffic control devices

- Traffic cones
- Warning signs
- Flares
- Paddles
- Flags
- Flashlights
- Arrow and Variable Message Signs

Example of cones and signs as traffic control at a roadway incident.

# Temporary Traffic Control (TTC)



Cones used to indicate transition and work areas

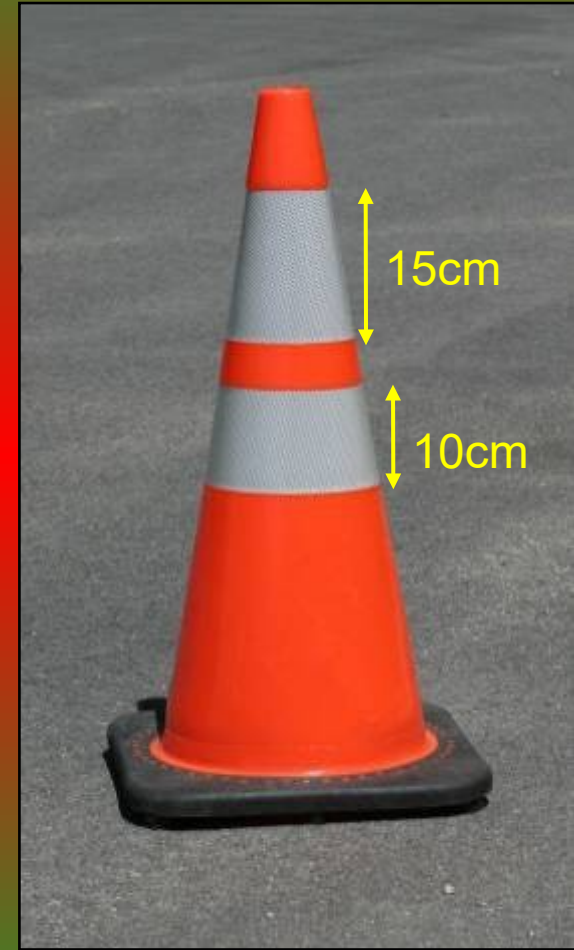
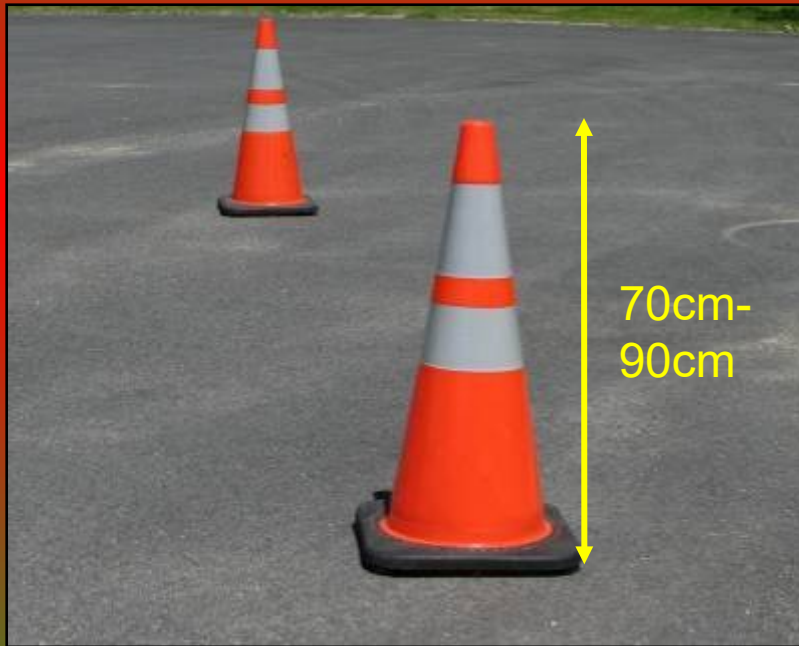
Cones used to indicate taper

Signs spaced to provide advanced warning to traffic



# Temporary Traffic Control (TTC)

## Cones



# Temporary Traffic Control (TTC)

- Cone deployment
  - Use hand signals while placing cones to direct the flow of traffic





# Temporary Traffic Control (TTC)

- Cone deployment
  - At a minimum apparatus should be able to deploy a 60 meter taper with five cones placed at 15 meter spacing between cones
  - A “safety cone” should be placed approximately 3 meters behind the apparatus, located so that it provides a safe work zone next to the vehicle

# Cone Deployment



One lane taper with safety cone



AFRICA  
FIRE  
MISSION

# Temporary Traffic Control (TTC)

- Flares (fusees)
  - Used to initiate Temporary Traffic Control at incidents until more permanent devices can be placed
  - Used to illuminate cones during nighttime incidents



# Temporary Traffic Control (TTC)



- Warning signs used in the TTC
  - Fluorescent pink background
  - Black letters and border
- Signs should be positioned to provide maximum advanced warning to oncoming traffic

# Temporary Traffic Control (TTC)

## Advanced Warning Sign Placement



- For low-speed streets advance warning signage should be a minimum of 60 meters from the first apparatus
- Distances should be increased to approximately 4 to 8 times the speed limit on higher speed urban streets



# Temporary Traffic Control (TTC)

- Paddles
- Flags
- Flashlights



# Temporary Traffic Control (TTC)

- Arrow and Variable Message Signs



# Safety

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

James Joyce,

Commissioner

Chicago Fire Department

January 2001





# Safety Considerations

- Disembark on the side of the apparatus opposite traffic if possible



# Safety Considerations

- Like atomic exposure Time, Distance, and Shielding will protect responders
  - Time – The more efficiently an incident can be safely resolved the less exposure responders will have to the hazards of traffic
  - Distance – The farther away from moving traffic responders can operate the safer they will be
  - Shielding – Blocking is essential to protect responders from vehicles that do not or cannot conform to the altered flow of traffic due to the incident

# Safety Considerations

- Driver/Operator issues
  - The Driver may have to disembark to the traffic side, use caution and possibly a spotter
  - In Block Left position the operator will be between traffic and the apparatus, consider Block Right or an additional blocking apparatus if hose line is needed

# Safety Considerations

Warning lights  
activated

Operator facing  
traffic and wearing  
PPE

“Safety cone”  
deployed



# Safety Benchmarks

## 1. Windshield Size-up





# Safety Benchmarks

2. Never trust approaching traffic.



3. Avoid turning your back to approaching traffic.

# Safety Benchmarks

4. Establish an initial block with the first arriving emergency vehicle or fire apparatus.



# Safety Benchmarks

5. Wear appropriate PPE including high visibility reflective vests as required by department policy.





# Safety Benchmarks

6. At nighttime incidents turn off all sources of vision impairment to approaching vehicles including vehicle headlights and spotlights.



Photo By: Sarah Britain

# Safety Benchmarks

7. Use fire apparatus and police vehicles to initially redirect the flow of moving traffic.



# Safety Benchmarks

8. Establish advance warning and adequate transition area traffic control measures upstream of incident to reduce travel speeds of approaching motorists.



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8. Establish advance warning and adequate transition area traffic control measures upstream of incident to reduce travel speeds of approaching motorists.





# Safety Benchmarks

9. Use signs and traffic cones and/or cones illuminated by flares where appropriate for sustained highway incident traffic control and direction.



# Safety Benchmarks

10. Assign personnel to monitor approaching traffic and activate an emergency signal if the actions of a motorist do not conform to established traffic control measures in place at the highway scene.





# Incident Command

- **Command**
  - For large scale operations on a roadway a unified command with Fire, Police, and DPW is recommended
- **Operations**
  - Traffic Control Group for temporary traffic control

# Incident Command

- Safety Officer
  - Spotter/Flagger is an Assistant Safety Officer
- Staging
  - Staging off the roadway to prevent unnecessary exposure to traffic hazards

# Examples / Chalk Board

