

CHAPTER II Operations
SUBJECT 3 Emergency Operations
TOPIC 18 Highway Emergencies

A. SCOPE

This procedure identifies apparatus placement and operations that will provide maximum protection and safety for personnel operating in or near moving traffic. It also identifies several approaches for individual practices to keep firefighters safe while exposed to the hazardous environment created by moving traffic.

It shall be the policy of the Fire Department to position apparatus and other emergency vehicles at a highway related incident on any street, road, highway or expressway in a manner that best protects the incident scene and the work area. Such positioning shall afford protection to fire department personnel from the hazards of working in or near moving traffic.

B. PRIORITIES

1. All personnel should understand and appreciate the high level of risk when operating in or near moving traffic. Responders should ALWAYS operate within a protected area at any roadway incident Fire control and mitigation of hazardous conditions
2. Provide as safe and secure an environment for all non-fire personnel that may be present at an incident in or near moving traffic
3. Safely provide medical attention to all victims
4. Control and mitigate any situation and return the scene to normal operations as much as possible.

C. TERMINOLOGY

Advance Warning - notification technique used to advise approaching motorists to transition from normal driving status to the temporary emergency traffic control measures ahead of them.

Block - positioning apparatus on an angle to the lanes of traffic creating a physical barrier to defect approaching traffic away from the Safe Zone

Buffer Zone - the distance or space between personnel in the protected “Work Zone” and moving traffic

Downstream - the direction that traffic is moving away from the incident scene

EMS Unit- Includes but not limited to Ambulances, Rescue Units, Rescue 2, and any other medical units on the incident scene.

Full Fire Fighting Ensemble- Commonly referred to as “Turnout Gear” is the full ensemble as approved by NFPA 1971 and 1851. It includes but not limited to all items in the standard such as coat, pants, helmet, hood, boots, and gloves. The SCBA is an ancillary piece of safety equipment used in conjunction with the Full Fire Fighting Ensemble.

High Visibility Safety Apparel - Any approved safety apparel that meets the criteria set in ANSI/ISEA 107-2004. This includes but is not necessarily limited to the CFD High Visibility Safety Vest, and the CFD High Visibility jacket (Spiewak).

Safe Zone - the protected work area at a highway related roadway incident that is shielded by the by apparatus or other emergency vehicles

Spotter - a fire department member assigned 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

Transition Zone - the lanes of a roadway within which approaching motorists change their speed and position to comply with the traffic control measures established at an incident scene

Upstream - the direction that traffic is traveling and approaching the incident scene

Work Zone - the physical area of a roadway within the “**Safe Zone**” in which emergency personnel perform their fire, EMS and rescue tasks in or near moving traffic

D. SAFETY

1. **All personnel MUST wear High Visibility Safety Apparel or FULL fire fighting protective ensemble any time they operate in or near moving traffic.**
 - All responders must wear High Visibility Safety Apparel except when engaged in emergency operations that directly expose them to flame, fire, heat, hazardous materials and/or extrications.
 - This provision is not limited to just expressways or major highways. It applies to any traffic area used by motorized vehicles of any kind.
 - All personnel on a fireground in or near moving traffic and NOT in full fire fighting PPE must wear High Visibility Safety Apparel i.e. pump operators, EMS personnel, etc.
 - All students, observers, and other authorized riders on CFD emergency scenes will be provided with and required to wear a High Visibility Vest.
 - Structural fire helmet should be worn at all times in or near moving traffic.
2. If possible, place apparatus between the emergency and oncoming traffic, (for protection) at the same time be aware of the need to keep apparatus upwind and upgrade to be out of spill run off or vapor clouds.
 - Establish an initial “block” with the first arriving emergency vehicle or fire apparatus
3. Always consider moving vehicles as a threat to your safety.

E. WATER SUPPLY

Water supply to Expressway incidents must be pre-planned by first due companies, and may necessitate alternative means such as relay lines or the Water Tanker.

- An Engine Company placed on an adjacent or overpass roadway may provide the best method of obtaining a supply line to sections of expressways.
- Remember it is faster to "drop" a line down than to advance one up.
- Consider ARFF 18 and Foam Units for large liquid fires on the expressways.

E. RESPONSE (EXPRESSWAY MAPS)

When a single Engine Company is responding and the direction of travel of the incident is unknown, or information indicates difficulty can be expected in reaching the scene, order additional resources which will approach from the opposite direction.

The first unit approaching the incident will advise other units of alternate access. If unable to reach the scene, specific directions should be given to other responding units.

- Locations for expressways are based on mile markers starting at the river going north.
 - The numbering starts south to north and west to east.
 - Ft. Washington Way, Norwood Lateral and Ronald Reagan have their own numbering system.
 - I-275 is numbered from I-75 in Kentucky clockwise.

F. OPERATIONS

APPARATUS PLACEMENT:

1. Always position first-arriving apparatus to protect the scene, patients, and emergency personnel.
 - a) Initial apparatus placement should provide a work area protected from traffic approaching in at least one direction.
 - b) Angle apparatus on the roadway to create a physical barrier between the incident scene and approaching traffic.
 - c) Allow apparatus placement to slow approaching motorists and redirect them around the scene and away from the work area.
 - d) Use fire apparatus to block at least one additional traffic lane more than that already obstructed by the crashed vehicle(s).
 - e) When practical, position apparatus in such a manner to protect the pump operator position from being exposed to approaching traffic.
2. Positioning of large apparatus must create a safe parking area for EMS units and other fire vehicles. Operating personnel, equipment and patients should be kept within the "Safe Zone" created by the blocking apparatus at all times.
3. When blocking with apparatus to protect the emergency scene, establish a sufficient size "Work Zone" that includes all damaged vehicles, roadway debris, the patient triage and treatment area, the extrication work area, personnel and tool staging area and the EMS Unit loading zone.

4. EMS Unit should be positioned within the protected work area with their rear patient loading door area angled away from the nearest lanes of moving traffic
5. Command shall stage surplus emergency vehicles off the roadway or return these units to service as soon as possible.
6. At all intersections, or where the incident may be near the middle lane of the roadway, two or more sides of the incident will need to be protected.
 - a) Police vehicles must be strategically positioned to expand the initial safe work zone for traffic approaching from opposing directions. The goal is to effectively block all exposed sides of the “Work Zone”. The blocking of the “Work Zone” must be prioritized, from the most critical or highest traffic volume flow to the least critical traffic direction.
 - b) At intersection incidents, consider requesting additional resources.
7. Traffic cones shall be deployed from the rear of the blocking apparatus toward approaching traffic to increase the advance warning provided for approaching motorists. Cones identify and only suggest the transition and tapering actions that are required of the approaching motorist.
8. Personnel shall place cones and flares and retrieve cones while facing oncoming traffic whenever possible.
9. Traffic cones shall be deployed at 15 foot intervals upstream of the blocking apparatus with the furthest traffic cone approximately 75 feet upstream to allow adequate advance warning to drivers
10. Additional traffic cones shall be retrieved from PD units to extend the advance warning area for approaching motorists.

G. COMMAND FUNCTION

The first unit arriving on the scene of a multiple unit incident will establish command and give an initial report, which should include:

1. Entrapment
2. Injuries/number
3. Fire/no fire
4. Hazardous Materials involved
5. Traffic conditions
6. Additional resources response if needed

The initial-arriving company officer and/or the Incident Commander must complete critical size-up to assure that a safe and protected work environment for emergency scene personnel is established and maintained including;

1. Assure that the first-arriving apparatus establishes an initial block to create an initial safe work area.
2. Assign a parking location for all EMS Units as well as later-arriving apparatus.
 - Lanes of traffic shall be identified numerically as “Lane 1”, “Lane 2”, etc., beginning from the right to left considered from the approaching motorist’s point of view. Typically the right lane is the slow lane or the curb lane.
 - Instruct the driver of the EMS Unit to “block to the right” or “block to the left” as it is parked at the scene to position the rear patient loading area away from the closest lane of moving traffic.
3. Assure that all EMS Units on-scene are placed within the protected “Safe Zone” of the larger apparatus.
4. Assure that loading of patients is done from within a protected “Work Zone”.
5. At residential medical emergencies, Command shall direct EMS Units to park at the nearest curb to the residence and in the area protected by the fire company apparatus whenever possible for safe patient loading.

H. PERSONNEL FUNCTIONS

1. Always maintain an acute awareness of the high risk of working in or near moving traffic.
2. Never trust moving traffic.
3. Always look before you move!
4. Always keep an eye on the moving traffic whenever possible!
5. Avoid turning your back to moving traffic.
6. Personnel should exit and enter the apparatus from the protected “Safe Zone” side, away from moving traffic if at all possible.
7. FULL PPE Protective clothing or High Visibility Safety Apparel with helmet must be donned prior to exiting the emergency vehicle.
 - a) During dusk to dawn operations OR when ambient lighting is reduced due to inclement weather conditions be extra cautious due to reduced visibility.
8. Always look before opening doors and stepping out of apparatus or emergency vehicle into any moving traffic areas. When walking around fire apparatus or emergency vehicle, be alert to your proximity to moving traffic.
 - a. Stop at the corner of the apparatus, check for traffic, and then proceed remaining as close as possible along the apparatus.
 - b. Maintain minimum exposure when moving through any area where a minimum “Buffer Zone” condition exists.
9. Police Department personnel may place traffic cones or flares at the scene to direct traffic. This action builds upon initial FD cone deployment and can be expanded, if needed, as later arriving Police Officers arrive. Always place and retrieve cones while facing on-coming traffic.
 - o Placing flares adjacent to and in combination with traffic cones for nighttime operations greatly enhances scene safety. Do not add an unwanted ignition source to an already hazardous situation without full consideration for scene safety.

I. HIGH VOLUME LIMITED-ACCESS HIGHWAY OPERATIONS

High-volume limited access highways include the Interstates, expressways, and multi-lane roadways within the FD response area. The Police Department and Department of Transportation (DOT) have a strong desire to keep the traffic moving on these high-volume thoroughfares. When in the judgment of FD Command it becomes essential for the safety of operating personnel, any or all lanes, shoulders, and entry/exit ramps of these limited access highways can be completely shut down. This, however, should rarely occur and should be for as short a period of time as practical. Closing down any part of a high volume thoroughfare should be coordinated through the Police Department.

Special considerations for high-volume limited-access, multi-lane roadway incidents;

1. First-arriving engine company apparatus shall establish an initial block of the lane(s) occupied by the damaged vehicle plus one additional traffic lane.
2. A ladder truck apparatus shall be automatically dispatched to all highway related incidents on all high-volume limited-access highways with the exception of car fires. In the instance a car fire on high-volume limited access highways, all of the functions of the Truck company mentioned in paragraph 3 below will be performed by a second engine company. In these instances, a second engine will be dispatched instead of a Truck.
3. The primary assignment of this Truck company apparatus and crew shall be to;
 - a) Establish an upstream block occupying a minimum of two lanes plus the paved shoulder of the highway of the initial block provided by the first-due apparatus.
 - b) The position of this apparatus shall take into consideration all factors that limit sight distance of the approaching traffic including ambient lighting conditions, weather-related conditions, road conditions, design curves, bridges, hills and over- or underpasses.
 - c) Traffic cones and/or cones illuminated by flares should be placed upstream of the ladder truck apparatus by the ladder truck crew at the direction of the company officer.
 - d) Traffic cones on high-volume limited-access roadways shall be placed farther apart, with the last cone approximately 150 feet “upstream”, to allow adequate warning to drivers. Personnel shall place cones and flares and retrieve cones while facing the traffic.

- e) Assign a “Spotter” to monitor the response of approaching motorists as they are directed to transition to a slower speed and taper into merged lanes of traffic.
 - f) Notify Command on the incident fireground channel of any approaching traffic that is not responding to the speed changes, transition, tapering and merging directions.
 - g) “Spotter” shall activate a pre-determined audible warning to operating personnel of a non-compliant motorist approaching.
 - h) For vehicle fires, the second engine company apparatus may also be used as a second water source upon orders from Command.
- 4. Police Department vehicles will be used to provide additional blocking of additional traffic lanes as needed.
 - 5. Staging of additional companies off the highway in a safe area may be required. Additional resources may be brought onto the highway scene one or two at a time as needed. An adequate size multi-patient loading area must be established.
 - 6. Command should establish communications with the Police Officer on the scene as soon as possible to jointly coordinate a safe “Work Zone” and to determine how to most efficiently resolve the incident and establish normal traffic flows.
 - 7. The termination of the incident must be managed with the same aggressiveness as initial actions. Crews, apparatus, and equipment must be removed from the highway promptly, to reduce exposure to moving traffic and minimize traffic congestion.

Officer Mental Checklist:

“Block” with apparatus to protect the scene, patients, and emergency personnel.

- ☐ Block at least one additional lane
- ☐ Block so pump panel is “down stream”
- ☐ Block most critical or highest traffic volume direction first
- ☐ Consider requesting additional PD assistance

Responders must wear proper PPE w/Helmet

- ☐ High Visibility Safety Apparel at all times not in FULL fire fighting gear.
- ☐ Helmet should be worn at all times
- ☐ Full Fire Fighting PPE when engaged in fire fighting, extrication or HazMat.

Establish more than adequate advance warning

- ☐ Traffic cones at 15’ intervals
- ☐ Deploy minimum 5 cones upstream
- ☐ Cones only “Suggest” they don’t Block!
- ☐ Expand initial safe Work Zone

Direct placement of EMS Units

- ☐ Assure EMS Units park within Safe Zone of larger apparatus as directed
- ☐ Lane 1 is furthest right lane, next is Lane 2, then Lane 3, etc. from approaching motorist’s point of view
- ☐ Direct EMS Unit to “block to the right” or “block to the left” to protect loading doors
- ☐ Place EMS Unit patient loading area facing away from closest lane of moving traffic
- ☐ All patient loading into EMS Units is done from within a protected Safe Work Zone

Night or Reduced Light Conditions

- ☐ Turn OFF vehicle headlights if not needed
- ☐ Turn OFF unnecessary obtrusive light that may blind approaching drivers
- ☐ Provide overall scene lighting

- ❑ All personnel in PPE w/helmets
- ❑ Illuminate cones with flares if not a hazard to scene safety
- ❑ Consider additional company for additional upstream “Block”

High-Volume Limited-Access Highway Incidents

- ❑ Establish initial block: minimum two lanes
- ❑ Ladder truck establishes upstream block
 - two lanes plus paved shoulder
- ❑ Place cones and/or cones illuminated by flares upstream of ladder truck apparatus
 - last cone approximately 150 feet “upstream” of apparatus
- ❑ Establish “Spotter” position
 - monitor approaching traffic
 - sound emergency signal as necessary
- ❑ Use police department vehicles for additional blocking
- ❑ Stage additional companies off highway
- ❑ Establish liaison with on-scene Police
- ❑ Terminate incident aggressively