

Emergency Vehicle Operations

INCIDENT OPERATIONS IN OR NEAR VEHICLE TRAVELWAYS

Overview

This document identifies general principles to apply when arriving and working on the scene of incidents on open roadways. It includes parking practices for heavy apparatus and support vehicles that will provide maximum protection and safety for personnel operating in or near moving vehicle traffic. It also identifies several approaches for individual practices to keep firefighters safe while exposed to the hazardous environment created by moving traffic.

It is an objective to position apparatus and other emergency vehicles at incidents on any street, road, highway or expressway in a manner that best protects the incident scene and the work area. Such positioning will afford protection to fire department personnel, law enforcement officers, tow service operators and the motoring public from the hazards of working in or near moving traffic.

Treat vehicular traffic areas with the same caution as any other environment that is immediately dangerous to life and health. At nearly every emergency scene, personnel are exposed to passing motorists of varying driving abilities. Approaching vehicles may be driven at speeds from a creeping pace to well beyond the posted speed limit. Some of these vehicle operators may be vision impaired, under the influence of alcohol and/or drugs, or have a medical condition that affects their judgment or abilities. In addition, motorists may be completely oblivious to your presence due to distractions caused by cell phone use, loud music, conversation, inclement weather, emotional distress, and terrain or building obstructions. Approaching motorists will often be looking at the scene and not the roadway in front of them.

Nighttime incidents requiring personnel to work in or near moving near traffic are particularly hazardous. Visibility is reduced and driver reaction time to hazards in the roadway is slowed.

TERMINOLOGY

The following terms are commonly used during incident operations, post-incident analysis and training activities related to working in or near moving traffic.

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.

Block- positioning a fire department apparatus on an angle to the lanes of traffic creating a physical barrier between upstream traffic and the work area. Includes 'block to the right' or 'block to the left'.

Buffer Zone- the distance or space between personnel and vehicles in the protected work zone and nearby moving traffic.

Downstream- the direction that traffic is moving as it travels away from the incident scene.

Flagger- 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.

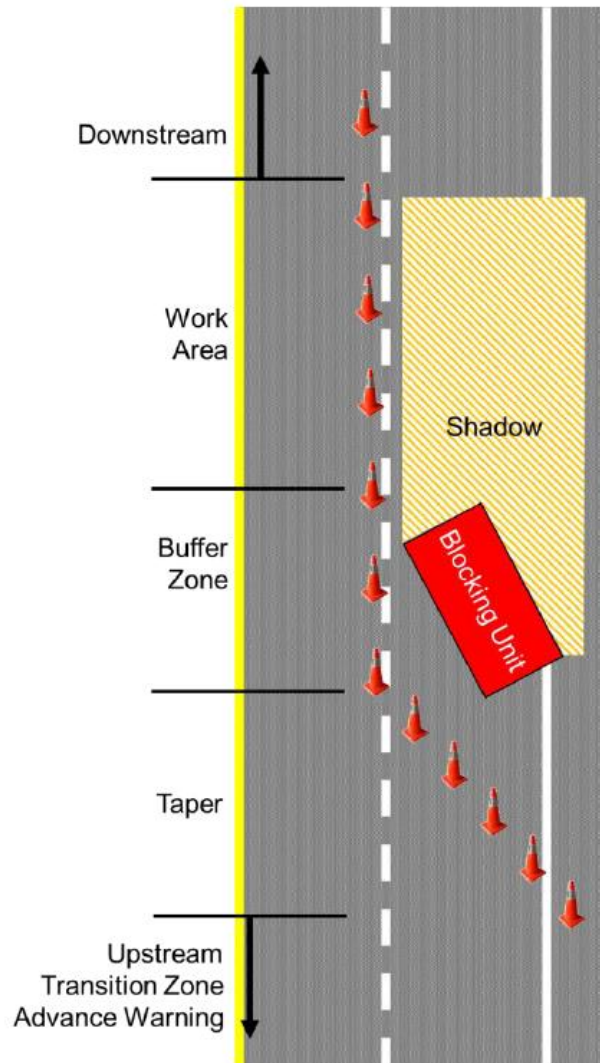
Shadow- the protected work area that is shielded by the block from apparatus and other emergency vehicles.

Taper- the action of merging several lanes of moving traffic into fewer moving lanes.

Temporary Work Zone- the physical area of a roadway within which emergency personnel perform their fire, EMS and rescue tasks at a vehicle-related incident.

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 from as the vehicles approach the incident scene.



SAFETY BENCHMARKS

All emergency personnel are at great risk of injury or death while operating in or near moving traffic. There are several specific tactical considerations that should be taken to protect all crew members and emergency service personnel at the incident scene including;

1. Never trust approaching traffic.
2. Avoid turning your back to approaching traffic.
3. Establish an initial “block” with the first arriving emergency vehicle or fire apparatus.
4. Follow departmental policy regarding the use of high visibility attire.
5. Be aware that apparatus lights and scene lights may impair the vision of approaching motorists. Use good judgement when setting up portable lighting, be selective about which fixed scene lighting to engage on apparatus and turn off scene lighting that isn’t supporting operations.
6. Use emergency vehicles to initially redirect the flow of moving traffic and set the stage for additional traffic control measures.
7. Establish advance warning and adequate transition area traffic control measures upstream of incident to reduce travel speeds of approaching motorists.
8. Deploy traffic cones to augment apparatus positioning for sustained traffic control and direction. During low-visibility periods, road flares may be intermingled with the cones for increased effectiveness.
9. Designate a fire department member assigned to the “Flagger” function 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.

APPARATUS AND EMERGENCY VEHICLE PRACTICES

In addition to positioning for vehicle function, i.e. deploying hose, ladders, and equipment, apparatus operators must consider the impact of positioning on the work zone established immediately upon arrival at a scene. Listed below are benchmarks for positioning of apparatus and emergency vehicles when operating in or near moving traffic. This information is not limited to high-speed or primary roads but should be applied when operating on any active vehicular traffic area.

1. Always position first-arriving apparatus to protect the scene, patients, and emergency personnel.
 - a. Initial apparatus placement should create a work area protected from traffic approaching in at least one direction.

- b. Angle apparatus on the roadway with a “block to the left” or a “block to the right” to create a physical barrier between the scene and approaching traffic.
 - c. Allow apparatus placement to be visible to approaching motorists, slow them, and redirect them around the scene. Be especially cautious on curves, on hill crests, and other areas where sight distance may be limited.
 - d. Use fire apparatus to block at least one traffic lane more than that already obstructed by the incident to create a buffer space. Do not block partial lanes - take whole lane or none of it.
 - e. Whenever possible, position blocking apparatus to eliminate the possibility of a stray vehicle passing through the work zone. Close gaps on the shoulders and take advantage of existing obstacles, such as guardrails, curbs, signs, and vegetation, to harden the edges of the work zone. Anticipate impatient or impaired civilian drivers using the shoulders, leaving the paved surface, or weaving through apparatus.
 - f. Dependent upon the incident type, position apparatus in such a manner to protect the pump or aerial operator position from exposure to approaching traffic. Consider a blocking vehicle to protect aerial apparatus stabilizers that are in close proximity to open lanes of traffic.
2. Utilize Class B or A apparatus to create a safe parking area for EMS units and other fire vehicles. Heavy apparatus provides a greater degree of protection against a wider variety of vehicles. Operating personnel, equipment and patients should be kept within the “shadow” created by the blocking apparatus at all times.
 3. Blocking apparatus should protect a work zone that includes all operational areas of the incident. This includes any hose lines, damaged vehicles, roadway debris, patient triage and treatment areas, extrication work areas, personnel and tool staging areas, and ambulance loading zones.
 4. Ambulances should be positioned within the protected work area with their rear patient loading door area angled away from the nearest lanes of moving traffic. Account for the swing area of the side entry door of the unit as well.
 5. Identify staging for unneeded emergency vehicles that is off the roadway or return these units to service whenever 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. For Engine or Aerial companies where operators may need to work around the vehicle, block so that the pump or operator panel is “down stream” or within the shadow of the vehicle. If not in structural firefighting gear, vehicle operators need to follow Department policy regarding high visibility attire.
 - c. At intersection incidents, consider additional resources to cover the various approaches to the scene. Provide specific directions to additional units regarding traffic control needs. Use resources efficiently.
7. Traffic cones should be deployed upstream of the blocking apparatus toward approaching traffic to increase the advance warning provided for approaching motorists. Cones identify and suggest the transition and tapering actions that are required of the approaching motorist.
 - a. While deploying and retrieving cones from an active roadway personnel should face oncoming traffic. When deploying cones, start at a point farthest from the incident scene and work back to the blocking unit. When retrieving cones, reverse the process. Avoid walking in the open/unprotected lanes of traffic whenever possible.
 8. For complex or highway incidents, utilize additional traffic control resources in the form of police assistance and State Highway Administration units.

INCIDENT COMMAND PRACTICES

The **initial-arriving company officer** and/or the **Incident Commander** must assure a protected area for personnel and involved civilians is established and maintained including;

1. Assure that the first-arriving apparatus establishes an initial block to create an initial safe work area.
2. Include traffic control in the ongoing scene size-up and consider the need to retain units on the scene for the sole purpose of traffic management as the incident is mitigated.
3. Assign a parking location for all ambulances as well as later-arriving apparatus.
4. Assure that all ambulances on-scene are placed within the protected work area (shadow) of the larger apparatus.
5. Assure that all patient loading into EMS Units is done from within a protected work zone.
6. Assure all fire and rescue personnel don appropriate protective clothing and/or high visibility attire per departmental policy.
7. The initial company officer and/or Incident Commander is the Safety Officer until this assignment is delegated.
8. Command shall assure that scene lighting and vehicle lighting is not creating a hazard for oncoming motorists.

PERSONNEL PRACTICES

Listed below are safe practices for **individual personnel** when operating in or near moving vehicle traffic.

1. Always maintain an acute awareness of the high risk of working in or near moving traffic.
2. Never assume a passing motorist will do the right thing.
3. Always look before you move!
4. Avoid turning your back to moving traffic.
5. Do not open apparatus doors into open lanes of traffic. Apparatus operators should angle the vehicle to provide a shadow on every incident.
6. If personnel must exit apparatus into active traffic lanes do so methodically and while paying full attention to the oncoming direction of traffic. Engine company personnel initiating a supply line lay are particularly susceptible to tunnel vision while exposed to uncontrolled traffic.
7. High visibility attire must be donned per departmental policy.
8. When working around apparatus, be alert to the proximity of moving traffic.
 - a. Before stepping to the exposed side of the vehicle, stop at the corner of the unit, check for traffic, and then proceed along the unit remaining as close to the emergency vehicle as possible.
 - b. Maintain a reduced profile when moving through any area where a minimum "buffer zone" condition exists and minimize exposure time.

LIMITED ACCESS HIGHWAY OPERATIONS

It is important to understand the goal of Maryland State Police and State Highway Administration is to keep the traffic moving on these high-volume thoroughfares. This conflicts at times with the desire of the fire and rescue department to establish safe work zones. A work zone may require shoulder closures, lane closures, a complete shutdown of the travel way, or a combination of each throughout the incident. Complete shutdowns should rarely occur and should be for as short a period of time as practical.

Unique considerations for highway incidents include:

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. Additional heavy apparatus should be assigned to the sole function of blocking to layer the protection between responders and passing traffic.
3. Personnel assigned to blocking apparatus should build upon or establish work zone protection as needed, including;

- a. Establish an upstream block occupying a minimum of two lanes plus the paved shoulder of the highway or blockage of three driving lanes of traffic upstream 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 blocking apparatus by the crew at the direction of the company officer.
 - d. Assign a Flagger person to monitor the response of approaching motorists as they are directed to transition to a slower speed and taper into merged lanes of traffic.
 - e. Notify Command on the incident operating channel of any approaching traffic that is not responding to the speed changes, transition, tapering and merging directions.
4. Police Department vehicles will be used to provide additional blocking of additional traffic lanes as needed, however do not provide the level of blocking protection afforded by heavy apparatus.
 5. EMS Transport Units should always be positioned within the work zone in the shadow of heavy apparatus.
 6. Staging of additional resources off of the highway that are not immediately needed on the scene may be considered. Examples include EMS Transport Units staging at interchanges while awaiting patient triage and treatment completion or Engine Companies staging in anticipation of water supply assignments.
 7. Incident Commanders should establish a liaison with the Police Department as soon as possible to jointly coordinate a safe work zone and to determine how to most efficiently resolve the incident and restore normal traffic flows.
 8. The termination of the incident must be managed with the same aggressiveness as initial actions. Removal of traffic controls needs to be methodical and personnel safety must remain a priority. Crews, apparatus, and equipment should be removed from the highway promptly, to reduce exposure to moving traffic and minimize traffic congestion. The last vehicle to leave the scene should be the blocking apparatus.