Monterey County Fire Chiefs Association

Highway Incident Safety Guidelines

For the Monterey County Fire Service

November 19, 2015

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Highway Incident Safety Guidelines

I. Purpose:

The purpose of this document is to provide the Monterey County fire service, and support agency personnel, highway incident safety guidelines while operating at the scene of a traffic incident management area on or near a highway or roadway.

These guidelines are also provided for Monterey County fire service agencies to assist them in complying with nationally recognized industry standards such as the 2013 Edition of NFPA 1500 Section 8.7 "Traffic Incidents," the 2013 edition of NFPA 1451 Section 8.5 "Safe Operation at Highway Incidents, specifically Sections 8.5.1 and 8.5.1.1, 23 CFR 634 from the Federal Highway Administration, and the 2014 California Supplement of the MUTCD, California Department of Transportation, November 7, 2014.

In accordance with NFPA 1451 Section 8.5.1, and specifically NFPA 1500 Section 8.7.2 "Each department shall establish, implement, and enforce standard operating procedures regarding emergency operations for traffic incidents.

The use of these guidelines is not intended to conflict with any established local, State, or Federal laws or regulations relating to operations at an emergency or non-emergency highway incident. The guidelines are provided to assist agencies in meeting such laws and regulations.

The compelling purpose of these guidelines is to increase the level of safety and awareness for emergency responders and support personnel during incidents on or near a highway.

II. Scope:

These guidelines shall apply to fire service personnel and agencies that response to, and operate at emergency and non-emergency incidents within Monterey County on any type of highway or roadway. These guidelines should also apply to other agencies and personnel that response to, and operate at emergency or non-emergency highway incidents being controlled by a public safety agency.

III. National Unified Goal for Traffic Incident Management

Formally adopted on November 20, 2007, the National Unified Goal (NUG) for Traffic Incident Management is a national strategy to promote, develop, and sustain multidisciplinary, multijurisdictional Traffic Incident Management (TIM) Programs to achieve enhanced responder safety; safe, quick traffic incident clearance; and prompt, reliable, interoperable communications. The overall goal is to achieve three major objectives of the National Unified Goal through 18 strategies. The three major objectives are:

1. ***Responder Safety*** - Improving responder safety by developing recommended practices for responder safety, enforcing "Move Over, Slow Down" laws, and developing driver awareness programs designed to teach drivers how to react to emergencies on the roadway in order to prevent secondary incidents, including traffic incident responder injuries and death.

2. ***Safe, Quick Clearance*** – Striving to quickly and safely clear an incident scene by developing and adopting multidisciplinary procedures for coordination of Traffic Incident Management operations based on national recommended practices and procedures, commit to achieving goals for traffic incident response and clearance times, and having Traffic Incident Management responders and resources available 24 hours a day.

3. ***Prompt, Reliable, Incident Communications*** – Improving traffic incident related communications by developing standardized traffic incident communications practices and procedures, having responders receive prompt notification of traffic incidents, developing interoperable voice and data networks, improve integrated broadband emergency communications systems, encourage development of more prompt and reliable traveler information systems, and actively partner with news media and information service providers to provide prompt, reliable incident information to the public.

These guidelines are intended to help achieve the three major objectives of the National Unified Goal by improving responder safety, encouraging safe, quick clearance, and supporting prompt, reliable incident communications.

IV. Move It or Work It

Under the above objective of "Safe, Quick Clearance," the concept of "Move It or Work It" should be considered by first responders arriving at the scene of a highway incident such as a traffic collision on a highway or roadway. The general concept of "Move It or Work It" involves quickly and safely moving vehicles from the roadway to a safe location when

certain conditions are present. Employing this concept reduces the exposure to emergency responders on the highway to vehicular traffic, (limit time, limit exposure) reduces the exposure to involved motorists from vehicular traffic, reduces traffic congestion, reduces the chance of a secondary incident, and reduces the amount of emergency vehicles needed at the scene of a highway incident.

When deciding to "move" the vehicles or "work" the incident, three conditions must be considered. The three conditions are:

A. Are there any injuries?

B. Is the vehicle or vehicles driveable? (capable of being driven)

C. Is there a safe location to move the vehicle or vehicles to?

If there are no injuries, if the vehicle or vehicles are driveable, and if there is a nearby safe location, the vehicle or vehicles should be moved from the highway or roadway to a safe location. When moving such vehicles, any licensed driver is allowed to move the vehicle or vehicles under these conditions. California Vehicle Code Section 20002(a) requires motorists to move vehicles to a safe location under these conditions. On-scene emergency responders should help facilitate the moving of vehicles under the above conditions in order to quickly restore the normal flow of traffic and reduce the chance of a secondary incident.

Since law enforcement agencies have investigative authority for traffic collisions on a highway or roadway, if there is doubt concerning the above conditions, consultation with the appropriate law enforcement agency may be prudent.

IV. Overview:

For the purpose of these guidelines, the term "highway" shall mean a way or place of whatever nature, publicly maintained and open to the use of the public for purposes of vehicular travel. The term "highway" and "street" are synonymous.

All emergency responders should understand and appreciate the high risk that personnel are exposed to when operating at a highway incident, or in a traffic incident management area, on or near a highway. Responders should always operate within a protected area at any type of highway incident near motor vehicle traffic.

Always consider that moving vehicles are a threat to your personal safety and a threat to the personnel and equipment that operate on or near a highway. At every highway incident scene, personnel are exposed to passing motorists with varying degrees of driving ability and attitudes. At any time, a motorist may be driving without a legal driver's license

that may have a severe impact on the ability of the driver to operate the motor vehicle in a safe and controlled manner.

Drivers may also display poor or aggressive driving attitudes that would both affect the driver's ability to drive in a safe manner. 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 and impacts their ability to operate a motor vehicle safely and under control.

In addition, motorists may be completely oblivious to your presence due to any number of distractions including but not limited to, cell phone use, loud music, personal hygiene activities, children and pets, various electronic devices, inclement weather, terrain, or building obstructions. Approaching motorists will often be looking at the incident scene and not the road in front of them. Assume that all approaching traffic is a threat to your personal safety until proven otherwise.

It should be clearly understood that there is no means of protection or advance warning that will absolutely protect emergency response personnel from hazards or potential hazards while operating at highway incidents. Personnel at these incidents should always be aware of the conditions around them recognizing that they may need to take immediate evasive action to protect themselves or others in the event an errant motorist has entered into the Temporary Traffic Control area.

V. Guiding Principles:

Understanding that there is no absolute means to protect emergency response personnel at the scene of a highway incident, personnel are urged to constantly keep in mind the "***three guiding principles"*** when operating at the scene of a highway incident. Recognizing these three guiding principles will increase the margin of safety for personnel operating at highway incidents. The three guiding principles are:

1. ***Provide Advance Warning*** - Personnel operating at a highway incident, should provide some form of appropriate advance warning to motorists of an approaching emergency scene. Advance warning devices may include signs, traffic cones, flares, barricades, tubular markers, or any other temporary traffic control devices. There are times however, that passive traffic control is appropriate and there is no need for additional measures.

2. ***Leave Space*** - In order to create a safe operating space, personnel should position fire apparatus or other emergency vehicles in a manner that best protects the incident scene and the work area. Such positioning affords

protection to personnel from the hazards of working in or near motor vehicle traffic.

3. ***Be Seen*** - To increase the level of visibility of the emergency response personnel at the scene of a highway incident on, or near a highway with motor vehicle traffic, all personnel should wear a highly-visible, highly-reflective ANSI rated class II garment or vest at a minimum.

VI. Terminology / Definitions:

A. The following terms are related to these guidelines and should be used during incident operations, post-incident analysis, and training activities involving a highway incident:

1. **Advance Warning –** Notification procedures that advises approaching motorists of an incident ahead and to prepare for a transition from normal driving status to that required by temporary emergency traffic control measures.

2. **Block** – Positioning of a vehicle, preferably a fire apparatus, (fire engine, water tender, etc.) at an angle to the lanes of traffic creating a physical barrier between upstream traffic and the work area.

3. **Buffer Space / Zone** – The distance or space between personnel and block vehicles in the protected work zone and nearby motor vehicle traffic.

4. **Channelizing Devices –** Lightweight, portable devices used to warn, guide, or delineate traffic such as cones, barricades, or tubular markers.

5. **Downstream** – The direction that traffic is moving as vehicles travel away from the incident scene.

6. **Fend-Off Position** – The angled position of the block / shield vehicle or apparatus within a lane or lanes of traffic intended to create a protected area for workers or victims.

7. **Flagging -** The act of controlling traffic in such a manner as to cause the safe and smooth flow of traffic past an incident.

8. **Highway –** Is a way or place of whatever nature, publicly maintained and open to public use for purposes of vehicular travel. Highway includes a street, freeway, or any type of roadway.

9. **Incident Space / Zone –** The physical area of a highway within which emergency personnel perform their fire, EMS, and rescue tasks at a traffic-related incident.

10. **Intermediate Traffic Incident** – Is a situation that typically affects travel lanes for a period of 30 minutes to 2 hours, and usually requires traffic control on the scene to divert road users past the blockage.

11. **Lateral Buffer** – Is the area between the point on the blocking / shield vehicle farthest away laterally from center of the lane being blocked and the tangent line of warning devices, such as traffic cones, that run end of the transition area and the beginning of the termination area. This area should be no less than 2 feet wide.

12. **Lane Identification –** Refers to the designation of a lane of traffic by assigning a numerical numeral starting from the lane closest to the centerline, with an assigned number of "1", and moving outward to the shoulder or curb of the highway. Thus, a north / south highway with two lanes in each direction would have designated lanes of #1 and #2 in the northbound direction, and lanes #1 and #2 in the southbound direction.

13. **Linear Blocking** – Is the positioning of a blocking vehicle completely within a lane of traffic, not angled, and positioned parallel to the traffic lane.

14. **Major Traffic Incident** – These are typically traffic incidents involving hazardous materials, fatal traffic crashes, involving numerous vehicles, and other natural or man-made disasters. These traffic incidents typically involve closing all or part of a roadway facility for a period exceeding 2 hours.

15. **Minor Traffic Incident** – These incidents are typically disabled vehicles and minor crashes that result in lane closures of less than 30 minutes.

16. **Move It or Work It** – Is the concept of moving vehicles from the roadway when involved in an incident such as a traffic collision when the conditions are such that there are no injuries, the vehicles are drivable, and there is a safe location to move the vehicles to; "move it."

If any of the above conditions are present, then take the appropriate actions necessary without moving the vehicles; "work it." California law (VC 20002(a) allows vehicles to be moved under these circumstances. Since law enforcement agencies have investigative authority at the scene of a traffic collision, it may be prudent to consult with them when there are doubts about moving vehicles from the roadway.

17. **Passive Traffic Control** – When circumstances (i.e., length of closure, speed of traffic, etc.) dictate that the placement of emergency response vehicles is such that motorists have ample warning of a blockage then additional traffic control measures need not be implemented.

18. **Protection Vehicle** – A vehicle or apparatus placed upstream from the traffic incident intended to serve as a block or shield creating a protected area for workers or victims operating in the work or incident area.

19. **Queue Length -** The estimated time or distance that vehicles will be slowed or stopped due to an incident on the highway that affects the normal flow of traffic.

20. **Roadway** – That portion of a highway improved, designed, or ordinarily used for vehicular traffic.

21. **Rolling Roadblock** ("round robin") – When there is a full closure on a multi-lane roadway, law enforcement will use their emergency lights to get ahead of traffic approaching the queue and slow down the motorists prior to reaching the stopped traffic.

22. **Shadow** – The protected work area at a traffic-related highway incident that is shielded by the block from fire apparatus or other emergency vehicles.

23. **Street -** Is a way or place of whatever nature, publicly maintained and open to the use of the public for purposes of vehicular travel. Street includes highway.

24. **Take What You Need, Give Back When you Can** – Is the concept of protecting and using as many lanes as necessary to conduct a safe operation within the work area; "Take What You Need." A general rule is blocking a "lane +1" (involved lane plus an additional lane) that will provide sufficient space to operate safety in the event that hose lines are deployed or extrication of a patient is needed. Once these operations are completed, blocked lanes should be reopened to traffic as soon as posible; "Give Back When You Can."

25. **Tangent: -** Warning devices such as traffic cones or flares placed from a point extending from the end of the upstream taper along the side of the incident to a point that begins the downstream transition space/zone. The distance between the tangent line and the nearest emergency vehicle should be no less than 8 feet at a minimum.

26. **Taper** – The action of merging one or more lanes of traffic into fewer moving lanes.

27. **Temporary Traffic Controls Devices** – Items such as cones, signs, or flares used to warn or guide traffic on a highway. The primary functions of Temporary Traffic Controls Devices at a Traffic Incident Management Area are to move road users reasonably safely and expeditiously past or around the traffic incident, to reduce the likelihood of secondary traffic collisions, and to preclude unnecessary use of the surrounding local road system.

28. **Termination Space/Zone –** Where traffic is returned to its normal path or flow.

29. **Traffic Incident** – An emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic.

30. **Traffic Incident Management Area –** A portion or area of a highway where in response to a road user incident, natural disaster, hazardous materials spill, or other unplanned event, authorized officials impose temporary traffic controls. The Traffic Incident Management Area extends from the point of the first warning device to an area where the vehicles return to their original lane alignment and are clear of the incident.

31. **Transition Space/Zone –** The area where traffic is moved out of its normal path to comply with traffic control measurers established at the emergency incident.

32. **Upstream** – The direction that traffic is moving as vehicles in the affected lanes approach the incident scene.

33. **Work Area** – The actual area of the incident where emergency personnel are performing actions to mitigate and resolve the incident.

34. **Zero Buffer Zone** – Is an area where emergency personnel are fully exposed to traffic not protected by a blocking or shield vehicle. These areas should be avoided as much as possible and the storage of equipment, personnel activity, and parking of vehicles should not occur in such an area.

VI. Response Procedures:

A. Emergency vehicles responding to a traffic-related incident shall proceed to the incident at a response code that is authorized by their agency. The first arriving unit at the scene of the traffic-related incident shall make a determination, based on the nature or severity of the incident, as to whether other responding units should increase the code of their response, decrease the code of their response, or cancel their response all together.

B. It is recommended that at least two emergency vehicles from a public safety agency, excluding a responding ambulance, respond to any report of a traffic-related incident.

1. For the purposes of this section, the second emergency response vehicle may be a law enforcement unit providing confirmation can be made that a law enforcement vehicle is responding to the incident.

C. Responding to a traffic-related incident in a privately owned vehicle without being equipped with emergency lighting or other warning devices is highly discouraged and not recommended by these guidelines.

D. Whenever an on-scene law enforcement agency has assumed incident command and cancels responding fire and EMS agencies, these responding agencies should comply with this request and cancel their response. Be mindful that an over response by fire, EMS, and law enforcement agencies can make a reasonably safe scene unsafe by the shear number of vehicles and vehicle placement that must be managed by the Incident Commander.

VII. First Arriving Unit Initial Actions:

A. Report-of-Conditions: The first arriving emergency response vehicle at the scene of a traffic-related incident should provide a report-of-conditions to include the following:

1. Accurate location.

2. Type of incident, i.e.: traffic collision, vehicle fire, etc.

3. Amount of vehicles involved, if known.

4. Traffic conditions such as number of lanes blocked including lane number(s).

5. Initial resources needed such as continuing all responding, or canceling unneeded units.

6. Initial actions taken such as investigating with update to follow, conducting fire attack, etc.

C. Size-Up: Once the initial report-of-conditions is given, a more complete size-up of the incident should be conducted and then transmitted when the information is available. The size-up should include:

1. Need for traffic control including advance warning and, or, temporary traffic control devices.

2. Number of victims, types and numbers of injuries (major injuries, minor injuries, persons trapped, etc)

3. Notification to incoming units of the best access.

4. Scene hazards involved such as fire, hazardous materials, engine fluids, scattered debris, etc.

5. Obstructions such as fallen utility poles, downed wires, etc.

6. Additional resources needed such as engine companies, ambulances, EMS aircraft, towing vehicles, etc.

7. Cancellation of unneeded resources.

8. Assignments to incoming units such as placement of "block" vehicle, placement of advance warning devices, extrication assignment, etc.

VIII. Emergency Scene Management:

A. Scene Management Responsibility:

Scene management responsibility for a highway incident shall be vested in the appropriate public safety agency having primary investigative authority for the incident. For a traffic collision or similar highway incident, this is normally the law enforcement agency for the jurisdiction where the incident has occurred.

During a highway incident, traffic control is generally the responsibility of the law enforcement agency having primary investigative authority for the incident. Fire and EMS agencies may institute short-term traffic control measures for the protection of emergency response personnel during the initial stages of the incident. Long-term traffic control measures and overall scene management should remain with the appropriate law enforcement agency.

While still maintaining overall incident scene management responsibility, the vested public safety agency having primary investigative authority of a highway incident may designate incident command to another appropriate public safety agency in order to effectively and efficiently manage and coordinate the emergency operations needed at the incident. These emergency operations may include extrication of victims, treatment and transportation of patients, hazard mitigation, requesting resources such as additional fire service vehicles, ambulances, EMS Aircraft, and placement of temporary traffic control devices.

B. Unified Command:

For traffic-related incidents involving multiple public safety and support agencies, a unified command should be implemented.

C. Incident Command:

1. At any traffic-related incident, or traffic incident management area, and in accordance with National Incident Management System, the incident command system should be utilized and the appropriate positional assignments be given based on the nature of the incident.

2. For Monterey County fire service agencies operating at the scene of a highway incident, or traffic incident management area, that involves multiple agencies, the Incident Command System shall be utilized in accordance with standard practices.

3. All requests for additional resources by fire service agencies through the mutual aid system shall be requested through Monterey County Emergency Communications or agency communications following standard procedures.

4. All radio communications used by fire service agencies at the scene of a highway incident shall follow the Monterey County Fire Chief's Association Fire Radio Communications Policy and Procedures including the use of command and tactical frequencies.

IX. Advance Warning:

In accordance with NFPA 1500 Section 8.7.7, "the first arriving unit or apparatus shall ensure that traffic is controlled before addressing the emergency operations."

Properly positioned and placed advance warning devices for motorists approaching a highway incident will help increase the level of safety for personnel operating at the incident scene. Advance warning devices will also assist motorists in preparing for driving adjustments that may be needed to safely negotiate their vehicle around an emergency incident or make adjustments to the normal flow of traffic.

Based on the duration of the incident, the proximity of the actual incident to the highway, the impact the incident has on the flow of traffic, and in accordance with NFPA 1500 8.7.5 appropriate and effective advanced warning is highly recommended at the scene of a highway incident.

Advanced warning can be accomplished with the use of temporary traffic control devices such as warning signs, traffic cones, flares, barricades, tubular markers, or vehicles positioned well upstream from the incident with rear amber lights flashing giving motorists an advance warning of an emergency incident ahead.

A. In accordance with NFPA 1500 Section 8.7.6, "warning devices shall be placed and utilized with proper consideration given to visual obstructions such as hills, curves, blind spots, or unusual localized weather conditions such a fog or rain."

B. Specific examples of advance warning for a highway incident on a multi-lane highway with a single lane blocked and motor vehicle traffic traveling at high speeds may include:

1. "Emergency Scene Ahead" sign should be placed both upstream and downstream from the incident at a distance that provides adequate advance warning to the approaching motorist.

2. Traffic Cones to create a taper affect directing moving traffic to lanes not impacted by the incident starting at a point that allows adequate distance for the moving traffic to be safely diverted away from the incident.

   a. Remember that traffic cones identify and only suggest the tapering away from the incident and do not guarantee motorists will follow the designated cone pattern.

   b. Tapers should be gradual allowing motorists plenty of time and distance to alter their direction of travel.

   c. The traffic cone taper should end no closer than 100' (approximately 40 paces) to the first block vehicle in order to create a buffer space between the taper and the block vehicle.

   d. The traffic cone pattern should continue along the side of the incident creating a tangent line and then eventually end with a taper starting at a safe distance downstream from the incident that allows the traffic to safely resume a normal pattern.

   e. When creating a taper, traffic cones should be placed apart at a distance equal to the posted speed limit in feet. Based on the flow of traffic, the distance apart may be adjusted to provide for the optimum effective use of the cones.

3. Any other advance warning devices such as highway flares, which would warn or alert the approaching motor vehicle traffic that an emergency scene is ahead and that traffic diversions may soon be necessary.

X. Vehicle Placement:

A. The following should be considered when determining vehicle placement at a highway incident.

1. As the first arriving emergency vehicle approaches the scene, determine the size of the incident space based on the number and location of involved vehicles, debris field, patient triage and treatment area, extrication area, and tool cache area.

2. Whenever possible, position first arriving apparatus to protect the scene.

3. Initial apparatus placement should provide a workspace protected from traffic approaching in at least one direction.

4. All other apparatus should park "downstream" from blocking apparatus and whenever possible, park or stage unneeded fire apparatus and personal vehicles off the roadway.

5. Ambulances should always be parked "downstream" from the actual incident positioned within the protected work area with their rear patient loading door area angled away from the nearest lanes of moving traffic.

    a. All patient loading into ambulances is accomplished from within a protected work zone.

    b. Ambulances should not park in the opposite lanes of traffic from the incident.

    c. Ambulances should not be used as a "block" vehicle if other resources are available.

6. If at all possible, avoid parking emergency vehicles in the opposite lanes of traffic that require personnel to cross over traffic lanes, medians, or barriers in order to reach the incident scene. Parking in the opposite lanes of traffic provides no protection for the vehicle or the personnel attempting to reach the incident scene.

    a. It is safer to drive past the incident locating a safe area to turnaround and approach from the upstream direction eventually parking downstream from the incident.

    b. If approaching from the downstream direction, it is better to park in the area downstream from the incident in the same lanes of traffic where the incident has occurred rather than parking in the opposite lanes of traffic.

7. If the traffic related incident has occurred in the center of a two-lane highway, it may be necessary to position block vehicles on either side of the incident directing traffic towards the shoulders, or to shut the roadway down completely.

XI. Blocking / Shielding Vehicle:

A. In accordance with NFPA 1500 8.7.4 "Apparatus shall be placed to the rear of the incident or the emergency in a manner that reduces the chance of a vehicle being struck by oncoming traffic."

B. When using a blocking / shielding vehicle, the following should be considered:

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

2. Larger apparatus such as fire engines, water tenders, etc., provide the best "block."

3. Passenger type vehicles can "block" but they do not offer the same protection as larger vehicles.

4. When blocking, every effort should be made to block the entire involved lane with the blocking / shield vehicle. Blocking only a portion of the lane should not be considered.

5. Under the concept "take what you need, give back when you can," block as many lanes as necessary to provide a safe and protected area for the emergency workers in the work area. As a general rule, block "lane +1" as needed to provide an effective protected area. Once operations are completed in a blocked lane, make every effort to promptly and safely re-open the blocked lane to traffic.

6. The front wheels of the "block" vehicle should be tuned away from the work area.

7. A "blocking" action may be a "block to the right" or "block to the left" tactic based on the situation that will provide the best margin of safety for the emergency personnel operating at the scene.

Note: The exact angle and position of the "block" will be based on a number of factors including position of operator, location of pump

panel, use of pump panel, location of specialized equipment, and highway configuration. A general rule is to position the blocking vehicle at a 30 degree angle from the lane direction with the front wheels turned in the same direction as the angle and blocking the entire involved lane.

8. The upstream side of the blocking apparatus, the buffer space, will always be a "NO STAND" zone, also known as a Zero Buffer Space.

9. In accordance with NFPA 1500 8.7.4.1 "When acting as a shield or block, apparatus warning lights shall remain on."

10. For a first arriving engine company where a charged hose line may be needed, block so that the pump panel is "downstream", on the opposite side of on-coming traffic.

11. Always "block" the most critical or highest traffic volume lane, or lanes, first.

12. When possible, use fire apparatus to block the traffic lane that is already obstructed by the incident.

13. The position of blocking apparatus shall take into consideration all factors that limit sight distance of the approaching traffic including lighting conditions, visibility, road conditions, curves, bridges, and over and under passes. Position of block vehicles should be performed under close coordination with law enforcement agencies.

14. When positioning a "block" vehicle on a highway with high-speed traffic, the block vehicle should be no closer than 100 - 150 feet from the involved vehicles of the traffic-related incident.

XII. Emergency Alert Signal:

A. An emergency alert signal shall be sounded when it is observed that an errant vehicle is approaching the incident scene that will jeopardize the safety of any emergency worker present.

B. Since emergency workers may only have seconds to respond to an approaching errant vehicle, the emergency alert signal at the scene of a traffic-related incident will be ***any sounding*** of an air horn, either from an emergency vehicle or from a hand held unit, the blowing of a whistle, or a person yelling the words "***LOOK OUT!***"

C. Upon the sound of the emergency alert signal, personnel operating at the incident will immediately stop performing any activity or task, look around for the approaching threat, and then based on the nature or direction of the threat, will take immediate evasive action moving to a safe area away from the direction of the approaching threat.

XIII. Scene Safety:

A. In accordance with NFPA 1500 Section 8.7.1 "When members are operating at an emergency incident and their assignment places them in a potential conflict with motor vehicle traffic, all efforts shall be made to protect the members."

B. At an emergency incident, safety is everybody's responsibility. Keeping this in mind, and due to the inherent danger of operating at a highway incident, a Safety Officer is recommended for fire agency and EMS on-scene activities. Functions of the Safety Officer would include:

1. Monitor the use of PPE including the use of highly reflective, highly visible, garments for all fire and EMS personnel.

2. Evaluate the appropriate use of emergency warning lights on emergency vehicles.

3. Monitor activities of emergency responders ensuring personnel limit the amount of time spent in high hazard areas.

4. Ensure that advance warning, temporary traffic control devices, and blocking vehicles are used effectively and contribute to the overall safety of the incident, coordinated with on-scene law enforcement.

5. Sounding of the emergency alert signal when an errant vehicle jeopardizes the safety of any emergency worker at the scene.

XIV. General Safety Considerations:

A. When operating at a highway incident, the following general safety guidelines should be considered:

1. Never trust approaching motor vehicle traffic.

2. Avoid turning your back to approaching motor vehicle traffic.

3. Always look before you move.

4. Always keep an eye on motor vehicle traffic.

5. Post traffic lookout personnel as needed.

6. Always look before opening doors or stepping out of emergency vehicles into motor vehicle traffic areas.

7. If at all possible, personnel should always exit apparatus from the "shadow" side of the vehicle, away from motor vehicle traffic.

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

9. If a vehicle is being used as a "block", exit the vehicle quickly and move away from vehicle to the "shadow" area.

10. Avoid moving through, conducting activities or storing equipment in a Zero Buffer Space that is not protected by a blocking or shielding vehicle.

11. Use extreme caution when retrieving equipment from the upstream side of apparatus and post temporary lookouts as needed.

12. Whenever possible, work from the shoulder side of the incident and use the road shoulder for staging and hose deployment.

13. Always maintain a low profile alongside the apparatus with your eyes on the approaching motor vehicle traffic direction.

14. Always wear the appropriate personal protective equipment when operating at a traffic-related incident including an appropriate safety helmet.

15. Make sure there is enough personnel and equipment at the scene, but keep the amount to a necessary minimum.

16. The longer you stay on the scene, the greater the risk.

17. The more personnel and equipment on the scene, the greater the exposure to being involved in a secondary incident.

18. Once your assignment is completed, consider leaving the scene as soon as possible.

XV. Highly Visible, Highly Reflective Safety Apparel:

A. One of the guiding principles of highway incident safety is to **"Be Seen."** Thus, in accordance with NFPA 1500 8.7.10, and 23 CFR 634 from the Federal Highway Administration known as the "Worker Visibility Act" effective November 24, 2008, all personnel operating at the scene of a highway incident on, or near a highway with motor vehicle traffic shall wear highly visible, highly reflective, safety garments with a minimum ANSI Class II certification.

1. Garments may be vests, rain jackets, or coats providing they meet a **minimum** ANSI Class II certification.

B. It is recommended that safety vests are of the "public safety design" in accordance with the 2009 edition of NFPA 1901 effective January 1, 2009 that reads as follows:

> *"One traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, Standard for High-Visibility Public Safety Vests, and have a five point breakaway feature that includes two at the shoulders, two at the sides, and one at the front."*

C. In addition to being of the "public safety design," traffic safety vests should have a primary color of either orange or lime green.

D. ANSI Class II garments should be donned prior to exiting the vehicle.

E. ANSI Class II garments should be worn at all times when working in or near motor vehicle traffic.

1. Exception: Effective with 23 CFR 634, personnel engaged in emergency operations that directly expose them to flame, fire, heat, chemicals and / or hazards materials, or a technical rescue situation are exempt from wearing the ANSI compliant vest or garment only until such time as they are no longer directly engaged in these activities. In these situations, personnel shall wear the required PPE based on the hazard absent the ANSI compliant vest or garment.

2. Once personnel complete those specific activities mentioned above, personnel shall immediately don the issued ANSI compliant vest or garment.

XVI. Emergency Vehicle Lighting:

The use of emergency vehicle lighting is essential, especially in the initial stages of a highway incident, for the safety of emergency responders and persons operating at the incident, as well as approaching motor vehicle traffic. Emergency vehicle lighting however, gives warning only, provides no effective traffic control, and is often confusing to road users, especially at night.

Road users approaching the highway incident from the opposite direction on a divided highway are often distracted by emergency vehicle lighting and slow their vehicles to look at the incident posing a hazard to themselves and others traveling in their direction. The use of emergency lights can draw attention to the emergency apparatus but also obscure the emergency personnel working at the scene.

The use of emergency vehicle lighting can be reduced if good traffic control has been established at a highway incident scene. This is especially true for major traffic incidents that might involve a number of emergency vehicles. If good traffic control is established through the placement of advanced warning signs and traffic control devices to divert or detour, then public safety agencies can perform their tasks on scene with minimal emergency lighting.

In accordance with NFPA 1451 Section 8.5.4 "Where an FESO (Fire Emergency Service Organization) vehicle acts as a block at a nighttime incident, sources of vision impairment to approaching motorists, such as headlights and spotlights, shall be turned off. The FESO vehicle's warning lights that do not create a source of visual impairment shall remain on to warn oncoming traffic of emergency scene operations.

A. The following recommendations pertain to emergency vehicle lighting operating at the scene of a highway incident:

1. Once arriving at the scene, all emergency vehicles should reduce the use of the emergency lights by utilizing only the flashing amber lights, 4-way flashers, or rear directional arrows or light sticks.

2. The vehicle or apparatus being used as a block / shield shall turn off any headlights or spotlights that would provide vision impairment for oncoming motorists.

3. Headlights should be turned off, especially during night operations.

4. Adequate illumination should be provided for the actual incident scene. This can be accomplished by the effective use of overhead floodlights.

XVII. Recommended Minimum Equipment:

A. The following is the recommended minimum amount of equipment for Monterey County fire apparatus responding to highway incidents with motor vehicle traffic:

1. Minimum (8) traffic cones at least 18" in height, 28" in height preferred, with two reflective bands positioned near the top of the cone.

2. Minimum ANSI class II rated reflective vest, or other class II rated garment for all personnel assigned to the vehicle. Each vest should be colored either orange or lime green and fashioned with a safety whistle to sound the emergency alert signal in the event that an approaching errant vehicle jeopardizes the safety of the personnel operating at the scene.

   a. It is further recommended that the safety vest meets the "public safety design" standards as outlined in the 2009 edition of NFPA 1901 that reads as follows:

      "One traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, Standard for High-Visibility Public Safety Vests, and have a five point breakaway feature that includes two at the shoulders, two at the sides, and one at the front"

3. Minimum (15) road flares with a 30-minute duration.

4. Flashing amber directional arrows or light sticks on rear of vehicle.

5. Reflective chevron striping on the rear of fire apparatus meeting the current NFPA standard for such striping.

6. (1) Federal Highway Administration (FHWA) approved 36" x 36" minimum, 48" x 48" preferred, retro-reflective sign stating "Emergency Scene Ahead" in fluorescent pink with black letters.

7. (1) Hand held marine type air horn.

8. (2) 18" STOP/SLOW paddles, engineer grade reflective face, with minimum 6" handle.

XVIII. EMS Aircraft Operations:

A. Requesting and operations of an EMS Aircraft at a traffic-related incident shall be conducted in accordance with the County of Monterey, Emergency Medical Services Agency, *EMS Aircraft Operations,* adopted January 1, 2015.

XIX. Multiple Casualty Incidents:

A. Traffic-related incidents involving multiple casualties shall be conducted in accordance with the County of Monterey, Emergency Medical Services Agency, *Multiple Casualty Incident (MCI) Response Plan,* adopted July 1, 2014.

XX. Training:

A. In accordance with NFPA 1451 Section 8.5.2 "All FESO (Fire Emergency Service Organization) members shall receive initial and annual training on department standard operating procedures while conducting operations in or near moving traffic."

A. It is recommended that all Monterey County public safety personnel, and other personnel, who respond to highway incidents, receive appropriate initial training and participate in a <u>minimum</u> of four hours of highway incident safety training per year. The training should come from the following sources:

1. Review of the "<u>Highway Incident Safety Guidelines</u>" for the Monterey County fire service.

2. Review of the video training program: "<u>Highway Safety for Emergency Services – the Ten Cones of Highway Incident Safety.</u>"

3. Review of the "<u>Highway Incident Response Survival</u>" training program.

4. Review of NFPA 1451 Section 8.5 "<u>Safe Operation at Highway Incidents</u>"

5. Review of NFPA 1500 Section 8.7 "<u>Traffic Incidents</u>."

6. Review or participation in the National Traffic Incident Management (TIM) Responder Training Program.

7. Any other relevant training material on highway incident safety.

XXI. Reference Material:

The following reference material was used in the preparation of these guidelines and may be referred to for additional information concerning highway incident traffic safety, or used during annual highway incident traffic safety refresher training:

- Emergency Traffic Control – Reference Guide, 2004, MDI Traffic Control Products
- Highway Safety for Emergency Services - The Ten Cones of Highway Incident Safety, VFIS / ERSI, 2002
- Pennsylvania Highway Incident Management – A Multi Agency Approach
- Highway Incident Safety for Emergency Responders, Jack Sullivan, Emergency Responder Safety Institute.
- Safe Parking: Part 1, Ron Moore, Firehouse/October 2003
- Safe Parking: Part 2, Highway Terminology, Ron Moore, Firehouse/November 2003
- Safe Parking - Part 3: Traffic-Blocking Procedures, Ron Moore, Firehouse/Dec. 2003
- Safe Parking - Part 4: Personal Survival Skills, Ron Moore, Firehouse/January 2004
- Safe Parking – Part 5: Special Safety Equipment, Ron Moore, Firehouse/February 2004
- Highway Incident Response Survival, Rita B. Wessel, Highway Incident Response Training Services.
- Santa Barbara City Fire Department – Standard Operating Procedures, Emergency Operations – Incidents on Freeways. (Diagrams)
- www.respondersafety.com

- U.S. Department of Transportation, Federal Highway Administration, 2009 Manual on Uniform Traffic Control Devices (MUTCD), Chapter 6i. Control of Traffic through Traffic Incident Management Areas.

- The 2014 California Supplement of the MUTCD, California Department of Transportation, November 7, 2014

- Title 23, Code of Federal Regulations, part 655.603

- 2013 Edition NFPA 1500 Section 8.7 "Traffic Incidents"

- 2013 Edition NFPA 1451 Section 8.5 "Safe Operation at Highway Incidents"

- National Traffic Incident Management (TIM) Responder Training Program

- Federal Highway Administration 23 CFR 634 "Worker Visibility Act of 2008"

- Traffic Incident Management Systems – United States Fire Administration / FEMA, April 2008

- 2009 Edition NFPA 1901

- Temporary Traffic Control for 1st Responder, Responder Safety, January 2012

- National Unified Goal for Traffic Incident Management – National Traffic Incident Management Coalition

XXII. Diagrams:

- *All diagrams are for illustration purposes only, are not to scale, and are not intended to represent actual placement of apparatus, personnel, or equipment. When used as a blocking vehicle, as depicted in the following diagrams, apparatus should be positioned to block an entire lane or lanes, and positioned facing away from the protected area, in line with the cone taper unless needed to protect the pump panel.*

Figure #1 – Engine has "blocked right" and taken one additional lane. Engineer and pump panel are on the downstream side of the incident.

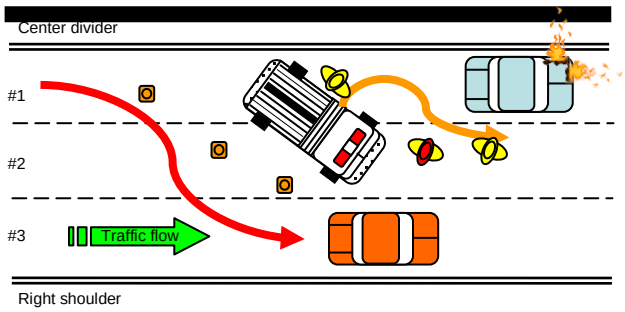

Figure #2 – Engine has "blocked right." Note the "shadow" where crews can safely operate and deploy hose lines.

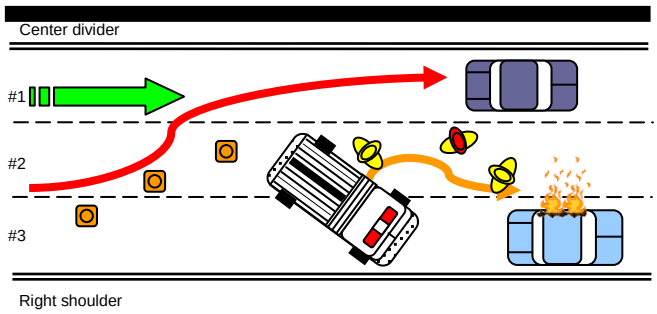

Figure #3 – First arriving engine has parked downstream from the incident. Second arriving engine performs a block. Blocking vehicles should be parked in line with the transition cone taper.

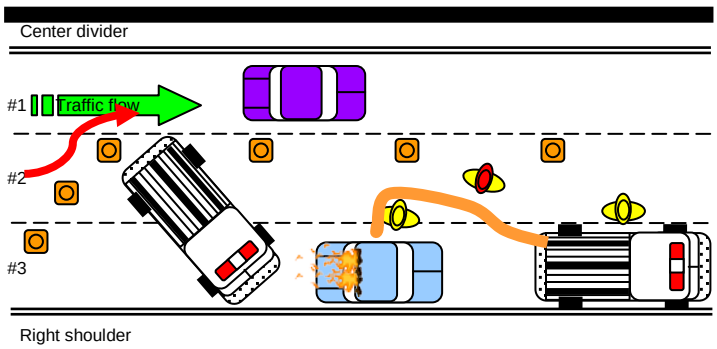

Figure #4 – First arriving engine takes the incident lane and a portion of the adjoining lane, allowing enough room for traffic to pass.

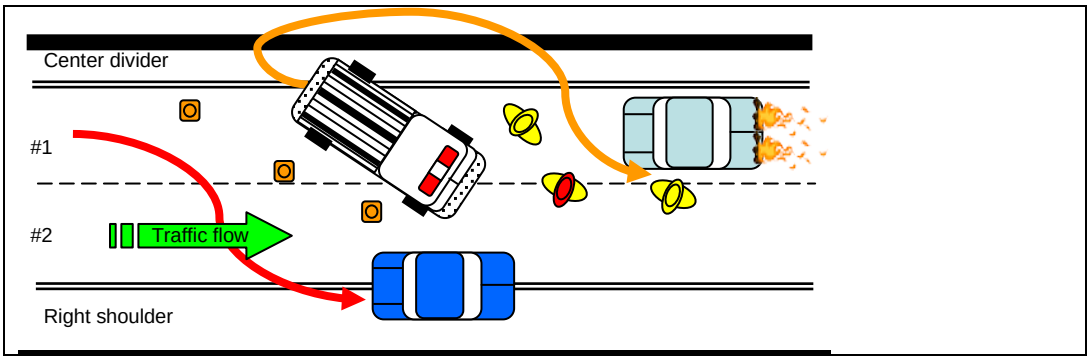

Figure #5 – The greater the traffic speed, the greater the upstream distance for cone placement. Blocking vehicles should be positioned in line with the transition cone pattern.

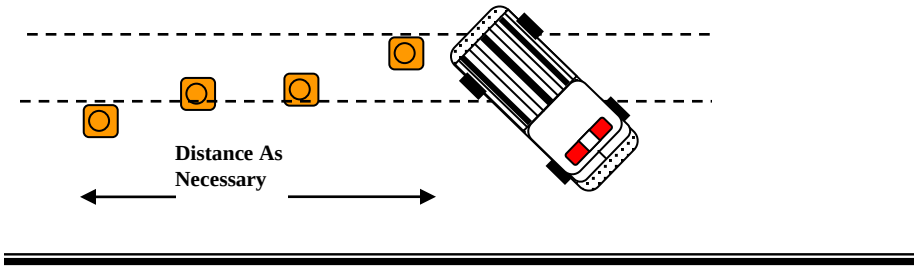

Figure #6 – Temporary Traffic Control

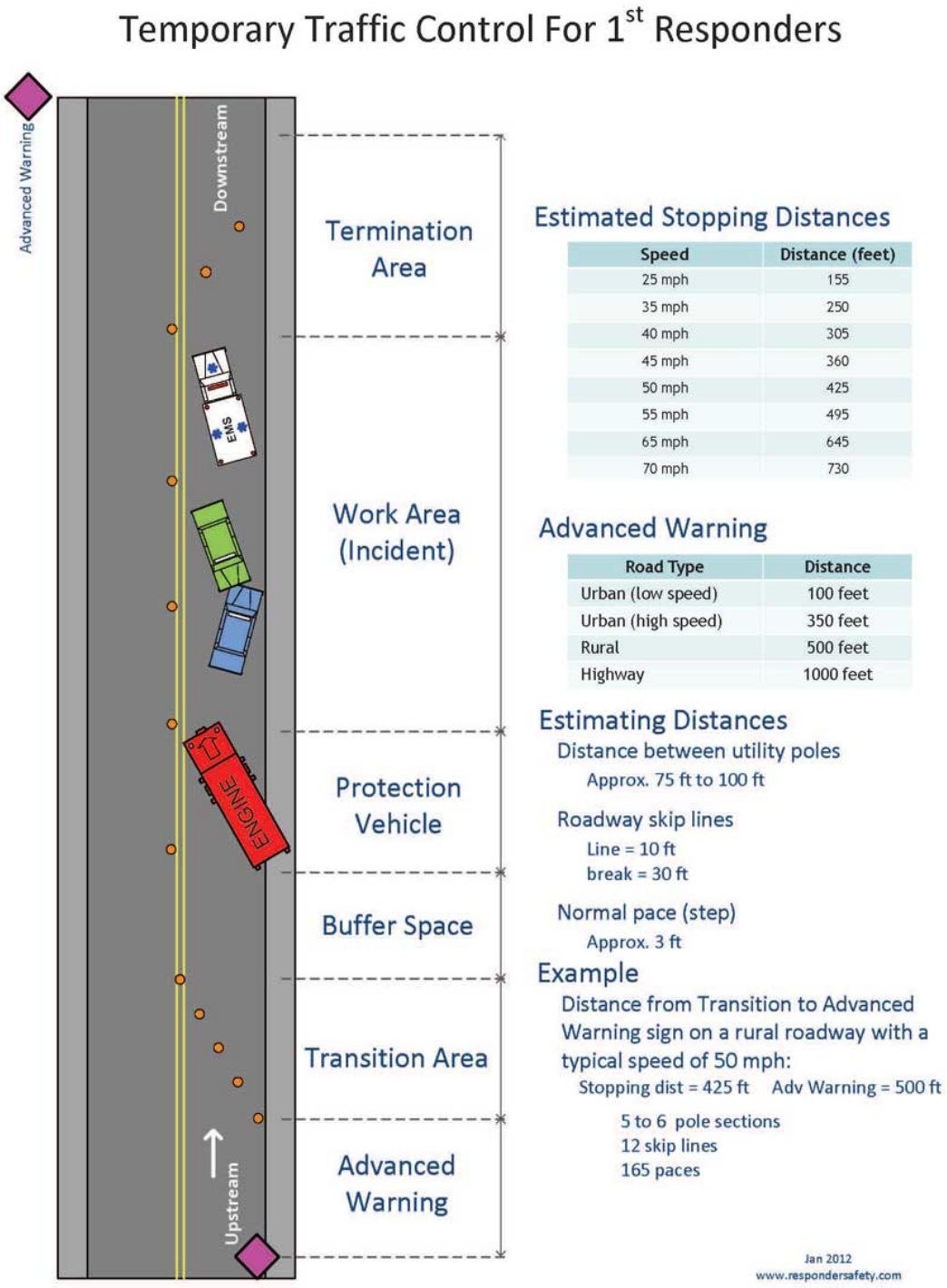

Figure #7 – Traffic Incident Management Area