SAFE VEHICLE PRACTICES
DURING
ON-HIGHWAY INCIDENTS

A LESSON PLAN
DEVELOPED BY THE RIALTO FIRE DEPARTMENT
TRAINING DIVISION
Instructor’s Notes

Overview

The following procedures identify practices for Rialto Fire Department apparatus and vehicles that will aid in providing maximum protection and safety for personnel operating in or near moving vehicle traffic, as well as individual practices to keep firefighters safe while exposed to the hazardous environment created by moving traffic.

It shall be the practice of the Rialto Fire Department to attempt to position at least one fire apparatus or other emergency vehicle at any incident on any street, road, highway, or freeway in a manner that best protects the incident scene and the work area. Such positioning shall afford protection to fire department personnel, law enforcement officers, tow service operators, and the public from the hazards of working in or near moving traffic.

All personnel should understand and appreciate the high risk that personnel are exposed to when operating in or near moving vehicle traffic. Responders should always operate within a protected environment at any vehicle-related roadway incident.

Personnel must always consider moving vehicles as a threat to firefighters’ safety. At every vehicle-related emergency scene, personnel are exposed to passing motorists of varying driving abilities. At any time, a motorist may be driving without a legal driver’s license. 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 our presence due to cell phone usage, loud music, conversation, inclement weather, terrain or building obstructions, or other distractions. Approaching motorists will often be looking at the scene and not the roadway in front of them. Assume that all approaching traffic is out to get you until proven otherwise.

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

Terminology

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

1. Advanced 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.

2. 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.” “Block to the left
exposes the right side of a fire engine to traffic flow, while block to the right exposes the left side of a fire engine to traffic flow.

a. **Initial Block** – performed by the first arriving fire engine or truck.

b. **Secondary Block** – performed by additional fire apparatus to provide greater protection to rescuers and other personnel.

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

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

5. **Escape Route** – A pre-determined route to allow for unimpeded access to a designated Safety Zone.

6. **High-Risk Traffic Conditions** – in the judgment of the first arriving Company Officer and/or the Incident Commander, anytime the traffic flow does not appear to be responding to Advanced Warning procedures established by fire and law enforcement personnel.

7. **Safety Zone** – a pre-determined site where rescuers can report to in the event of a motorist not conforming to established traffic control measures in place at the highway scene.

8. **Shadow** - the protected work area at a vehicle-related roadway incident that is shielded by the block from apparatus and other emergency vehicles.

9. **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. Usually the Firefighter from the secondary blocking unit.

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

11. **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.

12. **Traffic Break** – A separation in the flow of traffic along a road or highway, usually performed by law enforcement personnel.

13. **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.

14. **Upstream** - the direction that traffic is traveling from as the vehicles approach the incident scene.
Personnel Safety

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

1. Whenever possible, personnel should avoid turning their backs to approaching traffic
2. Attempt to establish an initial “block” with the first arriving emergency vehicle or fire apparatus
3. Wear full protective clothing at all vehicle-related emergencies, especially whenever lighting levels are reduced. Wear structural firefighting helmet.
4. Turn off all sources of vision impairment to approaching motorists at nighttime incidents including vehicle headlights and spotlights
5. Use fire apparatus and police vehicles to initially redirect the flow of moving traffic
6. Establish Advanced Warning and adequate transition zone traffic control measures upstream of incident to reduce travel speeds of approaching motorists
7. Use traffic cones and/or cones illuminated by flares where appropriate for sustained highway incident traffic control and direction
8. During High-Risk Traffic Conditions, in the judgment of the first arriving Company Officer and/or the Incident Commander, establish a fire department member assigned to the “Spotter” 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 Positioning

Listed below are procedures for safe parking of apparatus and emergency vehicles when operating in or near moving traffic.

1. Always attempt to position first-arriving apparatus to protect the scene, patients, and emergency personnel.
   a. Initial apparatus placement should attempt to provide 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 crash scene and approaching traffic.
   c. Allow apparatus placement to slow approaching motorists and redirect them around the scene.

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d. If possible, use fire apparatus to block at least one additional traffic lane more than that already obstructed by the crashed vehicles.

e. When practical, position apparatus in such a manner to protect the pump operator position from being exposed to approaching traffic.

2. Positioning of initial blocking apparatus must create a safe parking area for EMS units and other fire vehicles. Operating personnel, equipment, and patients should be kept within the “shadow” 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, the ambulance loading zone, the Command Post, and any other operational areas of the incident.

4. Attempt to position ambulances 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 unneeded emergency vehicles off the roadway or return these units to service whenever possible.

6. For first arriving engine or truck companies where a charged hoseline may be needed, attempt to block so that the pump panel is “down stream”, on the opposite side of on-coming traffic. This will help protect the pump operator.

7. At all intersections, or where the incident may be near the middle lane of the roadway, two or more sides of the incident may need to be protected.

a. Law enforcement vehicles should 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 Temporary Work Zone. The blocking of the Temporary Work Zone must be prioritized, from the most critical or highest traffic volume flow to the least critical traffic direction.

b. Consider requesting additional law enforcement response. Provide specific directions to the law enforcement officers as to exactly what your traffic control needs are. Ensure that police vehicles are parked in a position and location that provides additional protection of the scene.

8. Traffic cones shall be deployed from the rear of the blocking apparatus toward approaching traffic to increase the Advanced Warning provided for approaching motorists. Cones identify and only suggest the transition and tapering actions that are required of the approaching motorist.

9. Personnel shall place cones and flares and retrieve cones with heads up while facing oncoming traffic.
10. Traffic cones shall be deployed at 15 foot intervals upstream of the blocking apparatus with the furthest traffic cone approximately 120 feet upstream to allow adequate advanced warning to drivers.

11. If needed, additional traffic cones and/or flares may be retrieved from other fire department vehicles or law enforcement units to extend the advanced warning area for approaching motorists.

12. Driver/operator of the secondary blocking unit shall remain seatbelted inside the cab during the duration of the incident.
   a. Captain of the secondary blocking unit should report to the Incident Commander to assist as needed.

**Incident Command**

The initial-arriving company officer and/or the Incident Commander should consider the following procedures 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 attempts to establish an initial block to create an initial safe work area.

2. Establish a Safety Zone with prescribed Escape Routes where rescuers can escape the path of an oncoming motorist not conforming to established traffic control measures. Ensure all rescuers on scene are aware of the Safety Zone location.

3. Assign a parking location for all ambulances as well as later-arriving apparatus.
   a. Lanes of traffic shall be identified numerically as “Lane 1”, “Lane 2”, etc., beginning from the left to the right when right and left are considered from the approaching motorist’s point of view. Typically, vehicles travel a faster speed in the lower number lanes.
   b. Directions “Right” and “Left” shall be identified as from the approaching motorist’s point of view left or right.
   c. Instruct the driver of the ambulance 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.

4. Assure that all ambulances on-scene are placed within the protected Temporary Work Zone (shadow) of the larger apparatus.

5. Assure that all patient loading into ambulances is done from within a protected work zone.

6. The initial company officer and/or Incident Commander must operate as the Scene Safety Officer until this assignment is delegated.
**Emergency Response Personnel**

Listed below are standards for safe actions of 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 trust moving traffic.
3. Always look before you move
4. Always keep an eye on the moving traffic
5. Avoid turning your back to moving traffic.
6. Apparatus operators shall assure that Opticom strobe systems are turned OFF and that other emergency lighting remains ON. Headlights of “upstream” vehicles should be turned off to avoid obscuring rescue personnel’s vision of approaching traffic. Turn off all sources of vision impairment to approaching motorists at nighttime incidents including vehicle headlights and spotlights.
7. Whenever possible, personnel arriving in crew cabs of fire apparatus should exit and enter the apparatus from the protected “shadow” side, away from moving traffic.
8. All personnel must exit and enter their units with extreme caution remaining alert to moving traffic at all times.
9. Protective clothing and helmets must be donned prior to exiting the emergency vehicle.
   - All staff personnel and assigned student trainee personnel arriving on an apparatus or emergency vehicle must don assigned helmets and coats prior to exiting their vehicles.
10. Always look before opening doors and stepping out of apparatus or emergency vehicles into any moving traffic areas. When walking around fire apparatus or emergency vehicles, be alert to your proximity to moving traffic.
   - 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.
   - Maintain a reduced profile when moving through any area where a minimum “buffer zone” condition exists.
11. Law Enforcement 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 with head up while facing on-coming traffic.
12. Placing flares, where safe to do so, adjacent to and in combination with traffic cones for nighttime operations greatly enhances scene safety. Where safe and appropriate to do so, place warning flares to slow and direct approaching traffic.

13. Avoid crossing lanes of traffic not controlled by blocking apparatus and outside the Temporary Work Zone. Request a “traffic break” from law enforcement if personnel must cross traffic lanes.

14. Request law enforcement to provide additional traffic control measures beyond cone placement, blocking, and Spotter procedures. Do not permit members of the public to provide traffic control.

15. At residential medical emergencies, ambulances should park at the nearest curb to the residence for safe patient loading whenever possible.

**High-Volume, Limited Access Highway Operations**

High-volume highways include limited access freeways and multi-lane roadways within the RIA response area. Law enforcement personnel and Department of Transportation (Cal-Trans) have a 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 and the patients involved, any or all lanes, shoulders, and entry/exit ramps of 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.

Unique Safe Parking procedures at limited-access freeway and high-volume multi-lane roadway incidents:

1. Whenever possible, the first-arriving engine company apparatus should attempt to establish an initial block of the lanes occupied by the damaged vehicles plus one additional traffic lane.

2. Consider requesting an additional fire engine or the ladder truck to incidents on freeways and high-volume highways with the City.

3. During High-Risk Traffic Conditions, in the judgment of the first arriving Company Officer and/or the Incident Commander, request a second fire engine or truck to perform secondary blocking for the incident.

4. The primary assignment of a secondary blocking apparatus and crew should be to:
   a. Establish an upstream block occupying a minimum of two lanes plus the paved shoulder of the highway 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 unit’s crew at the direction of the company officer.

d. Traffic cones on limited-access freeways 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 with heads up 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. The Spotter should have an 800 meg hand-held radio monitoring the incident's tactical frequency and be positioned in a designated Safety Zone with a clear view of “upstream” traffic.

f. The Spotter should immediately notify Command, on the incident tactical channel, of any approaching traffic that is not responding to the speed changes, transition, tapering and merging directions.

   i. Transmit the following message, “IC, Spotter. Emergency Traffic. Errant driver. Repeat, errant driver.”

   ii. Repeat the message, as needed.

g. Driver/operator of the secondary blocking apparatus shall monitor the tactical frequency and sound a series of long blasts on the apparatus air horn to audibly warn all operating personnel of the concern for the actions of an approaching motorist.

   i. Air horn blasts – two seconds duration with one second pauses

h. Upon hearing the “Errant Driver” message from the Spotter and the series of long blasts on the secondary blocking apparatus’ air horn, personnel on scene should retreat along prescribed Escape Routes to the designated Safety Zone.

5. Law enforcement vehicles may be used to provide additional blocking of additional traffic lanes as needed. RIA and private ambulances shall always be positioned within the safe work zone.

6. Staging of additional companies off the highway may be required. Ambulances may be brought onto the highway scene, as needed. An adequate size multi-patient loading area must be established.

7. Fire Command should establish a Unified Command with law enforcement personnel 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.

8. 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.

18 On-Highway Watch Out Situations
1. Incident not properly sized up
2. On a highway not seen in daylight
3. Safety Zones and Escape Routes not identified
4. Safety Officer and Spotter not designated
5. Unfamiliar with highway and local factors influencing traffic flow
6. Uninformed on strategy, tactics, and hazards
7. Instructions and assignments not clear
8. No communication link with crew members or supervisor
9. Performing work outside of the incident “shadow”
10. Walking upstream without facing traffic or walking downstream with back to traffic
11. Working without full PPE and helmet
12. Debris in Temporary Work Zone makes escape to Safety Zone difficult
13. Failing to eliminate sources of vision impairment to approaching motorists at nighttime incidents including vehicle headlights and spotlights
14. Positioning additional ambulances and/or fire apparatus on scene outside the protected Temporary Work Zone (shadow)
15. Opening doors and stepping out of apparatus or emergency vehicles into moving traffic areas
16. Crossing lanes of traffic not controlled by blocking apparatus and outside the Temporary Work Zone without requesting a “traffic break” from law enforcement
17. Approaching the scene from the opposite lanes of traffic from where the vehicles have stopped
18. Failure to request additional resources during “high-risk” traffic conditions

Tabletop Simulation Exercises
Practice “blocking” scenarios for on-highway incidents
   o Simulate on-freeway incidents
   o Simulate on-highway incidents
   o Simulate on-highway incidents at intersections
Final Thoughts

- Safety is the first operational thought
- Stay alert
- Always wear seat belts in a moving vehicle
- Anticipate that other drivers will not see you
- Merge across lanes only when safe to do so
- Remember, even though you know what you want other drivers to do doesn’t mean they know
Officer’s Safe Parking “Checklist”

“Block” with first-arriving 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 law enforcement assistance

Crews wear proper PPE w/Helmet

- Full PPE at all times
- Helmet

Establish more than adequate Advanced Warning

- Traffic cones at 15’ intervals
- Deploy minimum 8 cones upstream
- Cones only suggest, they don’t block
- Expand initial safe work zone using secondary blocker, if needed

Direct placement of ambulances

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

You are the Scene Safety Officer

- Consider assigning a FF as an upstream “Spotter” as necessary for approaching traffic
- FF must have an 800 meg hand-held radio monitoring the tactical frequency
- FF must be positioned in a designated Safety Zone

Night or Reduced Light Conditions

- Turn OFF vehicle headlights
- Turn OFF Opticom
- Provide overall scene lighting
- All personnel in PPE w/helmets
- Illuminate cones with flares, as needed and where safe to do so
- Consider requesting additional fire apparatus for additional upstream “Block”

**Limited access, high-volume highway incidents**

- Establish initial block: minimum two lanes and shoulder
- If needed, additional fire apparatus may provide secondary upstream block
- Place cones and/or cones illuminated by flares upstream of fire apparatus
  - Last cone approximately 150 feet “upstream” of apparatus
- Establish Spotter position
  - Monitor approaching traffic
  - Transmit emergency warning, as necessary
- Driver operator of blocking apparatus
  - Sound a series of long blasts on apparatus air horn, as necessary
- Upon receipt of emergency transmission and alarm, personnel should retreat along Escape Routes to the Safety Zone
- Use law enforcement vehicles for additional blocking
- Stage additional resources off highway
- Establish liaison and Unified Command with law enforcement
- Terminate incident aggressively