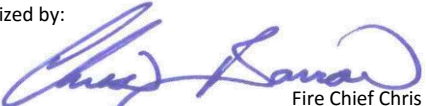
	<b>TRAVIS COUNTY ESD #5 MANCHACA FIRE RESCUE</b>	<h1 style="text-align: center;">A302</h1>
	<b>Department Best Practices</b> Authorized by:  Fire Chief Chris Barron	
<h2 style="text-align: center;">Vehicle Rescue and Extrication</h2>		<b>Rescinds:</b>
		<b>Reference:</b> AFD A302.1 <b>Application:</b> Shift Personnel

### I. Purpose

To establish guidelines for vehicle rescue and patient extrication.

### II. Background

Safe removal of patients from vehicles involved in automobile accidents is a critical function of Manchaca Fire/Rescue. Like structure fires, automobile extrication can be quite simple or extremely complicated. As a critical function, it requires individual proficiency in conjunction with teamwork. There are many things to prepare for, consider and analyze.

The responsibility of the MFR Officer in-charge is enormous. The MFR Officer must have a systematic approach to each incident and follow a sequence of steps to ensure that nothing is overlooked and that danger to the rescuers and victims is minimized.

*This document is a direct adaptation of the Austin Fire Department SOG on Vehicle Rescue and Extrication. It has been adopted by Manchaca Fire Rescue as an Auto Aid partner to maximize standardization between partner agencies. Variations and additions to the language from the parent AFD document will be signified by text in italics. Generic changes that do not affect content such as formatting and changing "AFD" to "MFR" will not be noted.*

### III. Policy

A. **Terminology.** The following is terminology common to vehicle rescue incidents. Using consistent terms associated with extrication evolutions enhances safety and efficiency.

1. **Action Circle.** A clear zone established early in an extrication incident; (10' to 15') in all directions from the vehicle. All members operating within the action circle should be in full PPE.
2. **Hot Lap.** The procedure of assessing the vehicles that have been involved in an accident; it includes a 360° survey of each vehicle and assessment of the area in, around and under it. The location of victims both inside and outside the vehicle, as

well as, possible hazards and additional resource needs should be identified during the hot lap.

3. **Patient Access.** Term used to describe the actions needed to allow a rescuer access to the trapped patient for patient assessment and care.
4. **Under-ride.** Vehicle under another vehicle
5. **Pancake.** An inverted vehicle with roof posts collapsed.
6. **Cribbing.** Generally refers to the specially cut and/or assembled pieces of wood used to support raised objects.
7. **Quick Crib.** A type of specified cribbing carried on all pumping apparatus consisting of two base blocks and two large wedges.
8. **Box Crib.** The arrangement of 4" x 4" or 2" x 4" wood cribbing stacked in parallel pairs at right angles to the pair immediately below.
9. **Step Chocks.** Specialized cribbing assemblies made out of wood blocks assembled in a stair step configuration.
10. **Rocker Panel.** The section of body paneling lying below the doors of an automotive vehicle.
11. **Collision Beam.** A steel structural member strategically located in the door or sidewall of a vehicle that strengthens the vehicle's side integrity, limiting penetration into the passenger's compartment during a side impact crash.
12. **Posts.** A vehicle anatomy term meaning the rolled sheet metal assemblies on vehicles that attach the roof to the main body of the vehicle. (i.e. A-post, B-post etc.)
13. **Loaded Bumper.** A safety term describing vehicle bumpers that are impacted during an accident, compressing them upon their shock absorbing pistons and held in this compressed position by the subsequent wreckage.
14. **Displacement.** Term used to describe the moving of a part of a vehicle beyond its normal operating range, making space for the access and removal of trapped patients.
15. **Inverted Roof Flap.** Commonly referred to as the "oyster" or the "clam shell" maneuver separating the roof from the body of an automobile that is upside down (or inverted) and pushing the vehicle's body upward

16. **Relief Cut.** Severing material, to facilitate and minimize resistance prior to displacing part of the vehicle structure.
  17. **Purchase Point.** Small opening made to make room for the insertion of larger rescue tools.
  18. **All Patients Extricated.** The term used when all crash victims have been extricated and removed from the “action circle”.
  19. **Stop.** Term used when a rescuer wants other rescuers to make an emergency stop to their activities on the scene.
  20. **Thumbs Down.** Means turn OFF the power to the unit.
  21. **Thumbs Up.** Means turn ON the power to the unit.
  22. **Vehicle Rescue Capability.** An apparatus equipped with vehicle stabilization equipment and a full set of hydraulic vehicle rescue tools including cutters, spreaders, and rams
- B. **Incident Management.** Vehicle Rescue incidents shall be managed in accordance with a NIMS compliant incident management system. The incident priorities for Vehicle Rescue incidents are consistent with other incidents: Life Safety, Incident Stabilization and Property Conservation. Based upon these incident priorities an incident action plan should be developed and verbally communicated to responders prior to initiating extrication measures.
- C. **Documentation.** Command is responsible for ensuring the incident is thoroughly and correctly documented.

#### IV. Best Practices

**The following best practices should be followed at all firefighting and emergency scene operations, except where deviation can be justified by Fire Officers. Any significant deviation should be communicated to responding/on-scene units as soon as possible.**

##### A. Incident response.

1. **Information gathering.** Beginning with alarm receipt, gather all alarm information with respect to the incident.
2. **PPE.** Personnel must be equipped and ready upon arrival at the scene. All personnel must be fully outfitted in personal protective gear, *which may consist of NFPA compliant extrication gear; or, bunker pants and turnout coat. A helmet, primary eye protection and gloves must also be worn.* Approved gloves include Structural Firefighting gloves NFPA compliant extrication gloves, or leather gloves that provide cut and abrasion resistance. Medical gloves must be worn under leather gloves to provide blood born pathogen protection.

## B. Apparatus positioning.

1. **Positioning strategy.** Consideration should be given to positioning strategy
  - a. **Blocking.** Blocking involves positioning the apparatus with the intent of maximizing the visibility of the apparatus and shielding the emergency workers from oncoming traffic. Normally this requires the apparatus to be positioned to block the lane the incident is in plus one additional lane as a buffer zone.
  - b. **Tactical parking.** Tactical parking involves positioning the apparatus with the intent of unloading equipment and/or using apparatus mounted equipment (i.e. scene lights, power cords, winches, etc.) on the emergency scene. Normally this requires the apparatus to position directly next to the vehicle requiring rescue equipment.
  - c. **Highway incidents.** For Vehicle Rescue incidents on the highway, refer to MFR Best Practices A711 Highway Incidents.
  - d. **Ambulance positioning.** Consideration should be given to ensuring Medic units have a pathway to access and can leave the scene once a patient has been delivered to them.
2. **First arriving.** The first arriving apparatus has two positioning considerations
  - a. **Blocking.** First, it should be placed in a blocking position that provides a barrier between the incident scene and oncoming traffic.
  - b. **Hoseline.** Second, it should be close enough to allow a hose line to be stretched to protect the scene.

## C. Approaching the scene.

1. **Initial actions.** All members should look for hazards and incident size-up information using a 360-degree hot lap. When safe to do so, quickly perform initial stabilization and determine if it is safe to access the patients. If it is safe to do so, quickly assess the patients and begin treatment while rapidly evaluating extrication needs. Ensure all patients are accounted for.

## D. Size-Up.

1. **Initial radio report.** The first arriving Company Officer is responsible for providing an initial radio report of size-up conditions. At a minimum, an initial report should include the following:
  - a. **Command.** Assumption of Command
  - b. **Channel.** Announcement of fireground channel
  - c. **Describe.** Description of the incident scene, including:
    - i. Number and type of vehicles involved (car, truck, van, bus, etc.)
    - ii. Position of vehicles (upright, side, roof, etc.)

- iii. Type of collision (roll over, side-impact, rear-end, head-on, under-ride, etc.)
  - iv. Actions being taken
  - v. Assignments for incoming companies.
2. **Other reports.** Subsequent Radio Reports should include the following:
- a. **Patients.** Number and condition of patients
  - b. **Pin-in vs. Entrapment.**
    - i. **Pin-in.** the patient is trapped in such a way that vehicle structures are impinging on his/her body, and must be displaced in order to extricate the patient.
    - ii. **Entrapment.** The patient is trapped in such a way that simply creating an exit pathway will allow for patient extrication.
  - c. **Needs.** Direction to incoming companies (apparatus positioning, equipment needed etc).

#### E. **Initial Company Tactical Assignments.**

- 1. **Assign tasks.** Once the Officer has determined it is safe for the Company to begin tactical operations, individual assignments should be given to accomplish what is needed in the most expedient manner.
- 2. **Initial Stabilization.** Initial stabilization is performed by the first Company making contact with the vehicle. When possible, initial stabilization should be completed prior to patient contact. When accessible, minimum initial stabilization should include the following:
  - a. **Ignition.** Turn the vehicle ignition off and remove the keys from the vehicle.
  - b. **Brake.** Set the parking brake.
  - c. **Park.** Put the vehicle in park or gear .
  - d. **Quick crib.** Use Quick Cribbing to begin frame-to-ground stabilization.
  - e. **Electrical System.** Powering down the electrical system in a conventionally powered (non-hybrid) vehicle eliminates many of the hazards and ignition sources faced by rescuers.
  - f. **Battery.** The battery should be disconnected (ground/negative first). This may prevent a fire and may provide drain time for the air bag capacitors. Consider which power accessories may need to be utilized before disconnecting the battery, such as door locks, windows, seats, etc.
  - g. **Back feed hazards.** Check for devices such as cell phones that are plugged into power outlets. These devices can back feed into the electrical system providing power to air bags even though the main battery has been disconnected.

- h. **Confirm power disconnect.** Once all common sources of electrical power have been eliminated, look for signs such as lights remaining on or multiple entertainment devices installed in the interior that may indicate that the vehicle is equipped with additional batteries.

## F. Hazard Control.

1. **Communication of hazards.** Hazards should be identified early in the incident and communicated to all members involved in the rescue.
  - a. **Fire.** Fire is an extreme hazard at an extrication scene. All possible ignition sources should be eliminated. Fuel and other fluids can pose an ignition danger. A minimum of 1¾-inch hoseline will be charged and available throughout the extrication operation. This hoseline should be staffed as soon as possible with a Firefighter wearing full protective clothing, including Structural Firefighting gloves and SCBA. A dry chemical extinguisher may be quickly deployed near the accident vehicles if the deployment of the hoseline is delayed for any reason.
  - b. **HazMat.** Trunks and other storage areas should be checked for hazardous materials. Fluids running from the vehicle will need to be diked and/or absorbed as soon as resources are available.
  - c. **Glass.** Tempered glass can break explosively when broken under tension. Control the tempered glass in a vehicle before performing rescue evolutions. Cutting laminated glass produces glass dust considered an inhalation hazard. Avoid breathing glass dust.
  - d. **Air Bags.** Deployed air bags cannot be considered safe. Dual stage airbags can deploy a second time. Danger from air bags can be reduced by distance, battery disconnection, and trim removal exposing possible cylinders before cutting.
  - e. **New Car Technology.** Rescuers should be aware of the unique characteristics of modern vehicles. These include high voltage components in hybrid vehicles, alternative fuel hazards, and passenger restraint/protection.
  - f. **Power lines.** Possibility of downed power Lines
  - g. **Additional Traffic Hazards.** High speed, high volume 2-way traffic; elevated roadways with fall hazards, etc.

## G. Patient Considerations.

1. **Patient prioritization.** After the safety of responders has been ensured, the condition of the patient determines all incident tactics. The initial patient contact and evaluation is critical. This evaluation will determine what method is chosen to remove the patient. The assessment could determine the need for immediate extrication, or a more controlled extrication. Just as important, as the initial assessment is constantly evaluating the patient's condition. The patient care Team Leader, functioning as the patient advocate, should remain with the

patient, and monitor the patient's condition, relay this information to the rescuers and ensure the patient is informed of steps that are being taken on their behalf.

2. **Mission focus.** MFR's mission is to deliver a viable patient to EMS. An EMT or Paramedic wearing full PPE should be with the patient at all times. The patient must be protected from the tools, debris, intrusion, and movement of extrication. The concept of the Golden Hour is observed the entire time the patient is on-scene. This concept may prompt rescuers to rapidly remove a decompensating patient from the vehicle without all usual extrication and immobilization steps (Immediate Extrication). A decompensating patient is removed from the vehicle in the most expeditious manner possible, with the only on-scene treatment being that which is necessary to stabilize the patient's spine and sustain the ABC's.

#### H. **Arrival of Apparatus with Vehicle Rescue Capability.**

1. **Resource placement.** A minimum of two apparatus equipped with vehicle rescue capability are dispatched to each Vehicle Rescue incident. The apparatus should be positioned tactically in a position that best affords the use of apparatus mounted equipment and lessens the distance equipment must be carried to the vehicle.

#### I. **Apparatus with Vehicle Rescue Capability Tactical Assignments.**

1. **Extrication plan.** The Officer of the first arriving apparatus with vehicle rescue capability should develop strategy and tactics to satisfy the needs of the incident. These tactics should be communicated as a subsequent radio size-up.
2. **First vehicle rescue capability.** The Officer of the first arriving apparatus with vehicle rescue capability will ensure that individual Company assignments are given to accomplish what is needed in the most expedient manner. Officers should avoid being drawn into actually performing the tasks themselves if possible. Once the Officer is drawn into task level operations, effective supervision of the incident is reduced.
3. **Second vehicle rescue capability.** The Officer of the second arriving apparatus with Vehicle Rescue capability should arrive prepared to support the tactics chosen by the first arriving Officer. The goal is to work with all responders, performing rescue evolutions simultaneously to efficiently remove the patient from the vehicle.

#### J. **Advanced Extrication Techniques.**

1. **Considerations.** Various techniques could be selected depending on patient condition, vehicle position, and available resources. While developing strategy and tactics consider these actions:
  - a. **Advanced Stabilization.** Before rescue evolutions are performed, ensure initial stabilization is adequate; four-point frame-to-ground stabilization should be performed if the incident dictates. Overall safety and the elimination of vehicle movement that would aggravate the patient's condition is the goal.

- b. **Multiple Tool Use.** With two sets of rescue tools on scene, and the capability of tools being used simultaneously, rescue evolution time can be reduced dramatically. Officer supervision is a critical component to the success and safety of multiple tool use.
2. **Tactical terminology.** Consistent terminology and procedures should be used when performing basic vehicle rescue maneuvers:
- a. **Total Roof Removal.** A displacement procedure where the entire roof is removed by cutting all of the posts. This allows for maximum access to all vehicle occupants. Early roof removal provides greater patient access and lowers the interior temperature in the vehicle. Ensure trim removal to expose possible air bag cylinders, and hardened points such as seat belt mounting bolts. Also, ensure that all seatbelt/shoulder harnesses are cut.
  - b. **Roof Flap.** The displacement procedure that involves cutting and folding the roof of the vehicle up and away.
  - c. **B-Post Blowout.** A displacement procedure where the rear door is opened at the latch, the B-post is cut at the roofline and rocker panel and the entire sidewall is pivoted on the front door hinges. This creates a wide pathway to extricate a patient.
  - d. **B-Post Fold-Down.** A displacement procedure where the rear door is opened at the latch and the front door's hinges are cut. The B-post is then cut at the roofline and the entire sidewall is folded down. This creates a wide pathway to extricate a patient.
  - e. **Dash Roll.** A firewall displacement procedure where the front dash of an automobile is pushed toward the front of the vehicle using a Ram braced against the B-Post or other fixed object.
  - f. **Dash Lift.** A firewall displacement procedure where the front dash of an automobile is lifted vertically using hydraulic spreaders.
  - g. **Third Door Conversion.** A term that describes a displacement evolution used to open the rear side panel of a two-door automobile creating a third door or access opening to the trapped patient.
  - h. **Vertical Extrication.** A method of placing a patient on a long board by sliding it vertically between the seat and patient. The patient is then extricated vertically from the vehicle.
  - i. **Popping the Door.** A relatively quick door-opening procedure wherein a jammed door is forced open at the latch.

#### K. Incident Command.

- 1. **NIMS utilization.** Vehicle Rescue Incidents will be managed using guidelines, protocols and standards consistent with the National Incident Management System, (NIMS). *A Unified Command structure with ATCEMS is expected for incidents occurring within the City of Austin. When operating within ESD5, a Unified Command structure with other agencies may be*



utilized. It is also acceptable to operate within ESD5 with a single Incident Commander and to subdivide the scene into medical, rescue, and law enforcement functions through the establishment of Groups or Branches. The primary concern is that there is coordination between all agencies to ensure proper patient care and scene safety. Refer to Table 1 for the Vehicle Rescue Organizational Chart.

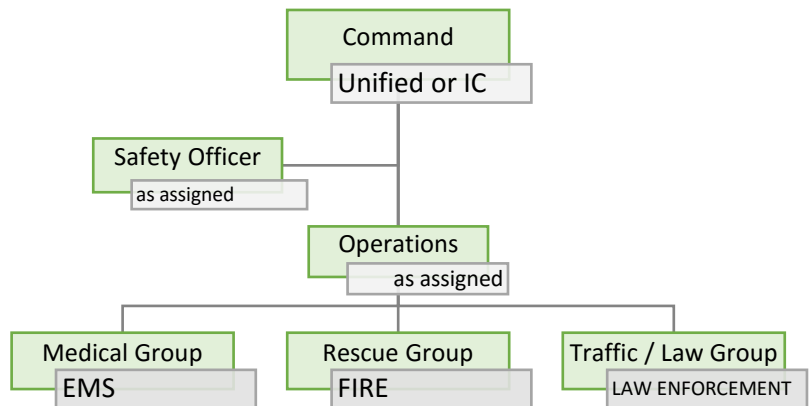
2. **Assumption of Command.** The first Officer on scene shall either assume Command or establish a Unified Command if another emergency agency has already assumed Command. This event should be announced over the assigned incident radio channel. Once established, Command will begin developing a strategy for the extrication and ensure a proper organizational structure for the incident. The Officer in Command shall normally be the Officer of highest rank on scene. Command is reminded that scene safety is paramount, just as it is at all emergency scenes. If Command determines it necessary, a Safety Officer may be appointed. Otherwise, Command retains this function.
  
3. **Documentation.** All Vehicle Rescue incidents should be thoroughly documented. The MFR Officer is responsible for documenting the incident according to MFR policies.

Table 1: Organizational Chart for Vehicle Rescue Incidents

**Command:** Unified Command consists of ranking members from one or more agencies participating in the incident. At a co-located, fixed command post. Incident Command consists of one individual from one agency that is in overall command of the incident and assigns roles to other responders based on their areas of expertise.

**Safety Officer:** Person assigned by Command to monitor the overall scene to ensure the safety of both Public Safety personnel and victims. A person assigned this position should have no other duties. Command retains this responsibility if a Safety Officer is not assigned.

**Operations Chief:** Person assigned by Command to oversee the tactical operations of the incident, normally within the action circle. Command retains this responsibility if an Operations Officer is not assigned



**Medical Group Supervisor:** Personnel tasked primarily with patient care. This group and its leader will normally be ATCEMS personnel.

**Rescue Group Supervisor:** Personnel tasked primarily with patient extrication. This group and its leader will normally be Fire personnel.

**Traffic/Law Group Supervisor:** Personnel tasked primarily with traffic control and accident scene investigation. This group and its leader will normally be Law Enforcement personnel.