

Active shooters: History, planning and action to ensure a proper fire and emergency medical service response

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ABSTRACT

Given the numerous active shooter and hostile events (ASHE) happening each year, it is important for fire and emergency medical service (EMS) agencies to share the lessons learned from such events. This paper discusses the elements needed for an effective fire and EMS response,

beginning with the unified command/collaboration approach with law enforcement that allows for the proper management of such events. The article further defines the command and control elements, as well as the proper staffing and actions needed from fire and EMS to remove, triage, treat and transport victims effectively.

Keywords: active shooter, unified command, rescue taskforces, ASHE, mass casualty

INTRODUCTION

Active shooter and hostile events (ASHE) have become more frequent, with public expectations regarding incident response increasing as the events unfold on live television and follow-up reporting continues for days and months after the events. From a fire and emergency medical services (EMS) standpoint, incident response can only be successful if proper planning, policy development and exercises have occurred prior to the event. One of the key changes related to the fire and EMS response is the need for a unified command structure.

HISTORY AND CURRENT STATE OF EVENTS

Between 2000 and 2013, the Federal Bureau of Investigations (FBI) identified 160 active shooter incidents that occurred



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in the USA;¹ in 2021 alone, it identified 61² — a 50 per cent increase over the preceding year.³ Come 2023, and Gun Violence Archive⁴ had reported 65 mass shooting events by 12th February.

Since the Columbine event in 1999, law enforcement, fire and EMS have learned various lessons regarding ASHE response, primarily related to rapid law enforcement entry and integrated medical response.⁵ Nevertheless, there remains much to do. As a case in point, the flawed medical response to the 2022 Uvalde School shooting is reported to have impacted negatively on the survival rates of the victims.⁶

STANDARDS

Until the last few years, there were no standards that fully addressed ASHE response. Many fire and EMS organisations used a triage system, and some had established mass casualty management incident command systems that utilised the triage, treatment and transportation groups. Law enforcement had adjusted their standard practices to ensure they entered the building quickly in order to encounter the active shooter as swiftly as possible, recognising that with less time to shoot, fewer individuals were likely to be shot.

Standards related to ballistic personal protective equipment (PPE) began to emerge, but these were all based on police standards alone, as for the most part it was the law enforcement agencies that utilised such protection, along with a small contingent of fire and EMS departments. In many urban centres, fire and EMS began to procure ballistic protection, but the first rounds of procurement were often leftover or expired police equipment. The thought at the time was that expired ballistic PPE was better than nothing and likely still to work.

In 2018, the National Fire Protection Association (NFPA) assembled a committee made up of fire, EMS, law enforcement, as well as other associated groups, to develop NFPA 3000, which addresses the development of an active shooter and hostile events response (ASHER) programme. This standard did not just apply to fire and EMS, as is normally the case with an NFPA standard, but instead applied and was built with police input, considering their latest strategies and tactics, which must coincide with fire and EMS operations, as well as hazardous materials teams, bomb squads and a whole host of supporting or cooperating agencies.

NFPA 3000 covers the ASHER programme development process, risk assessment, planning and coordination, resource management, incident management, facility preparedness, financial management, communications centre support, competencies for law enforcement personnel, competencies for fire and EMS personnel, PPE, training, public education, public information, continuity of operations, healthcare facility preparedness and recovery.⁷

COLLABORATION

In principle, collaboration appears to be very easy: work together to manage and mitigate an event. This is the basis of disaster management and has been emphasised since the 9/11 attacks of 2001. However, as much as it may seem straightforward, fire, police and EMS have long had difficulty accomplishing such collaboration. The reason for this is multi-faceted.

DAILY GROUP DYNAMICS

The first facet is the distinct day-to-day differences in operations. Police operations involve a sole law enforcement officer in a patrol car who responds to different calls

for service and then goes home at the end of their shift. Law enforcement officers may know other officers, and even consider some to be friends when off duty, but day-to-day operations essentially rely on a sole responder, which leads to a high degree of individualism.⁸

From the EMS perspective, depending on their affiliation, they can either be a part of the fire department or a separate entity. When operated as a separate entity, the EMS units typically have two personnel assigned to the unit and the interaction occurs between the two crew members. Most calls only require one ambulance, with occasional assistance from police or fire to help move a patient or deliver CPR or some other tasks. Coordination with crew members and some form of leadership are needed, but this often involves only five people, and all are in very close proximity.

Daily fire department operations are based in teamwork and multiple unit operations and coordination. Typically, at least three personnel will be living in a fire station during any 24-hour period. A side effect of this is that eating, sleeping and other daily activities must become a group activity.⁹ All tasks on the fireground will have at least two or three personnel operating together, and depending on the number of needed tasks at a call, four or five apparatus may be needed, all of which must operate in a coordinated manner. When the EMS is fire based, the personnel often live in the same station and rotate between the fire apparatus and the EMS units, producing the same group dynamics and understanding of the group operations mentality.

INCIDENT COMMAND SYSTEM

The incident command system (ICS) was born out of the Firefighting Resources of California Organized for Potential

Emergencies (FIREScope) programme. This organisation operated over thousands of square miles with hundreds, if not thousands of personnel, working in a coordinated fashion.¹⁰ This system was loosely used in some areas of the country to manage structural fire events in the early 1970s. Due to the predictable tasks needed in many urban and paid fire departments, a form of ICS or standing orders was used prior to the adoption of the ICS model. Once hazardous materials legislation was passed federally in the 1980s, ICS became more common in fire departments. In the 1990s, as the benefits of ICS became more widely recognised, adoption increased further, and guidelines for different types of fire, EMS, hazardous materials and technical rescue events were created.

Fast-forward to the 9/11 attacks in 2001, and the federal government, through the Department of Homeland Security and the Federal Emergency Management Agency, solidified the need for a common ICS structure, in addition to other structures to support disaster management. Coupled with the increased distribution of grants to build homeland security assets, and the National Incident Management System (NIMS) training requirements were born.¹¹ Among other things, these requirements prevented local governments from accessing federal or state grants until they had completed the standardised ICS training. This training involved different classes for different levels of operations; for example, a person who was not expected to have management functions would need only the IS 100, 700 and 800 courses, which entailed familiarisation of the NIMS, to include the standardised ICS system. For personnel assigned to the front line or with higher supervision responsibilities, the class requirements were greater. Because NIMS was an all-hazards, all-profession system and training curriculum, all disciplines in government

attended, including police, fire, EMS, government administration, streets departments, etc.¹²

FALLACY IN THE SYSTEM

The aim of this strategy was to ensure that everyone received the same training, and in this respect it was successful: all personnel, regardless of government department or level of government served, did indeed receive the same training. The key flaw, however, was the absence of any requirement regarding ongoing education. As a result, many government entities undertook the training to satisfy their obligations and then reverted to business as usual. This meant that the regular application and use of the system never occurred.^{13,14} Furthermore, any skill not performed regularly will degrade until lost completely.

Because the large number of personnel and resources called to a typical fire scene must all work in a coordinated manner to prevent injuries or death to personnel, fire departments were among the few local government departments to exercise the ICS regularly. With many fire departments electing to utilise the ICS on all calls that require more than one unit, the tenets of the system, to include organisational structure and terminology, remain a usable skill.

COLLABORATION, NOT COMMAND AND CONTROL

A review of many large disasters, including historical ASHE events, identified a lack of collaboration among agencies. The doctoral dissertation titled, 'Comparing collaboration between the Fire Department and Emergency Management Agency to the ICS', detailed how collaboration was supposed occur at the local level and compared this with the training that was delivered to all responders through the NIMS and ICS system to find alignment or misalignment.¹⁵

The study identified that shortcomings in collaboration were due to poor communication practices rather than a lack of access to technology or equipment (such as interoperable radios, etc), including inadequate communication about internal operations, as well as a lack of communication with other agencies, and a lack of communication about how one agency's operations interacted with another's during disaster response.¹⁶ Examination of the instructor curriculums for ICS 100, 200, 300 and 400 identified poor alignment between the theme of collaboration and the actual content of the courses. In essence, we wanted collaboration, but all we taught was command and control.

So why does this misalignment of collaboration and command/control only display at a limited number of events? This may in part be due to the enabling legislation of each state related to the functions of police, fire and EMS. From a law enforcement perspective, local police departments are charged with enforcing the law, which means responding to robberies, violent crimes and other criminal activity. If fire or EMS responders are called to the event, typically after the arrival of the police officer, the implied understanding of all personnel is that this is a police scene and the fire and EMS are there only to assist. Likewise, when developing strategies and tactics at a structural fire, the incident commander does not ask for anyone's opinion outside of the fire department. Both the police and fire departments tend to operate on a recognition-primed decision-making model, which in simple terms entails applying the strategy and tactics developed in response to a previous scenario (real or simulated) with similar facts on the ground. Little thought process, external input or time goes into the command decisions. In an essence, many incidents have a clear decision-maker/primary agency and supporting agencies.¹⁷

Prior to the rise of ASHE events, collaboration was often limited to disasters, and disasters often had emergency management agency officials working from an emergency operations centre to facilitate a more collaborative approach between the leaders of the various response agencies. Once all leaders were in the room, the conversations could be facilitated to support collaboration, and due to the long-range outlook of the issues being coordinated, there would be sufficient time to work through the collaboration¹⁸ in a dedicated facility, removed from the event and the fast-paced activities affiliated with it.

COLLABORATION DURING ASHE RESPONSE

The significant operational differences in police response methodologies and fire and EMS response methodologies present a significant obstacle to collaborative command and control, often referenced as unified command. To neutralise a threat, the standard police procedure is to place as many officers as possible inside the building, as quickly as possible. By contrast, both fire and EMS departments adopt a command posture, which involves making assignments and ensuring the scene is safe to operate in. When the commanders of the different agencies have such opposing methodologies, the result is a significant disconnect that often causes delays.

As Gursky and Hreckovski¹⁹ explain, however, successful multi-agency work needs unified command to ensure information sharing and common incident objectives. The key is to ensure that pre-determined command personnel from the police connect with the fire department incident commander as quickly as possible. This can only occur if preplanned assignments and operations have been trained upon and the police command structure

has flexibility to allow a supervisor or patrol officer, depending on staffing levels, to operate as the police incident commander. Once this occurs, the police incident commander does not enter the structure, but instead coordinates the progress on the officers stopping the shooting, while matching up other officers with fire and EMS to go into the building and remove/triage those who have been shot.

CITIZEN EDUCATION

Citizen education is often overlooked when it comes to a comprehensive ASHE programme, but the actions citizens take or do not take can drastically increase or decrease the death toll. The run, hide, fight training that is taught in many schools and office buildings can ensure that once the citizens detect a shooting event, that they flee from the building if possible; hide and place barriers, such as locked doors and walls between themselves and the shooter; and lastly fight by throwing objects at the shooter to prevent them from being able to take aim and fire the gun.²⁰ Secondly, we must train citizens to make accurate, timely reports to 911, as this will allow the needed resources from police, fire and EMS to be dispatched quickly. Much like other disaster preparedness activities, citizens need to be reminded periodically so that they have the muscle memory when an event occurs. Much like October is fire prevention month, we need to have an ASHE prevention month to educate citizens nationwide.

DEPLOYMENT AND OPERATIONAL MODEL

As the author does not have the subject matter expertise to fully discuss police operations during ASHE response beyond the needed command and control, the following discussion is limited to a

deployment model for fire and EMS. While ASHE response has some unique parameters, such as fire and EMS personnel entering the structure in what is known as the warm zone, these events are merely mass-casualty events from a fire and EMS perspective. As this is the basis of the event, the deployment models should be developed based on the parameters discussed in the respective organisations' mass casualty incident (MCI) policies and plans.

Deployment and operational models must address the following elements:²¹

- Command and control;
- Removal of patients;
- Triage of patients;
- Treatment of patients; and
- Transportation of patients.

To accomplish these elements, the organisation needs to conduct a critical task analysis. The critical tasks and positions related to command and control include:

- Incident commander;
- Safety officer;
- EMS branch director;
- Rescue taskforce (RTF) group supervisor;
- Triage group supervisor;
- Treatment group supervisor;
- Transportation group supervisor;
- Air branch director; and
- Staging manager.

If there is a fire, hazardous materials components, or other non-EMS parameter, another branch director and additional division/group supervisors will be needed to manage these components of the event.

SCENE AREA DESIGNATION

The premise of much of the operations during ASHE response depends on labelling areas of the scene, much like a hazmat

event, into hot, warm and cold zones. The hot zone is where active violence and shooters are located and should be reserved for armed police personnel on a mission to neutralise the threat. The next area is the warm zone, which requires ballistic PPE and should have an armed police unit to accompany any non-police personnel in that area. The cold zone is an area at the event that is not expected to have active shooting or violence.

These areas are dynamic and unlike hazmat may be difficult to designate with fire line tape, etc. This is why it is important for all personnel at the incident site to wear at least some form of ballistic protection. Personnel should also be aware of their surroundings and ensure they have identified areas of refuge or escape, no matter their area of the scene or task being performed.

THE COMMAND AND CONTROL COMPONENT

Command and control during ASHE response must occur in a unified fashion. Experience shows that relying on a single operations section chief can be difficult. A unified command with an operations section chief to work on the fire, hazmat and EMS branches, and a police and investigations branch to focus on the police side of the ICS may work best, as the operations are quite distinct, even if they do need to collaborate. ICS purists, however, can use an operations section chief and a deputy operations section chief — one from fire/EMS and one from police. The section and deputy position can change as the event priorities change.

Organising the operations section involves the use of branches to allow the event to grow as needed. In an analysis of the London terror attacks, Hunt²² found that having an organisation structure that is expandable and collapsible to the needs of

the incident, while staffing senior decision makers at each level of the organisation helps to ensure quality decision making and a manageable span of control. The first branch that will need staffed is the EMS branch. This branch will have the following groups/divisions.

- Rescue taskforce;
- Triage;
- Treatment;
- Transportation; and
- Staging,

Within the treatment group, the following unit leaders are needed to help reduce span of control:

- Green leader;
- Yellow leader;
- Red leader; and
- Black leader.

RESCUE TASKFORCE MODEL/ COMPONENT

The premise of the RTF model is to allow medical personnel to enter the warm zone and render life-saving care to victims at the earliest opportunity. This can only occur when the command-and-control elements are collaborating and operating together. The lack of timely medical care has been cited in numerous after-action reports, to include the Orlando nightclub shooting.²³

The RTF group should have a supervisor to manage at least two rescue taskforces. The RTF group will pair the paramedics with police officers to enter the warm zone and perform life-saving actions for the victims. If time and victim count allows, the RTFs can move the patients in the warm zone to a more stable environment that will allow the patient movement group to move the patients to a cold zone triage area. This should be

completed only after they have identified and rendered life-saving actions to all victims in the warm zone.

The rescue taskforce should be comprised of a minimum of two emergency medical technicians (EMTs)/paramedics and at least two police officers. This allows the police to provide coverage to the EMTs/paramedics administering the life-saving care. One of the key pieces of information that the RTF teams should be relaying to the RTF group supervisor is the number of victims encountered. This allows the RTF group supervisor to relay this information to the EMS branch director and allow the triage and treatment groups to build out to accompany the operation.

PATIENT MOVEMENT

Once the rescue taskforces have performed their life-saving functions, the patients will need moving to a full triage area. The patient movement group is staffed to ensure that if the patients can be moved without disrupting the RTF operation there is no delay in moving patients to triage and medical care. The patient movement group should be staffed with a group supervisor and at least one team of EMTs or paramedics with a cot, backboard, Reeves stretcher, etc to move the patients. Ideally, at least one police officer will also be assigned to the operation to provide any needed force protection.

MCI MODEL/COMPONENT

The MCI model for ASHE response is very similar to any other mass-casualty event. The key components of any successful MCI response are triage, treatment and transport. These components must all be staffed simultaneously to ensure there is no delay in sorting patients by medical priority, treating victims at the scene to

stabilise their injuries and transporting them to a proper hospital.

Triage

The triage process is designed to categorise patients based on the severity of their injuries and to accomplish the triage in a short period of time. Most triage systems are based on an assessment of the patients breathing, circulation and consciousness level. The Simple Triage and Rapid Transport (START) triage system classifies patients as red/immediate if the patient fits one of the following three criteria: (1) a respiratory rate >30 per minute; (2) radial pulse is absent, or capillary refill is >2 seconds; and (3) patient is unable to follow simple commands.²⁴ The standard categories of patients are red, yellow, green and black.

‘Approximately 75 per cent of the patient volume at an MCI requires BLS [basic life support] care. This is a group that can be placed in a school bus with some EMS personnel, a kit and a radio, and be transported to a more distant hospital. These patients have minor injuries and fit the definition of green/low priority ... Of the remaining 25 per cent of patients, approximately three-quarters of them are patients of concern — but not critical. In most cases, these patients fit the category of yellow/delayed.’²⁵

The remaining 25 per cent of patients — approximately 10 per cent of all patients — are truly critical. They have conditions and deteriorating vital signs that, if left untreated, will result in death in 20 minutes or less unless care is administered.²⁶ This is the red category.

Victims in the black category are deceased and although will not need medical care, they will need processing by the morgue.

Treatment

The treatment groups are organised using the patient classifications of red, yellow, green and black. Each category should have a unit leader assigned to manage the resources that are assigned to them. Additionally, this unit lead can communicate to the treatment group supervisor, thus cutting down on communication from all personnel assented to the categories.

Starting with the least critical, the green patients are often referred to as the ‘walking wounded’. Many may have relatively minor physical injuries, but be suffering from psychological trauma and will still need to be checked by medical professionals. If this group can be separated from the other patients, the MCI is less likely to grow. Many accounts and personal experiences shared by first responders indicate that green patients tend to demand more attention if treated in the same area as other patients, often because they see other people’s injuries and assume their own injuries are comparable or because they see other patients receiving immediate medical attention and want the same level of care. As noted by Heightman,²⁷ placing green patients on a school bus with a basic life support (BLS) provider is the best option. The medical equipment needed in this category is minimal and focuses on vitals and documentation.

The yellow category patients need medical care and should have a paramedic and some staffing, but do not require a one-to-one ratio of paramedics to patients. That said, patients in this group can deteriorate quickly into the red category and medical personnel must be ready to recategorise patients as necessary. In their study of an MCI simulation performed by the local fire department, McCrea *et al.*²⁸ found that mis-triage of patients occurred frequently as the responders struggled to utilise the triage system properly. Medical equipment should include advanced life support

equipment, BLS equipment and documentation equipment. Recategorising this group will be important, especially if there are numerous patients.

Red category patients will require the most EMS resources and a medical doctor should ideally be assigned to the category. The red category unit leader will need to ensure that at least one paramedic is available for each patient in the red category and preferably one BLS provider to support the paramedic. From an equipment perspective, full ALS trauma and medical equipment will be needed for each patient. A good rule of thumb is that each patient should have one ambulance crew and equipment. This will not always be possible, therefore the minimum staffing requirement should be one ambulance crew and equipment for every two patients. The goal in this category is to provide needed treatment to stabilise the patient to the minimum level required for transportation. Time spent in the red category only increases the possibility of death.

Morgue group

Although victims in the black category require little in the way of EMS care, morgue personnel will be required to staff the category, along with a unit lead to coordinate the various activities. This category requires significant coordination with police command staff as ASHE events are crime scenes, and investigating officers may initially require black category victims to be left in place. Black category response should have methodologies to preserve bodies for longer durations, especially if transportation to morgue facilities cannot be accomplished during the near-term event recovery. This category is given its own group supervisor so that the category and morgue activities can grow and the morgue group supervisor can place unit leaders in different areas as requirements evolve during the recovery phase.

Transportation group

Often the most difficult group supervisor position is that of the transportation group. This position should be filled with a very organised and detail-oriented person. The transportation group must ensure that patients are transported to the correct medical facilities and that all patients are tracked properly. From a medical perspective, transporting the patients with the most critical injuries to the nearest trauma centre is important, as this is vital for their survival. At the same time, it is important to monitor the number of patients self-transporting to the nearest hospital. Communication with the hospital network will be essential and the group supervisor may need an assistant. Coordination with the air ambulances and the air operations branch director may be necessary if the number of red patients is greater than the number of trauma hospital beds available locally.

Once the most critical are removed, the yellow category must be transported to further out hospitals, as they have more time for transportation, unlike the red category patients. Once these two categories are completed, decisions on the green patients must be made. Additionally, all black category victims will need to be tracked as they are transported from the scene, regardless of the method of transport.

In terms of public relations, losing track of a patient is one of the worst possible scenarios, especially if the patient is a child. For this reason, the transportation officer must ensure that documentation shows what patient was transported to which medical facility. This documentation must be summarised and provided to the public information officer.

STAGING

Staging is essential for facilitating flow within the incident scene. Unlike most of

the EMS calls, the first ambulance units to arrive are not used to transport patients but rather to triage and treat them. Later arriving ambulances will provide the transportation.

Early in the event, staging locations need to be established. Ideally, there will be separate staging for both fire and EMS, however, this may not be possible if the staging manager has limited staffing or there is insufficient space to support this. Additionally, depending on cross-staffing, the staging operation may look different. In Southwest Ohio, many of the fire-fighters are cross-trained EMTs and paramedics, so the MCI response may be designed to utilise fire companies while leaving the ambulances for transportation. If you have separate systems, you will need to utilise all medic units, and separate staging will be required to accommodate units passing through staging and units that will stay for the duration of the incident.

CALCULATING STAFFING NUMBERS

The organisational chart in Figure 1 shows the organisation of the ASHE event. Utilising this organisational chart and some givens for staffing the different groups, the recommended staffing will be presented. Tables 1 and 2 depict the number of command staff and fire/EMS units needed based on cross-trained firefighter/paramedics.

As the number of patients increases, so will the need to staff the groups and units. Having an alarm card system based on known numbers will ensure that you are able to build the proper organisational structure early and staff the groups and units as the patients grow in number.

CONCLUSION

History has shown a significant increase in the number of active shooter events

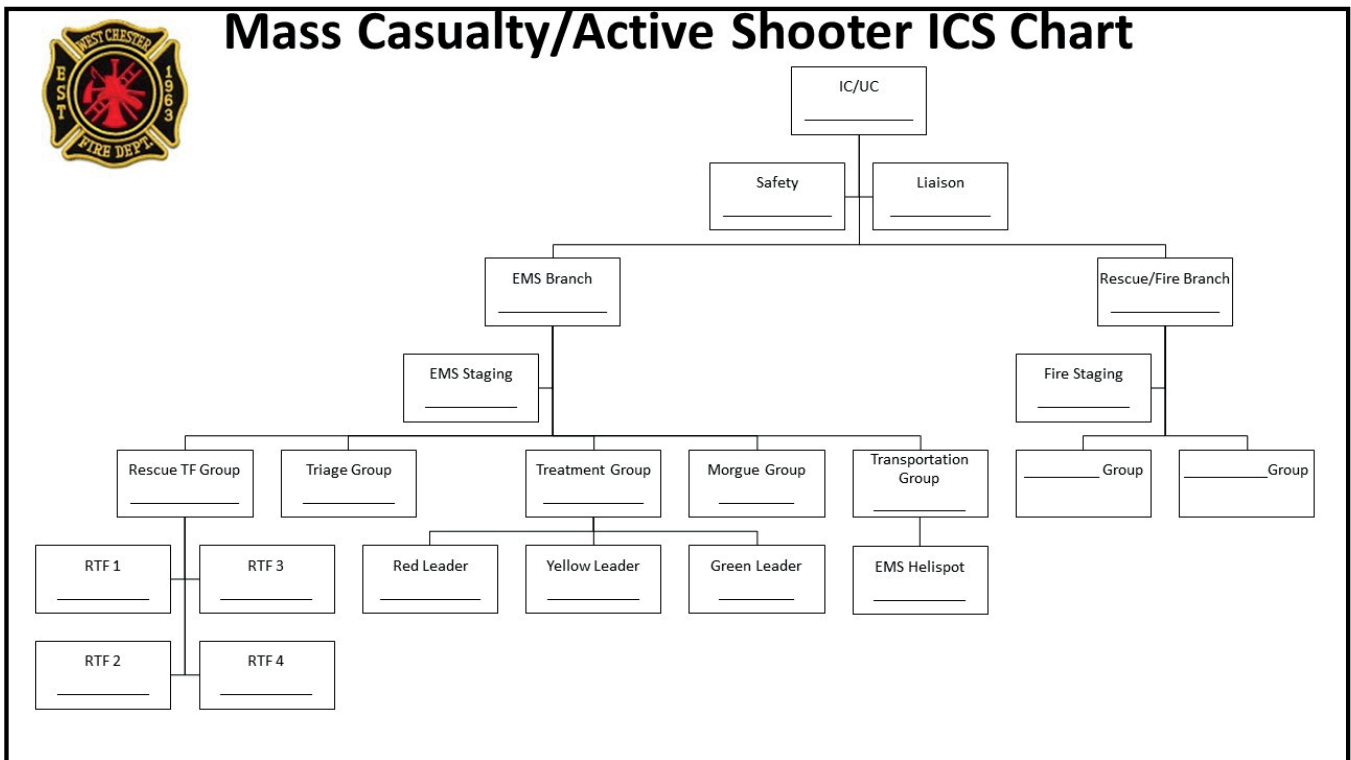


Figure 1 Proposed organisational chart for active shooter/mass casualty event

Table 1: Command staff needed for ASHE event

Position/group	Personnel needed
IC	1
Safety	1
EMS branch director	1
Fire branch director	1
Staging	2
RTF group supervisor	1
Triage group supervisor	1
Red unit leader	1
Yellow unit leader	1
Green unit leader	1
Morgue group supervisor	1
Transportation group supervisor	1
Total	13

Table 2: Minimum unit staffing based on cross-staffing of fire/EMT/paramedics

Group/unit	Resource type	Number needed
Rescue taskforces/ patient movement	Engine company	4
Triage group	Ambulance	1
Red category unit	Ambulance	2
	Engine company	2
Yellow category unit	Ambulance	1
	Engine company	1
Green category unit	Ambulance	1
Morgue unit	Engine company	1
Transportation group	Engine company	1
Held in staging to transport patients	Ambulance	5
Totals	Engine company	8
	Ambulance	10

throughout the USA. Past events have demonstrated the need to conduct life-saving measures on patients and remove them to a mass casualty management system that provides immediate care, categorisation of patients and transportation to an appropriate trauma centre or hospital.

To accomplish all of this in a quick time-frame, fire and EMS leaders must be prepared to deploy and build the proper command and control system, as well as collaborate with law enforcement.

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