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NFPA 424M Airport/ Community Emergency Planning 1991 Edition

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Policy Adopted by NFPA Board of Directors on December 3, 1982

The Board of Directors reaffirms that the National Fire Protection Association recognizes that the toxicity of the products of combustion is an important factor in the loss of life from fire. NFPA has dealt with that subject in its technical committee documents for many years.

There is a concern that the growing use of synthetic materials may produce more or additional toxic products of combustion in a fire environment. The Board has, therefore, asked all NFPA technical committees to review the documents for which they are responsible to be sure that the documents respond to this current concern. To assist the committees in meeting this request, the Board has appointed an advisory committee to provide specific guidance to the technical committees on questions relating to assessing the hazards of the products of combustion.

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NFPA 424M

Manual for

Airport/Community Emergency Planning

1991 Edition

This edition of NFPA 424M, *Manual for Airport/Community Emergency Planning*, was prepared by the Technical Committee on Aircraft Rescue and Fire Fighting, released by the Correlating Committee on Aviation, and acted on by the National Fire Protection Association, Inc. at its Annual Meeting held May 19-23, 1991 in Boston, MA. It was issued by the Standards Council on July 19, 1991, with an effective date of August 16, 1991, and supersedes all previous editions.

The 1991 edition of this standard has been approved by the American National Standards Institute.

Origin and Development of NFPA 424M

The Subcommittee on NFPA 424 started work on this document in 1976. It was submitted to the Association at the 1978 Fall Meeting and released as the first edition on January 25, 1979.

The complete text was rewritten in 1986 in an informational format, and an "M" was added to NFPA 424 to designate this as a Manual. The document was again rewritten for this edition.

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NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates explanatory material on that paragraph in Appendix A.

Information on referenced publications can be found in Appendix C.

Chapter 1 Administration

1-1 Scope. This manual describes the elements of an aircraft/community emergency plan that require consideration before, during, and after an emergency has occurred. The scope of the aircraft/community emergency plan should include command, communication, and coordination functions for executing the plan. Throughout this document, the aircraft/community emergency plan will be referred to as the "Plan."

1-2 Purpose. This manual was written to inform airport and adjacent community authorities of current emergency planning techniques and procedures that result in the efficient utilization of personnel from all involved organizations and agencies to provide effective delivery of emergency services in the event of an aircraft related emergency. Jurisdictional problems previously identified in actual emergencies point out the necessity of resolving the conflicts as part of the development of the Plan.

Recommendations contained herein are not intended to conflict with any local or state regulations. One of the principal purposes of this document is to alert all participants to conflicts that may exist due to multijurisdictional factors, such as conflicts between state and local regulations.

1-3 Definitions. A wide variety of terms are in use throughout the world to describe facilities, procedures, and services related to airports. Wherever possible the terms used in this manual are those that have the widest international use. When the following terms are used in this manual they have the following meaning:

Aircraft Accident. An occurrence associated with the operation of an aircraft that takes place between the time a person boards the aircraft with the intention of flight and the time such person has disembarked, in which a person suffers death or serious injury as a result of the occurrence or in which the aircraft receives substantial damage.

Aircraft Emergency Exercise. Testing of the emergency plan and review of the results in order to improve the effectiveness of the plan.

Aircraft Incident. Any occurrence associated with the operation of an aircraft that is not considered an "aircraft accident."

Aircraft Operator. A person, organization, or enterprise engaged in, or offering to engage in, aircraft operation.

Airline Coordinator. A representative authority delegated by an airline to represent its interests during an emergency covered by this manual.

Airport Air Traffic Control. A service established to provide air and ground traffic control for airports.

Airport/Community Emergency Plan. Establishment of procedures for coordinating the response of airport services with other agencies in the surrounding community that could be of assistance in responding to an emergency occurring on, or in the vicinity of, the airport.

Airport Control Tower. A unit established to provide air traffic control service for airport traffic.

Airport Flight Information Service. Air traffic control services units that provide airport flight information service, search and rescue, alerting service to aircraft at non-controlled airports, and assistance to aircraft in emergency situations.

Airport Manager. The individual having managerial responsibility for the operation and safety of an airport. The manager may have administrative control over aircraft rescue and fire fighting services but normally does not exercise authority over operational rescue and fire matters.

Airside (Airport Operational Area). The movement area of an airport, adjacent terrain, and buildings or portions thereof, access to which is controlled.

Approved.* Acceptable to the "authority having jurisdiction."

Authority Having Jurisdiction.* The "authority having jurisdiction" is the organization, office, or individual responsible for "approving" equipment, installation, or procedures.

Biological Agents. Living organisms that may be dangerous to human, animal, or plant life upon release.

Care Area. Location where first medical care is given to injured.

Collection Area. Location where seriously injured are collected initially.

Command Post (CP). The location at the scene of an emergency where the Incident Commander is located and where command, coordination, control, and communications are centralized.

Emergency Medical Technician (EMT). A person trained to administer emergency medical treatment more advanced than basic first aid.

Emergency Operations Center. A fixed, designated area to be used in supporting and coordinating operations during emergencies.

Grid Map. A plan view of an area with a system of squares (numbered and lettered) superimposed to provide a fixed reference to any point in the area.

Holding Area. Location to which the apparently uninjured aircraft occupants are transported.

Incident Command System (ICS). The combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure with responsibility for the management of assigned resources to effectively accomplish stated objectives pertaining to an incident.

Incident Commander (IC). The person in overall command at an emergency.

In-Flight Emergency. Those emergencies that affect the operational integrity of an aircraft while in flight. The seriousness of these emergencies can be defined by using alert status guidelines stated in FAA terms.

Inner Perimeter. That area which is secured to allow effective command, communication, and coordination control and to allow for safe operations to deal with an emergency, including the immediate ingress and egress needs of emergency response personnel and vehicles.

Investigation. A process conducted for the purpose of accident prevention that includes the gathering and analysis of information, the drawing of conclusions, including the determination of cause(s) and, where appropriate, the making of safety recommendations.

Medical Transportation Area. That portion of the triage area where injured persons are staged for transportation to medical facilities under the direct supervision of a medical transportation officer.

Mobile Emergency Hospital. A specialized, self-contained vehicle that can provide a clinical environment that enables a physician to provide definitive treatment for serious injuries at the accident scene.

Moulage. A reproduction of a skin lesion, tumor, wound, or other pathological state. Applied for realism to simulate injuries in emergency exercises.

Mutual Aid. Mutual aid is synonymous with "mutual assistance," "outside aid," "memorandums of understanding," "letters of agreement," or other similar agreements, written or not, that constitute an agreed reciprocal assistance plan between emergency services.

Outer Perimeter. That area outside of the inner perimeter that is secured for immediate-support operational requirements, free of unauthorized or uncontrolled interference.

Paramedic. A medical technician who has received extensive training in advanced life support and emergency medicine. These personnel are usually permitted to administer intravenous fluids and other drugs that can arrest a life-threatening physiological condition.

Rendezvous Point. A prearranged reference point, i.e., road junction, crossroad, or other specified place, to which personnel/vehicles responding to an emergency situation initially proceed to receive directions to staging areas or the accident/incident site or both.

Specialty Emergency Exercise. One or more specialty agencies fully involved in an exercise to test or give the agency practice in its specialty.

Stabilization. The medical measures used to restore basic physiologic equilibrium to a patient, to facilitate future definitive care, in order to ensure survival.

Staging Area. A prearranged, strategically placed area, where support response personnel, vehicles, and other equipment can be held in an organized state of readiness for use during an emergency.

Triage. The sorting of casualties at an emergency according to the nature and severity of their injuries.

Triage Tag. A tag used in the classification of casualties according to the nature and severity of their injuries.

Chapter 2 Elements of Emergency Planning

2-1* General.

2-1.1 The Plan should describe the coordination of the actions to be taken in an emergency occurring at an airport or in its vicinity. It should be built around an incident command system compatible with provider agencies.

2-1.2 "During the emergency" considerations depend on the exact nature or location of the incident or both. The location will dictate the agency responsible for management of the emergency. As the nature of the incident changes from emergency operations to the investigative phase, the appropriate investigative agency will assume command and responsibility for the incident scene. All agencies responding to the incident must know, in advance, their respective roles and responsibilities and who they report to and who reports to them.

2-1.3 "After the emergency" considerations must also be given considerable attention. Transition of authority and other legal factors need to be discussed and preplanned. Consideration needs to be given to the restoration of protective services in order to permit continuation of normal airport/aircraft operations and public protection that may have been disrupted by the emergency.

2-1.4 The recommendations contained in this document are based on the requirement that rescue of aircraft occupants and other related accident victims is the primary operational objective. Effectiveness operations require a great deal of preplanning and regular exercises that provide an opportunity for realistic training of personnel from all agencies that will be involved in the incident.

2-1.5 It is crucial that response agencies consider local weather conditions and nighttime operations while developing details of the Plan. For example, low temperatures

may freeze medical solutions or tubing during protracted extrication operations. Severe weather conditions may also negatively affect fire fighting foam solution.

Precautions must be taken, where necessary, to mitigate weather induced physical problems such as hypothermia and dehydration. Such considerations apply to emergency personnel, as well as victims of the accident.

2-1.6 Ammendment of the Plan.

2-1.6.1 The airport authority should maintain the master records of the Plan and transmit to each participating agency amendments, additions, and revisions as appropriate.

2-1.6.2 The Plan should be constructed using a modular and severable format in order to facilitate revisions of specific elements without having to rewrite the entire Plan. The Plan should be reviewed on an annual basis by all participants. The review should include a comprehensive analysis of lessons learned from training sessions, incidents, geographical and physical changes, legal and technical changes, and other factors that may influence the adequacy of the Plan.

2-1.7 Training Costs. The costs of a major training exercise can be a considerable factor for even the smallest of airports. Budgetary planning for training costs should include salaries for personnel, consumables such as fuel, extinguishing agent, medical supplies, and other necessary items, such as food and insurance for all participants.

2-2* Types of Emergencies and Emergency Alerts.

2-2.1 Many different types of emergencies can strike a community. However, when creating an airport/community emergency plan, the focus should be on aircraft related incidents. Preparation for other types of emergencies, such as floods or earthquakes, should be addressed in preplanning documents built around the special nature of those incidents.

2-2.2 Most aircraft accidents occur within the airport operational area. However, experience has shown that the most devastating aircraft accidents have been those that occur off-airport, involving structures. It is therefore necessary to design a plan that provides for the needs of both.

2-3 Essential Elements of the Plan.

2-3.1 Establishment of formal instruments/agreements/joint powers, etc., to initiate development and implementation of the plan.

2-3.2 Detailed planning for 24-hour response, communications, logistics, etc.

2-3.3 Agreement for Incident Command and Control Systems and procedures.

2-3.4 Funding for practice.

2-3.5 Regular and "as needed" Plan updates.

2-3.6 Public relations efforts that bring popular and political support to maintaining readiness.

Chapter 3 Agencies Involved

3-1 Agencies.

3-1.1 The Plan should have an up-to-date list of all agencies involved. In addition to agency identification, the list should include current telephone numbers and names of primary contact persons. This list should be reviewed, revised as necessary, and distributed to all agencies on a regular basis.

3-1.2 The first step in a viable airport emergency plan is to have the cooperation and participation of all concerned airport/community authorities and agencies. Those that should be concerned are:

(a) Air traffic control services

(b) Rescue and fire fighting services (departments)

(c) Police/security services

(d) Airport authority

(e) Emergency medical services, including ambulance services

(f) Hospitals

(g) Aircraft operators

(h) Communication services

(i) Airport tenants

(j) Transportation authorities (land, sea, and air)

(k) Hospital coordination center

(l) Civil defense

(m) Mutual aid agencies

(n) Military

(o) Harbor patrol or coast guard

(p) Clergy

(q) Public information office/news media

(r) Veterinary service

(s) Civil engineering contractors

(t) Post office

(u) Environmental Protection Agency (EPA)

(v) Customs

(w) Public utilities

(x) Mental health agencies.

3-2 Air Traffic Control Services. For emergencies involving aircraft, the airport control tower (or airport flight service station) is required to contact the rescue and fire fighting service and provide information on the type of emergency, such as type of aircraft, number of persons on board, fuel quantity, and location of the accident. The Plan may also specify that air traffic control services is responsible for initiating the notification of local fire departments and other appropriate agencies in accordance with procedures established in the Plan. The Plan may assign this function to another agency, such as the local fire department dispatching center, but it is very important that this extremely crucial function be well-documented and understood by all concerned.

3-3 Rescue and Fire Fighting Services (Departments).

3-3.1* The primary responsibility of airport rescue and fire fighting personnel is to save lives. Property endangered by aircraft incidents and accidents occurring on or near the airport should be preserved as far as practical. To achieve this objective, fire control normally is defined as "securing" the area to prevent any reignitions. There are aircraft accidents, however, where fire may not occur or where the fire may be rapidly extinguished. In every case each action taken is aimed at providing the most immediate attention possible to survivors of the accident.

3-3.2 Rescue and fire fighting personnel should receive emergency medical training that meets the minimum standards of their state and local jurisdictions. The stablization of seriously injured victims may depend entirely upon these first-arriving personnel. Coordination with other responding personnel having advanced medical expertise (paramedics and medical doctors) should be addressed in the Plan.

3-3.3 The fire fighting officer in command should be identified by a standard distinctive uniform. In addition, the Plan should provide for a highly visible vest or other apparel with reflective lettering, front and back, that reads "INCIDENT COMMANDER."

3-3.4 Only fire fighting and rescue personnel wearing approved fire fighting protective clothing and equipment should be allowed in close proximity to an aircraft accident site [300 ft (100 m) from any point on the aircraft or any fuel spillage is usually considered a safe distance].

3-4 Police/Security Services.

3-4.1 In an airport emergency, it is expected that the first police or security officer to arrive at the scene will initiate site security procedures and request reinforcement as needed. It is expected that these responsibilities will be spelled out in the Plan, identifying the responsible law enforcement agency for the accident site and providing for a smooth transition of command should responsibility for site security shift from one agency to another.

3-4.2 Congestion-free ingress and egress roads need to be established immediately for emergency vehicles. The security services, police force, or other appropriate local authorities are expected to ensure that only persons with specific tasks are allowed at the scene of the accident, and they are also expected to route the normal traffic away from or around the accident site.

3-4.3 The Plan should provide for the prevention of unauthorized access to the accident site and for preserving the site undisturbed for investigation purposes.

3-4.4 A mutual aid program should be instituted between all potentially involved security agencies, e.g., airport, city, local, and governmental security forces; mail inspectors; and, where appropriate, military police and customs officials.

3-4.5 A method of easy identification of responding emergency personnel should be implemented at security check points to ensure that appropriate emergency personnel have immediate access to the accident site. "Emergency Access" identification can be preissued by the airport authority to emergency personnel for use during an emergency.

3-4.6 In many cases it may not be possible or practicable for vehicles of mutual aid fire departments, ambulances, etc., to proceed directly to the accident/incident site. It is essential that the emergency plan include procedures for meeting at a designated rendezvous point or points. A rendezvous point can also be used as a staging area where responding units can be held until needed at the accident site. Those controlling the rendezvous point should also consider the suitability of vehicles to adverse terrain conditions at the accident site in order to prevent obstruction of the access route by disabled vehicles. Staging of vehicles can prevent traffic jams and confusion at the accident scene.

3-4.7 The on-scene security/police officer in command should be identified by a standard distinctive uniform. In addition, the Plan should provide for a highly visible vest or other apparel with reflective lettering, front and back, that reads "POLICE CHIEF" or "SECURITY," whichever is more appropriate, given the terminology used in the Plan.

3-5 Airport Authority.

3-5.1 The airport authority is responsible for establishing, promulgating, and implementing the Plan and designating a person to take charge of the overall operation at the command post. The Plan should call for the airport authority to ensure that the information on names and telephone numbers of offices or people involved in an airport emergency is kept up-to-date and distributed to all concerned. Coordination of all agencies responding to an emergency is expected to be carried out by the airport authority. It will also set up necessary meetings of the airport emergency plan coordinating committee, composed of key personnel from participating agencies for critique of the Plan, after it has been tested or implemented. The airport authority should be responsible for closing the airport and ensuring that aircraft operations are resumed only when circumstances permit aircraft to operate safely without interfering with rescue activities.

3-5.2 The airport operations officer in charge should be identified by a highly visible vest or other apparel with reflective lettering, front and back, that reads "AIRPORT ADMINISTRATION."

3-6 On-Scene Medical Services.

3-6.1 The purpose of medical services is to provide triage, medical care, and transportation to accident victims.

3-6.2 It is essential that the medical aspects of the Plan be integrated with other local community emergency plans and agreements.

3-6.3 A medical coordinator should be assigned to assume command of the emergency medical operations at the accident site. In some cases, it may be necessary to appoint an interim medical coordinator, who will be relieved when the designated medical coordinator arrives.

3-6.4 Medical and ambulance services may be an integral part of the airport organizational structure. If these services are not available at the airport, prearrangements with

local ambulance services should be made. The Plan must ensure the dispatch of a satisfactory assignment of personnel, equipment, and medical supplies. To ensure a rapid response, the Plan may include arrangements for land, sea, and airborne transportation of medical services to the scene and subsequent transportation of persons requiring immediate medical care.

3-6.5 The Plan should designate a medical transportation officer whose responsibilities would include:

(a) Alerting hospitals and medical personnel to the emergency.

(b) Directing transportation of casualties to hospitals properly suited to the particular injury.

(c) Accounting for casualties by recording route of transportation, hospital transported to, and casualty's name and extent of injuries.

(d) Advising hospitals when casualties are en route.

(e) Maintaining contact with hospitals, medical transportation, the senior medical officer, on-scene command post, and the command post.

3-7 Hospitals.

3-7.1 Participating hospitals should have contingency emergency plans for blood donations and to provide for mobilization of necessary medical teams to the accident site in the shortest possible time. Availability of qualified personnel and adequate facilities at the hospitals are vital. Therefore, it is mandatory to establish in advance an accurate list of surrounding hospitals classified according to their effective receiving capacity and specialized features, such as neurosurgical ability or burn treatment.

3-7.2 The distance from the airport and the ability to receive helicopters should be considered. Reliable two-way communication between the Incident Command Post and these entities is important. The alert of an aircraft accident should be made to a single medical authority/agency, which then alerts all appropriate facilities according to a local medical communications network.

3-7.3 It is essential that hospitals continually communicate through a central control point to facilitate distribution of critically injured patients. Information regarding availability of specific trauma center, operating room, and ward space should be collected at a central control point, designated in the Plan, and disseminated to the medical transportation officer at the scene.

3-8* Aircraft Operators.

3-8.1* The aircraft operator/company of an aircraft involved in an accident should be expected to provide full details of aircraft-related information, such as number of persons on board, fuel, and cargo information. This information is vital to the incident commander and will influence the tactics and strategies used to deal with the emergency.

3-8.2 Aircraft operators are also responsible for providing first arrangements for any uninjured survivors who may need to continue their journey or require accommodation or other assistance. They may also be responsible for contacting deceased passengers' next of kin. Clergy, police, or international relief agencies (Red Cross, etc.) will normally assist in the accomplishment of this task.

3-8.3 The proper disposition of all cargo, mail, and baggage aboard an aircraft involved in an accident is the responsibility of the aircraft operator. Permission to remove these items from the aircraft may be granted by the incident commander after the emergency has been abated and the requirements of the accident investigators have been met.

3-9 Government Authorities. In order to avoid conflict and confusion between participants, the airport emergency plan should clearly define the obligation, controls, and limitations placed on the airport authority by government agencies. Post-accident investigation, unlawful seizure of aircraft, bomb threats, and bombings may fall into jurisdictions other than that of the airport authority.

3-10 Communication Services. Arrangments should be made to provide all airport agencies involved in an emergency with two-way communication capabilities. The Plan should also provide an adequate communication network to be maintained with the off-airport agencies responding to an emergency. The Plan should call for the command post and emergency operations center to have the capability of freely communicating with all participating agencies.

3-11 Airport Tenants. Airport tenants and their employees should be considered a prime source of readily available equipment and manpower who may have intimate knowledge of the airport and aircraft. They can be invaluable, especially if their backgrounds include medical training, food preparation, or transportation. It is important that these persons be deployed under supervision and assigned specific functions to avoid duplication of efforts and the possibility of disrupting other emergency operations.

3-12 Transportation Authorities (Land, Sea, Air).

3-12.1 In an emergency, vehicles are needed to carry out rescue operations, transport personnel, and haul supplies and debris. Responsibility for the control of vehicles to be used during an emergency should be assigned to a designated transportation officer. The emergency plan should inventory and include the function of all available drivers and transportation equipment, such as buses, trucks, maintenance vehicles, and automobiles. Arrangements in advance might also be made to obtain additional vehicles from bus companies, leasing companies, or garages. Also, by prior agreement, the use of vehicles owned by airport employees may be included in the emergency plan. All plans for vehicle use should include qualified operators for the vehicles.

3-12.2 In airport emergencies, provision should be made for an easily identifiable guide vehicle(s), equipped with two-way radio communication, to lead groups of vehicles from the rendezvous point(s) or staging area to the accident site to avoid interference with aircraft operations.

3-12.3 The transportation officer in charge should wear a highly visible vest or other apparel with reflective lettering, front and back, that reads "TRANSPORTATION OFFICER."

3-12.4 Suitable rescue equipment and services should be available for use at an airport where the area to be covered by the appropriate services includes water or swampy areas or other difficult terrain that cannot be fully served by conventional wheeled vehicles. This is particularly important where a significant portion of approach and departure operations take places over these areas.

3-13 Rescue Coordination Center. Rescue coordination centers may play a significant role in an aircraft accident occurring in the vicinity of an airport if the site of the accident is not known or if rescue facilities in addition to those available at or near the airport are required to be brought into action. Rescue coordination centers should have means of immediate communication with all rescue units within their areas of responsibility, including units able to provide aircraft, helicopters, and special rescue teams and, where appropriate, with coastal radio stations capable of alerting and communicating with surface vessels. Assistance from these units can be essential in responding to an accident in the vicinity of the airport. It is therefore suggested that the potential role of the rescue coordination center be specifically highlighted in the proposed airport emergency plan document in a separate paragraph.

3-14 Civil Defense. The Plan should reference the local community overall civil defense emergency plan and the capabilities of local search and rescue teams.

3-15 Mutual Aid Agencies.

3-15.1* Airport emergencies may be of such magnitude that local rescue and fire fighting, security, law enforcement, and medical services are inadequate to handle the situation. It is therefore strongly recommended that written mutual aid agreements be initiated to ensure the prompt and orderly response of these agencies.

3-15.2 All mutual aid agreements should be reviewed or revised annually. Telephone and personnel contacts should be reviewed and updated monthly.

3-16 Harbor Patrol and Coast Guard. Harbor Patrol and Coast Guard services are vital to airports adjacent to large bodies of water. Coordination of such services should be included in the Plan where applicable. Communication requirements to obtain the immediate response of such services (and the ability to communicate during the emergency) are an essential ingredient of the Plan.

If the area in which the boats are to be operated is subject to freezing, vehicles suitable for operation on ice (i.e., hover craft, swamp boats, etc.) should be available.

3-17 Military. Where a military installation is located on or in the vicinity of an airport, a mutual aid agreement should be initiated to integrate personnel with command, communication, and coordination functions of the emergency plan.

3-18 Clergy. The Plan should include advance agreements with clergy of all faiths to provide comfort to casualties and relatives.

3-19 Public Information Officer. A public information officer should be designated. This officer should coordinate and release factual information to the news media and should also coordinate public information statements between all parties involved.

It is recommended that the television and radio news media be requested to withhold the release of accident information to allow sufficient time for adequate security to be established. Past history has shown that, as knowledge of the accident spreads, onlookers flock to the site and interfere with emergency vehicles' access to the incident.

3-20 Mental Health Agencies. The emergency plan should include the local mental health agencies. Therapeutic treatment as well as follow-up procedures for dealing with the possible long-term effects of the emergency should be available for survivors, relatives, eyewitnesses, and emergency scene personnel.

Chapter 4 Functions of Each Agency for an Aircraft Accident on the Airport

4-1 General. The airport/community emergency plan should be implemented immediately upon an aircraft accident occurring on the airport. Responding agencies should comply with Sections 4-2 through 4-10.

4-2 Action by Air Traffic Control (ATC) Services.

4-2.1 Initiate emergency response by using the alarm communications system. (*See Figure 4-2.1.*)

4-2.2* Immediately provide information on the location of the accident and type of alarm, giving grid-map reference or other identifying terrain features. These details should include the type of aircraft.

Subsequent calls may expand this information by providing details on the number of occupants, fuel on board, aircraft operator, if appropriate, and any dangerous goods (hazardous materials) on board, including quantity and location.

4-2.3 Restrict airport operations and minimize vehicle traffic on that runway to prevent disturbance of accident investigation evidence.

4-2.4 Issue appropriate Notice to Airmen (NOTAM) immediately. For example:

"Airport rescue and fire fighting service protection unavailable until (time) or until further notice. All equipment committed to an aircraft accident."

4-2.5 Confirm that the actions above were completed, by written or computer checklist, indicating notification time(s) and name of person completing action.

4-3 Action by Rescue and Fire Fighting (RFF) Services.

4-3.1 An alarm for an aircraft accident on the airport will normally be received from the air traffic control services. When, however, an alarm is received from any other source, or an accident is observed, or there is reason to consider that one is imminent, the airport rescue and fire fighting services should take action in the same manner as if the air traffic control services had originated the alarm. The air traffic control services should be informed by the responding fire fighting services as to the nature of the alarm, its location, and the response initiated.

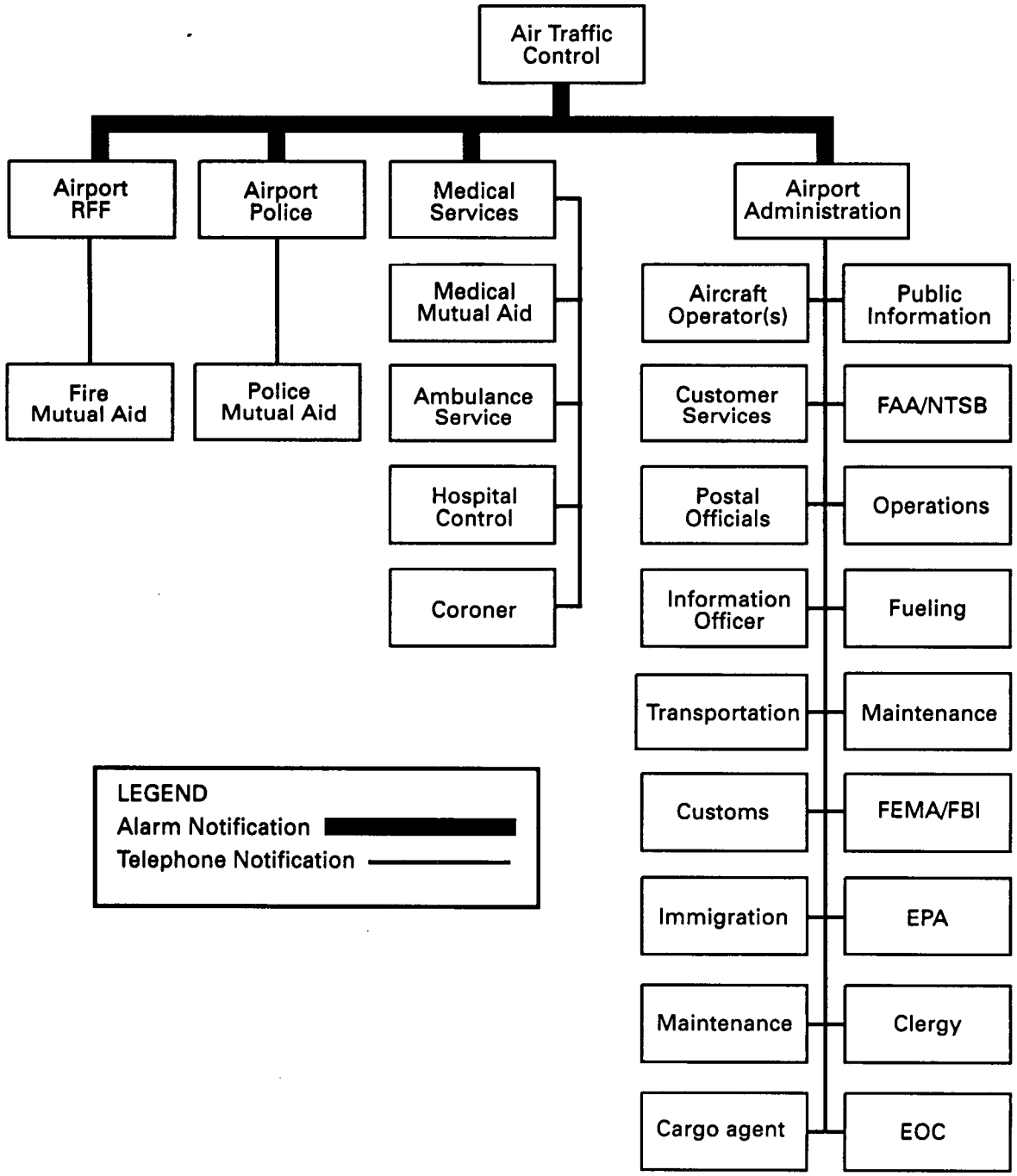

Figure 4-2.1 Sample notification chart—aircraft accident on airport.

4-3.2 Airport Rescue and Fire Fighting Services:

1. Proceed via established access routes to the incident as indicated by air traffic control services.

2. Advise mutual aid fire departments while en route of:

(a) Rendezvous point;
(b) Staging area;
(c) Manpower and equipment required for support if known;
(d) Any other pertinent information.

3. Immediately establish an on-scene command post.

4-3.3 Command authority at any accident site should be predetermined according to the jurisdictional responsibilities of the agencies involved and as designated in the airport/community emergency plan.

4-3.4 Prior agreement should be reached between the on-airport rescue and fire fighting service and the off-airport mutual aid fire departments as to who is best equipped to fight fires in aircraft hangars or other airport structures. Additionally, there should be prior agreement as to which agency will be in command when an accident involves an aircraft or an airport structure or both.

4-4 Action by Police/Security Services.

4-4.1 The first security/police officer to arrive should coordinate with the incident commander and, to the extent possible, immediately establish free traffic lanes on ingress and egress roads for emergency vehicles, initiate security responsibility, and request reinforcements as needed.

Traffic flow and site security are the primary responsibility of police and security personnel. They should notify the appropriate communications center of the location of the accident and available means of access and egress. After consultation with the incident commander, they should initiate traffic control measures in order to aid responding emergency vehicles.

They should notify the airport security communications center or the incident commander (where appropriate) of the location of the accident, access, ingress, and egress roads available, and where responding security personnel should make initial response and recommendations for setting up roadblocks away from the accident site to aid responding emergency vehicles. Responding police vehicles should not proceed directly to the accident site (unless instructed by police communications center officer) to view the scene, but set up appropriate roadblocks at least two to three blocks away, as directed by the local security communications center. The local/police communication officer should set up appropriate roadblock locations as indicated on the local grid map to prevent road congestion.

4-4.2 Security personnel and police should handle traffic in the vicinity of the accident site, admit only authorized emergency personnel to the scene, keep unauthorized persons from the accident site, and be responsible for preservation of the accident scene.

4-4.3 All unnecessary traffic should be routed away from and around the accident site.

4-4.4 The emergency site should be cordoned off as soon as possible to exclude intruders, press, sightseers, onlookers, and souvenir hunters. Appropriate markings should be prominently displayed to advise all persons of possible hazards that may cause serious injury should they encroach on the area.

4-4.5 Communications between all security check points and the command post or emergency operations center or both should be established as soon as possible.

4-4.6 Identifying arm bands, site passes, or I.D. tags should be issued by the authority having jurisdiction and monitored by the security services.

4-4.7 Special security provisions should be instituted for the protection of the flight data and cockpit voice recorders, any mail involved, and any dangerous goods (hazardous materials) that may be present.

4-5 Action by Airport Authority.

4-5.1 The airport authority representative should go to the accident site and, as needed, set up an easily identifiable mobile command post. The mobile command post should be adequately staffed by senior representatives able to make decisions involving the following types of operations:

(a) Airport
(b) Security
(c) Medical
(d) Aircraft
(e) Aircraft recovery.

4-5.2 The airport authority should commence written check list procedures to verify that:

(a) The airport emergency operations center has been activated;

(b) Mutual aid police procedures have been initiated and secondary notification calls have been made;

(c) Medical and ambulance services have been alerted and their arrivals verified at the designated rendezvous point or staging area;

(d) Mutual aid fire departments have been notified and escort has been provided for their access to the accident site;

(e) The affected aircraft operator has been notified and information obtained on any dangerous goods (hazardous materials) on board the aircraft, e.g., explosive substances, flammable gases and liquids, combustible solids, oxidizing substances, poisonous substances, radioactive materials, or corrosives;

(f) Liaison has been established with air traffic control services concerning the closure of airport areas, designation of emergency response corridors, and issuing of voice advisories and Notices to Airmen (NOTAM) advising of reduced airport rescue and fire fighting protection;

(g) Government aircraft accident investigation authorities, such as the National Transportation Safety Board (NTSB), have been notified (if military aircraft is involved the appropriate military organization should be notified);

(h) The meteorological department has been notified to make a special weather observation;

(i) Arrangements have been made for the affected runway to be surveyed immediately by the appropriate personnel to identify the location of crash debris and to ensure that the debris be secured pending release by investigating agencies;

(j) Airspace reservation coordination offices (Air Traffic Flow Control Office), if any, have been advised of reduced airport capabilities;

(k) Medical Examiner's/Coroner's Office has been notified to assist with fatalities if necessary;

(l) Temporary morgue facilities have been identified and designated.

4-5.3 In conjunction with mutual aid police, the airport authority should:

(a) Designate rendezvous points and staging areas for the inner and outer perimeters;

(b) Assign security personnel at the staging area or rendezvous point or both to escort vehicles so as to ensure the orderly flow of emergency personnel to the accident site, particularly the provision of escort for ambulances responding to the rendezvous point and from the staging area;

(c) Assign parking areas for escort vehicles and ambulances, giving consideration to the need for rapid deployment when dispatched.

4-5.4 The airport authority should also, to the extent possible, arrange to have available the following services as may be required:

(a) Portable emergency shelter for use by other than medical services;
(b) Lavatories;
(c) Drinking water;
(d) Ropes, barriers, etc.;
(e) Food service;
(f) Mobile or portable lighting;
(g) Portable heating system;
(h) Cones, stakes, flags, and signs;
(i) Machinery, heavy equipment, and extraction tools;
(j) Communications equipment such as megaphone, portable telephone, etc.;
(k) Fuel removal equipment.

4-5.5 The airport authority should provide the initial briefing for their airport public information officer. They should then coordinate, where appropriate, with the public information officer of the aircraft operator involved to provide the following:

(a) Press releases for the various press officers from the agencies involved;

(b) Briefings and statements that will be released to the press.

4-5.6 Upon concurrence of the chief fire officer, police/security chief, and the medical coordinator, the airport authority's incident commander should notify all participating mutual aid organizations of termination of the airport emergency. Note that this may not terminate all actions and responsibilities of participating agencies.

4-6 Action by Medical Services. The medical coordinator should coordinate with the medical transportation officer and medical services to:

(a) Verify that mutual aid medical and ambulance services have been alerted and verify their subsequent arrival at the rendezvous point or staging area and that a medical communication network is established.

(b) Organize the necessary action for triage and treatment of the casualties and their eventual evacuation by appropriate means of transportation;

(c) Provide control and dispatch of the casulaties to the appropriate hospitals by land, sea, or air;

(d) Maintain an accurate list of the casualties including their names and their destination for treatment;

(e) Coordinate, with the aircraft operator concerned, the transportation of the uninjured to the designated holding area;

(f) Arrange for the restocking of the medical supplies, if necessary;

(g) Provide medical analysis of walking wounded and uninjured.

4-7 Action by Hospitals. Hospitals listed in the emergency plan should be prepared to:

(a) Provide medical care to the casualties when they arrive;

(b) Provide doctors and trauma teams in accordance with the airport/community emergency plan;

(c) Ensure that adequate doctors and nurses, blood, operating rooms, intensive care, and surgical teams are available for emergency disaster situations, including aircraft accidents.

4-8 Action by Aircraft Operators.

4-8.1 A senior aircraft operator representative should report to the command post to coordinate the aircraft operator activities with the incident commander.

4-8.2 The senior aircraft operator representative should provide information regarding passenger load, flight crew complement, and dangerous goods (hazardous materials) on the aircraft. These include explosive substances, flammable liquids or gases, combustible solids, oxidizing substances, poisonous substances, radioactive materials, and corrosives. Information of this nature should be relayed as soon as possible to the chief fire officer and the medical coordinator.

4-8.3 The senior aircraft operator representative should make arrangements for bus transportation from the accident site to the designated uninjured holding area. Transportation of the walking wounded from the scene should be permitted only after consultation with the medical coordinator.

4-8.4 The aircraft operator staff should proceed to the designated uninjured holding area. The senior aircraft operator representative at the uninjured holding area should appoint a receptionist, registrars, and welfare coordinators from staff who have been previously trained in these functions.

4-8.5 The aircraft operator representative who is in command of the uninjured holding area oversees the overall operations by making arrangements for commissary items, clothing, telephone facilities, and additional medical services if required.

4-8.6 The receptionist should meet the buses as they arrive from the scene of the accident and direct the passengers to the registrars' tables where they will be processed. The receptionist should also explain where toilet facilities, telephones, and other amenities are located. However, migration outside the holding area should be prevented until each person transported to the holding area is identified and processed according to the Plan.

4-8.7 The registrar should record the passenger's name on the manifest and determine what reservation requirements are desired, i.e., hotel accommodation, air transportation, or other modes of transportation, etc., and any persons to be notified of the passenger's physical or mental condition and potential plans. The registrar should then make out an identification tag or sticker and place it on the passenger. When their registration is completed, the registrars then direct passengers to the welfare coordinators.

4-8.8 Welfare coordinators and mental health specialists trained in stress management should:

(a) Give support and comfort to relatives and friends of persons on board the aircraft involved;

(b) Register relatives and friends waiting at the airport for information about persons on board;

(c) Provide care, comfort, and assistance to the walking injured and uninjured survivors and responding personnel (if required);

(d) Assist in the provision and serving of refreshments to waiting relatives and friends.

The welfare plan should provide for a suitable location to carry out the functions as well as procedures for alerting and coordinating welfare organizations.

4-8.9 The aircraft operator should provide notification of the aircraft accident to:

(a) Health and welfare agencies;
(b) Customs, where applicable;
(c) Immigration, where applicable;
(d) Post office;
(e) Environmental protection agencies if fuel spill, fire fighting actions, or airborne matter may affect the environment.

4-8.10 A senior aircraft operator official should arrange for the initial notification of relatives and friends.

4-8.11 News releases by aircraft operators should be prepared in conjunction with the airport public information officer and liaison officers from other agencies involved in the accident.

4-8.12 The aircraft operator is responsible for the removal of the wrecked or disabled aircraft as soon as authorized by the National Transportation Safety Board or their designee. For aircraft removal technique see, *International Civil Aviation Organization Airport Services Manual*, Part 5, "Removal of Disabled Aircraft." Also see *International Air Transport Association—Guidelines for Airport Operators and Airport Authorities on Procedures for Removal of Disabled Aircraft.*

4-9 Action by Government Authorities. The following government authorities may be required to take appropriate action as indicated in their emergency plan:

(a) National Transportation Safety Board;
(b) Federal Aviation Administration;
(c) Health and welfare;
(d) Post office;
(e) Customs;
(f) Immigration;
(g) Agriculture; and
(h) Public works.

4-10 Action by the Public Information Officer.

4-10.1 All press personnel should be directed to a designated press staging area for press personnel authorized to cover an airport emergency. At this area the following should be provided:

(a) Latest briefing;
(b) Communications (telephones); and
(c) Transportation service to and from the scene of the emergency, where permissible and where it will not interfere with rescue, medical treatment of casualties, and the accident investigation.

4-10.2 Only members of the press, freelance reporters, and photographers wearing a valid regular police working press card will be admitted to the briefing area or permitted to the designated press staging area or transported to the scene of the emergency.

4-10.3 In general, the official authority for news releases concerning an aircraft emergency should be that of:

(a) A public information officer designated by the airport authority; or
(b) The representative of the aircraft operator involved; or
(c) Both.

4-10.4 Under no circumstances should the press or any other personnel not involved in life saving or fire fighting operations be permitted inside security lines until all rescue operations have been completed and the area has been declared safe by the chief fire officer. When establishing security lines, the interests of news coverage should be taken into account in so far as rescue operations permit.

4-11 Organization Charts.

4-11.1 Organization charts should be prepared for each anticipated type of emergency situation, off-airport incident, on-airport incident, earthquake, flood, etc.

4-11.2 These charts should depict the relationships and duties of all components of the Plan in such detail that each participating agency has a full understanding of its duties and responsibilities.

Chapter 5 Functions of Each Agency for an Aircraft Accident off the Airport

5-1 General. The airport/community emergency plan should be implemented immediately upon an aircraft accident occurring off the airport. Responding agencies should comply with Sections 5-2 through 5-10.

5-2 Action by Air Traffic Control (ATC) Services.

5-2.1 Initiate emergency response by using the alarm communications system. *(See Figure 5-2.1 on the following page.)*

5-2.2* Immediately provide information on the location of the accident and type of alarm, giving grid-map reference or other identifying terrain features.

Subsequent calls may expand this information by providing details on the number of occupants, fuel on board, aircraft operator, if appropriate, and any dangerous goods (hazardous materials) on board, including quantity and location.

5-2.3 Alert the airport rescue and fire fighting service, police and security services, airport authority, and medical services in accordance with the procedure in the airport/community emergency plan, giving grid-map reference.

5-2.4 If requested by the fire department having jurisdiction over the accident area, provide for dispatch of the RFF service in accordance with the Plan and any mutual aid agreements.

Issue appropriate Notice to Airmen (NOTAM) immediately. For example:

> "Airport rescue and fire fighting service protection unavailable until (time) or until further notice. All equipment committed to an aircraft accident."

5-2.5 Confirm that the actions above were completed, by written or computer checklist, indicating notification time(s) and name of person completing the action.

5-3 Action by Rescue and Fire Fighting (RFF) Services.

5-3.1 A call for an aircraft accident off the airport normally is received from the air traffic control services, local police, or local fire departments. Designated vehicles should be sent in accordance with the existing mutual aid department agreements.

5-3.2 Responding airport rescue and fire fighting services should:

(a) Proceed via preestablished access routes, considering vehicle weight, height, and width, to the off-airport accident site in coordination with local police/security direction.

(b) While en route, advise or request of fire department having jurisdiction over the area:

1. Rendezvous point or staging area or both
2. Staffing and equipment responding
3. Any other pertinent information.

5-3.3 The senior airport fire officer should report to the senior fire officer of the fire department having jurisdiction over the area and request orders.

5-3.4 Prior agreement should be achieved between the on-airport rescue and fire fighting service and the local fire department in command and mutual aid fire departments as to who is best equipped to fight fires involving aircraft or structures or both. Additionally, there should be prior agreement as to which agency will act in command when an accident involves both an aircraft and an off-airport structure.

5-4 Action by Police/Security Services.

5-4.1 The first security/police officer to arrive should coordinate with the incident commander and, to the extent possible, immediately establish free traffic lanes on ingress and egress roads for emergency vehicles, initiate security responsibility, and request reinforcements as needed.

Traffic flow and site security are the primary responsibility of police and security personnel. They should notify the appropriate communications center of the location of the accident and available means of access and egress. After consultation with the incident commander, they should initiate traffic control measures in order to aid responding emergency vehicles.

5-4.2* Security personnel and police will be needed to handle traffic in the vicinity of the accident site and to prevent disturbance of material scattered over the accident site.

The emergency site should be cordoned off as soon as possible to exclude intruders, media, sightseers, onlookers, and souvenir hunters. Appropriate markings should be prominently displayed to advise all persons of possible hazards that may cause serious injury should they encroach on the area. Flares should not be used within 300 ft (100 m) of the accident site to prevent ignition of fuel vapors.

5-4.3 Communications between all security checkpoints and the command post or emergency operations center or both should be implemented as soon as possible.

5-4.4 Identifying arm bands, site passes, or I.D. tags should be issued by the controlling authority and monitored by the security/police officer and his/her team.

5-4.5 Special security provisions are necessary to protect the flight data and cockpit voice recorders, any mail involved, or dangerous goods (hazardous materials) that may be present.

5-5 Action by Emergency Medical Services. The medical coordinator should coordinate with the medical transportation officer and medical services to:

(a) Verify that mutual aid medical and ambulance services have been alerted and verify their subsequent arrival at the rendezvous point or staging area and that a medical communication network is established.

(b) Organize the necessary action for triage and treatment of the casualties and their eventual evacuation by appropriate means of transportation;

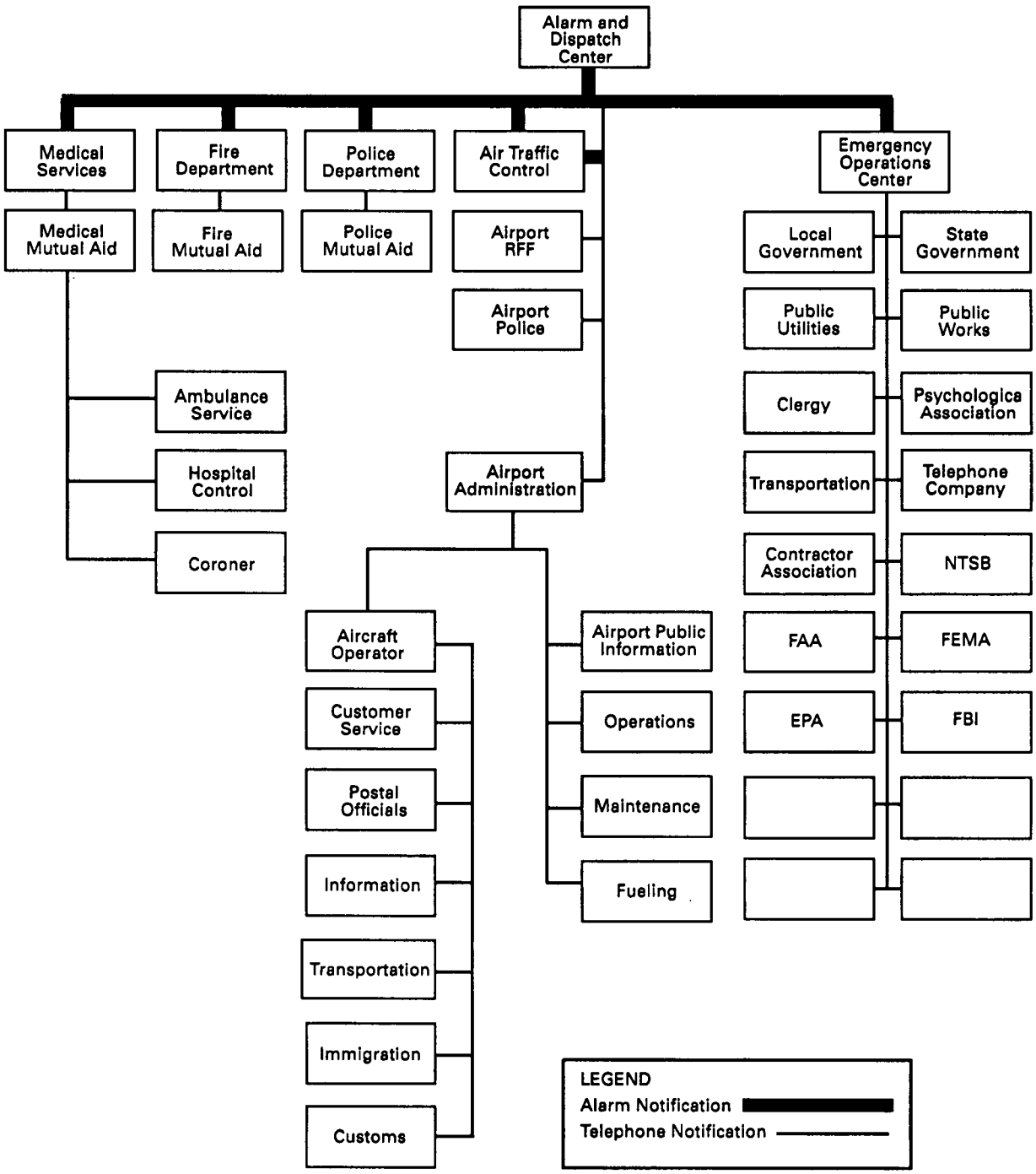

Figure 5-2.1 Sample notification chart—aircraft accident off airport.

(c) Provide control and dispatch of the casualties to the appropriate hospitals by land, sea, or air;

(d) Maintain an accurate list of the casualties including their names and their destination for treatment;

(e) Coordinate, with the aircraft operator concerned, the transportation of the uninjured to the designated holding area;

(f) Arrange for the restocking of the medical supplies, if necessary;

(g) Provide medical analysis of walking wounded and uninjured.

5-6 Action by Hospitals. Hospitals listed in the emergency plan should be prepared to:

(a) Ensure that adequate doctors and nurses, and operating room, intensive care, and surgical teams are available for emergency situations, including aircraft accidents.

(b) Provide medical care to the casualties when they arrive;

(c) Provide doctors and trauma teams to the accident site in accordance with the Plan;

(d) Notify coroner/medical examiner.

5-7 Action by Airport Authority. If previously agreed in the airport mutual aid emergency agreement with the surrounding community, the following actions may be taken by the airport authority:

(a) Report to the accident site;

(b) Ensure that, if required, the airport emergency operations center and the mobile command post are activated;

(c) Extend as much emergency aid as requested by the jurisdiction agency in command of the off-airport accident/incident;

(d) Notify the aircraft operator involved;

(e) Notify other agencies as required.

According to the mutual aid emergency agreement with the surrounding community, the airport authority may provide, if requested and if available, a part of its medical equipment (i.e., first aid equipment, stretchers, body bags, mobile shelters, etc.) and the assistance at the accident site of doctors and personnel teams qualified in emergency first aid.

5-8 Action by Aircraft Operators.

5-8.1 A senior aircraft operator representative should report to the command post to coordinate with the incident commander.

5-8.2 The senior aircraft operator representative should provide information regarding passenger load, flight crew complement, and dangerous goods (hazardous materials) on the aircraft. These include explosive substances, gases, flammable liquids or solids, oxidizing substances, poisonous substances, radioactive materials, and corrosives. Information of this nature should be relayed as soon as possible to the chief fire officer and the medical coordinator.

5-8.3 The senior aircraft operator representative should make arrangements for bus transportation from the accident site to the designated uninjured holding area. Transportation of the walking wounded from the scene should be permitted only after consultation with the medical coordinator.

5-8.4 The aircraft operator staff should proceed to the designated uninjured holding area. The senior aircraft operator representative at the uninjured holding area will appoint a receptionist, registrars, and welfare coordinators from staff who have been previously trained in these functions.

5-8.5 The aircraft operator representative who is in command of the uninjured holding area oversees the overall operations by making arrangements for commissary items, clothing, telephone facilities, and additional medical services if required.

5-8.6 The receptionist should meet the buses as they arrive from the scene of the accident and direct the passengers to the registrars' tables where they will be processed. The receptionist should know where support facilities are located, i.e., toilet facilities, telephones, clothing, drinking water, etc.

5-8.7 The registrar should record the passenger's name on the manifest and determine what reservation requirements are desired, i.e., hotel accommodation, air transportation, or other modes of transportation, etc., and names of any persons to be notified of the passenger's physical or mental condition and potential plans. The registrar should make out an identification tag or sticker (available from the emergency kit) and place it on the passenger. When their registration is completed, the registrars should then direct the passengers to the welfare coordinators.

5-8.8 Where necessary, the aircraft operator should provide notification of the aircraft accident to:

(a) Health and welfare agencies;
(b) Customs, where applicable;
(c) Immigration, where applicable;
(d) Post office;
(e) Agriculture agencies;
(f) Environmental Protection Agency (EPA);
(g) National investigative agency NTSB (FBI).

5-8.9 A senior aircraft operator official should be responsible for the initial notification of relatives and friends.

5-8.10 News releases by aircraft operators should be prepared in conjunction with the airport public information officer and liaison officers from other agencies involved in the accident.

5-8.11* The aircraft operator is responsible for the removal of the wrecked or disabled aircraft, as soon as authorized by the aircraft accident investigation authority.

5-9 Action by Government Authorities. The following government authorities, after being notified, may be required to take appropriate action as indicated in their emergency plan:

(a) Government accident investigation personnel;
(b) Health and welfare;
(c) Post office;
(d) Customs;
(e) Immigration;
(f) Agriculture.

5-10 Action by the Public Information Officer.

5-10.1 The responsibility for news releases concerning off-airport emergency should be that of:

(a) The representative of the aircraft operator;

(b) A public information officer designated by the service government authority in command; and

(c) A public information representative designated by the airport authority.

5-10.2 Under no circumstances should the media or other personnel not directly involved in the fire fighting, rescue, or emergency medical care be permitted inside security lines until all rescue operations have been completed and the area is declared safe for entry by the incident commander/chief fire officer.

Chapter 6 In-Flight Emergencies

6-1 Full Emergency Incident—Aircraft in Flight.

6-1.1 The agencies involved in the airport/community emergency plan should be alerted to "full emergency" status when it is known that an aircraft approaching the airport is, or is suspected to be, in such trouble that there is a strong likelihood of an accident.

6-1.2 Action by Air Traffic Control Services.

6-1.2.1 Call the airport rescue and fire fighting service to stand by at the predetermined standby positions applicable to the runway to be used and give as many of the following details as possible:

(a) Type of aircraft;

(b) Nature of trouble;

(c) Runway to be used;

(d) Estimated time of landing;

(e) Aircraft operator, if appropriate;

(f) Fuel on board;

(g) Number of occupants, including special occupants—handicapped, immobilized, blind, deaf, etc.;

(h) Any dangerous goods (hazardous materials) on board, including quantity and location, if known.

6-1.2.2 Initiate the calling of the mutual aid fire department(s) and other appropriate organizations in accordance with the procedure laid down in the airport/community emergency plan, giving, where necessary, rendezvous point and airport entrance to be used.

6-1.3 Action by Other Agencies. The subsequent specific responsibilities and roles of the various agencies itemized in Sections 4-2 to 4-10 for responding to an aircraft accident on the airport can be paralleled for "full emergency" as required by local operating requirements.

6-2 Local Standby.

6-2.1 The agencies involved in the airport/community emergency plan should be alerted to "local standby" status when an aircraft approaching the airport is known or is suspected to have developed some defect, but the trouble is not such as would normally involve any serious difficulty in effecting a safe landing.

6-2.2 Action by Air Traffic Control Services.

6-2.2.1 Call the airport rescue and fire fighting service to stand by as requested by the pilot or to stand by as local airport agreements require at the predetermined standby positions applicable to the runway to be used. Give as many of the following details as possible:

(a) Type of aircraft;

(b) Nature of trouble;

(c) Runway to be used;

(d) Estimated time of landing;

(e) Fuel on board;

(f) Number of occupants, including special occupants—handicapped, immobilized, blind, deaf, etc.;

(g) Aircraft operator, if appropriate; and

(h) Any dangerous goods (hazardous materials) on board, including quantity and location, if known.

6-2.2.2 Action by Other Agencies. The subsequent specific responsibilities and roles of the various agencies itemized in Sections 4-2 through 4-10 for responding to an aircraft accident on the airport can be paralleled for "local standby" as required by local operating requirements.

Chapter 7 Other Emergencies

7-1 General. Procedures and techniques used in handling nonaircraft accident related airport emergencies should be similar to the techniques used in handling aircraft accident emergencies. It should be recognized that medical and fire emergencies can arise at any location where large numbers of persons work or congregate. At airports this problem can be severe because of the exposure associated with the commonplace activities of arriving and departing passengers and sightseers, the public service facilities provided at airports (i.e., automobile movement and parking areas, restaurants, bars, baggage handling and storage areas, etc.), and the fact that airports can be selected by malcontents as locations to demonstrate their anger against any group or activity.

7-1.1 The diverse character of persons traveling by air suggests the need for the airport authority to arrange to have available emergency medical services to treat conditions such as cardiac arrest, abdominal pains, burns, cuts, abrasions, and other medical problems. This will require immediate care facilities and detailed mutual aid plans with outside agencies.

7-1.2 The natural disasters to which airports may be subjected include storms, floods, earthquakes, and seismic sea waves. The vulnerability of an airport to any of these will, in good measure, be affected by geography. While nothing can be done to avert them, there are actions that can be taken to minimize damage and expedite restoration of aircraft operations.

7-1.3 Development of weather patterns, prediction and tracking of storm movement, and notification to the public of potential danger resulting therefrom will normally be carried out by a meteorological service in the area.

7-1.4 The airport/community emergency plan should provide for initial protective measures, personnel shelter, and post-storm cleanup and restoration. Aircraft operations may be impossible for several hours before the arrival of the storm and until several hours after its passing.

7-1.5 As soon as severe storm warnings are received, all owners of aircraft based or on the ground at the airport should be notified and warnings issued to all aircraft pilots en route to the airport. Aircraft owners and pilots should be responsible for their aircraft but, if possible, all aircraft on the ground should be evacuated to airports outside the storm area. Aircraft in flight should be advised to divert to an alternative destination. Aircraft on the ground that cannot be dispersed should be put under cover or tied down so as to face into the approaching winds.

7-1.6 Power interruptions are common during a natural disaster, either by damage to generating plants or by destruction of transmission lines. Airports located in severe storm areas should take measures to ensure minimum interruption to power supply, either by providing standby electrical generators or dual sources of commercial power for essential functions.

7-1.7 Regarding building protection, specific personnel assignments should be made in the airport/community emergency plan to collect or secure all loose objects that may be blown about by the winds and to fill and place sandbags if there is any possibility that the storm may be accompanied by floods.

7-2 Sample Notification Charts.

7-2.1 The examples illustrated in Figures 4-2.1 and 5-2.1 assist in rapid communication in the event of an emergency. Accordingly, they should contain all the vital telephone numbers.

7-2.2 Separate sample notification charts should be developed for each type of emergency included in the Plan. It is important that the method of notification be clearly outlined in the airport/community emergency plan.

7-2.3 Telephone numbers should be verified monthly and a revised list issued if necessary. In order to require only one page to be reissued when a change occurs, each sample notification chart should be printed on one sheet.

Chapter 8 Emergency Operations Center and Mobile Command Post

8-1 General.

8-1 Emergency Operations Center.

8-1.1 An emergency operations center should be available for the purpose of dealing with emergency situations at each airport.

8-1.2 The descriptive elements of the emergency operations center are:

(a) Fixed location;

(b) Support of the incident commander in the mobile command post for aircraft accidents/incidents;

(c) Use as command, coordination, and communication center for unlawful seizure of aircraft and bomb threats;

(d) Operational availability 24 hours a day.

8-1.3 The location of the emergency operations center should provide a clear view of the movement area and isolated aircraft parking position, wherever possible.

8-2 Mobile Command Post. (*See Figure 8-2.*)

Figure 8-2 Mobile command post.

8-2.1 Certain emergency situations will also require a mobile command post at the scene. This mobile unit is normally under the direction of the airport authority's incident commander.

8-2.2 Usually the mobile command post is adequate to coordinate all command and communications functions. The emergency operations center is a fixed designated area on the airport that is usually used in supporting and coordinating operations in accidents/incidents, unlawful seizure of aircraft, and bomb threat incidents. The unit should have the necessary communication equipment and personnel to communicate with the appropriate agencies involved in the emergency, including the mobile command post, when this is deployed. The communication and electronic devices should be checked daily.

8-2.3 The mobile command post is a point where cooperating agency heads assemble to receive and disseminate information and make decisions pertinent to the rescue operations. The main features of this unit are:

(a) It is a mobile facility capable of being rapidly deployed.

(b) It serves as command, coordination, and communications center for aircraft accidents/incidents.

(c) It is operational during aircraft accidents/incidents.

8-2.4 In the event of any accident/incident, a designated, recognizable, and highly visible mobile command post is a high-priority item. It should be established as quickly as possible and preferably with the initiation of fire control and rescue activities. It is important that a continuity of command be maintained so that each agency reporting to the mobile command post can be adequately briefed on the situation before proceeding to assume control of its individual responsibilities.

8-2.5 The mobile command post unit should contain the necessary communications equipment and personnel to communicate with all agencies involved in the emergency, including the emergency operations center. The communication and electronic devices should be checked monthly or periodically as required by local conditions.

8-2.6 Maps, charts, and other relevant equipment and information should be immediately available at the mobile command post.

8-2.7 The mobile command post should be easily recognizable by provision of an elevated distinguishing marker, such as a checkered flag, colored traffic cone, balloon, or rotating light.

8-2.8 It may be necessary to establish a subcommand post. When this is required, one location should be designated as a "master" command post with adequate communications to the subcommand post.

Chapter 9 Communications

9-1 Communications Network.

9-1.1 A coordinated communications network is a prerequisite to any large-scale operation that involves agencies from more than one jurisdiction.

9-1.2 A communications network should consist of a sufficient number of radio transceivers, telephones (both mobile and land line), and other communication devices to establish and maintain a primary and a secondary means of communication. These networks should link the emergency operations center and the command post with each other as well as with all participating agencies. (*See Command flow diagram, Figure 10-1.*)

9-1.3 The operational communications network should provide a primary and, where necessary, an alternate, effective means for direct communications between the following, as applicable:

(a) The alerting authority (control tower or flight service station, airport manager, fixed-base operator, or airline office) and the RFF units serving the airport.

(b) Air traffic control tower or flight service station or both, the appropriate fire department alarm room/dispatch center(s), and the fire fighting and rescue and medical services personnel en route to an aircraft emergency and at the accident/incident site.

(c) Appropriate mutual aid agencies located on or off the airport, including an alert procedure for all auxiliary personnel expected to respond.

(d) The RFF vehicles including a communications capability between crew members on each RFF vehicle.

9-2 Communications Equipment.

9-2.1 It is important to provide serviceable communications equipment in sufficient quantity to ensure rapid response of personnel and equipment to an emergency. The following communications equipment should be available for immediate use in the event of an emergency.

9-2.2 Portable Radios. A sufficient number of portable, two-way radios should be available to provide each participating agency with the ability to communicate with the command post.

9-2.3 Strict communication discipline must be employed to prevent jamming of emergency frequencies. Each agency should operate on its own frequency, and there should be a designated command frequency.

9-2.4 Radios should be available at the command post to provide direct communication with the aircraft or ground controllers should it become necessary.

Direct communications may also be established between the pilot or the aircraft cockpit by use of cockpit-to-ground lines. This requires a proper connector, wire, microphone, and headset. Cooperation and coordination between the

airport fire and rescue service and the individual air carrier(s) are needed to establish this type of communication capability. Normally this communication capability results from the use of a ground service headset that is plugged into a wheelwell interphone jack.

9-2.5 A sufficient number of telephone lines (both listed and unlisted) or cellular phones should be available at the command post to provide direct communication with agencies outside the airport, as well as within the airport. Direct lines save time and reduce the probability of overwhelming radio communication channels.

9-2.6 Medical facilities and ambulances need communications capability in order to take advantage of advance life support systems within the medical community.

9-2.7 A dedicated vehicle equipped with necessary communications equipment and self-contained electrical power is a definite asset to a good communication system. A well-equipped communications vehicle is an indispensable part of an efficient, well-managed command post. Planning should always include a qualified vehicle driver/operator.

9-2.8 Recording devices, with time insertion units, should be installed at the operations center or mobile command post or both to ensure that all communications are recorded for later analysis. All emergency communications, including printed communication, should be recorded.

9-2.9 Runners should be assigned to the command post to augment other modes of communication. Their use may prove invaluable should a temporary lapse of communication occur.

9-3 Testing and Verification.

9-3.1 The communications system should be tested daily to verify the operability of all radio and telephone networks.

9-3.2 A complete and current list of interagency telephone numbers should be available to all agencies and to personnel responsible for the airport/community emergency plan. These phone numbers should be verified monthly to ensure that they are correct.

Chapter 10 Command and Coordination for Airport/Community Emergency Plan

10-1 General.

10-1.1 Once an accident has occurred on the airport, the direction and control of rescue and fire fighting operations are the responsibility of the airport rescue and fire fighting service officer in charge. Any transition of authority and command responsibility needs to be established previously in the emergency plan and exercised accordingly. Off-airport accidents are under the direction and control of the jurisdiction in which the accident occurred.

10-1.2 The Plan should be very specific in its designation of other responsible entities and their authority and function in the command organization.

10-2 Incident Command System. The Plan should include a flexible organization system that enhances management of all activities at the accident site. This system should include a description of each element of the Plan, the agency assigned to the specific element, and a brief summary of the authority and responsibility necessary to execute the element. A diagrammatic representation of an organization chart from a typical incident command system is shown in Figure 10-1.

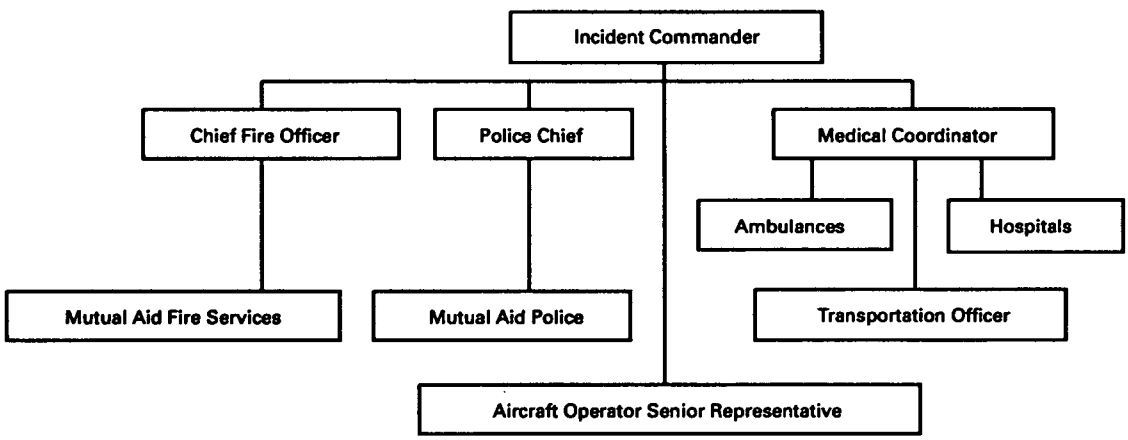

Figure 10-1 Command flow diagram.

Chapter 11 Emergency Medical Care

11-1 Basis of Recommendations.

11-1.1* These recommendations are based upon the existence of an established level of emergency medical service that can be expanded into a comprehensive emergency medical system at the scene of an aircraft accident with numerous casualties.

11-1.2 Responsibilities of the emergency medical organization include all aspects of medical care at the scene of an aircraft accident: triage, treatment, and transportation.

11-2 Emergency Medical Training of Airport Personnel.

11-2.1* All airport fire department personnel assigned to fire control and rescue duties and all public contract airport employees should ideally be given first aid and CPR training. At least two full-time members of the airport fire department per shift should be trained to an EMT level and should be available to respond to any airport emergency of any severity.

11-2.2 The following subjects are the minimum that should be covered in a course of instruction to enable airport personnel to function effectively in providing emergency medical services:

(a) Airway management and cardiopulmonary resuscitation (CPR).

(b) Control of bleeding.

(c) Fractures and splinting with emphasis on spinal injuries.

(d) Burns.

(e) Shock.

(f) Emergency childbirth and immediate care of newborns, including prematures.

(g) Common medical diseases that may influence the outcome of injury (allergies, high blood pressure, diabetes, pacemaker, etc.).

(h) Basic measures for treatment and protection subsequent to spills or leaks of radioactive materials or toxic or poisonous substances.

(i) Basic measures for handling emotionally disturbed persons.

(j) Recognition and first aid for poisons, bites, and anaphylactic shock.

(k) Transportation techniques for injured persons.

(l) Heimlich maneuver—treatment of choking victims.

(m) Protection against the spread of communicable diseases.

11-3 Airport Emergency Medical Supplies and Equipment.

11-3.1 Sufficient medical supplies to treat the capacity of the largest aircraft normally utilizing the airport should be available on or adjacent to the airport. Adequate supplies should be kept on hand to deal with routine medical emergencies (i.e., on-the-job injuries, cardiac arrest, etc.).

11-3.2 The type and quantity of such supplies should be determined by the principal medical authority for the airport.

Recent incidents have demonstrated that the unique characteristics presented by any given location must be taken into consideration when deciding on the type and quantity of supplies to be kept available for major incidents. For instance, extremes in temperatures should be considered and appropriate supplies stockpiled. Geographical conditions or topographical conditions or both should also be taken into consideration. The type and quantity of all medical supplies stockpiled should be determined by the agency responsible for providing emergency medical service to the airport.

11-3.3 Stretchers, blankets, cervical collars, backboards, and body bags should be located on the airport, preferably on a suitable vehicle (e.g., trailer) that can be transported to the accident site. Blankets are needed to alleviate the victims' exposure to shock and possible adverse weather conditions. The backboards and spine boards should be of a type designed to fit through access ways and aisles of commercial and business aircraft. They should have restraining straps available so the patient can be secured to the board. A cleat should be attached to the underside of the backboard to facilitate lifting by carrying personnel.

11-3.4 Sufficient resuscitation equipment should be available to treat smoke inhalation victims. This equipment must not be used around fuel or fuel soaked clothing.

11-4 Airport Medical Service.

11-4.1 Emergency medical service should be readily available to an airport. Minimum considerations for level of service should include: number of passengers served, number of persons employed at the airport, industrial activity on airport property, and distance from adequate medical facilities. Ideally, each airport should have a properly staffed and equipped first aid room/medical facility on site and in addition should arrange for the emergency response of trained medical personnel with the capability to treat serious injuries and transport them to proper medical facilities.

11-4.2 The primary purpose of emergency medical services is to provide triage, treatment, and transportation in order to stabilize, provide comfort, and transport victims/patients to appropriate medical facilities.

11-4.3 The delivery to the accident site of trained medical personnel, capable of treating and transporting injured victims of an aircraft accident, is a vital component of the airport community emergency plan. The Plan should determine who will provide this service and should make all necessary legal and financial arrangements before the accident occurs. This includes integration with local community plans or mutual aid agreements or both.

11-4.4 Medical and ambulance services may be an integral part of the airport services, particularly the ambulance service that may, in many cases, be part of the airport rescue and fire fighting service. If medical and ambulance services are not available at the airport, prearrangements

with local agencies providing these services should be made. The Plan must ensure the dispatch of a satisfactory assignment of trauma-trained emergency service medical personnel, equipment, and medical supplies. The Plan should address the location of surrounding medical facilities and the level of service each provides.

11-4.5 The Plan should provide for the control of patient transport from the scene to the receiving medical facilities. The Plan's incident command system should include a transportation control officer. This position's responsibilities would include: communications with medical facilities or the central communications point or both for local medical facilities, overseeing and ensuring effective priority casualty transportation to the appropriate medical facilities, and all other aspects of medical transportation.

This has proven to be a very demanding and labor intensive responsibility, requiring a minimum of three subordinate positions. They are: 1) transportation control (routing of ambulances to and from the scene); 2) transportation recorder (responsible for documentation of all patient movement); and 3) medical communications (responsible for all communications regarding medical transportation). A fourth position, that of ambulance staging leader, should also be considered.

11-4.6 Participating hospitals should have contingency emergency plans to provide for mobilization of necessary medical teams to the accident site in the shortest possible time. Availability of qualified personnel and adequate facilities at the hospitals to deal with airport emergency situations is vital. In this respect, it should be mandatory to establish in advance an accurate list of surrounding hospitals classified according to their effective receiving capacity and specialized features such as neurosurgical ability, burn treatment, etc.

11-4.7 The distance from the airport and the ability to receive helicopters should be considered. Reliable two-way communications should be provided between hospitals, and ambulances and helicopters. The alert of an aircraft accident should be made to a single communication controlling medical facility, which then alerts all other facilities according to the local medical communications network. Prior provision for police escort vehicles and helicopters for medical staff should be arranged in the Plan.

11-5 Airports without a Medical Care Facility. At airports where a medical care facility (medical clinic or first aid room) is not available, the airport authority should make arrangements to have available sufficient personnel trained in advanced first aid to cover all active hours of airport operation. Equipment for first aid work at these airports should consist, at minimum, of an emergency medical care bag. This bag should be readily available to be carried on a designated airport emergency vehicle and should contain at least:

(a) One plastic sheet 1.80 m × 1.80 m (6 ft × 6 ft), with four spikes;

(b) Seven hemostats (one package of three, one package of four);

(c) Two field dressings one 450 mm × 560 mm (18 in. × 22 in.), one 560 mm × 910 mm (22 in. × 36 in.);

(d) Ten abdominal pads (five packages of two);

(e) Forty 100 mm × 100 mm (4 in. × 4 in.) gauze pads (four packages of ten);

(f) Two tourniquets;

(g) One artificial airway;

(h) Three disposable airways (each with No. 2, No. 4, No. 5);

(i) One bulb syringe with two catheters (No. 12, No. 14 FR);

(j) Two large bandage scissors;

(k) Twenty disposable syringes with No. 25 GA 16-mm (.6-in.) needle;

(l) Twelve ace bandages two 150 mm (6 in.), four 75 mm (3 in.), six 50 mm (2 in.);

(m) Twelve alcohol sponge packages;

(n) Four rolls of gauze bandage two 75 mm (3 in.), two 50 mm (2 in.);

(o) Two rolls of adhesive tape;

(p) Four vaseline gauze dressings 150 mm × 910 mm (6 in. × 36 in.);

(q) One box of 100 bandaids, assorted sizes;

(r) One blood pressure cuff and gauge;

(s) Two clipboards 220 mm × 280 mm (8 in. × 11 in.);

(t) Six pencils (pens, grease pencils, etc.);

(u) Sufficient supply of casualty identification tags (*see A-11-6.7*);

(v) One set of inflatable splints;

(w) One resuscitube;

(x) One short spine board;

(y) One flashlight;

(z) Two cervical collars;

(aa) One bite-stick wedge;

(bb) One disposable obstetric kit;

(cc) A sufficient supply of infection control equipment, including medical gloves, masks, protective eyewear, and gowns/aprons.

11-6 Immediate Need for Care of Injured in Aircraft Accidents. (*See Figure 11-6.*)

11-6.1 In the aftermath of an aircraft accident many lives may be lost and many injuries aggravated if immediate medical attention is not provided by trauma-trained rescue personnel. Survivors should be examined, given available emergency medical aid as required, and then promptly transported to appropriate medical facilities.

11-6.2 Triage is the sorting and classification of casualties to determine the order of priority for treatment and transportation.

11-6.3 Casualties should be classified into four categories:

Priority I:	Immediate care
Priority II:	Delayed care
Priority III:	Minor care
Priority 0:	Deceased

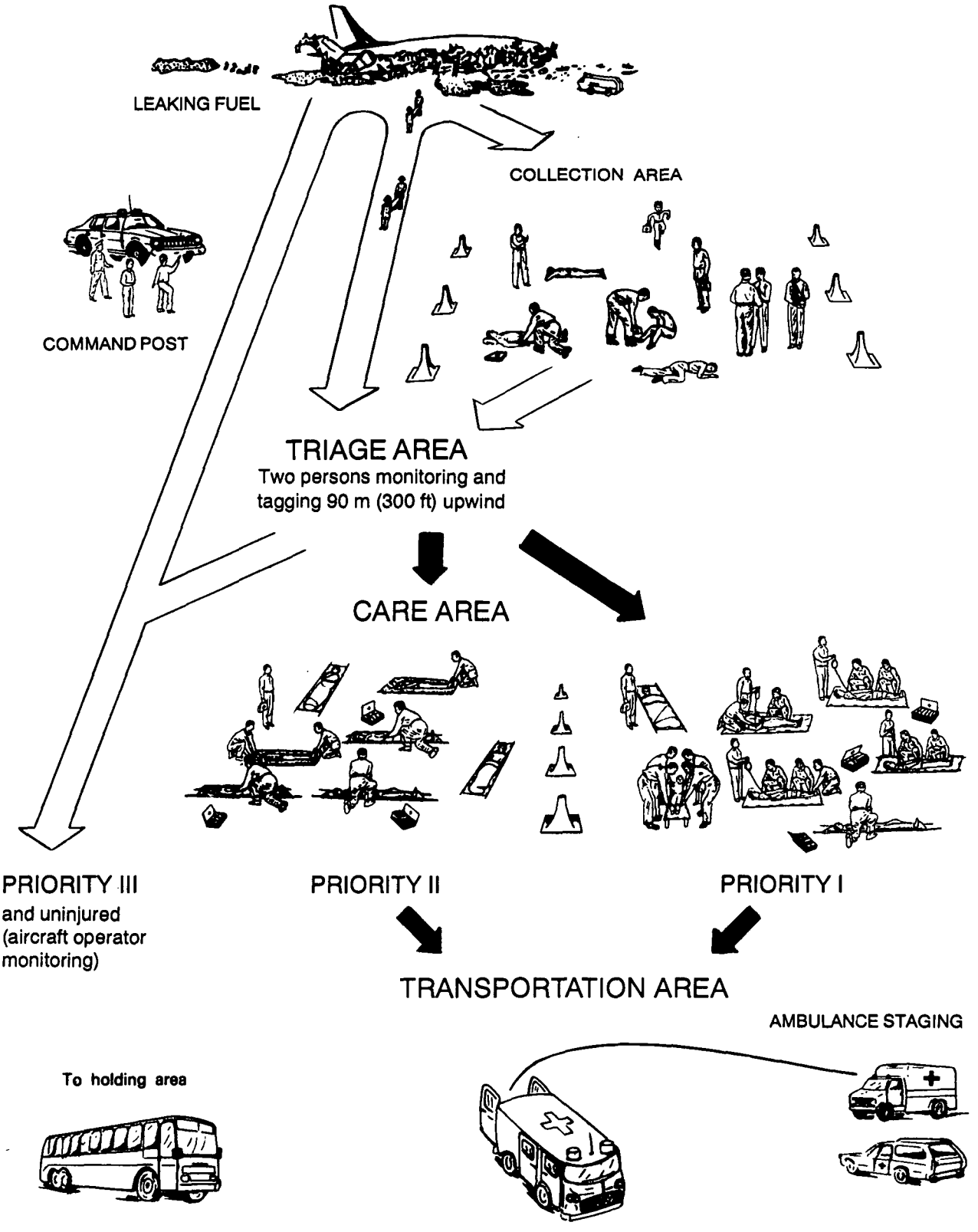

Figure 11-6 Triage and medical care at aircraft accident site.

11-6.4 Triage must begin immediately. Qualified medical personnel should be assigned to this task. Victims are moved from the triage area to the appropriate care holding areas before definitive treatment is rendered. Casualties should be stabilized at the care holding areas and then transported to an appropriate facility.

11-6.5 Every effort should be made to ensure that "immediate" casualties are treated first and receive immediate ambulance transportation priority once they are stabilized. This is the responsibility of the immediate care leader.

11-6.6 Triage is most efficiently accomplished in place. However, the conditions of an accident scene may demand the immediate movement of casualties before triage can be safely accomplished. In that case, the casualties should be moved the shortest distance possible, well away from fire fighting operations, and upwind and uphill from the scene.

11-6.7* Triage of casualties should include the use of casualty identification tags to aid in the sorting and transportation to hospitals of the injured. This technique is especially suited to multilingual situations.

11-7 Care Principles.

11-7.1 Stabilization of the seriously injured should be accomplished at the accident scene. The immediate transportation of the seriously injured before stabilization should be avoided.

11-7.2 In accidents occurring on or adjacent to the airport, rescue and fire fighting personnel are generally the first emergency personnel on the scene. It is imperative that seriously injured casualties be located and stabilized as quickly as possible. In cases where fire control or prevention does not require the efforts of all rescue and fire fighting personnel, casualty stabilization should be commenced immediately under the direction of the most qualified trauma-trained individual on the scene. First response rescue vehicles should carry initial supplies of victim-care equipment, including artificial airways, compresses, bandages, oxygen, and other related equipment used for the stabilization of smoke inhalation casualties and severe trauma. Sufficient oxygen should be available for use of rescue and fire fighting personnel.

11-7.3 Usually, the first few minutes of medical treatment will aim at stabilizing the casualties until more qualified medical care is available. When specialized trauma teams arrive, medical care will be more sophisticated.

11-7.4 The triage procedure and subsequent medical care should be placed under the command of one authority, the designated medical coordinator, upon arrival. Prior to arrival, the command of triage should be assumed by the designee of the incident commander until relieved by the predesignated medical coordinator.

11-7.5 The medical coordinator should report directly to the incident commander and has responsibility for all medical aspects of the incident. The primary function will be administrative, not as a participant of the medical team treating the injured.

11-7.6 For distinctive and easy identification, the medical coordinator should wear a standard distinctive uniform. In addition, the Plan should provide for a highly visible vest, or other apparel, with reflective lettering, front and back, that reads "MEDICAL COORDINATOR," or other appropriate lettering, given the terminology used in the Plan.

11-7.7 Care of Priority I "Immediate" Casualties. This type of casualty includes but is not necessarily limited to:

(a) Major hemorrhages;
(b) Severe smoke inhalation;
(c) Asphyxiating thoracic and cervico-maxillo-facial injuries;
(d) Cranial trauma with coma and rapidly progressive shock;
(e) Open fractures and compound fractures;
(f) Extensive burns (more than 30 percent);
(g) Crush injuries including internal organs;
(h) Any type of shock; and
(i) Spinal cord injuries.

11-7.8 Care of Priority II "Delayed" Casualties. This type of casualty includes but is not necessarily limited to:

(a) Nonasphyxiating thoracic trauma;
(b) Closed fractures of the extremeties;
(c) Limited burns (less than 30 percent);
(d) Cranial trauma without coma or shock;
(e) Injuries to soft parts.

11-7.9 Delayed care of casualties sustaining injuries that do not need emergency medical treatment to sustain life can be delayed until Priority I casualties are stabilized. Transportation of Priority II casualties should be performed following minimum care given on the site.

11-7.10 Care of Priority III "Minor" Casualties. This type of casualty includes minor injuries only. Certain accidents/incidents will occur where passengers have either minor or no injuries or appear to be uninjured. Because this type of casualty can interfere with other priorities and operations it is important that these passengers be transported away from the accident/incident site to the designated passenger holding area where they may be re-examined.

11-7.11 It is important that provisions be made for Priority III casualty care, comfort, and identification. This should be provided through the aircraft operator, where involved, airport operations, or international relief organization (Red Cross, etc.). Specific treatment areas such as an empty hangar, a designated area in a passenger terminal, a fire station, or other available sites of adequate size (hotel, school, etc.) should be predesignated for this purpose. Any such area selected should be equipped with heating or cooling systems, electric light and power, water, and toilet facilities. Adequate telephones should be available. A number of such preselected sites should be chosen so that when an accident occurs, the most convenient in regard to travel distance and space needs (number of casualties involved) can be selected. All aircraft operator personnel and airport tenants should know the location of such designated facilities.

11-8 Control of the Flow of the Injured.

11-8.1 The injured should pass through four areas that should be carefully located and easily identified (*see Figure 11-6*).

(a) Collection area—The location where initial collection of the seriously injured from the aircraft or debris is accomplished. Need for the establishment of this area will be dependent upon the type of accident and the circumstances surrounding the accident site. Custody of casualties is normally transferred from fire rescue personnel to medical services at this point.

(b) Triage area—The triage areas should be located at least 90 m (300 ft) upwind of the accident site if fire and smoke is imminent. If necessary, more than one triage area may be established.

(c) Care area—Initially this will be a single care area only. Subsequently it should be subdivided into three subareas according to the three categories of injured, i.e., Immediate Care (Priority I), Delayed Care (Priority II), and Minor Care (Priority III). Care areas can be identified by colored traffic cones, bicycle flags, colored blankets, etc. (Red—Immediate, Yellow—Delayed, and Green—Minor).

(d) Transportation area—A transportation area for the recording, dispatching, and evacuation of survivors should be located between the care area and the egress road. Only one transportation area is normally required; however, if there is more than one transportation area it is essential to have communication between them.

11-8.2 In remote areas, where transportation to appropriate medical facilities will be delayed, or where climatic conditions dictate, consideration should be given to the provision of mobile quarters for the stabilization and medical treatment of immediate care and delayed care casualties. Ideally these quarters should be operational upon arrival or in less than half an hour. Their design must therefore permit rapid response to the site and rapid activation to receive casualties. [*See Mobile Emergency Hospital (MEH), A-11-1.1.*]

11-9 Standardized Casualty Identification Tags.

11-9.1 Need for Standardized Tags. Casualty identification tags should be standardized through color coding and symbols to make the tags as simple as possible. Tags help to expedite the treatment of mass casualties in a triage situation and thus permit more rapid evacuation of the injured to medical facilities.

11-9.2 Tag Design. Standardized tags have been designed that require only minimal information to be entered thereon, are usable under adverse weather conditions, and are water resistant. An example of such a tag is illustrated in Figures A-11-6.7(a) and (b). In this tag, numerals and symbols indicating medical priority classify casualties as follows:

Priority I or immediate care:	RED colored tag; roman numeral I; rabbit symbol.
Priority II or delayed care:	YELLOW colored tag; roman numeral II; turtle symbol.
Priority III or minor care:	GREEN colored tag; roman numeral III; ambulance with X symbol.
Priority 0 or deceased:	BLACK colored tag; cross symbol.

11-9.3 Where tags are unavailable, casualties may be classified using roman numerals on adhesive tape or by markings made directly on the forehead or on other exposed skin area to indicate priority and treatment needs. Where marking pens are unavailable, lipstick can be used. Felt-tipped pens are not advisable as they may smear in rain, snow, and under other climatic and body conditions.

11-10 Medical Care of Ambulatory Survivors.

11-10.1 The aircraft operator (where involved), the airport authority, or other predesignated agency selected for the purpose should be available to:

(a) Select from among the predesignated passenger holding areas designated in the airport/community emergency plan the most suitable one for the particular emergency;

(b) Provide for the transportation of uninjured passengers from the accident site to the designated holding area;

(c) Arrange for doctors, nurses, or emergency medical personnel teams qualified in first aid to examine and treat supposedly uninjured passengers, especially for nervous traumatism (shock), and smoke inhalation where pertinent;

(d) Interview uninjured passengers and record their names, addresses, and phone numbers, and where they can be reached for the next 72 hr;

(e) Notify relatives or next of kin where deemed necessary;

(f) Coordinate efforts with the designated welfare agency (Red Cross, etc.); and

(g) Provide security from unauthorized interference by persons not officially connected with the rescue operation in progress.

11-10.2 Prearrangements should be made for the immediate transportation by bus or by other suitable transport of the walking wounded and uninjured from the accident site to the designated holding area. This plan should be implemented automatically following notification of the emergency. A nurse or a person trained in first aid should accompany these survivors to the holding area. Each and every passenger should be examined for shock and smoke inhalation. Cold or inclement weather may require additional provisions for the passengers' protection and comfort.

11-10.3 Occupants evacuating an aircraft may have been barefoot when evacuation slides were used and may also be without proper wearing apparel. Prior planning should recognize this potentiality, and emergency footwear, eyeglasses, clothing, and blankets should be available to take care of this situation. Where the aircraft accident occurred in water or in a marshy area, survivors will be wet and uncomfortable. Where such potentials exist, it may be necessary to establish a special designated staging area where survivors can be stabilized prior to transporting them to the normal holding area and to preplan provision for blankets and temporary protective clothing to prevent hypothermia.

Chapter 12 Care of Deceased (Black Tag, Cross Symbol)

12-1 Basis for Recommendations.

12-1.1* The concept of preservation of evidence must be applied when caring for the deceased at an aircraft accident site. It is important to realize that an undisturbed site will produce the most reliable evidence for determing cause and corrective action that would help prevent a similar incident in the future.

The Plan should include contingencies that address management of deceased at the scene of the emergency. The Plan needs to designate the person responsible for contacting and coordinating with the medical examiner/coroner.

12-2 Care Prior to Site Investigation.

12-2.1 Airport fire fighters and other rescue personnel should understand the basic need for and the techniques and procedures used in aircraft accident investigation. Wherever possible, the wreckage should remain undisturbed until the arrival of the appropriate investigating agency.

12-2.2 Areas immediately surrounding the location of the deceased should be completely secured. Areas in which a large number of deceased or dismembered casualties are located should be left undisturbed until the arrival of the forensic doctor and the National Transportation Safety Board investigator or his/her designee.

12-2.3 If it becomes necessary to move bodies or parts of the wreckage, photographs should also be taken showing their relative position within the wreckage, and a sketch of their respective positions prior to removal should be made. In addition, tags should be affixed to each body or part of the wreckage that was displaced, and corresponding stakes or tags should be placed where they were found in the wreckage. A journal should be kept of all tags issued. Special precautions should be taken to avoid disturbing anything in the cockpit area. Should any control be displaced, photographs, drawings, or notes should be taken.

12-2.4 Extrication of the deceased and removal of personal effects prior to the arrival of the coroner or appropriate authority should be accomplished only to prevent their destruction by fire or other similar compelling reasons. Where bodies must be moved, previously mentioned precautions should apply. Provisions should be made to obtain sufficient body bags to contain all bodies as well as personal effects.

12-2.5 Body bags are normally available from major local suppliers of caskets, funeral directors and their equipment and supply firms, and from nearby military facilities. Stocks of body bags at each airport are desirable.

12-3 Care after Site Examination.

12-3.1 Body identification and determination of cause of death is conducted with the concurrence of the authority designated for this duty. This operation is generally conducted with the cooperation of forensic teams and other specialists.

12-3.2 Accidents that produce a large number of fatalities will overload normal morgue facilities. In areas where delay or temperature may contribute to the deterioration of tissue, refrigerated storage should be available. This may be provided either through a permanently located cooler or refrigerated semitrailers. The area for postmortem examination should be located near the refrigerated storage and be arranged to provide a high level of security. This area should be large enough for initial body sorting. Electricity and running water should be provided, in addition to a suitable working area.

12-3.3 The morgue should be isolated and in an area remote from places where relatives or general public have access.

12-3.4 After identification of victims, efforts to contact next of kin should commence. Agencies such as Aircraft Operators representatives, public service organizations (i.e., Red Cross, Salvation Army), or clergy should be utilized.

12-3.5 The accident investigation team generally has the authority and the need to require autopsies and toxicological analyses on crew members, and in special cases, passengers. The need for these tests should be established prior to the release of bodies.

12-3.6 As soon as practical after the emergency, all participants in the fire fighting and rescue effort should be debriefed. Their observations should be recorded by the proper authorities. Sketches, diagrams, photographs, movie films, and tape and video recordings made on the accident site as well as appropriate details on the tagging of bodies and parts of the wreckage removed from their position are invaluable tools for investigators.

Chapter 13 Airport/Community Emergency Plan Exercise

13-1 Emergency Plan Exercise.

13-1.1 The purpose of an airport/community emergency plan exercise is to test the adequacy of the following:

(a) The airport/community emergency plan and related procedures;

(b) Response of all personnel involved;

(c) Emergency equipment and communications.

13-1.2 It is therefore important that the Plan contain procedures requiring that the airport/community emergency plan be tested so as to correct as many deficiencies as possible and to familiarize all personnel and agencies concerned with the airport environment, the other agencies, and the role of each agency/person in the emergency plan.

13-2 Need for and Types of Airport/Community Emergency Plan Drills.

13-2.1 The airport/community emergency plan should be subject to full-scale emergency exercises to test all facilities and associated agencies at intervals of about one year. The exercise should be followed by a full debriefing, critique, and analysis. Representatives of all organizations that participate in the exercise should also actively participate in the preparation for the exercise and the final critique.

13-2.2 It is important that small-scale simulated emergency exercises be held at more frequent intervals than the full-scale emergency exercise. These more frequent exercises should be aimed at testing and reviewing the response of individual participating agencies, such as the rescue and fire fighting service, as well as parts of the plan such as the communications system.

13-2.3 It is desirable that, in addition to the full-scale and simulated emergency exercises, a "tabletop" exercise, involving the airport/community emergency plan coordinating committee, be held at least annually but not coincidental with any of the above emergency exercises.

13-3 Planning for Full-Scale Emergency Exercises.

13-3.1 The first step in planning full-scale emergency exercises is to have the support of all airport and community authorities concerned.

13-3.2 Each agency head must be thoroughly familiar with the airport/community emergency plan and must develop a plan for his/her department in coordination with the general plan. The agency heads should meet in regular sessions to develop an understanding of their agencies' responsibilities and requirements in cooperation with other agencies.

13-3.3 An aircraft representative of the largest aircraft using the airport should be sought for the full-scale emergency exercise to add realism to the exercise and to familiarize participants with the problem of removing casualties from aircraft. If an aircraft is not available, a bus or similar large vehicle may be used.

13-3.4 The emergency exercises should be held in locations that will provide maximum realism while ensuring minimum disruption to the operations of the airport or the orderliness of the community.

13-3.5 At least 120 days prior to the scheduled full-scale emergency exercise, a meeting of all key supervisory personnel of principal participating agencies should be called by the authority in charge. At this time, the aims of the exercise should be outlined, a scenario formulated, work tasks assigned, and duties of all agencies and personnel defined. A suggested time schedule and checklist are as follows:

D—120 days	Organizational meeting of supervisory personnel of participating agencies. Aims outlined, scenario formulated, work tasks assigned, emergency plan coordinators selected;
D—90 days	First progress report on arrangements;
D—70 days	First meeting of all participating agencies (individual committee representatives);
D—60 days	Complete arrangements for full-scale emergency exercise site or staging area. Written scenario completed;
D—50 days	Training for moulage team begins. Second meeting of the individual committee representatives. A moulage chairperson can be selected from hospitals, rescue and fire fighting personnel, civil defense, military personnel, etc.;
D—40 days	Arrangements for transportation, feeding, stretcher bearers, and volunteer workers completed;
D—30 days	Third meeting of the individual committee representatives. A preliminary "warm-up" communications exercise is held;
D—21 days	Fourth meeting of the individual committee representatives. Make-up team training and arrangements for volunteer casualties completed;
D—14 days	Final meeting and briefing for all participants, including critique team;
D—7 days	Final meeting of supervisory personnel to review assignments;
D—0 days	The exercise;
D + 1–7 days	A critique following the exercise so that all participants may hear the observers' reports; and
D + 30 days	The supervisory personnel meet to review written critiques submitted by observers and participants and revise procedures to correct mistakes and shortcomings indicated in the exercise.

13-3.6 In preparing the scenario, the use of real names of aircraft operators and types of aircraft should be avoided. This will prevent any possible embarrassment to companies or agencies involved in civil aviation.

13-3.7 In order to obtain the maximum benefit from a full-scale emergency exercise, it is important to review the entire proceedings. An observer critique team comprised of members who are familiar with mass casualty accident proceedings should be organized. A chairperson of the team should be appointed and should be present at all meetings. The team should be present at the final organizational meeting (seven days prior to the exercise) and, in coordination with the authority in charge, ensure that significant problems are introduced into the exercise. Each member of the critique team should observe the entire exercise and complete the appropriate emergency exercise critique forms.

13-4 Review of the Airport Emergency Plan Drill.

13-4.1 Experience has shown that quite often the provisions set forth in the airport emergency plan will not be found practical during an exercise or an actual emergency, resulting in confusion and undue inefficiency by some of the participants.

13-4.2* A critique and review of the procedures followed by the participants in an emergency exercise or an actual accident/incident should be scheduled as soon as all data can be acquired from all agencies. This critique should be held not more than seven days after the exercise or emergency.

13-4.3 The airport authority should make every effort to contact other airport authorities involved in actual aircraft accidents and those who have conducted full-scale emergency exercises to acquire data and procedures to correct and upgrade their airport emergency plan.

Appendix A

This Appendix is not part of the recommendations of this NFPA document, but is included for information purposes only.

A-1-3 Approved. The National Fire Protection Association does not approve, inspect or certify any installations, procedures, equipment, or material nor does it approve or evaluate testing laboratories. In determining the acceptability of installations or procedures, equipment or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization concerned with product evaluations which is in a position to determine compliance with appropriate standards for the current production of listed items.

Authority Having Jurisdiction. The phrase authority having jurisdiction is used in NFPA documents in a broad manner since jurisdictions and approval agencies vary as do their responsibilities. Where public safety is primary, the authority having jurisdiction may be a federal, state, local or other regional department or individual such as a fire chief, fire marshal, chief of a fire prevention bureau, labor department, health department, building official, electrical inspector, or others having statutory authority. For insurance purposes an insurance inspection department, rating bureau, or other insurance company representative may be the authority having jurisdiction. In many circumstances the property owner or his designated agent assumes the role of the authority having jurisdiction; at government installations, the commanding officer or departmental official may be the authority having jurisdiction.

A-2-1 Outline of an Airport/Community Emergency Plan. This guideline is intended to ensure uniformity in the development of airport/community emergency plans. It is the function of the airport authority to develop a plan and procedures for emergencies applicable to the airport's particular characteristics and operations and, within these guidelines, to perform the following:

(a) Define the responsibilities of the airport authority and other participating agencies.

(b) Create effective lines of communication and adequate communication facilities as indicated by a flow chart; call system to include persons/agencies to be contacted. Where possible, a 24-hour coverage should be maintained.

(c) Arrange for the availability of a fixed emergency operations center and a mobile command post at the airport for use during an emergency.

(d) Integrate assistance from local support services such as fire departments, security, medical, civil defense, government agencies, and local amateur radio organizations, etc.

(e) Describe the function of air traffic control services (airport control tower or airport flight information service) relating to emergency actions; and

(f) Give instructions for response to accidents/incidents.

Sections of the airport/community emergency plan document should contain identifiable subjects pertinent to local airport and community conditions.

The emergency plans and procedures should be issued under the airport or appropriate authority, who will define and negotiate functions of all agencies and personnel on or off the airport who would or could be involved in an emergency affecting the airport.

In developing the emergency plan and procedures, it is vital that arrangements be simple and easily understood by all involved in the Plan.

Example of Contents of Emergency Plan Document:

Section 1—Emergency Telephone Numbers. This section should be limited to essential telephone numbers according to site needs, including:

(1) air traffic control services
(2) rescue and fire fighting services (departments)
(3) police and security
(4) medical services:
  a) hospitals
  b) ambulances
  c) doctors—business/residence
(5) aircraft operators
(6) government authorities
(7) civil defense
(8) others.

Section 2—Aircraft Accident on the Airport.

(1) action by air traffic control services (airport control tower or airport flight information service)
(2) action by rescue and fire fighting services
(3) action by police and security services
(4) action by airport authority
  a) vehicle escort
  b) maintenance
(5) action by medical services
  a) hospitals
  b) ambulances
  c) doctors
  d) medical personnel
(6) action by aircraft operator involved

(7) action by emergency operations center and mobile command post
(8) action by government authorities
(9) communications network (emergency operations center and mobile command post)
(10) action by agencies involved in mutual aid emergency agreements
(11) action by transportation authorities (land, sea, and air)
(12) action by the public information officer(s)
(13) action by local fire departments when structures are involved
(14) action by all other agencies.

Section 3—Aircraft Accident off the Airport.

(1) action by air traffic control services (airport control tower or airport flight information service)
(2) action by rescue and fire fighting services
(3) action by local fire departments
(4) action by police and security services
(5) action by airport authority
(6) action by medical services
a) hospitals
b) ambulances
c) doctors
d) medical personnel

(7) action by agencies involved in mutual aid emergency agreements
(8) action by aircraft operator involved
(9) action by emergency operations center and mobile command post
(10) action by government authorities
(11) communication networks (emergency operations center and mobile command post)
(12) transportation authorities (land, sea, and air)
(13) action by public information officer
(14) action by all other agencies.

Section 4—Malfunction of Aircraft in Flight (Full Emergency or Local Standby).

(1) action by air traffic control services (airport control tower or airport flight information service)
(2) action by airport rescue and fire fighting services
(3) action by police and security services
(4) action by airport authority
(5) action by medical services
a) hospitals
b) ambulances
c) doctor
d) medical personnel

(6) action by aircraft operator involved
(7) action by emergency operations center and mobile command post
(8) action by all other agencies.

Section 5—Structural Fires.

(1) action by air traffic control services (airport control tower or airport flight information service)
(2) action by rescue and fire fighting services (local fire departments)
(3) action by police and security services
(4) action by airport authority
(5) evacuation of structure
(6) action by medical services
a) hospitals
b) ambulances
c) doctors
d) medical personnel

(7) action by emergency operations center and mobile command post
(8) action by public information officer
(9) action by all other agencies.

Section 6—Sabotage Including Bomb Threat (Aircraft or Structure).

(1) action by air traffic control services (airport control tower or airport flight information service)
(2) action by emergency operations center and mobile command post
(3) action by police and security services
(4) action by airport authority
(5) action by rescue and fire fighting services
(6) action by medical services
a) hospitals
b) ambulances
c) doctors
d) medical personnel

(7) action by aircraft operator involved
(8) action by government authorities
(9) isolated aircraft parking position
(10) evacuation
(11) searches (dog and human) of helicopter aircraft
(12) handling and identification of luggage and cargo on board aircraft
(13) handling and disposal of suspected bomb
(14) action by public information officer
(15) action by all other agencies.

Section 7—Unlawful Seizure of Aircraft (Hijacking).

(1) action by air traffic control services (airport control tower or airport flight information service)
(2) action by rescue and fire fighting services
(3) action by police and security services
(4) action by airport authority
(5) action by medical services
a) hospitals
b) ambulances
c) doctors
d) medical personnel

(6) action by aircraft operator involved
(7) action by government authorities
(8) action by emergency operations center and mobile command post
(9) isolated aircraft parking position
(10) action by public information officer
(11) action by all other agencies.

Section 8—Incident on the Airport.

An incident on the airport may require any or all of the action detailed in "Aircraft Accident on the Airport." Examples of incidents the airport authority should con-

sider include fuel spills at the ramp, passenger loading bridge, and fuel storage area; dangerous goods (hazardous materials) occurrences at freight handling areas; collapse of structures; vehicle/aircraft collisions, etc.

Section 9—Persons of Authority—Site Roles.

To include but not be limited to the following according to local requirements:

On-airport

(1) Airport authority
(2) Airport chief fire officer
(3) Police and security—officer-in-charge
(4) Medical coordinator.

Off-airport

(1) Local chief fire officer
(2) Government authority
(3) Police and security—officer-in-charge
(4) Medical coordinator.

The incident commander will be designated as required from within the prearranged mutual aid emergency agreement.

Previous documented experience indicates that confusion in identifying command personnel in accident situations is a serious problem. To alleviate this problem it is suggested that distinctive colored vests with reflective lettering be issued to command personnel for easy identification. The following colors are recommended:

RED	—CHIEF FIRE OFFICER
BLUE	—POLICE CHIEF
WHITE (RED LETTERING)	—MEDICAL COORDINATOR
INTERNATIONAL ORANGE	—AIRPORT ADMINISTRATION
LIME GREEN	—TRANSPORTATION OFFICER
DARK BROWN	—FORENSIC CHIEF

An incident commander should be appointed as the person in command of the overall emergency operation. The incident commander should be easily identifiable and can be one of the persons indicated above or any other person from the responding agencies.

A-2-2 Types of Alerts. The terms used to describe various categories of aircraft alerts are not standardized. The Federal Aviation Administration (FAA) terms—Alert I, Alert II, or Alert III—and the International Civil Aviation Organization (ICAO) terms—Local Standby, Full Emergency, and Aircraft Accident—are equivalent.

Alert I—Local Standby. An aircraft that is known or suspected to have an operational defect should be considered local standby. This defect should not normally cause serious difficulty in achieving a safe landing.

Alert I should also be initiated when an aeromedical evacuation or presidential/VIP aircraft is arriving or departing.

Airports should have management policies for implementation of Alert I procedures whenever required response times cannot be achieved. Factors that may affect response time include construction work, field maintenance, and adverse weather conditions such as snow, ice, or low visibility.

Airports should have management policies for implementation of Alert I procedures during arrival and departures of certain categories or types of aircraft not normally utilizing the airport.

Under Alert I conditions, at least one aircraft rescue and fire fighting vehicle should be manned and positioned to permit immediate use in the event of an incident. The Aircraft Rescue and Fire Fighting (ARFF) personnel should be advised of (1) the type of aircraft, (2) the number of passengers and crew, (3) the type and amount of fuel, (4) the nature of the emergency, (5) the type, amount, and location of dangerous goods, and (6) the number of nonambulatory passengers on board, if any. All other ARFF vehicles should be available for immediate response.

Alert II—Full Emergency. An aircraft that is known or is suspected to have an operational defect that affects normal flight operations to the extent that there is danger of an accident is an Alert II—Full Emergency. ARFF personnel should be provided with detailed information that allows preparation for likely contingencies. A full response should be made with the emergency equipment manned and positioned with engines running and all emergency lights operating so that the fastest response to the incident/accident site can be accomplished. It is important that appropriate radio frequencies be continuously monitored by ARFF personnel. One or more major aircraft rescue and fire fighting vehicles should be able to initiate fire suppression within the briefest period of time following the aircraft's coming to rest. Standby positioning of vehicles should be established for a variety of anticipated circumstances. The ARFF personnel should be informed of any changes in a distressed aircraft's emergency conditions that could affect the touchdown point or the ultimate behavior of the aircraft.

Alert III—Aircraft Accident. This alert denotes an aircraft accident has occurred on or in the vicinity of the airport. Regardless of the source of this alarm, full airport fire and rescue response procedures should be put into effect. When possible, all known pertinent information should be relayed via radio by Air Traffic Control (ATC) to responding emergency units and include as accurately as possible the location of the accident using grid-map coordinates and landmarks.

When such information is not available, the ARFF personnel should anticipate the worst situation and prepare accordingly.

The officer in charge should advise ATC of conditions at the site, particularly if such conditions could interfere with flight operations.

Emergencies not involving aircraft include:

(a) Nonaircraft accident related airport emergencies.
(b) Natural disasters.
(c) Medical emergencies.

A-3-3.1 For a comprehensive description of training and skills required see NFPA 1003, *Standard for Airport Fire Fighter Professional Qualifications.*

A-3-8 Responsibilities of Aircraft Operations Personnel Following an Aircraft Accident. Airline personnel often are the only force on the airport available for quick response to passenger service in an emergency since fire, police, and airport operation departments are usually required to respond to the accident site.

An air carrier emergency plan should be coordinated with the airport/community emergency plan so that airline personnel know which responsibilities the airport will assume and what response is required by the airline. A checklist form should be developed by the airline for the company coordinator's use. This form should be time correlated to the document notification time of the accident, company communications, personnel assignments, response, and other actions taken. From this log of events a critique of airline and airport/community emergency plans can be analyzed for future improvement.

Training should be initiated by the airlines to prepare all station personnel for emergency procedures. In all emergencies the individuals involved are subjected to stresses of a severity not generally encountered. It is vital for all emergency workers to be familiar with common responses by the individuals to unusual stress and apprehension and to be able to cope effectively with disturbed persons. The best possible preparation for effective behavior under disaster conditions is education and practice. Education should include instructions in the nature and actions of disturbed individuals and the general type of reaction to be expected from each. There should be participation in simulated emergency exercises to help establish effective patterns of behavior under emergency conditions and practice the basic principles of "psychological first aid."

A holding area for uninjured persons should be designated in order to assemble and process passengers not injured in the emergency. The area selected should provide for both passenger comfort and security from the news media. Upon notification of an accident, designated airline personnel should immediately respond to the holding area to receive the passengers evacuated from the accident scene. The airline personnel should be at this station before the passengers arrive. Emergency kits should be prepared and be readily available for the passenger service representatives to effectively carry out their duties. While waiting for the evacuees, an organizational meeting should be held by the person in command, delegating a receptionist, registrar, and welfare coordinator for the survivors.

The following organization and description of required duties are suggested:

The Airline Coordinator. Normally this would be the senior representative from the airline whose aircraft had the accident. In the event of a charter or nonscheduled flight, the representative of the airline designated to provide ground services for that flight should take charge. In the event of an over-flight or carrier without personnel based at the airport, representative authority would have to be determined by those responding. The person in charge should have radio communication to the airline operations or other designated emergency center. Telephones should be available in the holding areas. The person in command oversees the overall airline operations, making arrangements for additional medical services if required, commissary items, etc.

The receptionist should meet the buses as they arrive from the scene of the accident and direct the passengers to the registrars' tables where they will be processed. The receptionist should know where toilet facilities are located.

Registrars. The registrars will have emergency kits available to them. Two people will constitute one registrar team. Several teams will be required to process the passengers swiftly and efficiently. One member will enter the passenger's name on the manifest and determine what reservation requirements are desired, i.e., hotel accommodations or another flight, transportation, etc., and any persons to be notified of the passenger's condition and plans. The other member of the registrar team will make out an identification tag or sticker (available from the emergency kit) and place it on the passenger. This will assist in identifying the passenger when accommodations have been made. More importantly this will indicate that the passenger has been processed. The registrars will direct the victims to the welfare coordinators when their registration is completed.

Welfare coordinators are the nucleus of psychological first aid. They should attempt to stimulate passenger discussion. Special attention should be given to those who do not join in the group. In giving psychological first aid, it will be noted that some persons become more disturbed than others. Giving those persons sympathetic understanding can be the first step toward helping them. Overwhelming victims with pity may only increase their fear and feelings of helplessness. A person who exhibits bodily trembling, rapid breathing, rapid pulse, shortness of breath, etc., should be engaged in conversation and professional medical attention requested as soon as available.

A sizable personnel force can be provided by most air carriers; however, there will be a problem at airports with a small operation. As a result, a mutual aid assistance program of all airline personnel (and, if necessary, other airport tenants based at the airport) should be established. Training can be acquired from local mental health care and Red Cross units. This training is not extensive but would provide education for passenger service in an emergency. In addition to care for the victims evacuated from an accident site, training should also include a possible traumatic situation that could develop in the gate area of the terminal building.

Emergency Kits. Each airline should prepare an emergency kit that can be readily available to all airline personnel during all hours of operation. This kit should never be placed in an office that is locked during certain hours of the day. All station personnel should have knowledge of the location of the emergency kit. The contents of the kit must include:

1. Tablets or forms to list the victims to include name, address, and home phone number of passenger; name and phone number of person to be notified of passenger's condition; accommodation request of passenger (i.e., future flight, hotel, transportation within the local area, etc.).

2. Stick-on, adhesive-type name tags to identify passengers who have been processed and identification of victim when accommodations have been made.

2. Fire department mutual aid communications should be carried out on the predesignated communications channel.

3. Communications transmissions will be prefaced by an airport rescue and fire fighting/local fire department call number.

AGENCY: (Name and Address)

_____

_____

_____

Endorses the XYZ (International) Airport Emergency Plan, associated airport emergency plan document dated (insert date), and attached procedures (included as A-3-15.1.1 and A-3-15.1.2) and agrees to comply with all the procedures and instructions, and fulfill all applicable responsibilities therein.

_____

Signature of Authorized Representative

_____

Date

Figure A-3-15.1 XYZ (INTERNATIONAL) AIRPORT Emergency Plan Letter of Emergency Mutual Aid Agreement.*

*See Appendix E "Sample Procedural Agreements" of NFPA 402M, *Manual for Aircraft Rescue and Fire Fighting Operations.*

Procedure for Local Fire Department(s)—Aircraft Accident off Airport.

(a) A call to an aircraft accident off the airport will normally be received from air traffic control services or police. Should that not be the case, the local fire department should notify air traffic control services or police via radio or telephone that an accident has occurred, giving the approximate location on the grid map.

(b) Upon arrival at the accident site, the local fire department should:

1. Ensure that the mutual aid emergency agreement is initiated.

2. Establish a command post. (This may be a temporary post until the airport authority mobile command post is available and operative.)

3. Ensure that all communications are on the designated aircraft accident channel.

(c) The local fire department should advise air traffic control services or police of the following:

1. Exact location of the accident site.

2. Location of the command post.

3. Specific location/rendezvous points on the grid map to where fire units should respond.

4. Any request for specialized equipment, if necessary.

A-3-16 Aircraft Accidents in the Water. Where airports are situated adjacent to large bodies of water (such as rivers or lakes) or where they are located on coastlines, special provisions should be made for rescue and fire fighting operations in event of an aircraft accident/incident in the water. Specialized equipment for rescue and fire fighting may include fire/rescue boats; air-cushion vehicles (ACV); helicopters; coastal patrol boats; etc.

Consideration of unusual terrain and water conditions, such as tidal flats, swamps, etc., may dictate the choice of the particular type of vehicle most suitable to these conditions. Helicopters and air-cushion and amphibious vehicles as well as conventional watercraft may be found to provide this specialized service.

In developing the water rescue service, consideration should be given to private or public services (such as military search and rescue units, harbor police, or fire departments) and private rescue services (such as rescue squads, power and communication companies, pipeline or oil field operators, lumbering industry, or shipping and waterway operators) that may be available and are capable of rendering assistance. A signal system for alerting private or public services in time of emergency should be prearranged.

Many aircraft do not carry personnel flotation devices on board, especially those not engaged in extensive over-water operations. Such flotation devices should be available in numbers sufficient to meet the needs of the maximum passenger capacity of the largest aircraft in regular service at the airport. Where the largest aircraft is in scheduled over-water operation and all other operations are over-water in character, the airport may reduce the amount of personnel flotation devices by 50 percent.

Probability of Fire. In such incidents the possibility of fire is normally reduced, hopefully because of the suppression of ignition sources by the water contact and the cooling of heated surfaces. In situations where fire is present, its control and extinguishment present unusual problems unless the proper equipment is available.

Figure A-3-17 The "Winchester" Class Hovercraft (built by the British Hovercraft Corporation), which is in service at the Auckland International Airport in New Zealand. It is utilized to protect aircraft operations that are largely over the Manukau Harbor that borders the airport. The primary mission is rescue of occupants in event of an accident in the harbor or mudflats (which exist at low tide).

2. Fire department mutual aid communications should be carried out on the predesignated communications channel.

3. Communications transmissions will be prefaced by an airport rescue and fire fighting/local fire department call number.

AGENCY: (Name and Address)

_____

_____

_____

Endorses the XYZ (International) Airport Emergency Plan, associated airport emergency plan document dated (insert date), and attached procedures (included as A-3-15.1.1 and A-3-15.1.2) and agrees to comply with all the procedures and instructions, and fulfill all applicable responsibilities therein.

_____

Signature of Authorized Representative

_____

Date

Figure A-3-15.1 XYZ (INTERNATIONAL) AIRPORT Emergency Plan Letter of Emergency Mutual Aid Agreement.*

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(b) Upon arrival at the accident site, the local fire department should:

1. Ensure that the mutual aid emergency agreement is initiated.

2. Establish a command post. (This may be a temporary post until the airport authority mobile command post is available and operative.)

3. Ensure that all communications are on the designated aircraft accident channel.

(c) The local fire department should advise air traffic control services or police of the following:

1. Exact location of the accident site.

2. Location of the command post.

3. Specific location/rendezvous points on the grid map to where fire units should respond.

4. Any request for specialized equipment, if necessary.

A-3-16 Aircraft Accidents in the Water. Where airports are situated adjacent to large bodies of water (such as rivers or lakes) or where they are located on coastlines, special provisions should be made for rescue and fire fighting operations in event of an aircraft accident/incident in the water. Specialized equipment for rescue and fire fighting may include fire/rescue boats; air-cushion vehicles (ACV); helicopters; coastal patrol boats; etc.

Consideration of unusual terrain and water conditions, such as tidal flats, swamps, etc., may dictate the choice of the particular type of vehicle most suitable to these conditions. Helicopters and air-cushion and amphibious vehicles as well as conventional watercraft may be found to provide this specialized service.

In developing the water rescue service, consideration should be given to private or public services (such as military search and rescue units, harbor police, or fire departments) and private rescue services (such as rescue squads, power and communication companies, pipeline or oil field operators, lumbering industry, or shipping and waterway operators) that may be available and are capable of rendering assistance. A signal system for alerting private or public services in time of emergency should be prearranged.

Many aircraft do not carry personnel flotation devices on board, especially those not engaged in extensive over-water operations. Such flotation devices should be available in numbers sufficient to meet the needs of the maximum passenger capacity of the largest aircraft in regular service at the airport. Where the largest aircraft is in scheduled over-water operation and all other operations are over-water in character, the airport may reduce the amount of personnel flotation devices by 50 percent.

Probability of Fire. In such incidents the possibility of fire is normally reduced, hopefully because of the suppression of ignition sources by the water contact and the cooling of heated surfaces. In situations where fire is present, its control and extinguishment present unusual problems unless the proper equipment is available.

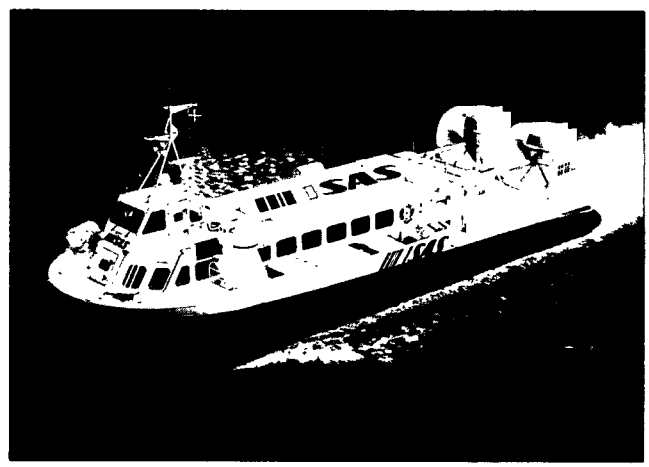


Figure A-3-17 The "Winchester" Class Hovercraft (built by the British Hovercraft Corporation), which is in service at the Auckland International Airport in New Zealand. It is utilized to protect aircraft operations that are largely over the Manukau Harbor that borders the airport. The primary mission is rescue of occupants in event of an accident in the harbor or mudflats (which exist at low tide).

Spillage of Fuel on Water Surfaces. It should be anticipated that the impact of the aircraft hitting the water might rupture fuel tanks and lines. It is reasonable to assume that quantities of fuel will thus be found floating on the surface of the water. Boats having exhausts at the waterline may present an ignition hazard if operated where this condition is present. Wind and water currents should be taken into consideration in order to deal effectively with floating fuel to keep it from moving into areas where it would be hazardous to rescue operations or initiate fire. As soon as possible, pockets of fuel should either be broken up or moved with large volume nozzles, neutralized by covering them with foam or a special inerting material, or boomed to contain the fuel in a safe area prior to absorption, dilution, or removal. Preplanning with the EPA's Water Pollution Control Division may provide emergency assistance during this operation.

Rescue Boats. Rescue boats should be capable of shallow water operations. Boats powered by jet-type propulsion eliminate the dangers of propellers puncturing inflatable equipment or injuring survivors during rescue operations. Boats powered by conventional propellers may diminish the hazards of puncture and injury by being equipped with fan-type guards or cowls.

Boats and other rescue vehicles should be so located that they can be brought into action in minimum time. Special boathouses or launching facilities should be provided where such will contribute materially to the rapidity of the launching process.

The boats should be of such size as to carry efficiently the flotation equipment required with adequate space for the crew and sufficient working space to permit rapid dispersal of the flotation devices. Inflatable life rafts should be the prime flotation equipment carried, and there should be an adequate number of life rafts to accommodate the largest aircraft occupancy served by the airport. Once this flotation equipment has been dispensed, the space in the boat used to carry it should be sufficient to accommodate a limited number of litter cases brought aboard in the process of rescue.

In order to permit communications with other rescue units, such as helicopters, air-cushion or amphibious equipment, and water-land based units, adequate two-way radio equipment should be provided in all rescue boats.

A minimum of two floodlights should be provided for night operations.

Radar reflectors should be used to facilitate navigation and rendezvous efforts.

Organizing Diving Units/Use of Divers. Diving units should be dispatched to the scene. When available, helicopters can be used to expedite the transportation of divers to the actual area of the crash. All divers who may be called for this type of service should be highly trained in both scuba diving and underwater search and recovery techniques. In areas where there are no operating governmental or municipal underwater search and recovery teams, agreements may be made with private diving clubs. The qualifications of the individual divers should be established by training and practical examination.

In all operations where divers are in the water, standard divers' flags should be flown and boats operating in the area should be warned to exercise extreme caution.

Where fire is present, approach should be made after wind direction and velocity and water current and swiftness are taken into consideration. Fire may be moved away from the area by using a sweeping technique with hose streams. Foam and other extinguishing agents should be used where necessary.

It should be anticipated that victims are more apt to be found downwind or downstream. This should be taken into consideration in planning the attack. Where only the approximate location of the crash is established upon arrival, divers should use standard underwater search patterns marking the locations of the major parts of the aircraft with marker buoys. If sufficient divers are not available, dragging operations should be conducted from surface craft. In no instance should dragging and diving operations be conducted simultaneously.

Where occupied sections of the aircraft are found submerged, the possibility remains that enough air may be trapped inside to maintain life. Entry by divers should be made at the deepest point possible.

Other Considerations.

When the distance offshore is within range, synthetic fiber-covered, rubber-lined fire hose can sometimes be floated into position by divers or boats and used to supplement other means of fire attack.

A command post should be established at the most feasible location on the adjacent shore.

This should be located in a position to facilitate implementing the airport/community emergency plan in accordance with guidelines established by the authority having jurisdiction.

Great care should be exercised in maintaining the watertight integrity of occupied aircraft sections found afloat. Removal of the occupant(s) should be accomplished as smoothly and quickly as possible. Any shift in weight or lapse in time may result in its sinking, and rescuers should use caution to avoid becoming trapped themselves.

A-4-2.2 *See Figure A-4-2.2.*

A-5-2.2 *See Figure A-5-2.2.*

A-5-4.2 The first security officer to arrive will assume security responsibility, survey the scene, and request reinforcements as needed. This security officer should remain in command until relieved by the appropriate security authority with jurisdiction over the area.

The security chief should be highly visible. Typically, a blue industrial hard hat with reflective lettering displayed fore and aft, and imprinted "SECURITY CHIEF," should be issued to the security officer in charge.

Security personnel and police will be needed to handle traffic, to keep unauthorized personnel from the crash site, and to assume custody of personal effects removed from

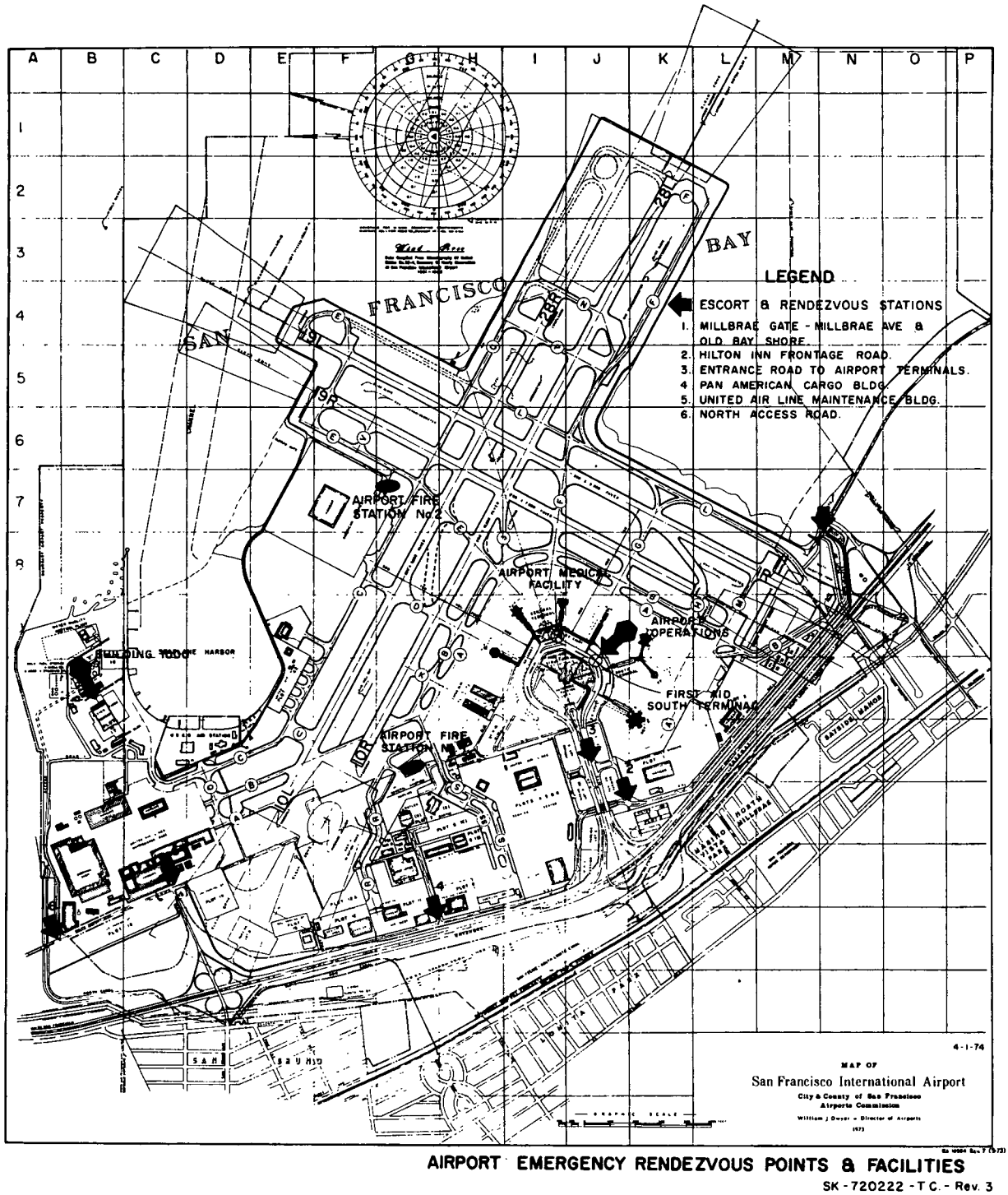


Figure A-4-2.2 Typical airport grid map.

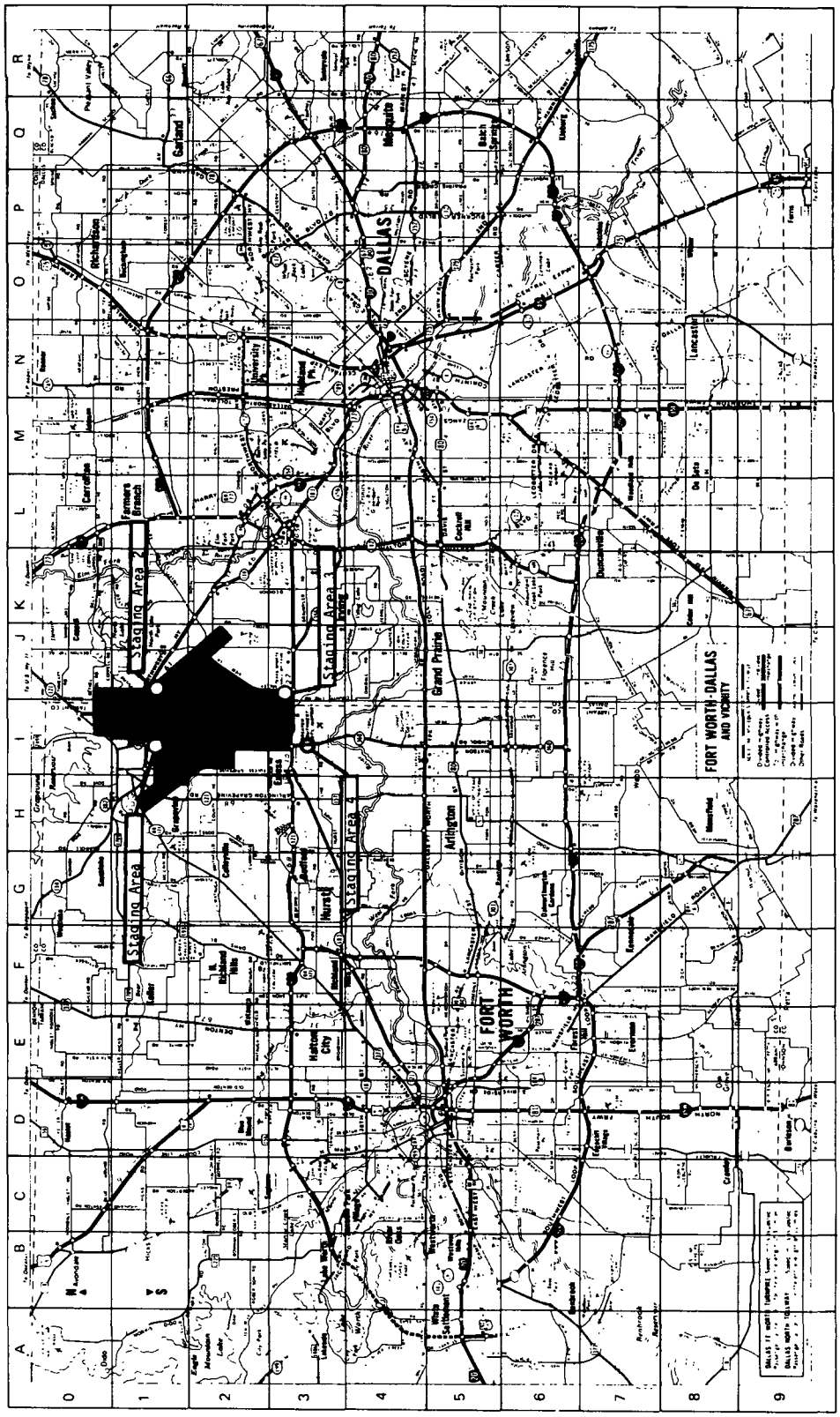


Figure A-5-2.2 Typical airport grid map.

the aircraft. Ingress and egress roads should be established for congestion-free traffic lanes for emergency vehicles.

Normal traffic should be routed away from and around the crash site.

The emergency site should be cordoned off as soon as possible to exclude intruders, sightseers, onlookers, and souvenir hunters. Appropriate markings should be prominently displayed to advise all persons of possible hazards that may cause serious injury should they encroach on the area.

Arm bands, site passes, or I.D. tags should be issued by the controlling authority and monitored by the security coordinator and his/her team.

A mutual aid program should be instituted between all potentially involved security agencies, e.g., airport, city, county, state, and federal security forces; mail inspectors; and, where appropriate, military police and customs officials.

Special security provisions are necessary to protect any mail involved and any dangerous goods that may be present, and to protect against radioactive materials exposure.

A-5-8.11 For aircraft removal technique see: *International Civil Aviation Organization Airport Services Manual*, Part 5, "Removal of Disabled Aircraft."

A-11-1.1 Airport Medical Services. Medical services and supplies should be available to an airport. Provision of medical services generally should not present great difficulties at large airports or airports near a large city, as the personnel and material normally will be available. What is required is the development of the necessary coordination between the airport and the emergency medical assistance system in the community.

Provision of medical services may present some difficulties at small airports not located near populated areas. These airports, however, should arrange to have available emergency medical services to provide medical care in the event of an aircraft accident, taking into account the largest aircraft using the airport.

The capability of medical personnel can be greatly enhanced by additional resources for improving the environment of the treatment area. Many airport/community areas contain valuable support equipment that is not utilized because someone failed to determine if it was available. Local agencies such as transportation departments, boards of health, park departments, departments of natural resources, etc., can be good sources. Federal agencies such as the Corps of Engineers, Department of Transportation, and Armed Forces (both active and reserve elements) possess a wide variety of support equipment and material. Examples of support equipment are mobile structures, auxiliary power and heating devices, water tankers, fuel supplies, lighting devices, sawhorses and lighting for roadblocks, etc.

Portable shelters such as mobile hospitals, tents, and recreation vehicles can be used where extremes in climate or weather can affect patient survivability. Consider the use of adjacent buildings such as aircraft hangars, gymnasiums, auditoriums, warehouses, etc., if distance and transportation resources are favorable to their utilization.

Ideally, all personnel assigned to rescue duties and "public-contact" airport employees should be given first aid and CPR (cardiopulmonary resuscitation) training.

Rescue and fire fighting personnel should have the ability to stabilize seriously injured casualties. At least two full-time members per shift of the airport rescue and fire fighting service or other on-airport personnel should be trained to an emergency medical treatment level as determined by the local medical authority. In addition, it is recommended that as many rescue and fire fighting personnel as is practicable receive training to meet minimum standards of medical proficiency and preferably be highly qualified in first aid; preferably certified as emergency medical technicians. Accordingly, they should have sufficient medical equipment at their immediate disposal to initiate stabilization until transportation of casualties to adequate medical facilities is provided.

As many airport personnel as practicable should also be trained in CPR (cardiopulmonary resuscitation) as taught by the appropriate medical authority. Periodic exercises and drills in CPR techniques are necessary to maintain proficiency.

All rescue, fire fighting, and medical personnel should be trained to protect themselves from the spread of communicable diseases should they become exposed to blood or other body fluids during rescue or emergency medical care activities.

The everyday medical problems at large airports may serve to promote an increased proficiency in emergency medical techniques of airport-based emergency personnel. It should be noted, however, that proficiency in emergency medical techniques can be maintained only through constant practical application. Unless operations include providing advanced life support on a day-to-day basis, proficiency will decline or disappear.

Airports are encouraged to include volunteer on-airport personnel, other than rescue and fire fighting personnel, to provide an auxiliary response to assist casualties resulting from emergencies. Volunteers should be trained by accredited agencies in first aid or rescue response duties. In case of an emergency they should respond to a designated staging area for assignment. The question of liability is a matter for each appropriate authority.

Due to the many conflicting national and international standards and nomenclature of medical personnel, for the purpose of this manual, the following definitions are prescribed as guidelines:

(a) Advanced First Aid: 56 hr instruction.

(b) Emergency Medical Technician (EMT): 114 hr instruction (100 hr classroom; 10 hr hospital emergency room apprentice service; 4 hr ambulance apprentice duty).

(c) Paramedic: 500 hr instruction (200 hr classroom; 100 hr hospital emergency room apprentice service; 200 hr ambulance apprentice duty).

Table A-11-1.1(a) Estimated Maximum Number of Casualties at an Aircraft Accident at an Airport

Aircraft Occupants	Number of Casualties	20 Percent Casualties Immediate Care Priority I	30 Percent Casualties Delayed Care Priority II	50 Percent Casualties Minor Care Priority III
500	124	24	38	62
450	112	22	34	56
400	100	20	30	50
350	87	17	26	44
300	75	15	23	37
250	62	12	19	31
200	50	10	15	25
150	38	8	11	19
100	25	5	8	12
50	12	2	4	6

(d) Recurrent training should be provided in each specialty and recertification achieved at least on an annual basis, or as required by the local jurisdiction.

Emergency Medical Supplies and Equipment. The airport authority should arrange to have available on or in the vicinity of the airport sufficient medical supplies to treat the passenger capacity of the largest aircraft normally using the airport. Experience has shown, however, that more than one aircraft can be involved in an aircraft accident, and consequently medical supplies to handle this possibility should be considered. The type and quantity of such supplies should be determined by the principal medical authority for the airport using the statistical information given in Table A-11-1.1(a).

These figures are based on the assumption that the maximum number of surviving casualties at an aircraft accident occurring on or in the vicinity of an airport is estimated to be no more than 25 percent of the aircraft occupants.

To cope with an emergency involving a large aircraft, it is recommended that the general emergency medical supplies and equipment included in Table A-11-1.1(b) be available at the airport or otherwise be available from outside sources. Table A-11-1.1(b) has been prepared to cope with the largest type of aircraft at present being used for commercial air transport operations, i.e., B747, DC-10, Airbus.

Table A-11-1.1(b) General Emergency Supplies and Equipment

Quantity	Description
100	stretchers, adaptable to the most commonly used ambulances
10	immobilizing mattresses for backbone fractures
10	backboards for backbone fractures
50	splints, either conventional or inflatable, for the various types of fractures
50	first aid kits, each containing a set of 10 tags, haemostatic pads, tourniquets, respiratory tube, scissors, dressings
20	resuscitation chests containing material for intubation, infusion, and oxygenation on the spot for about 20 casualties
2 or 3	manual or mechanical respirators
2 or 3	suction devices
300 to 500	plastic bags for the deceased

If, at any airport, only smaller aircraft will be handled during the foreseeable future, the suggested medical supplies and equipment should be adjusted to the largest aircraft expected to operate at the airport.

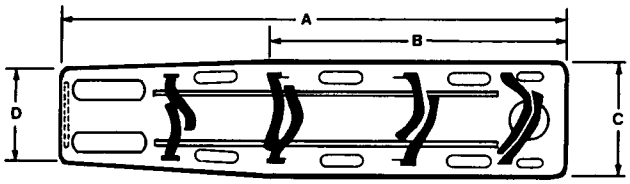
Stretchers, blankets, and backboards or immobilizing mattresses or both should be available for use, preferably on a suitable vehicle (e.g., trailer) that can be transported to the accident site. Blankets are needed to alleviate the casualty's exposure to shock and possible adverse weather conditions. Trauma victims in an aircraft accident sometimes sustain severe spinal injuries, so backboards should be used in removing such casualties from the aircraft in order to minimize the possibility of further spinal injury. The backboards should be of a type designed to fit through access ways and narrow aisles of commercial and business aircraft.

The following material describes some of the items included in Table A-11-1.1(b):

Immobilizing Mattress: This apparatus consists of a plastic bag designed like a mattress and filled with a lot of very small balls. An aspirator (mechanical or other) is used to take out the air so that the mattress is crushed by the atmospheric pressure and becomes as rigid as plaster. A human body, partly enveloped before the mattress is compressed, is completely wrapped and head, limbs, and backbone become immobilized, allowing any type of transportation, through the use of lateral rope loops. The apparatus is permeable to X-rays. Although the dimensions are variable, its length varies generally between 1.80 and 1.90 m (74 in.) and its width between 0.80 and 0.90 m (36 in.).

Backboards: These are classified as long and short backboards. The approximate dimensions for a long backboard are shown in Figure A-11-1.1(a). Although a backboard of 1.90 m (74 in.) is shown, some backboards of 1.83 m (72 in.) in length should be available to move through the smallest aircraft emergency exits, 510 mm (20 in.) wide and 915 mm (36 in.) high. A 75-mm (3-in.) wide velcro restraining strap is normally required for legs, hips, upper torso, and head.

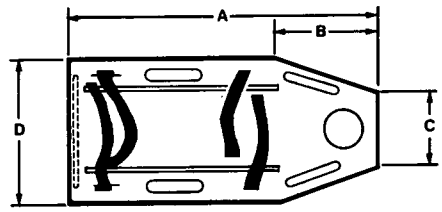
The appropriate dimensions for a short backboard are shown in Figure A-11-1.1(b) of this Appendix. A 75-mm (3-in.) wide velcro restraining strap is normally required for lower and upper torso.



A—1.90 m (74 in.)
B—1.10 m (43 in.)
C—0.46 m (18 in.)
D—0.25 m (10 in.)
Thickness: 19-mm (¾-in.) plywood
Head hole: 140-mm (5-in.) diameter
Hand holes: 250 mm × 50 mm (10 in. × 2 in.)
Foot holes: 250 mm × 75 mm (10 in. × 3 in.)

Note: 25-mm (1-in.) cleats should be placed longitudinally on the underside of the backboard to facilitate lifting.

Figure A-11-1.1(a) Long backboard.



A—0.91 m (36 in.)
B—0.30 m (12 in.)
C—0.20 m (8 in.)
D—0.41 m (16 in.)
Thickness: 16-mm (⅝-in.) plywood
Head hole: 114-mm (4-in.) diameter
Hand holes: 150 mm × 38 mm (6 in. × 1 in.)

Note: 25-mm (1-in.) cleats should be placed longitudinally on the underside of the backboard to facilitate lifting.

Figure A-11-1.1(b) Short backboard.

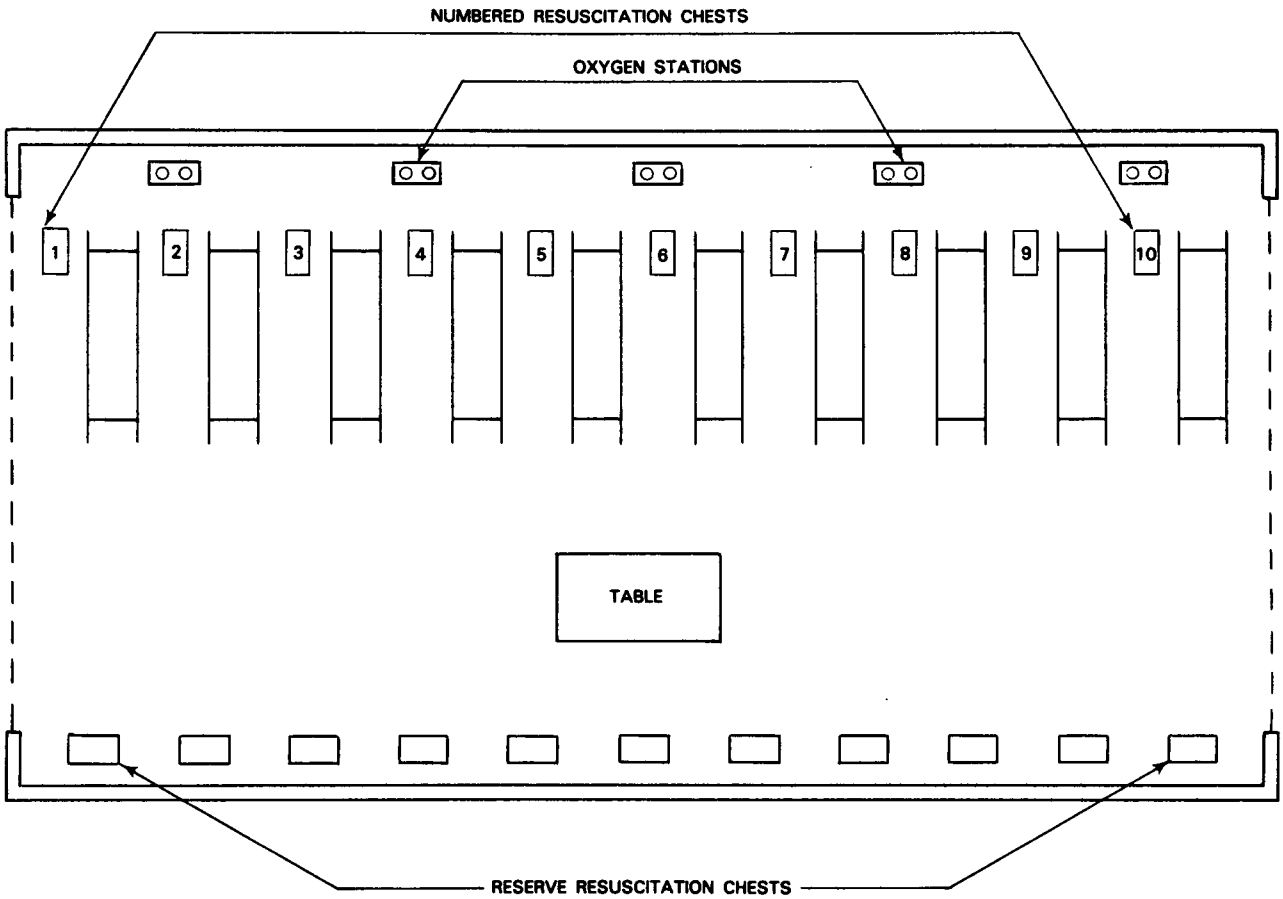


Figure A-11-1.1(c) Schema of an inflatable tent.

Figure A-11-1.1(d) Containerized hospital emergency mobile.

Figure A-11-1.1(e) Interior view of containerized hospital emergency mobile.

Miscellaneous Items.

(a) Inflatable tents should have adequate heating and lighting where possible. A large tent can normally accommodate about ten serious cases and can be carried on a large all-purpose vehicle along with the other necessary medical equipment.

(b) Mobile emergency hospitals or inflatable tents, if available [*see Figures A-11-1.1(c), A-11-1.1(d), and A-11-1.1(e)*], or shelters can be used for on-site treatment of Immediate Care (Priority I—Red) and Delayed Care (Priority II—Yellow) casualties. These units should be readily available for rapid response. Planning should also include the assignment of personnel who can operate/assemble this equipment. A cardiac care ambulance unit can be used as an ideal shelter for Immediate Care (Priority I—Red) casualties.

Emergency Medical Communication System. Communication is a primary requisite of an airport/community emergency medical plan. The medical service communication system should ensure adequate communication during emergencies to disseminate warning information and obtain support operations. Without communication the hospital cannot know the number and type of casualties it will be receiving, ambulances cannot be directed to the facilities most capable of rendering the needed care, supplies available from outside sources cannot be called for, and medical personnel cannot be directed to the point where they are needed most.

The participating hospitals should have the capability of communicating with one another by means of a two-way radio communication network. Ideally, each hospital should have the capability of either calling other individual hospitals or, if the occasion arises, calling all other hospitals simultaneously. This capability is invaluable for hospitals experiencing an emergency such as a requirement for a certain blood type or an item of equipment in short supply. It is also recommended that the medical coordinator be able to communicate with participating hospitals directly.

Emergency Medical Transportation Facilities. The dispatch of casualties to hospitals from the accident site should take into consideration the hospital(s) medical personnel on staff, medical specialties, and beds readily available. Ideally, each airport should have available at least one on-call ambulance for routine medical emergencies. Written agreements with off-airport based ambulances should be prepared to provide for emergency transportation services.

In major emergency situations, other means of transportation may be substituted for ambulances. Vans, buses, automobiles, station wagons, or other suitable airport vehicles may be used. Provision for immediate transportation should be available to transport the uninjured or apparently uninjured to a designated holding area.

An area grid map (with date of latest revision) of the airport's surrounding area should be carried by all rescue vehicles. All medical facilities should be depicted prominently on the grid map. (*See Figure A-4-2.2, grid map.*)

Assessment of Airport Medical Care Facilities' Needs (Medical Clinic or First Aid Room or Both)

General Factors Influencing Need. There are many general factors that influence the need for an airport first aid room or an airport medical clinic. Factors to be taken into consideration include:

(a) The number of passengers served annually and the number of employees based on the airport;

(b) The industrial activity on the airport property and in the surrounding community;

(c) The distance from adequate medical facilities; and

(d) Mutual aid medical services agreements.

Generally, it may be recommended that an airport medical clinic be available when the airport employees number 3,000 or more and that a first aid room be available at every airport. The airport medical care or first aid room personnel and facilities should be integrated into the airport/community emergency plan.

The airport medical clinic, in addition to providing emergency medical care to the airport population, may extend emergency care to communities surrounding the airport, if these communities have no emergency facilities of their own.

The airport medical clinic may be included in the community emergency services organization and planning. In the event of a large-scale nonairport local emergency, the airport medical clinic may function as the coordination site for direction of incoming medical personnel assistance as well as medical supplies and equipment.

Location of Airport Medical Care Facilities. The facilities should be readily accessible to the airport terminal building, to the general public, and to emergency transportation equipment (i.e., ambulances, helicopters, etc.). Site selection should avoid the problem of needing to move injured persons through congested areas of the airport terminal building, while providing access to the facility by emergency vehicles. The medical care facility should be located to allow access from the air side of the airport terminal building, as this provides control over unauthorized vehicles interfering with emergency equipment.

Airport Medical Care Facility Personnel. The number of trained personnel and degree of expertise needed by each individual will depend on the particular airport's requirements. The staff of the airport medical clinic should form the nucleus of the medical services planning for the airport/community emergency plan (and be responsible for implementation of the medical portion of the plan). It is recommended that the airport first aid room at least be staffed with highly qualified first aid personnel.

In general it is recommended that during the principal hours of airport activity at least one person trained to deal with the following be available within 3 to 5 min:

(a) Cardiopulmonary resuscitation (CPR).

(b) Bleeding from a traumatic source.

(c) Heimlich maneuver (choking).

(d) Fractures and splinting.

(e) Burns.

(f) Shock.

(g) Emergency childbirth and immediate care of newborns, including prematures.

(h) Common medical conditions that may influence the outcome of injury (allergies, high blood pressure, diabetes, pacemaker, etc.).

(i) Basic measures for treatment and protection subsequent to spills or leaks of radioactive materials or toxic or poisonous substances.

(j) Treatment of emotionally disturbed persons.

(k) Recognition of, and first aid for, poisons, bites, and anaphylactic shock.

(l) Transportation techniques for injured persons.

The person responsible should have authority to order hospitalization if necessary and to arrange any needed transportation.

The airport authority should obtain the advice and direction of a consulting emergency medical care physician as to the allotment and design of equipment for the first aid room commensurate with the anticipated needs of the particular airport.

The equipment and the medical supply inventory of the airport medical clinic should be established by the staff in charge of the clinic.

The airport medical care facility should be equipped to handle cardiac arrest and other types of injuries and illnesses associated with industrial medicine. If drugs are maintained, provision should be made to ensure full security.

Emergency oxygen and respiratory equipment should be available to treat smoke inhalation victims.

Since the majority of nonaccident related medical emergencies at airports involve coronary problems, advance life support systems including oxygen, oxygen regulators, and other elements for cardiopulmonary care should be readily available. In addition, first aid kits (containing drugs, a wide selection of bandages and splints, blood transfusion equipment, and burn and maternity kits), chains, ropes, crowbars, and metal cutters should be available.

A-11-6.7 Casualty Identification Tag. Figures A-11-6.7(a) and A-11-6.7(b) illustrate an example of a casualty identification tag suitable for multilingual applications.

A-12-1.1 Preservation of Evidence for Aircraft Accident Investigations. Airport fire fighters and other rescue personnel should understand the basic need for and the techniques and procedures used in aircraft accident investigation. Wherever possible the wreckage should remain undisturbed until the arrival of the first accident investigator. However, where absolutely necessary for the rescue or fire suppression activities, the wreckage may be disturbed. Disturbance should be kept to a minimum. Where circumstances permit, any bodies should be left as found.

If it becomes necessary to move bodies or parts of the wreckage, a sketch plan of their respective positions prior to removal should be made as soon as possible. Photographs should also be taken showing the relative position of bodies and parts within the wreckage. In addition, tags should be affixed to each body or part displaced, and corresponding stakes or tags should be placed where they were found in the wreckage. Special precautions should be taken not to disturb anything in the cockpit area. Should any control be displaced voluntarily or accidentally, notes should be taken.

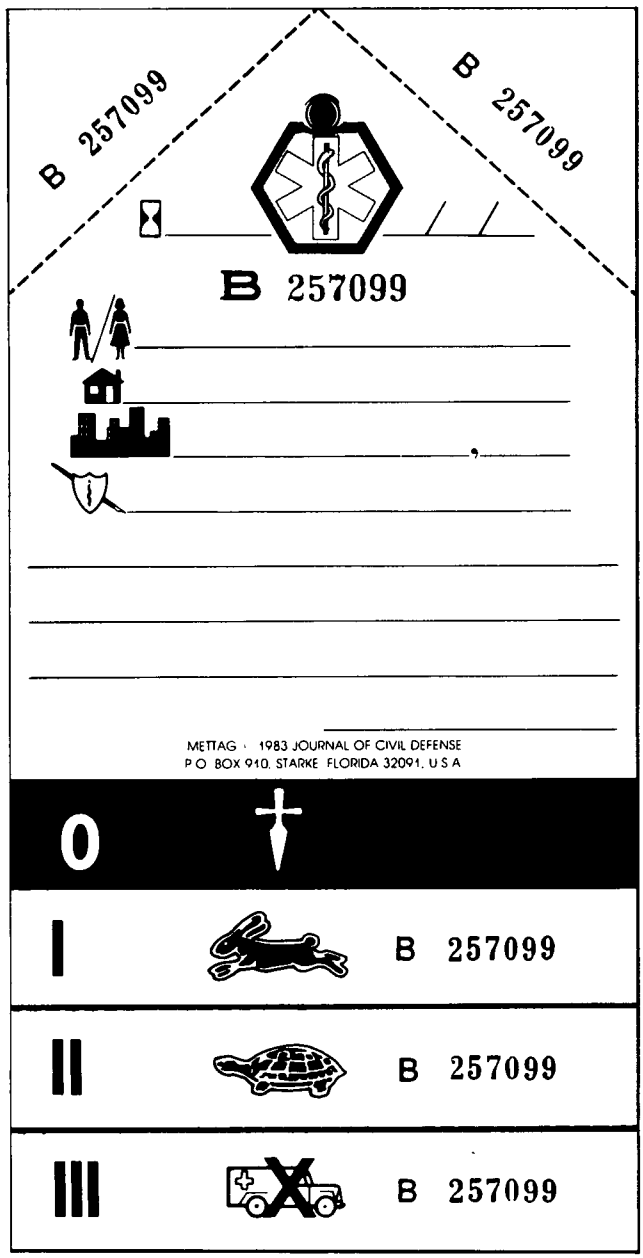


Figure A-11-6.7(a) Casualty identification tag—front.

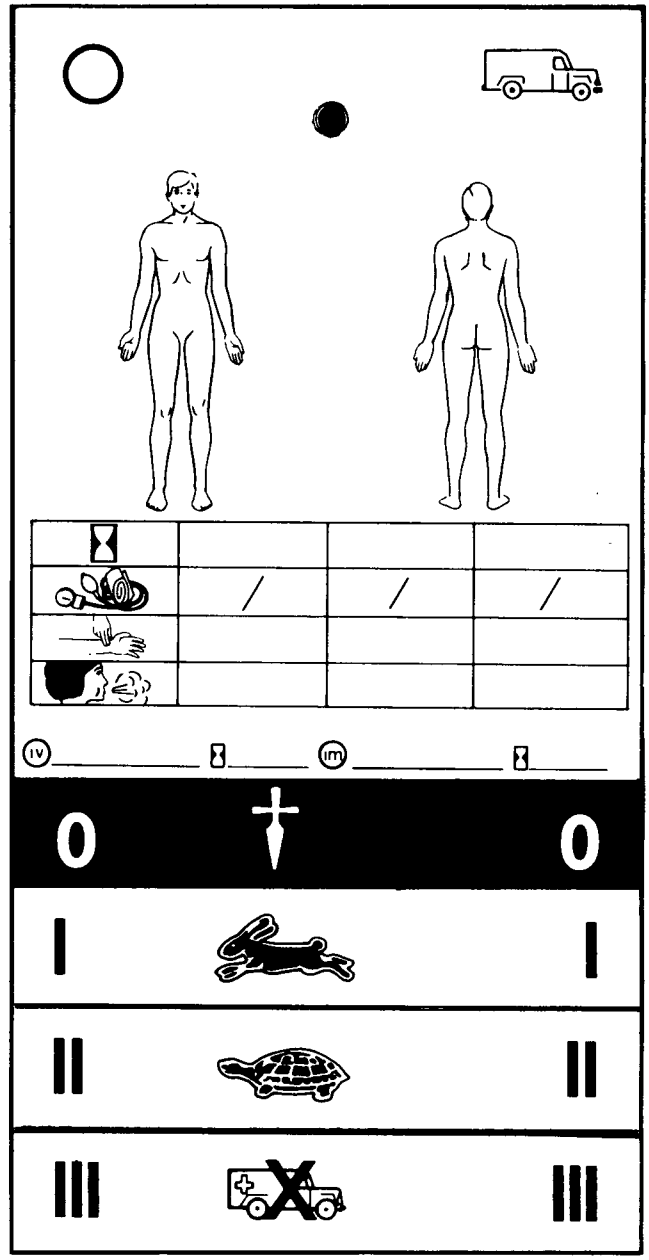


Figure A-11-6.7(b) Casualty identification tag—back.

Security measures within the wreckage area should be established as soon as possible. All authorized personnel should have and display proper "Emergency Access" identification as required by the airport/community emergency plan.

All security personnel should be briefed on proper identification procedures. Two-way radio communication with appropriate authorities on the site can help identify any person seeking entry whose credentials are questionable.

Accident sites can be exceptionally dangerous areas, owing to the possible presence of flammable fuels, dangerous goods (hazardous materials), and scattered pieces of wreckage. All necessary safety precautions in the emergency area should be carried out rigidly; this includes exercising good judgment during fire control and throughout all rescue efforts. Safety equipment and approved protective clothing should be worn by all personnel involved. All other personnel should remain outside the security perimeter until the chief fire officer declares the area safe.

As soon as practical after the emergency, all participants in the fire fighting and rescue efforts should be debriefed and their observations recorded by the proper authorities. Sketches, diagrams, photographs, movie films, and tape and video recordings made on the accident site as well as

appropriate details on the tagging of bodies and parts of the wreckage removed from their position are invaluable tools for investigators and should be handed to the investigator-in-charge upon his/her arrival.

In the United States major aircraft accidents are investigated by the National Transportation Safety Board, 800 Independence Avenue SW, Washington, DC 20591, except those delegated by the Board to the Federal Aviation Administration. Part 430 (Rules Pertaining to Aircraft Accidents, Incidents, Overdue Aircraft, and Safety Investigations) of the National Transportation Safety Board, Section 430.10 reads:

Civil aircraft accident investigation is normally conducted by a number of investigators of the National Transportation Safety Board or their designees interested in establishing the probable cause. Federal or state governments are usually charged with the official responsibility but the operators, pilot groups, airport management, and others may be active in accident investigation work. Fire officials normally make their own investigation. To aid this, NFPA 422M, *Manual for Aircraft Fire and Explosion Investigators*, has been prepared to guide them in their study of the fire factors involved.

For further guidance on preservation of evidence see: NFPA 402M, *Manual for Aircraft Rescue and Fire Fighting Operations*, Chapter 7 and Appendix E; NFPA 422M, *Manual for Aircraft Fire and Explosion Investigators*, Chapter 4.

A-13-4.2

Emergency Exercise Critique Form
XYZ International Airport

Person performing critique _____

General

1. Date and time of emergency _____
2. Emergency location _____
3. Type of emergency _____

Rescue Operations

Person performing critique _____
Organization _____

4. Time of emergency notification _____

5A. First agency or individual to arrive at emergency _____

B. Time of arrival _____

6A. Arrival time of airport rescue fire fighting service at emergency _____

B. Approximate number of fire personnel at site _____

C. Time and type of first fire protection action (foam, dry chemical, etc.) _____

7A. Time first casualty evacuated from aircraft _____

B. How evacuated _____

C. Number of casualties evacuated from inside aircraft _____

D. Time last casualty evacuated from aircraft _____

Comments: _____

8A. Number of injured _____

B. Number of noninjured _____

C. Number of dead _____

9A. Time first casualty transported to triage area _____

B. Time last casualty transported to triage area _____

10A. Name of other services participating in first aid _____

B. Who was in charge of these services? _____

C. How many persons involved? _____

11A. Name of other organizations participating in rescue operations _____

B. How many persons involved? _____

12. Was the moulage realistic? _____

Security

Person performing critique _____
Organization _____

13A. Time of emergency notification to police/security _____

B. Who was first police/security officer to arrive at emergency site? _____

C. Time of arrival _____

14A. How many persons involved? _____

B. Did command of security at emergency site change at any time? _____ If so, give sequence of command change and agency represented

15. Was the traffic satisfactorily controlled? _____

16. Was there any provision for the security of personal effects? _____

17. Any special problems at accident site with security (spectators, etc.)? _____

Medical Services

Person performing critique _____
Organization _____

18A. Who was first medical official to arrive at emergency site? _____ Medical facility associated with? _____

B. Time of notification _____

C. How notified? _____

D. By whom? _____

E. Arrival time at emergency site _____

19A. Who was the medical coordinator in charge of medical care and evacuation of casualties? _____

B. Time of notification _____

C. How notified? _____

D. By whom? _____

E. Arrival time at emergency site _____

20A. Number of physicians responding _____

B. Number of nursing personnel responding _____

21A. Was a triage area designated at emergency site? _____

B. Was the triage area located to expedite the flow of casualties? _____

C. Were the casualties properly classified and tagged? _____

D. Were the casualties moved quickly to receiving hospitals? _____

22. How were medical and first aid personnel identified? _____

23A. What time were relief agencies (Red Cross, Salvation Army, etc.) notified? _____

B. How notified? _____

C. By whom? _____

D. Arrival time _____

E. Personnel participating _____

Ambulances

Person performing critique _____
Organization _____

24A. Time of notification to ambulances _____

B. How notified? _____

C. By whom? _____

D. Name of ambulance company _____

E. Time of arrival at accident site of first ambulance _____

25A. How many casualties did ambulance handle? _____

B. Time of departure _____

C. Hospital _____

D. Arrival time at hospital _____

26A. Was ingress or egress to accident site a problem? _____

Explain: _____

B. Any special problems driving from accident site to hospital? _____

Explain: _____

Hospitals

Person performing critique _____
Organization _____

27. Number of physicians responding _____

28. Number of nursing personnel responding _____

29. Number of other hospital personnel responding _____

30. Number of casualties received _____

31. Kind of casualties received _____

32A. Time first alert was received _____

B. Time disaster message authenticated _____

C. Time first casualties arrived _____

D. Time first casualties were seen by a physician _____

E. Time last casualties arrived _____

F. Time last casualties were seen by a physician _____

Leadership

Person performing critique _____
Organization _____

33. Did leadership by incident commander cause people to take effective action? _____

34. Were there any problems in the coordination of medical, fire, police, and other services? _____

35. Was the general spirit of the participants conducive to the success of the exercise? _____

36. Who demonstrated leadership? _____

Public Information

Person performing critique _____
Organization _____

37A. Time of notification to airport public information officer _____

B. How notified? _____

C. Arrival time _____

38A. Who was the public relations officer? _____

B. From what organization? _____

39. What special problems were indicated? _____

Explain: _____

Communications and Control

Person performing critique _____
Organization _____

40. Did the command post perform effectively? _____

41. Did the emergency operations center perform effectively? _____

42. Was the personnel call system effective? _____

43. Was the physician call system effective? _____

44. Was the emergency message accurately received? _____

45. Were communications with the hospitals effective? _____

46. Were there any problems with internal communications? _____

47. What kinds of communications systems were used? _____

A. two-way radio _____
B. telephone _____
C. walkie-talkie _____
D. messenger _____
E. other _____

NARRATIVE: Make any comments that may be helpful in evaluating this exercise _____

Appendix B

This Appendix is not a part of the recommendations of this NFPA document, but is included for information purposes only.

Table B-1 International Aircraft Markings.

A-2-	Botswana	TC-	Turkey
A6-	United Arab Emirates	HA-	Hungary
A7-	Qatar	HB-	Switzerland
A40-	Oman	HB-	Liechtenstein
AP-	Pakistan	HC-	Ecuador
B-	China	HH-	Haiti
C-2-	Nauru	HI-	Dominican Republic
C5-	Gambia	HK-	Colombia
CC-	Chile	HL-	Korea (Rep. of)
CCCP-	U.S.S.R	HP-	Panama
C-, CF-	Canada	HR-	Honduras
CN-	Morocco	HS-	Thailand
CP-	Bolivia	HZ-	Saudi Arabia
CR-, CS-	Portugal	I-	Italy
CU-	Cuba	J2-	Djibouti
CX-	Uruguay	J6-	St. Lucia
D-	Germany (Fed. Rep.)	JA-	Japan
D2-	Angola	JY	Jordan
DQ-	Fiji	LN-	Norway
LV, LQ	Argentina	LX-	Luxembourg
DZ-	Angola	LZ-	Bulgaria
EC-	Spain	N-	U.S.A.
EI-, EJ-	Ireland	OB-	Peru
EL-	Liberia	oD-	Lebanon
EP-	Iran	OE-	Austria
ET-	Ethiopia	OH-	Finland
F-	France	OK-	Czechoslovakia
G-	United Kingdom	ZK-	New Zealand
OO-	Belgium	ZP-	Paraguay
OY-	Denmark	ZS-, ZT-, ZU-	South Africa
P-	North Korea	3A-	Monaco
P2-	Papua New Guinea	3B-	Mauritius
PDRL-	Laos	3C-	Equatorial Guinea
PH-	Netherlands	3D-	Swaziland
PJ-	Netherlands Antilles	3X-	Guinea
PK-	Indonesia	4R-	Sri Lanka
PK-	West Irian	4W-	Yemen
PP-, PT-	Brazil	4X-	Israel
PZ-	Surinam	5A-	Libya
RP-	Philippines	5B-	Cyprus
S-2-	Bangladesh	5H-	Tanzania
SE-	Sweden	5N-	Nigeria
SP-	Poland	5R-	Madagascar
ST-	Sudan	5T-	Mauritania
SU-	Egypt	YU-	Yugoslavia
SX-	Greece	YV-	Venezuela
TF-	Iceland	5U-	Niger
TG-	Guatemala	5V-	Togo
TI-	Costa Rica	5W-	Western Samoa
TJ-	Cameroon	5X-	Uganda
TL-	Central African Rep.	5Y-	Kenya
TN-	Congo	60-	Somalia
TR-	Gabon	6Y-	Jamaica
GV, GW	Senegal	7O-	Democratic Yemen
TS-	Tunisia	7P-	Lesotho
TT-	Chad	7QY-	Malawi
TU-	Ivory Coast	7T-	Algeria
TY-	Benin	8P-	Barbados
TZ-	Mali	8Q-	Maldives
VH-	Australia	8R-	Guyana
VP-, VQ-, VR-	U.K. Colonies & Protectorates	9G-	Ghana
VT-	India	9H-	Malta
XA-, XB-, XC-	Mexico	9J-	Zambia
XT-	Upper Volta	9K-	Kuwait
XU-	Democratic Kampuchea	9L-	Sierra Leone
XV-	Vietnam	9M-	Malaysia
XY-, XZ-	Burma	9N-	Nepal
YA-	Afghanistan	9Q-	Zaire
YI-	Iraq	9U-	Burundi
YK-	Syrian Arab Rep.	9V-	Singapore
YR-	Romania	9XR-	Rwanda
YS-	El Salvador	9Y-	Trinidad and Tobago

Appendix C Recommended Reference Sources

C-1 Recommended Publications. The following documents or portions thereof are recommended within this Appendix for informational purposes only. The edition indicated for each reference is the current edition as of the date of the NFPA issuance of this document.

C-1.1 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.

NFPA 10, *Standard for Portable Fire Extinguishers*, 1990 edition

NFPA 402M, *Manual for Aircraft Rescue and Fire Fighting Operations*, 1991 edition

NFPA 403, *Standard for Aircraft Rescue and Fire Fighting Services at Airports*, 1988 edition

NFPA 407, *Standard for Aircraft Fuel Servicing*, 1990 edition

NFPA 408, *Standard for Aircraft Hand Fire Extinguishers*, 1989 edition

NFPA 409, *Standard on Aircraft Hangars*, 1990 edition

NFPA 412, *Standard for Evaluating Aircraft Rescue and Fire Fighting Foam Equipment*, 1987 edition

NFPA 414, *Standard for Aircraft Rescue and Fire Fighting Vehicles*, 1990 edition

NFPA 415, *Standard on Aircraft Fueling Ramp Drainage*, 1987 edition

NFPA 416, *Standard on Construction and Protection of Airport Terminal Buildings*, 1987 edition

NFPA 417, *Standard on Construction and Protection of Aircraft Loading Walkways*, 1990 edition

NFPA 418, *Standard for Heliports*, 1990 edition

NFPA 419, *Guide for Master Planning Airport Water Supply Systems for Fire Protection*, 1987 edition

NFPA 422M, *Manual for Aircraft Fire and Explosion Investigators*, 1989 edition

NFPA 1001, *Standard for Fire Fighter Professional Qualifications*, 1987 edition

NFPA 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications*, 1988 edition

NFPA 1003, *Standard for Airport Fire Fighter Professional Qualifications*, 1987 edition

NFPA 1561, *Standard on Fire Department Incident Management System*, 1990 edition

NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire Fighters*, 1987 edition

Fire Protection Guide on Hazardous Materials.

C-1.2 Aircraft Rescue and Fire Fighting Manuals.

U.S. Navy *Aircraft Firefighting and Rescue Manual*, NAVAIR 00-80R-14, 1983. (Available from Naval Air Systems Command, Code 1416C, Washington, DC 20360.)

Aircraft Fire Protection and Rescue Procedures (3rd Edition 1984), IFSTA 206. (Available from International Fire Service Training Association, Oklahoma State University, Stillwater, OK 74074.)

Aircraft Emergency Rescue Information, Technical Manual, T.O. 00-105-9. (Available from Hq. NRAMA-MMSTD, Robins Air Force Base, Georgia 31093.)

C-1.3 Aircraft Rescue and Fire Fighting Publications.

AD 739-027, *A Proposed Method for Evaluating Fire Prevention Efforts by the Airport Manager of Non-Hub Airports*, 1970. (Available from National Technical Information Service, Springfield, VA 22151.)

AS-71-1, *Minimum Needs for Airport Fire Fighting and Rescue Service*, January 1971. (Available from National Technical Information Service, Springfield, VA 22151.)

AFAPL-TR-73-74, *Fire and Explosion Manual for Aircraft Accident Investigations*, August 1973, Joseph M. Kuchta, Pittsburgh Mining and Safety Research Center, Bureau of Mines Report No. 4193 published by U.S. Dept. of the Air Force, Air Force Aeoro Propulsion Laboratory, AFAPL/SFH, Wright-Patterson Air Force Base, OH 45433.

C-1.4 Typical ICAO Publications. Available from International Civil Aviation Organization, 1000 Sherbrooke St. W, Montreal, Quebec, Canada H3A 2R2.

International Standards and Recommended Practices—Aerodromes, Annex 14, Eighth Edition—March 1983.

Airport Services Manual, Part 1, "Rescue and Fire Fighting," Second Edition, 1984, Doc. 9137-AN/898..

Airport Services Manual, Part 5, "Removal of Disabled Aircraft," First Edition, 1977, Doc. 9237-AN/898.

Airport Services Manual, Part 7, "Airport Emergency Planning," First Edition, 1980, Doc. 9137-AN/898.

Heliport Manual, First Edition, 1979, Doc. 9261-AN/903.

Training Manual, Aerodrome Fire Services Personnel, First Edition, 1976, Doc. 7912-AN/857, Part E-2.

Manual of Aircraft Accident Investigation, Fourth Edition, 1970, Doc. 6920-AN/855/4.

Aircraft Accident Digests, Numbers 1—26.

Technical Instructions for the Safe Transport of Dangerous Goods by Air.

Security Manual for the Prevention of Unlawful Acts Against Aircraft.