



THE FLORIDA DEPARTMENT OF TRANSPORTATION

AVIATION

EMERGENCY

R E S P O N S E

GUIDEBOOK

FLORIDA DEPARTMENT OF TRANSPORTATION

Aviation Emergency Response Guidebook

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AVIATION EMERGENCY RESPONSE GUIDEBOOK

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- Miami International Airport
- Northwest Florida Beaches International Airport
- Ocala International Airport / Jim Taylor Field
- Orlando Apopka Airport
- Orlando International Airport
- Orlando Sanford International Airport
- Page Field
- Sarasota/Bradenton International Airport
- Treasure Coast International Airport
- Vero Beach Regional Airport
- Wakulla County Airport
- Witham Field

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INTRODUCTION

PURPOSE OF THE AVIATION EMERGENCY RESPONSE GUIDEBOOK

The Florida Department of Transportation (FDOT) developed this *Aviation Emergency Response Guidebook* (the *Guidebook*) and associated materials through a cooperative effort with Florida airports to serve as a resource for both emergency-response staff at Florida's public-use airports and non-airport emergency responders. The *Guidebook* is an informational tool for airport directors and staff to use when developing, evaluating, updating, or exercising an Airport Emergency Plan (AEP), and to inform emergency responders who are not experienced with airport operations or airport emergencies.

COMPONENTS OF THE AVIATION EMERGENCY RESPONSE GUIDEBOOK

The *Guidebook* includes the following sections and appendices:

- Requirements and Regulations
- Emergency Types
- Agencies Involved in Emergency Response
- Specialized Equipment Used During Aviation Emergencies
- Best Management Practices
- Case Studies
- Specialized Equipment Photo Log
- General Information Specific to Airport Operations
- Example Mutual Aid Agreements and Letters of Agreement
- Airport Emergency Response Plan Templates
 - Airport Emergency Plan Guide for Airports Not Certified in Accordance with Title 14, Code of Federal Regulations (CFR) Part 139 (14 CFR Part 139) *Certification of Airports*
 - Airport Emergency Plan Guide for Airports Certified in Accordance with Title 14 CFR Part 139
- National Transportation Safety Board (NTSB) Accident Reporting
- Additional Resources and References
- Basic Aircraft Guide for Emergency Responders (the Basic Aircraft Guide)

The summary of “Emergency Types,” “Agencies Involved,” and description of “Specialized Equipment Used During Aviation Emergencies” provides background information collected through a representative survey of public-use airports in Florida. These sections are intended to provide a broad overview of aviation-related emergencies, which may be helpful to those not directly involved with aviation on a regular basis.

The “Best Management Practices” section includes procedures, policies, and ideas identified by airports in Florida that may be useful to staff at other public-use airports. The “Case Studies” section provides specific examples to provide a broad range of emergency situations associated with aircraft incidents. The lessons learned from these case studies can become best management practices.

The “Specialized Equipment Photo Log” provides photographic examples and written descriptions of emergency equipment that could be used at airports during an emergency situation. The “General Information Specific to Airport Operations” appendix provides information about the types of signage and pavement markings, general airport layouts, and identified hazardous areas that may be encountered on an airport facility. This section will be useful to emergency responders who are not familiar with aviation facilities.

The “Example Mutual Aid Agreements and Letters of Agreement” appendix includes information gathered from the Federal Aviation Administration (FAA) Advisory Circular (AC) FAA AC 150/5200-31C, *Airport Emergency Plan*, to compile sample mutual aid agreements and letters of agreement.

The “Airport Emergency Plan Templates” appendix is intended to serve as a resource to airport staff during the development, evaluation, or update of AEPs. Many of the procedures, policies, and ideas identified in the “Best Management Practices” section of the *Guidebook* are also incorporated into these templates. Due to the federal requirements associated with AEPs, separate templates have been developed for (1) airports that are not certified in accordance with 14 CFR Part 139, which are typically general aviation airports, and (2) airports that are certified in accordance with 14 CFR Part 139, which are generally known as air carrier airports.

The “National Transportation Safety Board (NTSB) Accident Reporting” appendix provides a summary of the regulations under 49 CFR Part 830, *Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage, Mail, Cargo, and Records*. This appendix also provides the NTSB Form 6120.1 *Pilot/Operator Aircraft Accident/Incident Report*.

The “Basic Aircraft Guide for Emergency Responders” is a tool for first responders to use to identify certain critical details about different makes and models of aircraft, such as fuel tank locations, fuel line locations, fuel capacity, battery locations, the presence of ballistic recovery parachutes, and passenger capacity. The Basic Aircraft Guide also includes diagrams illustrating fuel and electrical shutdown procedures, manufacturer recommendations for fire suppression and hazardous conditions, and communication procedures. This aircraft guide can aid first responders by allowing them to become familiar with basic characteristics of a certain aircraft before they arrive at the site of the emergency involving an aircraft.

METHODOLOGY

Data collection efforts during the development of the *Guidebook* included a review of federal and State of Florida requirements, regulations, and guidance; discussions with aviation planners, engineers, FDOT Aviation Office staff, and emergency responders; and a representative survey of Florida airports. The representative survey was designed to collect information regarding the types of emergencies that occur both on airport property and outside of airport property, the agencies typically involved in aviation-related emergency response, the types of specialized equipment needed for aviation-specific emergencies, and the best management practices that should be incorporated into AEPs. The survey was administered to a sample of Florida's public-use airports, including both airports certified in accordance with 14 CFR Part 139-certified and non-certified airports. The airports selected to participate in the survey represent both commercial service airports and general aviation airports. Relatively small, medium, and large-sized facilities were selected. The selected airports included facilities with jet-engine or turboprop aircraft, airports with piston-engine aircraft, airports with rotary-wing/helicopter aircraft, and airports with seaplanes. The results of the survey are incorporated into the following sections of the *Guidebook*.

REQUIREMENTS AND REGULATIONS

REVIEW OF FEDERAL REQUIREMENTS

14 CFR Part 139 requires all certificated airports develop an AEP. FAA AC 150/5200-31C, *Airport Emergency Plan*, provides guidance in meeting the requirements of 14 CFR Part 139 and requires that all certificated airports implemented an AEP by June 30, 2011. For all other airports, the FAA recommends following the guidelines and standards provided in AC 150/5200-31C for the development of an AEP. Non-certificated airports must follow the guidelines provided in Homeland Security Presidential Directive 5 (HSPD-5): *Management of Domestic Incidents* and Homeland Security Presidential Directive 8 (HSPD-8): *National Preparedness*. These federal requirements are incorporated into the various sections of the *Guidebook*, as appropriate, and are also listed in **Appendix F - Additional Resources and References**.

EMERGENCY TYPES

In addition to the review of the FAA’s Accident/Incident Database System (AIDS), a survey of Florida airports was performed to identify emergencies that could occur at the state’s public-use airports. While this section is not intended to be an exhaustive list of every possible aviation-related emergency that could occur on airport property or involve an aircraft, the following is a summary of the aviation-related emergencies specifically noted by staff at Florida’s public-use airports and through independent research.

AIRCRAFT-SPECIFIC EMERGENCIES

ACCIDENTS AND INCIDENTS

The FAA defines an accident as “an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage.” These aircraft accidents are recorded in the FAA’s AIDS and in the NTSB Aviation Accident Database (AAD). According to the AAD, there were 503 recorded accidents by airplanes and helicopters in Florida between January 2015 and December 2019. More than 70% of these accidents occurred during the takeoff or landing phase of flight.

The severity of injuries associated with aircraft accidents range from minor to fatal injuries. Both the FAA and the NTSB define a fatal injury as, “any injury that results in death within thirty days of the accident.” Accidents that result in fatalities or fatal injuries are the worst-case scenario and require immediate response from local fire and/or emergency rescue services and law enforcement agencies, and response from the FAA and the NTSB. Out of the 503 airplane and helicopter accidents recorded in Florida, approximately 82% were non-fatal injuries and more than half occurred during the landing and takeoff phase of flight.

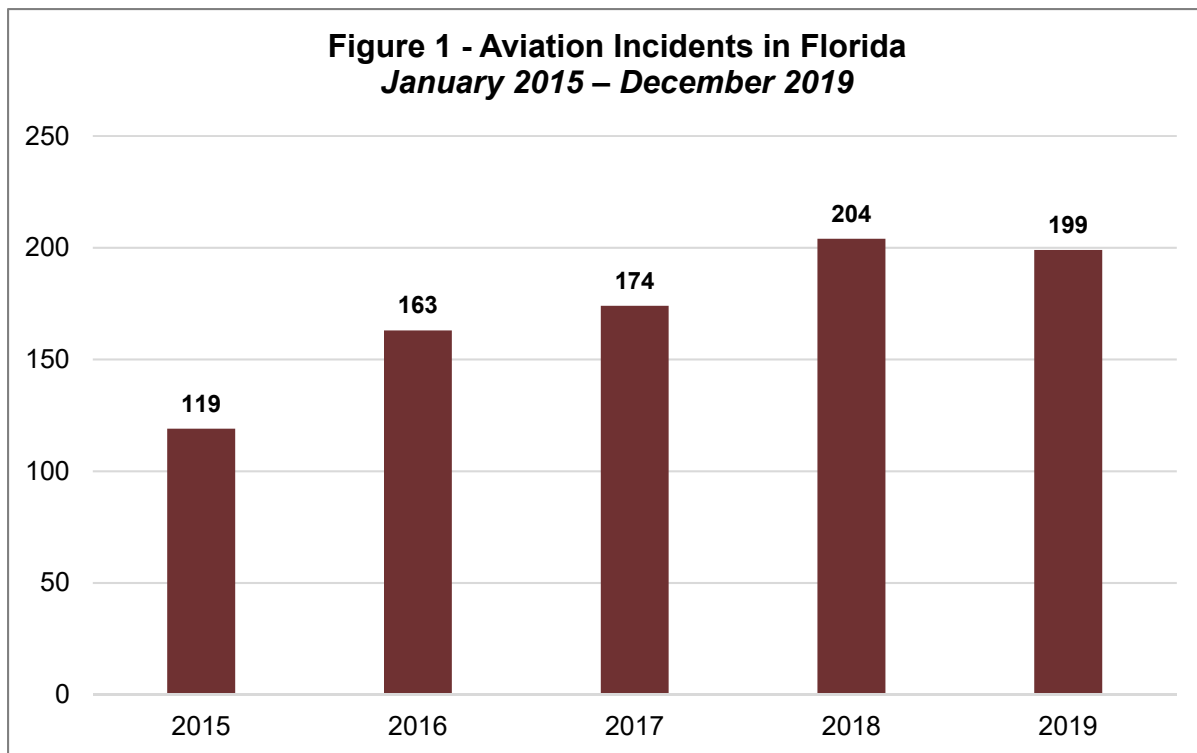
Incidents, which are not considered accidents, are included in both the FAA and NTSB databases. Incidents are defined as “an occurrence other than an accident with the operation of an aircraft, which affects or could affect the safety of operations.” According to the FAA’s AIDS, there were 859 civil aircraft incidents in Florida from January 2015 through December 2019. Aircraft damage ranged in severity from minor to substantial damage and included approximately 200 different aircraft manufacturers. The number of incidents reported in the FAA’s AIDS is greater than the number of accidents reported by the NTSB because the AIDS database contains reports of incidents that have not resulted in aircraft damage sufficient enough to reach the damage threshold of an NTSB-defined accident. The FAA classifies aircraft damage according to the following:

- **Destroyed/demolished** – An aircraft damaged to the extent that it would be impracticable to return the aircraft to an airworthy condition.
- **Substantial damage** – Damage or failure which adversely affect the structural strength, performance or flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component.
- **Minor damage** – The aircraft is deemed airworthy upon completing simple repairs or replacing minor parts and an extensive inspection is not necessary.

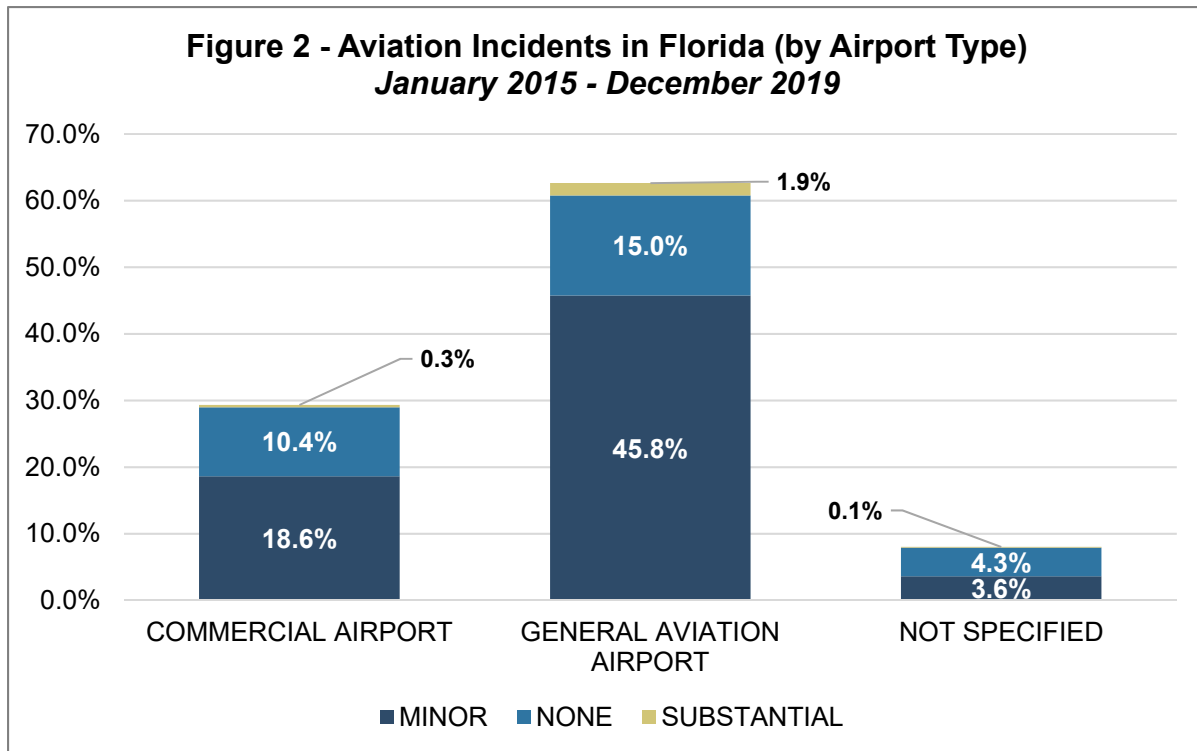
- **None** – The aircraft did not receive any damage as a result of a reportable incident.

As indicated in **Figure 1**, the number of incidents (including accidents) recorded in FAA’s AIDS as occurring in Florida has steadily increased since 2015. In 2019, there were 199 reported incidents in the state of Florida compared to 119 in 2015. As indicated in **Figure 2**, approximately 62% of incidents between January 2015 and December 2019 were at general aviation airports and resulted primarily in minor aircraft damage (45.8%). During the same time period, approximately 29% of reported aircraft incidents in Florida were at commercial airports with 18.6% of those incidents resulting in minor aircraft damage according to FAA AIDS.

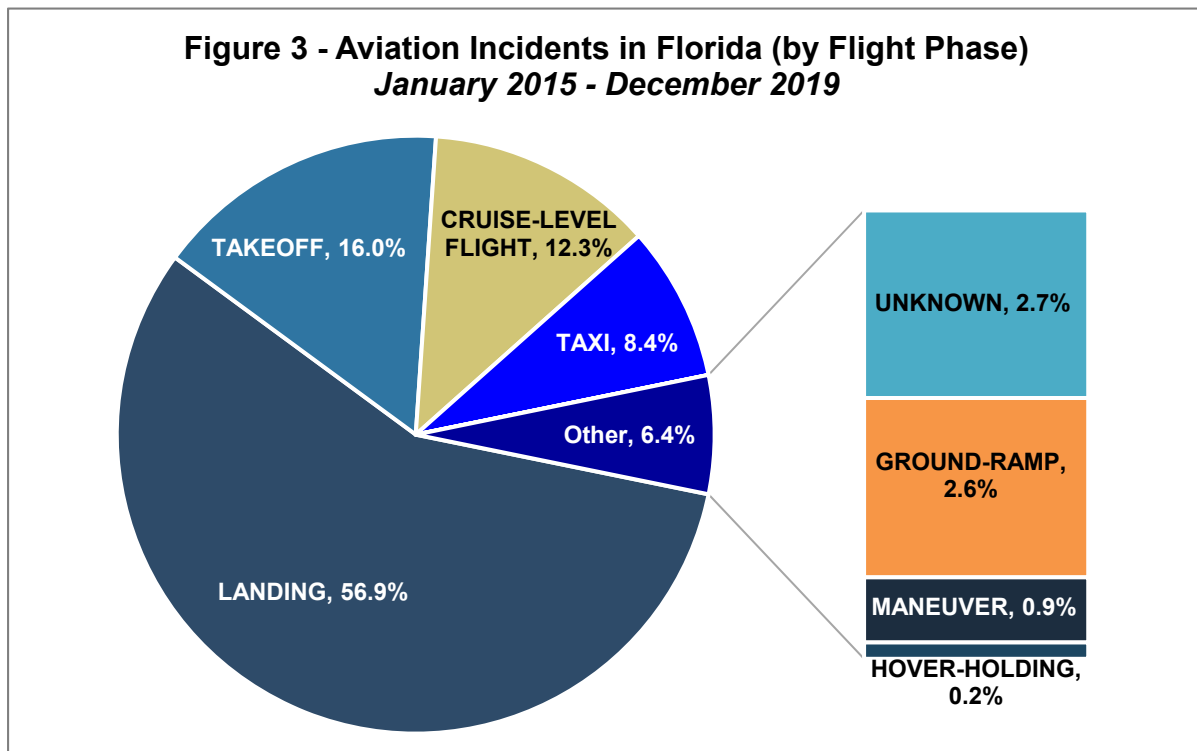
Figure 3 indicates that over 70% of the recorded incidents in Florida between January 2015 and December 2019 occurred during the landing and takeoff phase of flight. Fortunately, most recorded incidents at Florida airports resulted in only minor damage (68%). However, despite that most aircraft damage is usually minor in nature, a well-coordinated response is critical to maintaining public safety at an airport. In accordance with 14 CFR Part 139, AEPs should be reviewed and updated regularly and training and exercises should be designed and held with all appropriate parties to improve the ability to coordinate the response to incidents effectively and efficiently. General aviation airports should follow similar guidance for updating AEPs.



Source: FAA Accident/Incident Database System, 2020



Source: FAA Accident/Incident Database System, 2020



Source: FAA Accident/Incident Database System, 2020

EQUIPMENT MALFUNCTION

Equipment malfunction is a commonly reported incident at many airports. While usually minor in nature, these incidents occur on a daily basis. If an equipment malfunction is not responded to quickly, it can cause major delays to airport operations and can potentially escalate into significant emergency situations. Common equipment malfunctions include:

- **Flat Tire(s)** – At least one aircraft tire is flat, making the removal of the aircraft more difficult.
- **Brake Failures** – Usually occur during an aircraft’s landing and include lack of brake pedal pressure, a “low brake pressure” indicator light, or failure of an aircraft to slow down when the brakes are applied.
- **Engine(s) on Fire** – The engine is on fire, regardless of whether it is operating or not.
- **Engine(s) Out** – The engine is non-responsive to the operator.
- **Overheated Engine(s)** – The aircraft engine temperature has exceeded the normal operating temperature of the engine components.
- **Gear Up During Landing** – An aircraft lands with its landing gear retracted. This can either be caused by pilot error or an equipment malfunction.
- **Gear Indicator Problems** – Indicator lights not properly notifying the pilot if the landing gear is down.
- **Gear Collapse** – The gear fails during landing.
- **Smoke in the Cockpit** – Caused by fire or overheating of electrical components.
- **Loss of Cabin Pressure** – The pressure inside the cabin begins to decrease. There is a lower atmospheric pressure with less oxygen at higher altitudes and, if cabin pressure is lost, crew and passengers may begin to have altitude sickness, decompression sickness from changed barometric pressure, or develop hypoxia.



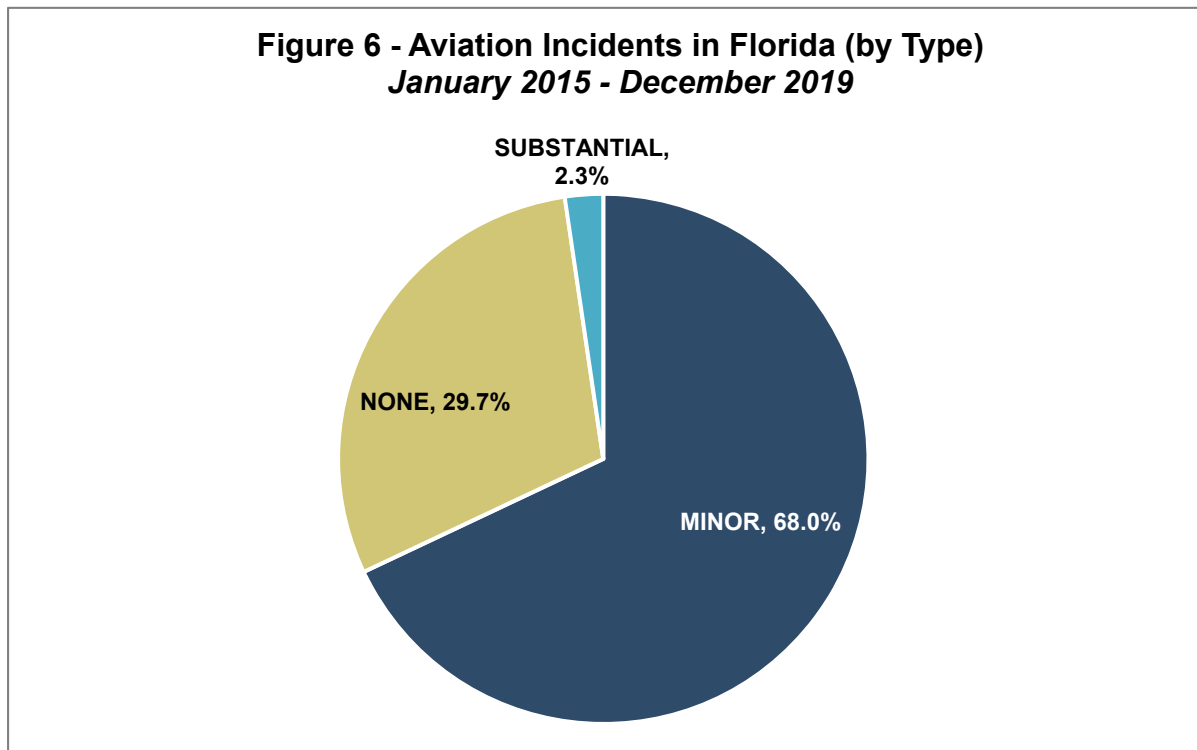
Figure 4 – Firefighters Extinguishing an Aircraft Engine Fire



Figure 5 – Nose Landing Gear Collapse on Landing

MINOR FLIGHT INCIDENTS

As shown in **Figure 6**, the majority (68%) of aviation incidents that occurred in Florida between January 2015 and December 2019 were considered minor. During the comprehensive survey of Florida public-use airports, minor flight incidents usually consisted of smaller, single-engine aircraft during the landing phase of flight. Although these incidents typically do not result in injury and are easy to manage and resolve, they can cause delays to airport operations while the damaged aircraft is being attended to by airport staff. Therefore, it is important for airport staff to ensure that proper response equipment is available to address the aircraft incident to minimize disruptions to operations and to prevent the minor incident from escalating into a more significant incident.



Source: FAA Accident/Incident Database System, 2020

MASS CASUALTIES

Although there is no standard definition of a mass casualty event, emergencies that result in 25 or more serious injuries or deaths are usually considered such an event. A mass casualty event may occur with or without advanced warning and will likely require a major response effort. During a mass casualty event, first responders are usually overwhelmed and coordinating across multiple entities and agencies involved in the response can add additional stress to the situation. During mass casualty events, a response plan and triage system should be implemented. Medical equipment from a mass casualty trailer should be used when available. Photographs and a description of contents included in a mass casualty trailer can be found in **Appendix A - Specialized Equipment Photo Log**.

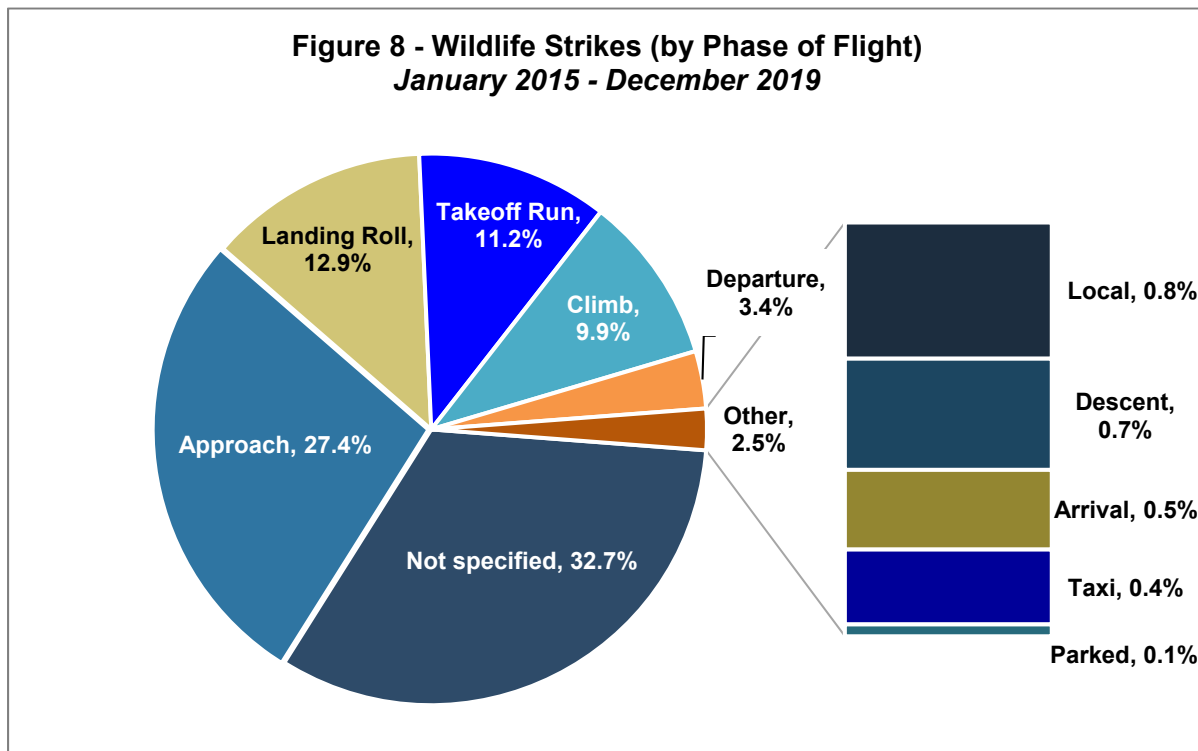
WILDLIFE STRIKES

While wildlife strikes do not necessarily require an emergency response, they can lead to damaged aircraft and can interfere with airport operations. Damaged aircraft located on airport runways and taxiways can potentially escalate into more significant emergency situations. They can also cause injuries and aircraft malfunctions.

The FAA’s Wildlife Strike Database records data about wildlife strikes within the U.S. to better understand the scope and nature of strikes occurring at airports. According to the FAA’s Wildlife Strike Database, there were 5,897 recorded wildlife strikes at Florida airports between January 2015 and December 2019. The majority of recorded wildlife strikes during this time period did not specify a specific phase of flight (32.7%), as shown in **Figure 8**. Out of the wildlife strikes specified, approximately 40% occurred during an aircraft’s approach to the runway and landing roll. Furthermore, 94% of wildlife strikes in Florida, between January 2015 and December 2019, involved bird species with most resulting in only minor aircraft damage.



Figure 7 – Aircraft Wing Damage Due to Bird Strike



Source: FAA Wildlife Strike Database, 2020

Although the majority of aircraft wildlife strikes did not result in an injury, the FAA's Wildlife Strike Database has recorded three injuries and one fatality in Florida between January 2015 and December 2019. Airport staff and operators are encouraged to develop a plan to resolve damage from wildlife strikes quickly to avoid further delays to airport operation or a more severe emergency.

PROPELLER STRIKES

Propeller strikes (prop strikes) occur when items such as the ground, tow bars, landing lights, another aircraft, carts, hedges, or people come into contact with the propeller of an aircraft. Prop strikes can range from minor to significant and may or may not result in an aircraft crash. A thorough inspection of the propeller by qualified personnel should take place anytime a propeller is subjected to an impact to prevent additional incidents and crashes. Emergency response is needed when there is an injury caused by the prop strike or when the aircraft cannot be moved off of the runway or taxiway after it has struck an object.



Figure 9 – Damage to an Aircraft After Prop Strike

DIVERSIONS

A diversion (or divert) refers to an aircraft that has diverted from its original destination to make an unplanned landing at an alternate airport or facility. Diversions may be necessary for various reasons, including inclement weather, equipment malfunctions, low fuel indicators, or medical emergencies. While these scenarios are not likely to occur under normal circumstances, potential problems of aircraft diversions could include:

- Collisions with other aircraft on the runway.
- Pilots unfamiliar with the surroundings and layout of diverted airport.
- Aircraft landing on a weight-restricted runway.
- Runways and taxiways having insufficient length and width to handle the diverted aircraft.
- Stops and delays to other airport operations.
- Passenger logistical support including planning to provide diverted passengers with transportation, accommodations, food, restrooms, and other various necessities.
- Airport security support needs including Transportation Security Administration (TSA) and Customs and Border Protection (CBP), potentially outside of regular operating hours.

NON-AIRCRAFT SPECIFIC EMERGENCIES

SEVERE WEATHER CONDITIONS

Severe weather can cause aircraft emergencies and disruptions to airport operations. In addition to any other weather hazard identified during an airport's hazard assessment, the following severe weather conditions should be addressed in an AEP:

- **Heavy rain events:** Precipitation falls with intensity in excess of 0.3 inches per hour.
- **Hurricanes:** Storm surge, flooding, high wind speeds, and foreign object debris (FOD) can result in an aircraft emergency because of reduced visibility or loss of control of the aircraft or can cause damage to aircraft and airport facilities.
- **Lightning:** Direct lightning strikes can cause the destruction of or damage to airfield navigational aids, lighting and control systems, creation of FOD, spalls (e.g., cracks), and blowouts on the surface of the pavement, and even fires in dry conditions.
- **Tornados:** High wind speeds can cause damage to aircraft and facilities on airport property.

FOREIGN OBJECT DEBRIS

The FAA defines FOD as “any foreign object that does not belong on the runway, taxiway, or ramp area.” Debris within the airport operational environment is an issue because it can cause damage to aircraft. In rare cases, FOD could cause an accident or incident. Typical FOD found at airports include aircraft parts, tire fragments, mechanics' tools, nails, luggage parts, broken pavement, and stones. As previously mentioned, FOD can also result from high winds damaging trees or infrastructure in close proximity to an airport. It is important for airport staff to find and remove FOD through inspections of runways, taxiways, and anywhere where aircraft are moving with engines on. Inspections are typically performed visually and may also include collection mechanisms, such as sweepers, magnets, and vacuums. Procedures for protecting aircraft and efficiently removing FOD and other debris should be addressed in the AEP.



Figure 10 – FOD Collected at an Airport

SECURITY

The roles and responsibilities of agencies and authorities, contact information, and the response procedures for responding to the following security threats should be addressed in an airport's AEP:

- **Hijacking threats:** According to the Aircraft Piracy Act, damaging an aircraft, placing or bringing a destructive device or substance onto an aircraft, damaging or interfering with an air navigation facility or equipment used in the operation of an aircraft, committing an act of violence against an individual on an aircraft, or making threats or statements that are false about the safety of an aircraft that is in flight are all considered hijacking. The Federal Bureau of Investigation (FBI) is the lead agency when the hijacking or hostage emergency occurs while the aircraft is on the ground, but the FAA has

jurisdiction when the emergency occurs while the aircraft is in flight. If a hijacking incident occurs, the FBI and FAA should be immediately notified of the situation.

- **Bomb threats:** Bomb threats can be specific or non-specific. Specific threats indicate that a bomb has been placed in a given location. A non-specific threat is when there has been a hint about an explosive threat from an outside person or if an explosive has been found with a detection agent, such as a trained bomb detection dog. The FBI is the lead agency for all bomb threat investigations and should be immediately notified of the situation.

FIRES AND FIRE ALARMS

Fires on airport property are a major threat to the safety of staff, pilots, passengers, and the surrounding community. It is important for airport staff to consider the impacts of fires on airport operations and facilities have a plan to quickly respond, mitigate, or prevent a fire at an airport. Smoke from nearby fires can interfere with the efficiency of daily airport operations or limit visibility. Fires can also damage or destroy aircraft, support equipment, and buildings. Further, fires and toxic smoke could harm airport staff, passengers, pilots, and the surrounding community if not responded to properly or effectively.

The prevention, mitigation, and response to potential fires is to be considered and planned for on a daily basis. Special attention should be given to the location and storage of flammable materials, such as aircraft fuels and fuel storage facilities. It is recommended that airport staff conduct regular tests and perform maintenance on fire alarm systems to ensure that they are functioning and do not trigger false alarms. Regular coordination and training with firefighting personnel is also important to ensure a quick response to structural fires. Furthermore, airports with large tracts of undeveloped, forested lands should consider communicating with local forest services to coordinate controlled burns of the property to limit the chance of wildfires.

WILDLIFE INTERFERENCE

While animal strikes have the potential to cause severe damage to aircraft, larger mammals (e.g., wild boars) can root up the edges of runways and taxiways, weakening the pavement and leading to the creation of FOD. Additionally, if the airport perimeter is not properly secured and maintained, large mammalian and reptilian wildlife (e.g., deer, coyotes, and alligators) may cause temporary delays to airport operations by being within or in proximity to aircraft movement areas. The proper agreements with animal control entities should be formalized and included within the AEP.

HAZARDOUS MATERIALS

A hazardous material is a substance, compound or mixture which is capable of posing an unreasonable risk to health, safety, and property. Hazardous materials include explosives, flammable liquids and solids, combustible liquids, poisonous materials, corrosives, and radioactive materials. **Table 1** provides a list of hazardous materials commonly found at airports. All hazardous materials should be labeled, stored, and handled according to local, state, and federal regulations. Staff should store and handle all hazardous materials appropriately to reduce the possibility of an adverse event, such as an explosion or exposure of personnel. Airport staff should also take all necessary precautions to prevent spills, leaks, or discharges of hazardous materials to nearby waters or soils to prevent contamination of natural resources. It is recommended to employ best management practices to prevent accidental spills that can result from aircraft operations, maintenance, or accidents and incidents at the airport.

TABLE 1
EXAMPLES OF HAZARDOUS MATERIALS COMMONLY FOUND AT AIRPORTS

AIRCRAFT SYSTEMS	AIRCRAFT SERVICING	COMPONENT SHOPS
Gasoline	Dry lubricants	Liquid penetrants
Jet Fuels	Spray lubricants	Dye penetrants
Hydraulic fluids	Greases	Argon gas
Brake fluids	Oil	Hydrogen gas
De-icing fluid	Methyl ethyl ketone	Oxygen gas
Freon	Toluene	Acetylene gas
Nitrogen	Engine cleaners	Compressed air
Oxygen	Carburetor cleaners	Locking compounds
Halons	Primers	Cutting fluids
Alcohols	Lacquers	Soldering fluxes
Methanol	Enamels	
Batteries	Epoxies	
Glycol	Resins	
Baking Soda	Rubber adhesives	
Degreasers		
Disinfectants		

NOTES:

1. List is not exhaustive

SOURCE: Adapted from Brevard Teaching and Research Laboratories *Hazardous Waste Curriculum for Aviation Maintenance, undated.*

An airport's AEP should include contact information for agencies and authorities involved in the cleanup of hazardous materials as well as methods to address the aftermath of emergencies involving hazardous materials, such as foam fire suppressants and hydrocarbon cleanup after a fire event. Strategies and procedures need to be developed to contain the flow of hazardous materials after an emergency at the airport and to repair any pavements damaged by spills (e.g., Spill Prevention, Control, and Countermeasure plans).

MEDICAL EMERGENCIES

A medical emergency can occur anywhere at an airport. These situations can vary in intensity and may require immediate emergency response procedures. Significant medical emergencies may include, but are not limited to, cardiac arrest, stroke, choking, and trips or falls. The AEP should clearly identify the entities responsible for medical services and outline the procedures for contacting them in the event of a medical emergency.

UNTRAINED AND INEXPERIENCED FIRST RESPONDERS

Not all personnel responding to an aviation emergency may be familiar with standard airport operations and procedures. Such responders could potentially cause delays or additional emergency situations by entering restricted areas of the airfield, not yielding to aircraft using the airfield, or by being unfamiliar with aircraft or equipment specific to aviation. Regular coordination with local first responders is recommended to ensure proper education and training in airport operations and procedures to mitigate issues that could result from inexperience or unfamiliarity.

COMMUNICABLE DISEASES

In the event of an outbreak of a communicable disease, airports of any size and function can become pathways for its transmission and spread. It is important for airport staff to follow guidelines issued by local, regional, or national public health authorities to prevent or minimize the spread or transmission of a communicable disease. Guidance on a communicable disease can be obtained from county public health departments and the Florida Department of Public Health. National guidance on communicable diseases can be obtained from the U.S. Centers for Disease Control and Prevention (CDC). Airport sponsors are encouraged to coordinate with federal, state and local public health organizations in the event that there is an outbreak of a communicable disease in the community.

AGENCIES INVOLVED IN EMERGENCY RESPONSE

There can be a number of different agencies that may be involved in the response to an aviation-related emergency. Because the agencies may vary depending on the nature of the emergency, size of the airport facility, or organizational structure of the airport, the following is not intended to be an exhaustive list of all agencies that could be involved. However, the roles of the following entities should be considered during the evaluation, update, or development of an AEP. Establishing emergency mutual assistance compacts (EMAC) or memoranda of understanding (MOU) with the following entities, specifically, local governmental agencies and private-sector contractors and businesses, may also be appropriate. Examples of EMACs and MOUs are included in **Appendix C - Example Mutual Aid Agreements and Letters of Agreement**.

FEDERAL AUTHORITIES AND ORGANIZATIONS

The federal government has authority over the National Airspace System (NAS) and is integral in the response, reporting, and investigation of aircraft-related emergencies in the U.S. Although federal agencies involved in an aviation-related emergency may vary depending on the nature of the emergency, size of the airport facility, or organizational structure of the airport, the agencies listed below provide guidance on the different roles that a federal agency can assume.

FEDERAL AVIATION ADMINISTRATION

The FAA is the primary entity to contact regarding an aviation-related accident or incident. Depending on whether the situation meets the criteria outlined in 49 CFR Part 830 *Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage, Mail, Cargo, and Records*, the NTSB may require immediate notification, as well.

The Aviation Safety Hotline is available for the reporting of maintenance improprieties, aircraft incidents, suspected unapproved parts, and FAA regulation violations. The hotline number is (800) 255-1111 and the hours of operation are 0800 to 1600 Eastern Time, Monday through Friday. After 1600, if callers believe their safety issues are time-critical, that person has the option to contact the Washington Operations Center.

The Aviation Safety Hotline number is (800) 255-1111 and the hours of operation are 0800 to 1600 Eastern Time, Monday through Friday.

The FAA also operates an on-line Hotline Reporting Form at <https://hotline.faa.gov/>, which provides a single location for FAA employees, aviation community, and the public to file their safety reports. It is important to note that the web-based hotline does not accept general comments or questions. Therefore, the FAA is unlikely to respond if receiving a general comment or question through the Hotline Reporting Form.

The Office of Accident Investigation and Prevention (OAIP) is the primary organization within the FAA with respect to aircraft accident investigation and all activities related to the NTSB. The mission of the OAIP is to improve safety by collaboratively developing safety enhancements with the FAA and the aviation community based on the identification of hazards, evaluation of risk, and by monitoring the effectiveness of risk mitigations.

The FAA is also involved in other prevention and mitigation activities related to aviation emergencies; specifically, the Airport Safety and Operations Division holds primary responsibility for:

- The safety and certification of airports (14 CFR Part 139 *Certification of Airports*).
 - Aircraft Rescue and Firefighting.
 - The Wildlife Hazard Mitigation Program.
- Promotion of emergency operations, emergency management planning, and damage control at civil airports.
- Federal activities at airports and their restoration after attack or a natural disaster.

NATIONAL TRANSPORTATION SAFETY BOARD

The NTSB’s investigative process is focused on improving transportation safety and is centered on operations, structures, power plants, systems, air traffic control, weather, human performance, and survival factors. Depending on the emergency situation, representatives from these areas of expertise, under the direction of the Investigator-in-Charge (IIC), form the “Go Team,” which performs the investigation of a major accident. The NTSB does not investigate criminal activity. The NTSB surrenders lead status on a transportation accident if the U.S. Attorney General, in consultation with the Chairman of the NTSB, notifies the Chairman that circumstances reasonably indicate that the accident may have been caused by an intentional criminal act.

Per 49 CFR Part 830, the NTSB should be notified immediately when an aircraft accident or any of the situations identified in 49 CFR Part 830 Subpart B occur. For more information on 49 CFR Part 830 and its requirements, please see **Appendix E - NTSB Accident Reporting**.

The publication, “Responding to a Transportation Accident – How to Support the NTSB,¹” provides guidance for law enforcement and public safety personnel on how to support the NTSB during the response to an aircraft accident or incident. This publication is included as **Appendix E - NTSB Accident Reporting**.

TRANSPORTATION SECURITY ADMINISTRATION

At the majority of Florida airports, the role of the TSA is primarily related to supporting Department of Homeland Security activities, including manning security checkpoints, intelligence gathering and analysis, checking passenger manifests against watch lists, and the screening of baggage and passengers. During an emergency situation, the role of TSA officers would primarily be to control access to sterile and security identification display areas.

ENVIRONMENTAL PROTECTION AGENCY

If a spill has occurred on airport property, the Environmental Protection Agency’s (EPA’s) National Response System (NRS) may be involved in an oil or hazardous substance release when it is beyond the safe handling capabilities of local and state responders. The EPA’s NRS guarantees that the resources and guidance from experienced federal government employees are available immediately after an oil or hazardous substance release.

¹ For more information, please visit: <https://www.nts.gov/tda/TDADocuments/SPC0402.pdf>

MILITARY/NATIONAL GUARD

Staff at military installations located in the vicinity of the airport may provide assistance during emergency situations. Assistance can be provided in the form of personnel; locating and identifying the aircraft type; search and rescue operations; or by providing specialized equipment.

FEDERAL BUREAU OF INVESTIGATION

The FBI plays a significant role in the investigation of aircraft crashes if the crash was potentially due to criminal or terrorist acts. The FBI may hold a press conference about the crash in order to inform the public and media outlets of available information. If a hijacking or hostage situation occurs on an aircraft that is still on the ground, the FBI has authority over the emergency. If a hijacking or hostage situation occurs on an aircraft in-flight, the FAA has jurisdiction, but the FBI will likely also be involved in/consulted with the FAA carrying out a response.

STATE AGENCIES

State agencies are integral to the response and management of aircraft-related emergencies in Florida. The state provides technical support for environmental-related emergencies, fire suppression and prevention, emergency response, and search and rescue. The appropriate state agency should be contacted in the event of an aircraft-related emergency to determine the best course of action.

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

The Florida Department of Environmental Protection (FDEP) is the state's lead agency for environmental management and enforcement of environmental laws and regulations that protect Florida's air, water, and land resources. In the event of a spill or discharge of hazardous materials, the local FDEP Office of Emergency Response should be contacted to effectively respond to environmental pollution. This includes significant petroleum-based spills that could result from damaged aircraft or spills of hazardous materials greater than 25 gallons. The FDEP Office of Emergency Response provides technical and on-site assistance to ensure that threats to human health and the environment are addressed quickly and effectively.

FLORIDA DIVISION OF EMERGENCY MANAGEMENT

The Florida Division of Emergency Management (FDEM) plans and responds to both natural and man-made disasters, ranging from hurricanes to nuclear power incidents to hazardous material releases. When an emergency extends beyond the capabilities of the local government, the FDEM Emergency Operations Center (EOC) may be activated. The FDEM EOC acts as a communications and command center for reporting and coordinating the state's response to an emergency. Airport operators can use their webpage or contact the FDEM's EOC for disaster-related information and request assistance.

FLORIDA DEPARTMENT OF TRANSPORTATION AVIATION OFFICE

The FDOT's Transportation Emergency Operations Center (TEOC) serves as the primary agency for Emergency Support Function (ESF) 1 (i.e., ESF-1: Transportation), with assistance from the Florida Wing of the Civil Air Patrol (CAP) and various state and local agencies, as appropriate to the scale and nature of the emergency. Staff from the FDOT's Aviation Office may be called upon to support the fulfillment of ESF-1 as they relate to aviation and air transportation, including but not limited to coordination of airport

assets to support emergency response and recovery at aviation facilities and coordinating information flow between non-aviation entities and aviation-specific organizations.

FLORIDA DIVISION OF FORESTRY

The Florida Division of Forestry is a part of the Florida Department of Agriculture and Consumer Services. Their mission is to protect and manage the forest resources of Florida for future generations. The agency offers technical information on any current wildfire conditions and prescribed burning within the state. They can be contacted for authorization to perform a prescribed burn. One of their regional Wildfire Mitigation Specialists can be also contacted to assist in how communities can protect themselves from the threats of wildfires.

FIRE MARSHALL'S OFFICE

The Division of State Fire Marshal is the lead state agency responsible for the management and staffing of ESF-4: Firefighting and ESF-9: Search and Rescue at the State Emergency Operations Center (EOC). This agency will verify requests for resources and information from the local government where the accident or incident has occurred, and will make sure appropriate assistance is provided. The Fire Marshall's office will also order, track, document, and estimate the costs of the resources, and will make sure relief is provided for any resource needed for an extended operation.

NON-GOVERNMENTAL AGENCIES

A non-governmental organization (NGO) is a non-profit group comprised of citizen volunteers that can be organized on a local, state, national, or international level. Most NGOs are funded by sponsors or donors in order to run day-to-day operations. These agencies provide relief during disasters by providing food, shelter, and medical aid at no cost to the victims in a time of need. The American Red Cross and Salvation Army are two NGOs that are frequently involved in aviation-related emergencies.

CIVIL AIR PATROL

The CAP is a civilian corporation chartered by United States Congress. The CAP members are volunteers who pay dues and serve the United States as the auxiliary to the United States Air Force (USAF). The CAP is organized into eight geographic regions, and each state within a region represents one wing. Located in the Southeast Region, the Florida Wing is headquartered in Lakeland. CAP's Florida Wing consists of over 60 individual Wing Units throughout the state.

The CAP's emergency services include air and ground search and rescue (SAR), disaster relief, counterdrug operations, and an increasing role in homeland security. The primary mission of the Emergency Services (ES) of the CAP is to save lives and relieve human suffering. Only CAP members who are properly trained or qualified are allowed to participate in actual ES missions.

The CAP wing commander usually assigns a SAR mission to the unit nearest to the area of operations. Because the unit will have knowledge of the terrain in the search area and may have prior relationships with the neighboring emergency response agencies, a quick response usually ensues.

Over 90% of the SAR missions performed by the Southeast Region CAP are directed by the Air Force Rescue Coordination Center (AFRCC) at Tyndall Air Force Base near Panama City, Florida. The AFRCC is tied to the FAA's alerting system and the U.S. Mission Control Center. When a call is received, the type of response needed can be determined. The AFRCC coordinates with federal, state, and local officials and will request support from the appropriate search and rescue agency, including the CAP or the U.S. Coast Guard.

CITY AND COUNTY GOVERNMENTS

City and County governments can provide local law enforcement, security, firefighting, or medical services for airports not already equipped with these personnel. Airports that do not have these personnel onsite, should coordinate with these entities directly to understand what resources are available and potential response times. This knowledge can be vital to responding to time-sensitive emergencies in an effective and efficient manner.

LOCAL POLICE/SHERIFF'S DEPARTMENTS

Airports that do not have law enforcement facilities on-site often have mutual aid agreements with the local city or county to provide these services. During emergencies, local law enforcement can provide airport sponsors with essential security, coordination, first aid, and crowd control services. Airports can also coordinate with a local city or county emergency management departments to help when an aircraft emergency occurs.

AIRCRAFT RESCUE AND FIREFIGHTING AND LOCAL FIRE DEPARTMENTS

The local fire department serves as the first responder for most airports in Florida without an on-site Aircraft Rescue and Firefighting (ARFF) facility. Airports with an on-site ARFF facility typically rely on these facilities for response to aircraft emergencies instead of a local fire department. Airport sponsors without on-site ARFF facilities often have mutual aid agreements with the local city or county to provide these services. ARFF and local fire department crews are typically involved in aircraft rescue and firefighting, structural fire protection, emergency medical services, and fuel safety operations. Additionally, these crews may be involved in the prevention of airport emergencies through inspections and corrective actions necessary for compliance with life safety codes and fire codes.

OFFICE OF CORONER AND MEDICAL EXAMINER

Sometimes the job titles of "Coroner" and "Medical Examiner" are used interchangeably. The coroner, or medical examiner, is a medical professional who performs autopsies and conducts pathological and toxicological analyses. A coroner can be employed by a medical facility, local law enforcement office, or government agency.

The deputy coroner assists the coroner with investigations and acts as a liaison between law enforcement and the morgue. During investigations, the deputy coroner will identify human remains, operate crime scene equipment, and determine the cause of death. A deputy coroner's administrative tasks include completing necessary paperwork, including death certificates, and interviewing family members of the deceased in order to obtain information that may be helpful in finding the cause of death.

AIRPORT STAFF

The level of involvement of airport staff will vary depending on the type and size of the airport and the nature of the emergency. The airport manager will typically be involved throughout the response to aviation-related emergencies. Other airport staff, including the deputy airport director, operations and public safety, maintenance, and administrative support, may be involved, depending on the extent and nature of the emergency.

AIRPORT TRAFFIC CONTROL TOWER FACILITY STAFF

The Airport Traffic Control Tower (ATCT), if present on an airport, communicates either via radio or light signals (in the event of radio failure) with aircraft arriving and departing the airport, as well as with all vehicles operating within the movement area of the airfield. The ATCT receives normal operational information from pilots as well as information from a pilot in the event of an emergency. Importantly, the ATCT can close runways when there is a danger to arriving or departing aircraft.

The controller can contact first responders in the event of an aircraft emergency by referring to the emergency contact information included in the airport's AEP. Upon arrival, first responders must contact the ATCT when accessing runways or taxiway to ensure safe operations. Under 14 CFR Part 139.319, *Aircraft Rescue and Firefighting: Operational Requirements*, ARFF vehicles must be equipped with two-way voice radio communications that provide contact with the ATCT. An airport's AEP should identify all appropriate air traffic control facilities, contact information and protocols for emergency situations.

AIRPORT TENANTS

An airport tenant is defined as “a person or organization occupying space or property on an airport under a lease or other user agreement.” Airport tenants may focus primarily on the needs of airport visitors and passengers or may cater more to the needs of the aircraft at the airports. Examples of airport tenants include airlines, stores, restaurants, and rental car companies as well as tenants involved with fueling, storage, maintenance, and servicing of aircraft.

AIRLINES

It is the responsibility of the airline involved in an aircraft accident to supply detailed information about the aircraft, flight, and crew involved to the public. In accordance with the *Aviation Disaster Family Assistance Act* of 1996, the airline should also set up a toll-free number to provide information to family members, as well as to obtain contact information from the family members. The airline may also provide support for family members who would like to travel to the accident site or hospital locations. An individual who has authority to make decisions on behalf of the airline should serve as the airline's representative.

FIXED-BASE OPERATORS

The FAA defines a fixed-base operator (FBO) as “an individual or firm operating at an airport and providing general aircraft services such as maintenance, storage, aircraft fueling, and flight instruction.” Some FBOs have amenities for pilots and passengers such as flight planning, catering, restrooms, ground transportation, showers, rest areas, and wireless internet access. If they operate equipment useful to emergency response,

FBOs may provide assistance after an aircraft-related emergency in the form of aircraft removal or aircraft maintenance, depending on the size and nature of the situation.

CRITICAL RESPONSE ENTITIES

Critical response entities include hospitals, ambulatory service centers, urgent care facilities, and other organizations that provide relief to injured individuals. These entities are a valuable resource to airport staff, passengers, and community members when dealing with an aircraft-related emergency. It is important for airport staff to understand the response resources available to them so that they can quickly and effectively respond to airport emergencies and provide services to affected individuals.

HOSPITALS AND BURN CENTERS

Hospitals and burn centers are major establishments involved with the medical response needed after an aircraft accident occurs. Many aircraft accident victims may need to be transferred to burn centers if an aircraft crash results in a substantial fire event. It is recommended for airport staff to be familiar with the closest hospital and burn center so that injured individuals can be quickly attended to.

AMBULATORY AND SURGERY CENTERS

An Ambulatory Surgery Center (ASC), also known as an outpatient surgery center, is an institution that operates exclusively for the purpose of providing surgical services to patients not requiring hospitalization. During an aircraft emergency, these facilities can be utilized to treat non-life threatening injuries when larger facilities such as hospitals and burn centers are overwhelmed with major injuries and casualties. Similarly, it is important for airport staff to know where the closest ASC is located and its contact information.

MENTAL HEALTH PROFESSIONALS

Mental health professionals respond to the surviving victims, the responders, and family of the victims of aircraft incidents in order to help them cope with the trauma. For emergency events involving numerous victims, a pre-arranged response team comprised of mental health professionals should be deployed. Mental health professionals can be privately employed or employed by a government agency. The Green Cross Academy of Traumatology (GCAT) is an international, humanitarian assistance, non-profit corporation comprised of trained traumatologists and compassion fatigue service providers that may be involved in response after an aircraft accident. Most of its members are licensed mental health professionals.

MORGUES AND FUNERAL HOMES

When an aircraft accident results in fatalities, the bodies are taken from the crash scene to the morgue, and then to the family's preferred funeral home. The cause of death and identification of the body are usually performed at a morgue. Information can be collected and documented at the morgue for additional analysis.

CLERGY

The clergy consists of men and women ordained as religious ministers, pastors, priests, rabbis, and imams. Clergy can usually contribute to assisting traumatized victims and family members after an aircraft accident. Clergy can often re-establish a traumatized person's belief system, helping them to cope with the event.

OTHER ENTITIES

Other entities that can provide assistance during emergency situations include:

- Various private contractors and businesses
- Local disaster services
- Hazardous materials cleanup services

These groups can provide assistance with knowledge and expertise, debris and contaminated soil removal, or removal of aircraft. Airport staff should evaluate their current capabilities and form partnerships or contractual agreements with other entities as appropriate. As needed, these partnerships can be formalized through agreements such as mutual assistance compacts and memoranda of understanding. Consideration should be given to involving these entities during trainings and exercises.

EXAMPLE EMERGENCY RESPONSE FLOW CHARTS

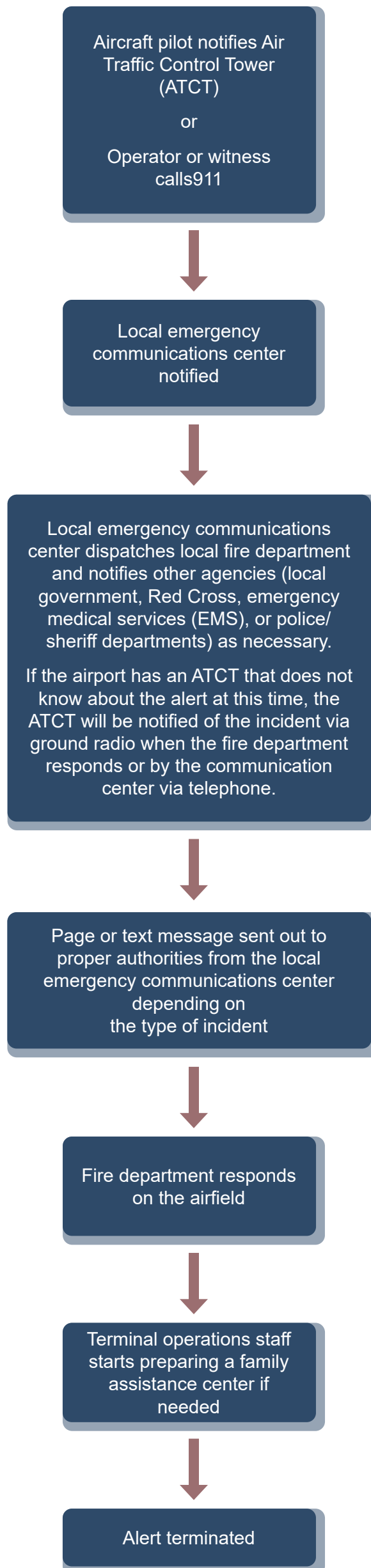
The following flow charts depict generalized agency involvement in a variety of aviation emergency situations:

- **Figure 11:** Alert on the Ground
- **Figure 12:** Alert I – Minor Problem
- **Figure 13:** Alert II – Major Difficulty
- **Figure 14:** Alert III Actual Accident (Off Airport)
- **Figure 15:** Alert III Actual Accident (On Airport)

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Alert on the Ground

ALERT ON THE GROUND REFERS TO WHEN THE AIRCRAFT IS LOCATED ON THE GROUND ON AIRPORT PROPERTY

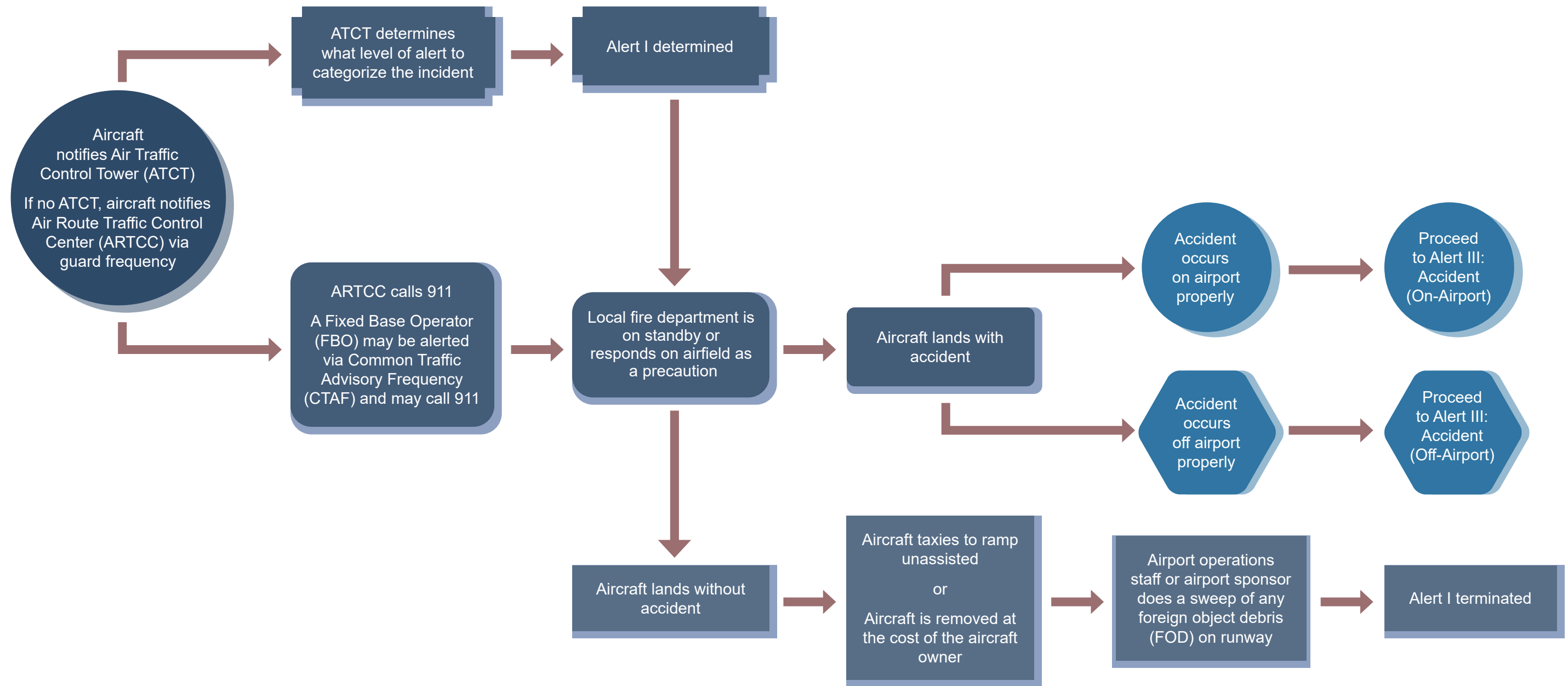


Alert I — Minor Problem

INCLUDES:

- FUEL OR OIL LEAK
- ONE ENGINE OUT ON A THREE OR FOUR ENGINE AIRCRAFT
- ONE ENGINE OUT ON A TWIN ENGINE GENERAL AVIATION AIRCRAFT WEIGHING < 12,500 LBS.

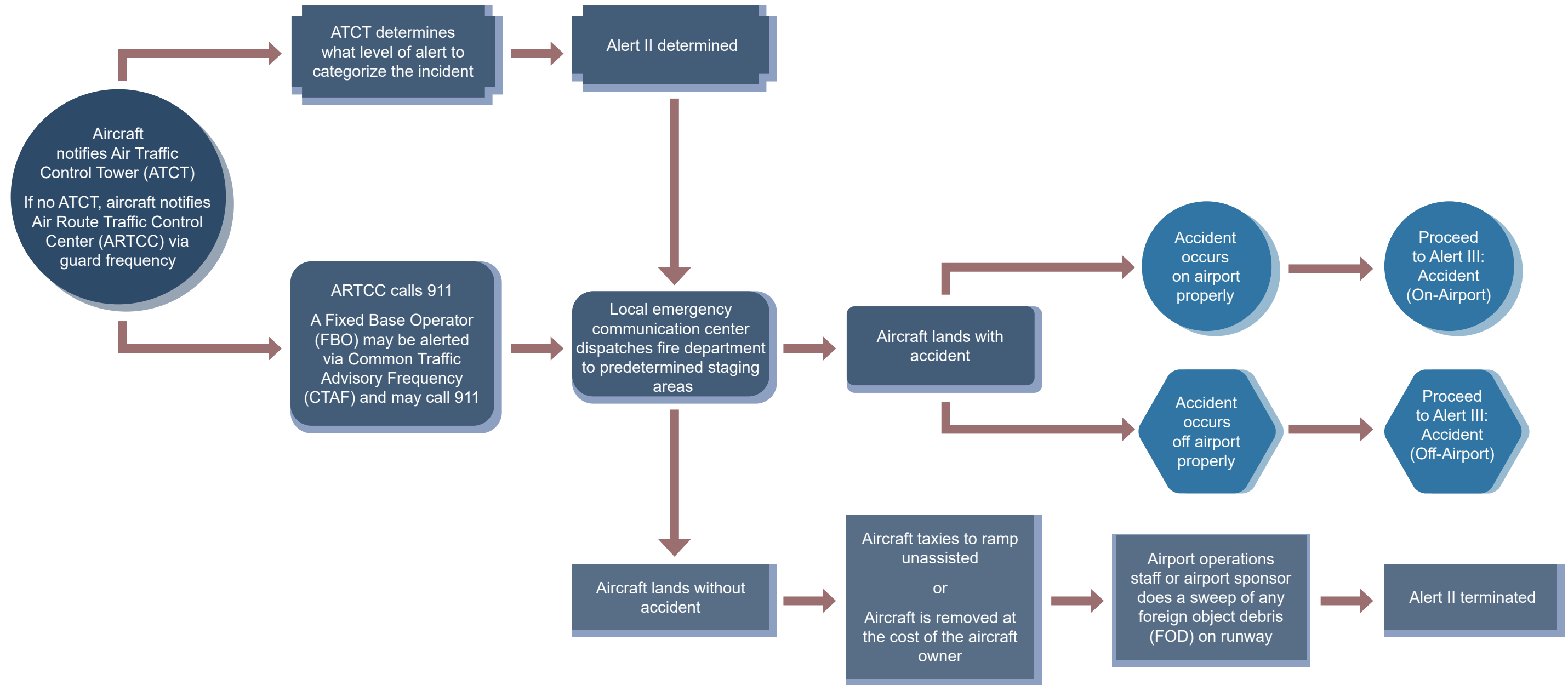
Note: Operations Personnel may Categorize an Alert I as an Alert II as a Precautionary Effort



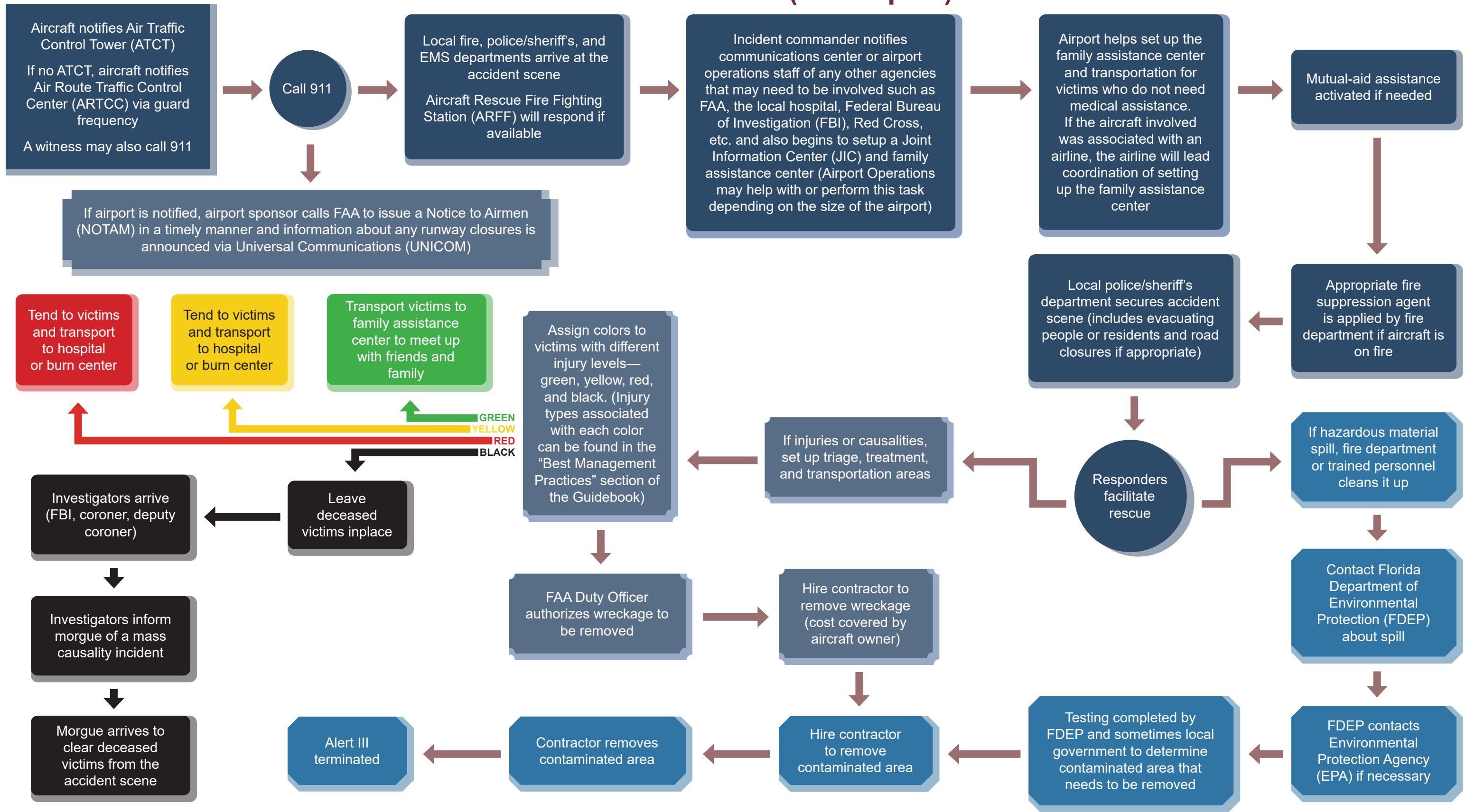
Alert II — Major Difficulty

INCLUDES:

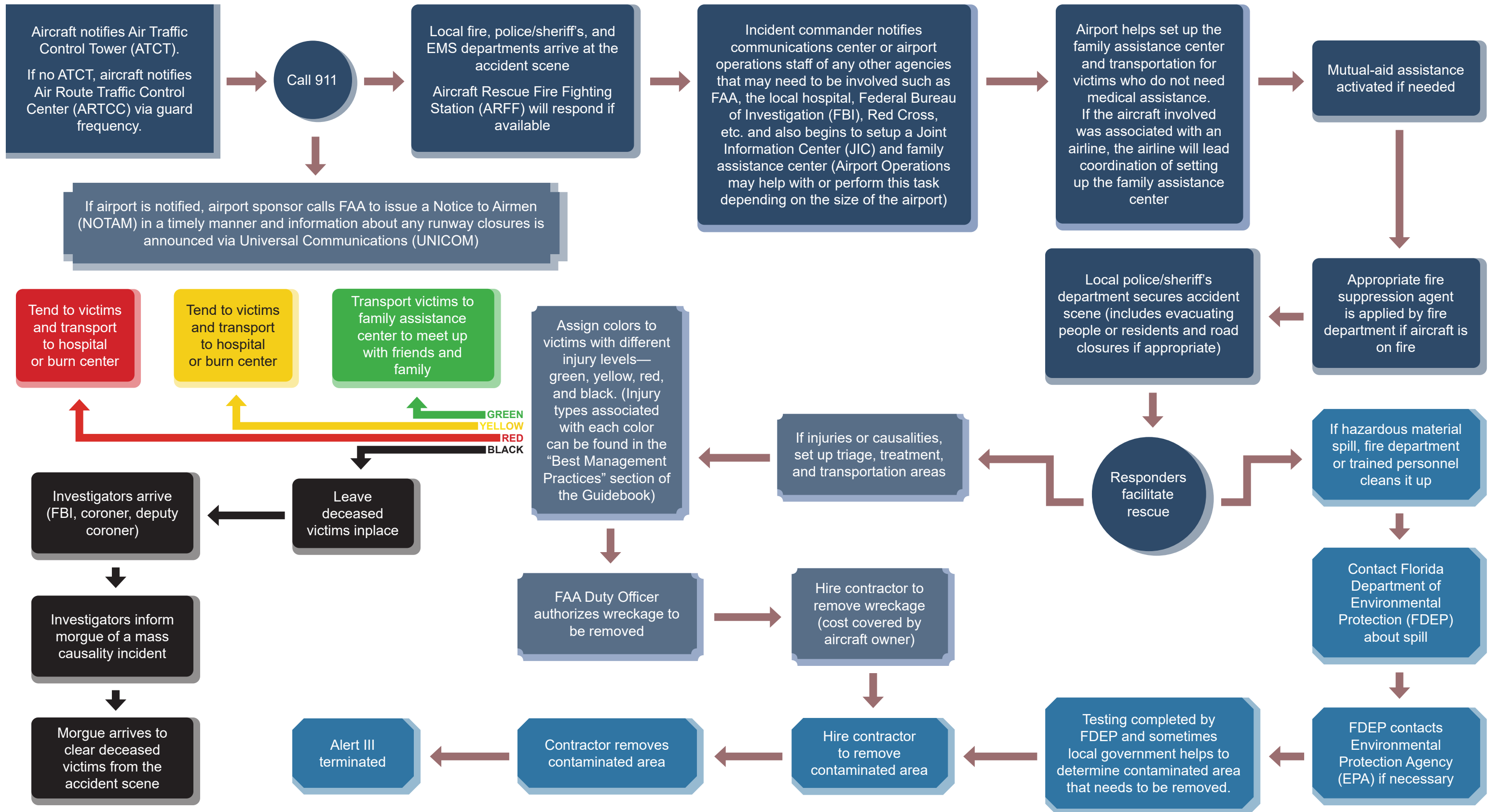
- SMOKE IN THE CABIN
- ENGINE ON FIRE
- FAULTY LANDING GEAR
- LOSS OF HYDRAULIC PRESSURE
- ONE ENGINE OUT ON A TWIN ENGINE WEIGHING < 12,500 LBS.



Alert III — Accident (Off Airport)



Alert III — Accident (On Airport)



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SPECIALIZED EQUIPMENT USED DURING AVIATION EMERGENCIES

Due to the nature of aviation-related emergencies, specialized equipment is needed for certain types of incidents. The size and weight of an aircraft, the amount of fuel capable of being stored on an aircraft, the number of passengers aboard, and the design of aircraft components differentiate aviation-related emergencies from other types of emergencies. The Basic Aircraft Guide developed in conjunction with this *Guidebook* provides aircraft specifications relevant to emergency response. Specialized equipment that may be necessary for aviation related emergencies can generally be classified into the following categories:

- Communication equipment
- Debris/aircraft removal and cleanup equipment
- Equipment to extract victims from aircraft wreckage
- ARFF equipment
- Emergency response gear
- Emergency response vehicles and trailers
- Evidence equipment
- Fire extinguishing agents
- Heavy equipment
- Medical equipment
- Water rescue equipment
- Commonly identified needs

Florida's airports have a range of different equipment. Some airports have a fire/ARFF station on-site, while other airports rely on city or county fire response. Depending on the size and number of airport operations, it may not be feasible for certain airports to purchase and own all of the necessary emergency response equipment. Consideration should be given to developing mutual assistance compacts and memoranda of understanding with local emergency response agencies for use of their equipment during an emergency response involving the airport. Example mutual assistance compacts and memoranda of understanding are included in **Appendix C - Example Mutual Aid Agreements and Letters of Agreement**. The following is a list of specialized emergency response equipment commonly used during aviation emergencies in Florida. More detailed descriptions and photographs of the specialized equipment needed for aviation specific emergencies are included in **Appendix A - Specialized Equipment Photo Log**.

COMMUNICATION EQUIPMENT

- **Cell Phones** – Used to relay information via voice or via text messaging.
- **Light guns** – In the case of radio failure, a signal lamp or light gun can be used by the ATCT to communicate with an aircraft in flight, an aircraft on the ground, or a group of vehicles and personnel.
- **Ring down phones** – A direct line phone between at least two groups that need to be immediately notified of an aircraft emergency.
- **Satellite phones** – Can be used virtually anywhere, even if there is no cell phone reception.
- **Ultra High Frequency (UHF) Military Aviation Band** – 225 to 400 MHz radios. UHF bandwidths do not refract off the ionosphere and are less likely to be affected by interference with VHF bandwidths. UHF radios are smaller and more reliable than VHF radios.
- **Very High Frequency (VHF) Civil Aviation Band** – 108 to 137 MHz radios. VHF bandwidths use amplitude modulation (AM), which is prone to static interference.

DEBRIS/AIRCRAFT REMOVAL AND CLEANUP EQUIPMENT

- **Air lifting bags** – Aid in lifting and stabilizing an aircraft and keeping it from rolling, sliding, shifting, twisting, or collapsing.
- **Aircraft removal jacks and dollies** – Can be used to move aircraft or large debris from the runway.
- **Come-along** – Allows heavy loads to be moved by hand.
- **Cribbing** – Used to stabilize an aircraft.
- **Hi-Lift Jack®** – Can lift aircraft that are too tall for conventional jacks.
- **Hydraulic jack** – Lift aircraft by using hydraulic pressure.
- **Oil-Dri®** – Absorbs liquid spills.

EQUIPMENT TO EXTRACT VICTIMS FROM AIRCRAFT WRECKAGE

- **Air chisels** – A small jackhammer tool that is powered by compressed air.
- **Bolt and cable cutters** – Fast and efficient when cutting through metal objects such as bolts, wires, cables, chains, or metal bars.
- **Chain saws**
- **Hand tools**
- **Prying tools (or forcible entry tools)**

- **Pushing and pulling tools**
- **Hydraulic rescue tools** – Use hydraulic pressure to pry metal away from a victim.
- **Ladders**
- **K-12 rescue saws** – Use 12 to 14 inch blades that cut metal.
- **Reciprocating saws** – Has a blade that moves back and forth and is used to cut a variety of materials.
- **Rescue chains**
- **Ropes**
- **Striking tools** – Include axes, hammers, sledgehammers, mallets, and chisels.

AIRCRAFT RESCUE FIREFIGHTING (ARFF) EQUIPMENT

- **Piercing nozzles** – A tool that pierces the body of an aircraft and releases extinguishing agents to fight internal aircraft fires.
- **Snozzles[®]** – A piece of equipment that attaches to an ARFF vehicle, and includes a camera and a piercing nozzle that are operated from the cockpit of the ARFF vehicle.
- **Vehicle mounted winches** – A winch attaches to the front of an ARFF vehicle and is used for towing or hauling.

EMERGENCY RESPONSE GEAR

- **Air cascade systems** – A device that is used to refill self-contained breathing apparatus (SCBA) tanks.
- **Bunker gear** – Also known as “Turnout Gear,” is the protective clothing that firefighters wear to protect them from high temperatures, fire, and smoke.
- **Hazardous materials suits**
- **Proximity gear** – Silver in color to reflect heat much more efficiently than common bunker gear, and is mainly used in fighting aircraft and chemical fires
- **Self-contained breathing apparatuses (SCBA)** – Breathing device/equipment worn by firefighters when combating a fire.

EMERGENCY RESPONSE VEHICLES AND TRAILERS

- **Aircraft Rescue Firefighting Vehicles (ARFF)** – Typically trucks that have a fire suppressant foam system and are specifically designed to help fight aircraft-related fires.
- **All-terrain utility vehicles** – A small four-wheel drive vehicle that is used for emergency response in places where a full-sized vehicle is too large to access.

- **Hazardous materials trucks and trailers** – Houses equipment used for hazardous materials cleanup.
- **Interior access vehicle** – Firefighting vehicle used to carry and transport water from an outside source.
- **Mass casualty trailers** – Houses the equipment necessary to handle a mass casualty event.
- **Mobile command communication units** – Vehicle or trailer equipped with work stations, a conference room, and communication equipment.
- **Tanker trucks** – Firefighting vehicle used to carry a large amount of water.

EVIDENCE EQUIPMENT

- **Body bags**
- **Refrigerated trucks** – Contains a refrigerated unit that is used to transport deceased victims from an aircraft accident to a morgue or funeral home.

FIRE EXTINGUISHING AGENTS

- **Primary agents** – Foams used to extinguish aircraft fires with an aggregation of bubbles of a lower specific gravity than that of water or hydrocarbon fuels.
- **Aqueous Film Forming Foams (AFFF)** – Act as a barrier to exclude air and oxygen, and produce an aqueous film on the surface of the fuel to suppress vapors.
- **Film Forming Fluoroprotein (FFFP) Foams** – Used to fight fires caused by wood, as well as fires caused by flammable liquids and gases.
- **Fluoroprotein Foams (FP)** – Have many of the same properties as protein foam with the addition of fluorochemical surfactants.
- **Protein Foams** – Extinguish a fire by forming a blanket over it to remove oxygen from the fuel's surface.
- **Supplementary agents** – Substances carried on firefighting vehicles to satisfy unique firefighting requirements common to airport firefighting use.
- **Carbon dioxide** – Used to extinguish fires caused by flammable liquids and electrical fires.
- **Class D extinguishers** – Contain substances used to extinguish fires caused by combustible metals.
- **Dry chemicals** – Potassium-based chemicals used to aid in extinguishing fires.
- **Halotron® I** – Chemical used to extinguish aircraft fires.
- **Wetting agents** – Substances that decrease the surface tension of a liquid.

HEAVY EQUIPMENT

- **Backhoe**
- **Crane**
- **Dump truck**
- **Front end loader**
- **Sweeper**
- **Tractor**

MEDICAL EQUIPMENT

- **Backboards/Spine-boards**
- **Bag valve masks (BVM)** – Ventilation devices used to supply air to a victim.
- **Cervical collars (C-collar)** – Provides stabilization to the head and neck of a victim who has signs of a spinal injury.
- **Defibrillators**
- **Oxygen supply tanks**
- **Stokes baskets** – A rigid basket used to transport a victim.

WATER RESCUE EQUIPMENT

- **Personal watercraft (PWC)**
- **Life jackets**
- **Motor boats**
- **Scuba gear**
- **Throw rope**
- **Torpedo buoy** – Buoyant device shaped like a torpedo.

COMMONLY IDENTIFIED NEEDS

The following is a list of specialized equipment most requested by Florida's airports:

- Fire Departments/ARFF facilities on-site.
- Vehicles with towing capabilities and equipment to move aircraft or debris from the runway.
- Defibrillators
- All-terrain vehicles (ATVs) to access heavily forested areas that typical four-wheel drive trucks cannot access.
- Boats to respond to airport emergencies that occur over the water.



Figure 16 – On-Site Aircraft Rescue Firefighting (ARFF) Facilities

BEST MANAGEMENT PRACTICES

Best management practices are programs, procedures, policies, or tools that have proven to be effective in preparing for, responding to, or mitigating against emergency situations. Identifying and implementing best management practices can help airports avoid repeating mistakes made in the past and share valuable knowledge and experience gained by other practicing professionals over time.

DEVELOP AN AIRPORT EMERGENCY PLAN

An AEP should be developed by each airport and should be altered to cater to the airport's specific needs. The AEP should be updated regularly and implemented during training sessions. **Appendix D - Airport Emergency Response Plan Templates** provides example AEPs for airports that are certified and not certified under Title 14 CFR Part 139.

AIRPORT EMERGENCY PLAN DEVELOPMENT TOOL

Airport sponsors who wish to prepare an AEP can use the online AEP Development Tool developed under Airport Cooperative Research Program (ACRP) projects 04-19, *Airport Emergency Planning Template: NIMS – Incident Command System Compliance*, and 04-19A, *Airport Emergency Plan Development Tool*. The AEP Tool helps airport sponsors produce airport-specific AEPs in a format consistent with the FAA's Advisory Circular 150/5200-31C. The tool provides a user-friendly, sequential, and interactive format to create the plan, and includes introductory videos and question-specific help to enable accurate responses. The tool can be accessed at <https://crp.trb.org/acrp0419/> or <https://www.aepdevelopment.com/>.

DEVELOP AN EMERGENCY RESPONSE CHECKLIST

Developing a standardized emergency response checklist is important to ensure that all persons involved in the emergency response know their responsibilities and what agencies need to be contacted when an emergency occurs. The checklist should be reviewed regularly and incorporated into training and exercise procedures.

NATIONAL INCIDENT MANAGEMENT SYSTEM

Released by the Department of Homeland Security in 2004, the National Incident Management System (NIMS) became the standard framework for emergency preparedness and incident management nationally. NIMS is a template for systematically and proactively managing emergencies. The system accounts for all levels of government, non-governmental organizations, and the private sector. The system guides the manner in which these entities coordinate together to prevent, prepare for, respond to, recover from, and mitigate against emergencies. All responders need to be trained on the proper implementation of NIMS.

INCIDENT COMMAND STRUCTURE

One key component of NIMS is the use of Incident Command Structure (ICS). ICS was developed in the 1970s as a result of studies, which found that response problems were spurred mostly by inadequate management. ICS is a standardized management tool and can be scaled to aid in large or small emergency situations. This system is a representation of best management practices that have been developed over time

and is used throughout the United States by federal, state, and local governments as well as private and non-governmental organizations (NGOs). In order to be an effective system, ICS integrates facilities, equipment, personnel, procedures, and communications into one organizational structure. There are five main functional areas of this system including command, operations, planning, logistics, and finance and administration.

There is a range of practices ICS includes to aid its effectiveness. ICS uses common terminology to standardize terms for organizational functions, incident facilities, resource descriptions, and position titles. The duty of command must be clearly identified at the beginning of response to an emergency. Every individual has a designated supervisor to clarify what tasks need to be completed instead of having an individual under many supervisors with conflicting objectives. This unified command structure allows many agencies to work together effectively and not affect individual agency influence or accountability. Operational support facilities such as incident command posts, bases, camps, staging areas, mass casualty triage areas, and others are set up during an emergency. The amount of facilities and resources that are needed will depend on the size and severity of the emergency.

All responders, regardless of the entity to which they belong need to check-in to receive their tasks. **Table 2** depicts the standard ICS titles.

Organization Levels	Title	Support Position
Incident Command	Incident Commander	Deputy
Command Staff	Officer	Assistant
General Staff (Section)	Chief	Deputy
Branch	Director	Deputy
Division/Group	Supervisor	N/A
Unit	Leader	Manager
Strike Team/Task Force	Leader	Single Resource Boss

The airport director or manager is always the Incident Commander (IC) for an event on airport property until command is relinquished to someone else. The IC is responsible for overall incident management. This individual should:

- Clearly know the agency's policy;
- Ensure safety during emergency response;
- Establish an Incident Command Post;
- Establish priorities;
- Approve and implement the Incident Action Plan;

- Coordinate the activities of the Command and General Staff;
- Approve requests for additional participants, volunteers, and other personnel;
- Authorize release of information to the media; and
- Ensure that incident after-action reports are completed.

The Command Staff is responsible for being an interagency liaison, ensuring incident safety and providing public information. This staff includes a Public Information Officer (PIO), Safety Officer, Liaison Officer, Assistants, and additional command staff if necessary.

The General Staff is responsible for carrying out operations, planning, logistics, and managing finances and administration. There is one chief for each section and these sections should not be combined.

Figure 17 can be used as a guide to planning for an incident. The events start at the bottom of the leg of the “P” and are followed clockwise until “Execute Plan & Assess Progress” and then the cycle begins again at “IC/UC Develop/Update Objectives Meeting.”

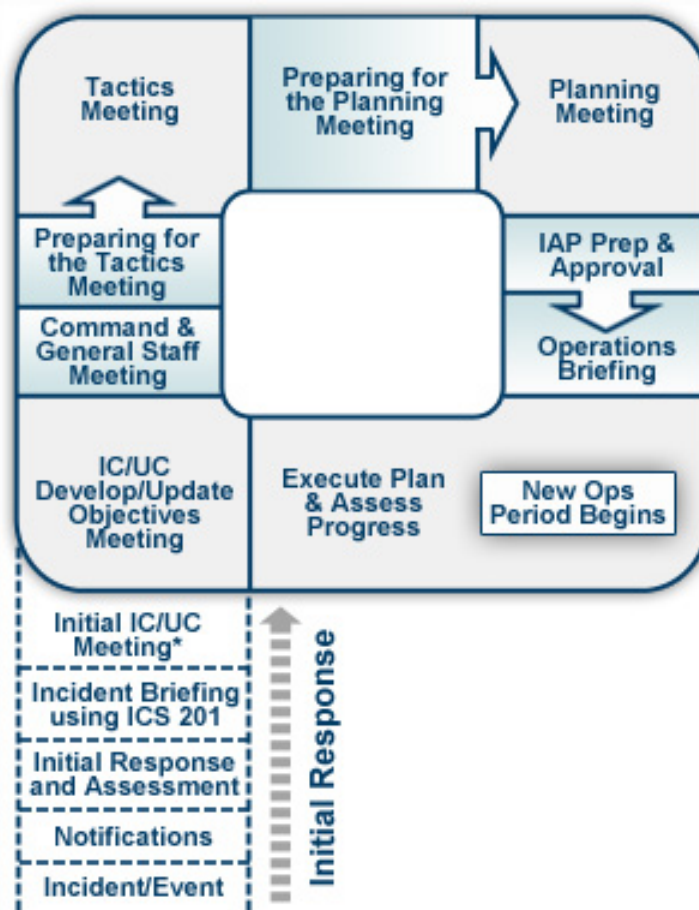


Figure 17 – The Planning “P” Guide

Figure 18 shows the organizational structure consistent with ICS, which can be expanded or collapsed as appropriate to the size and nature of the emergency.

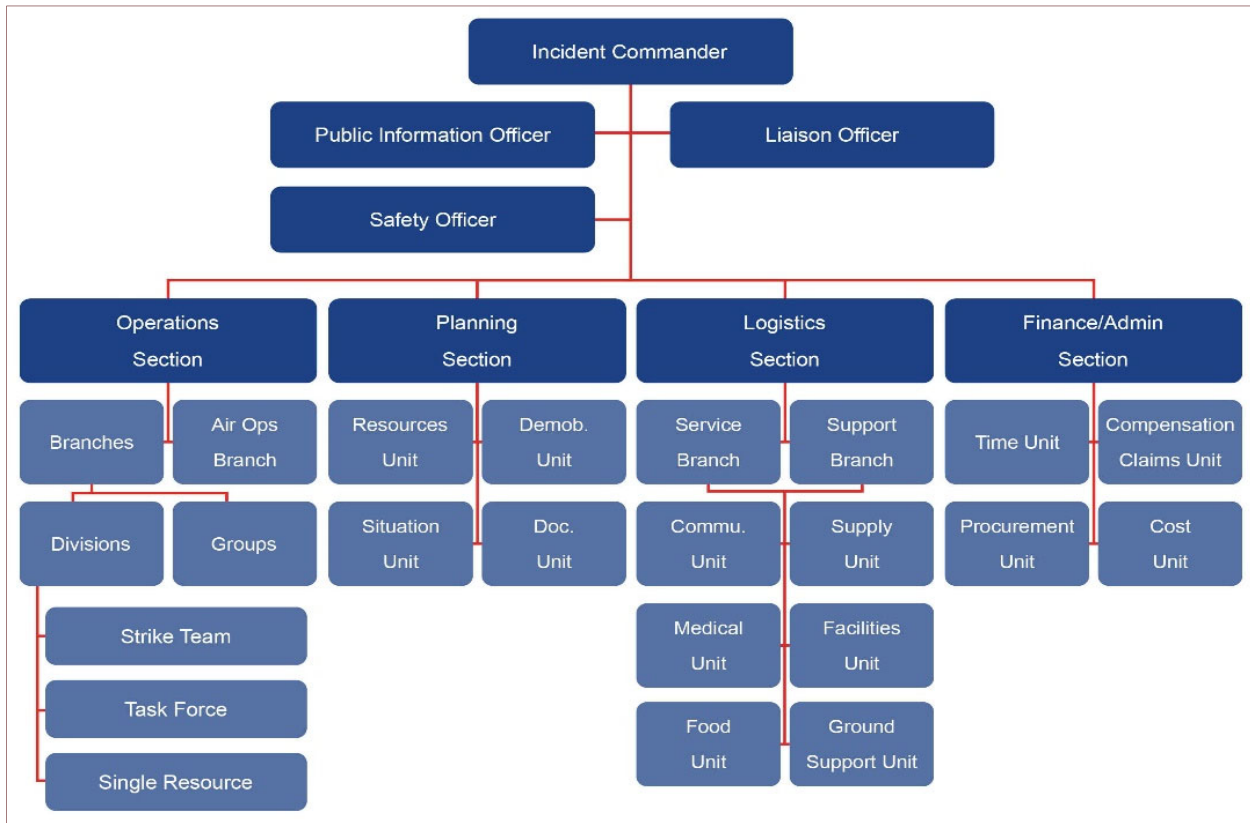


Figure 18 - ICS Organizational Structure

TRAINING

Implementing different training programs and techniques in order to train both airport staff and first responders in what to do when an aviation emergency occurs is an important aspect in ensuring that all parties involved know and are familiar with their responsibilities. Coordination between the many different agencies involved is necessary in the development of these training programs. Full scale training should be held on a regular basis because of the high employee turnover rate in the emergency response field. Regular training is the key to having a good emergency response system.



Figure 19 – Full Scale Training at Orlando International Airport

Some forms of training include:

- Table top exercises that should be done at least quarterly.
- Full scale exercises where training is done on an actual aircraft.
- Night training to practice emergency response when the emergency occurs outside of normal daylight hours.
- Periodic follow-up training.

Other training best management practices suggest:

- Ensure all personnel involved in emergency response read the plan every year and sign off to certify that they have read it.
- Provide airfield facility diagrams/maps, security training, and ramp driving training to teach responders how to access the airfield without creating runway incursions and minimizing disruption to airport operations.
- Regularly train responders on airport access point locations, access procedures, and escort procedures.
- Verify that emergency vehicles are equipped with transponders, keys, or access cards to allow quick and efficient access through security gates to the airfield and scene of the accident.
- Visit the city, county, local police station, local fire station, volunteer fire station, ARFF station, and emergency medical services (EMS) department once a year or when new employees are hired to talk about personnel at the airport and various situations they may need to be aware of when responding to emergencies on airport property.
- Assign all involved personnel to specific roles so effort is not duplicated.

COMMUNICATION

Communication plays a major role in a successful response to an aircraft incident. Local, state, and federal agencies must communicate and understand one another through different types of media including email, radios, telephones, and even light guns for airports with an ATCT. Local agencies should try to meet on a regular basis so everyone can meet each other. Building relationships with first responders is very beneficial to Florida's public-use airports. It is helpful to know people on a first name basis and to talk to them in person, not just through email or over the telephone. Having an established relationship with someone makes communicating with them much easier and thus increases response time. Responders also need to be familiar with how to communicate with victims of the aircraft incident. Communication with victims involved in an incident caused by an act of terrorism is different than communication with victims of an incident caused by a technical failure.

DEVELOP A GOOD WORKING RELATIONSHIP WITH THE OFF-AIRPORT AGENCIES

Airport staff needs to know that there is a potential for multiple agencies to respond and they need to know how to manage this so that efforts are not duplicated. Requesting follow-up contact with the off-airport agencies will help maintain the relationships, which will increase the efficiency of emergency operations. Multi-agency response should be included in trainings and exercises.

HOLD POST-INCIDENT MEETINGS AND DEBRIEFINGS

Post-incident meetings between the agencies and different entities involved in the emergency situation are opportunities to evaluate the situation and discuss what went well and what areas need improvement. These meetings should be documented and referred to during the update of the AEP.

VICTIM ASSISTANCE PROGRAM

From the representative survey of Florida's airports, one best management practice identified is having a victim assistance program in place. This program is geared toward the people directly involved in aviation related emergencies and the friends and family of the people involved to help them debrief and cope with the emotional aspects of the situation. Some components of a successful victim assistance program include:

- Predicting and understanding how the victim may react. Different scales of emergencies will elicit different victim reactions including panic, fear, confusion, anger, and despair.
- Understanding how to manage victims of different ages, particularly children and the elderly.
- Understanding how to comfort the victim if the emergency does not result in any injuries. This typically includes removing the victim from the scene by keeping them in a vehicle or safe location to calm them down and keep them out of the way during the response.
- In the case of a stalled or broken down aircraft, an airport representative should explain the aircraft removal process once the victim is calmed and, in order to limit the airport's liability, a form should be prepared by the airport for the victim or owner of the aircraft to sign before the aircraft is removed from the scene.
- Working with non-governmental organizations (NGOs) such as the Red Cross and Salvation Army in order to offer additional victim assistance or debriefing to family members or rescue workers after a major emergency situation.
- A system to notify families of the deceased is beneficial so the media does not broadcast this information before the family is aware. This system should also take the safety and care of the victim's family into consideration once they have received notification.
- The provision of mental health services, debriefing and counseling for first responders, streamlining service requests and benefit claims, and ensuring access to an experienced prosecutor who can provide victims with information about the status of the case and legal issues.

- Victims of a serious emergency situation will have long-term needs after their immediate needs are met. Workshops are a practical way for first responders to help, allowing small groups to form to talk about traumatic experiences with colleagues who are normally reluctant to talk about their experiences. These workshops have been deemed very helpful to rescue and public safety personnel.

TERRORISM AND VICTIM ASSISTANCE

Victims of terrorism have various needs after the event, including physical, financial, emotional, and legal needs. The needs of individual victims may vary but processes should be established to help victims evaluate their own specific needs and to help victims find resources that can address, help, and support their needs. For most victims of a terrorist attack, moderate assistance will be needed, but for some victims, long-term assistance may be needed.

The publication “Responding to Terrorism Victims - Oklahoma and Beyond”² created in October 2000 is a compilation of ideas and plans regarding victim assistance that were implemented after the Oklahoma City bombing took place. The preparation of this document was funded by the Office for Victims of Crime, Office of Justice Programs, and U.S. Department of Justice. This information may be useful for an airport to consider as best management practice, in the event of a major aircraft emergency caused by an act of terrorism.

Best management practices that have arisen from the Oklahoma City bombing terrorist attack stem from victims, victim advocates, criminal justice professionals, mental health professionals, clergy, the media, and outside observers. For these best management practices, the term “victim” includes the primary victims and their families, first responders, rescue workers, law enforcement, victim assistance personnel, and others exposed to traumatized victims. Planning and coordination are necessities for an effective response to terrorist victims. In order to benefit the victims, their needs must be understood, the responders need to know their roles, and responding agencies must be able to work together towards a solution.

VICTIM SUPPORT

Communication is an essential part to the development and implementation of interventions with victims. Coordination between local, state, and federal agencies is important to effectively address the need of terrorism victims. Support for victims can be better provided if both public and private sector responders can work together, maximizing expertise and helpful resources. Responders to an act of terrorism must be familiar with the legal rights of the victims and, in a short period of time, the victims need to be identified and given information about services and support that are accessible to them. Innovative media techniques such as creating a website where victims can access information and helpful sources are a good way to communicate with a wide variety of affected people.

The federal government may or may not be involved with a victim assistance program depending on the extent of the event. Victim assistance challenges include:

- The immediate crisis must be handled.
- Post-crisis victim needs must be met.

² More information can be found at <https://ovc.ojp.gov/sites/g/files/xyckuh226/files/publications/infores/respterrorism/welcome.html>

- Victims' rights and services must be provided during any criminal justice process.
- Long-term victim needs must be recognized and addressed as they emerge over time.

FAMILY ASSISTANCE CENTERS

During an emergency situation, there should be an immediate emergency response plan in place. This plan should identify how to assist victims, including a way to provide information to the families of the victims and to provide them protection from the media. An example of this is the Compassion Center, a family assistance center (FAC) that was put in place within hours after the bombing in Oklahoma. This Compassion Center concept is an idea that can be used during any type of emergency, not just a terrorist attack. The Compassion Center limited media from intruding upon family members who wanted privacy and allowed media access to family members who wanted to speak to the media. In this temporary assistance area, mental health care specialists briefed people before interviews, escorted them to the interviews, and then debriefed them afterwards. The Compassion Center was a place where families could exchange information about the family members that were missing as well as where families could seek information about emergency services, mental health counseling, and comfort. There were areas at the Compassion Center where families could receive messages, eat meals, and use long distance phone services. During the Oklahoma City bombing response, a crisis intervention team was formed. This team worked with both the victims and the people responding to the disaster. A system was also implemented to gather information from families that could be used to identify remains and to provide counseling services during this process. A Victim-Witness Assistance Unit was also established to help individual victims. A toll free phone line was created where victims could call in to obtain trial information, become part of meetings with survivors and other family members, and receive assistance at a convenient time for the caller.

DEVELOP A MEDIA RELATIONS PLAN

A media relations plan should outline the process of contacting the media during an emergency situation and how to effectively control the scene once the media arrives. The plan should outline identified areas for the media to set up vehicles and equipment as well as a potential interview room/site. Airport staff members are encouraged to develop working relationships with members of the press outside of emergency situations in order to improve the communication process during an actual emergency. The media relations plan activities should be included in the periodic training procedures.

EMERGENCY MANAGEMENT AND SOCIAL MEDIA

Social networking is an integral part of disaster and emergency response initiatives, filling the time delay void left with traditional emergency broadcast systems and protocols. Social media platforms have evolved from simple peer-to-peer digital networking tools to becoming truly effective communication channels for both public- and private-sector organizations. Effective emergency response communications through social media starts with maintaining an active social media presence on widely-used platforms.

An emergency communications strategy should be developed in tandem with local and regional public safety or emergency management organizations and should be included in an AEP. In some cases, it may be most effective to coordinate digital communications with a local government's public information official.

TRIAGE COLOR CLASSIFICATION

The triage designation is based on a color system. Each color describes the medical state of the victim. The medical descriptions associated are shown in **Table 3**.

Green	Consists of the “walking wounded” that consists of victims that do not need medical assistance or that have injuries that do not require medical stabilization or monitoring.
Yellow	Consists of victims with a stable condition that are not in immediate danger of death but will still need to be taken to a hospital or burn center. These victims should have injuries such as broken bones.
Red	Consists of victims who cannot survive without immediate medical treatment but do have a chance of survival. These victims should be taken to the hospital or burn center before the victims classified as “yellow.”
Black	Consists of victims who are deceased. These victims are left in place until investigation occurs. In some cases “black” may be used for victims with injuries so extensive that they are not likely to survive given the care or resources that are available.

Victims may be designated as a certain color using either triage tape or a triage tag as shown in **Figure 20**. The benefits of using a triage tag are that more information can be given about the victim in order to save another responder time. The person doing the initial start of the triage tag will only tear off the color-strips at the bottom until the most bottom color-strip on the tag is the classification needed for the patient. The first responder will then attach the tag to the victim. The tag is actually filled out either in the treatment area or in the ambulance by another responder. The benefit of triage tape is that it is seen more easily than a small color strip on a tag.

Figure 21 provides an example of a triage staging diagram that should be created so responders know where to go to find victims with a certain medical condition. The diagram shown in **Figure 21** was created by the Tallahassee Fire Department and is posted on the inside door of their mass casualty trailer.



FRONT		BACK	
Personal Property Receipt Evidence Tag: [Barcode] Destination: [Barcode] Title: [Barcode] TRIAGE TAG [Color-coded Triage Tag]		Contaminated (Vertical text on right)	
CONTAMINATED (Vertical text on left)		Common Information Patient Name: _____ RESOURCES: R (Respirator) P (Pulseless) M (Mental Status) More than Walking Wounded → MINOR No Response After Head → MORTUE Respiration - Dist X → IMMEDIATE Pupils - Constricted / Dilated / Fixed → IMMEDIATE Motor Status - Unable to Follow Simple Commands → IMMEDIATE Obvious → DELAYED	
VITAL SIGNS Temp: _____ BP: _____ HR: _____ RR: _____		PERSONAL INFORMATION LAST: _____ FIRST: _____ DOB: _____ SEX: _____ HEIGHT: _____ WEIGHT: _____	
MORTUE IMMEDIATE (Red) DELAYED (Yellow) MINOR (Green)		MORTUE Pulseless/Non-Breathing IMMEDIATE (Red) DELAYED (Yellow) MINOR (Green)	
EVIDENCE (Vertical text on left)		EVIDENCE (Vertical text on right)	

Figure 20 – Triage Tape (above) and Triage Tag (right)

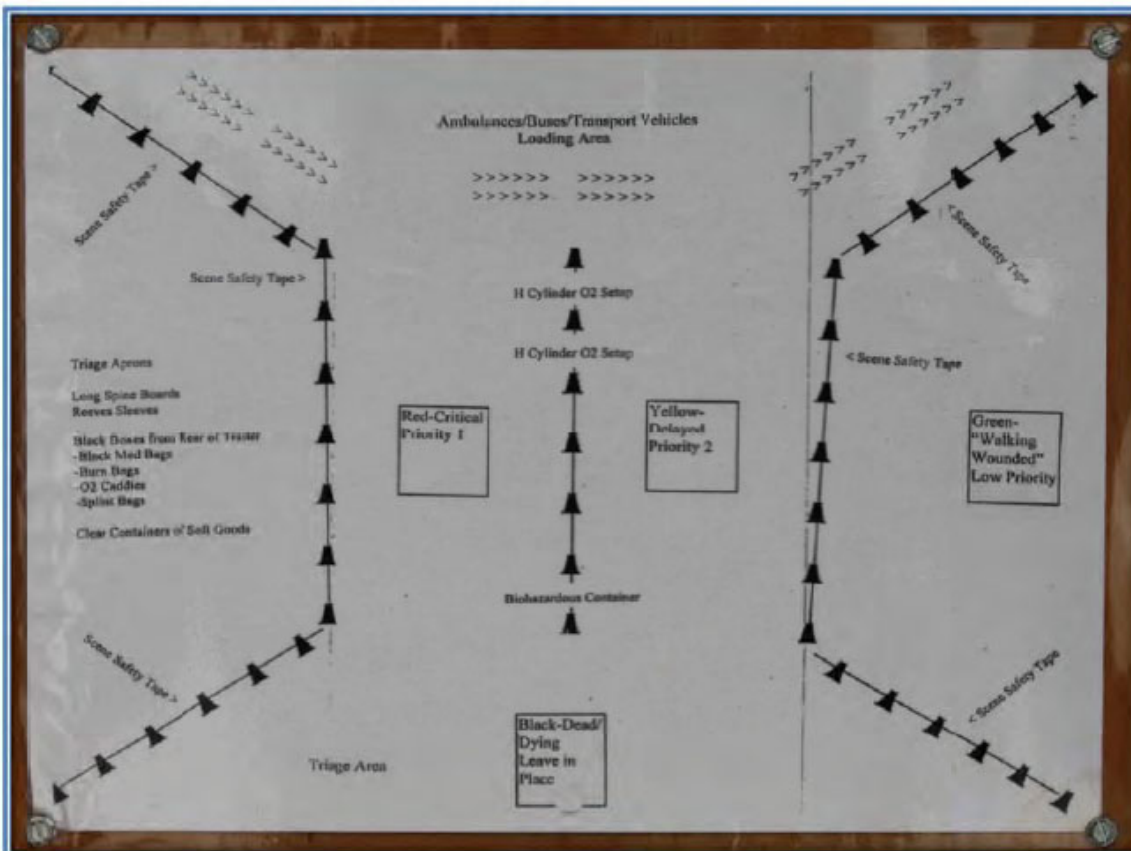


Figure 21 – Example Triage Diagram

WATER RESCUE TECHNIQUES

The Orlando International Airport has developed a rescue device that is very beneficial during an emergency when there are many victims in a body of water. They created a device known as the “snake” in order to rescue many people at once. The “snake” is a typical five-inch firefighting water supply line that is closed off at one end and has a connection piece at the other end that will let air in but not out. The connection piece allows a compressed air bottle to be linked to the fire hose in order to blow it up so that it will float. Straps were added to the fire hose so victims could easily grab onto it when the “snake” is pulled by the motor boat next to them. This device allows the victims to keep their heads above water, which during an aircraft emergency typically has a layer of fuel floating on the surface. **Figure 22** shows a water rescue technique in action during a training session at Orlando International Airport.



Figure 22 – Water Rescue Training with The “Snake” at Orlando International Airport

OTHER BEST PRACTICES TO CONSIDER

If a major emergency were to occur, the airport should have a plan to organize and manage the responders that will be coming to the airfield. One practice identified during the comprehensive survey of Florida’s public-use airports was the use of colored arm bands to differentiate which person belongs to each agency to facilitate access to certain areas.

Airports should also make sure that the local officials that will be responding know the airfield. If a first responder does not know where he or she is going when responding to an emergency, other parts of the airfield may be impacted which could further delay typical airport operations. Responders should receive recurrent orientations on airport access points, access procedures, and escort procedures.

Community involvement is also a best practice to consider. Airport staff should learn about their own community’s emergency management entities by attending meetings and getting to know the local emergency manager. This can help the airport by allowing them to replicate the community’s best management practices.

CASE STUDIES

The following case studies were summarized in order to include a broad range of emergency situations associated with aircraft incidents. The lessons learned from these case studies can become best management practices.

LEXINGTON, KY

SYNOPSIS

Comair Flight 5191, a Bombardier CL-600-2B19, N431CA, crashed during takeoff on Sunday, August 27, 2006, at 06:06:35 hours at Blue Grass Airport (LEX) in Lexington, Kentucky. The flight crew, which was granted permission to depart from Runway 4/22 for Hartsfield-Jackson International Airport (ATL) in Atlanta, Georgia, taxied the aircraft to and began departure from Runway 8/26. While Runway 4/22, a runway 7,003 feet in length and 150 feet wide, conforms to the specifications of 14 Code of CFR Part 139, Runway 8/26 is a general aviation runway 3,501 feet in length and 75 feet in width. The aircraft traveled 265 feet on the grass past the end of Runway 8/26, hit a four-foot-high berm, traveled an additional 115 feet on the grass and hit the airport perimeter fence. The airplane then traveled another 520 feet and struck a tree. The main wreckage of the airplane was found 900 feet past the first tree strike and about 1,800 feet west of the end of Runway 8/26. The fuselage separated into two main sections, the wings were both severed from the fuselage, and the plane caught on fire after the crash. Most fatalities occurred due to traumatic injuries, but other fatalities resulted from smoke and soot inhalation and thermal injuries. There were three crew members and 47 passengers on this flight. The only survivor of the crash was the first officer, who had serious injuries.

CAUSE

According to the NTSB Aircraft Accident Report, “the probable cause of this accident was the flight crewmembers’ failure to use available cues and aids to identify the airplane’s location on the airport surface during taxi and their failure to cross-check and verify that the airplane was on the correct runway before takeoff.”

Factors contributing to the accident included a conversation between the flight crew during taxi not associated with takeoff and the FAA not requiring that all runway crossings be approved by specific air traffic control clearances.

GENERAL EMERGENCY RESPONSE

The Department of Public Safety at LEX is comprised of employees that are cross-trained as firefighters, police officers, and emergency medical technicians. During the emergency response, the Department of Public Safety initiated firefighting roles and then switched to police officer roles to secure the site once the fire was extinguished. The cross training of emergency responders allowed roles to be switched without the need to switch out people, leading to a faster response.

Before this accident, there were two different radio systems at LEX, but this hindered response. Today airport operations, engineering, and maintenance are still on the UHF band, but the Department of Public

Safety is on the 800 MHz system, which is what the Lexington Fire Department utilizes. If the Department of Public Safety needs to talk to someone that is on the UHF radio band, the dispatchers can crosspatch the radio frequencies.

FIRST RESPONSE

During the Comair Flight 5191 accident, the major on duty initially became the incident commander. Scott Lanter, the deputy director of public safety and operations, became the incident commander once he arrived from his home. A Lexington police officer along with two airport Department of Public Safety employees rescued the first officer from the wreckage. At first, the police officer was not familiar with the seat belt latch that was securing the first officer to his seat. Airport Public Officers, since they were familiar with the seat belt, worked with the Lexington Officer to extricate the one survivor from the wreckage. The first officer, due to the extent of his injuries, was immediately transported to a local hospital by one of the Airport Public Safety officers and the Lexington Police Officer in an Airport Public Safety sport utility vehicle (SUV). The trauma team that met the officers at the hospital thought that the decision to immediately transport the first officer aided in saving his life.

CONTINUING RESPONSE

Airport operations at LEX were halted until about 13:00 hours the day of the accident, waiting for the NTSB to open up the primary runway. The airport Department of Public Safety had to take photos to show the NTSB that the part of the primary runway that needed to be open was not involved in the accident. The airport staff had checked the field and conducted a spot check of the area within about three hours of the accident. Three ARFF trucks responded to the accident, but only two of them used their agents to extinguish the fire caused by the crash. Since LEX had a re-supply of foam and dry chemical agents on the airfield, the airport was able to open up sooner than if they had to wait to fill up the ARFF trucks with the agents. The Salvation Army provided canteen services for responders at the scene.

Command was transferred from the Department of Public Safety to the local fire and police department. The local fire department assisted the local coroner with body recovery. The FBI along with the TSA was responsible first for ensuring the accident was not a result of a criminal or terrorist act. The FBI also helped identify personal belongings that were recovered from the individual passenger seats as well as from the luggage storage area of the airplane. A mockup of the aircraft was laid out in masking tape on the floor of an unoccupied aircraft hangar at the airport. This mockup was utilized by the FBI's Evidence Response Team (ERT) to recover and process the personal effects of the passengers on the aircraft.

The coroner disaster recovery team arrived on scene and quickly recovered the bodies, but did not use refrigeration trucks to transport the deceased to the morgue. LEX does have a mutual aid agreement to obtain refrigeration trucks but did not use the agreement in this case.

The Boston Logan International Airport Fire Department sent a firefighter "Go Team" in an effort to both learn from the airport's response and to assist in the Critical Incident Stress Debriefing (CISD) of airport Public Safety personnel. The Boston Logan personnel provided both a meal and initial CISD to Airport Public Safety personnel as they arrived at the airport firehouse from the scene. These simple acts led to the establishment of several friendships between Boston Logan and LEX Public Safety personnel, the significance of which cannot be overstated.

TRAINING

The LEX Department of Public Safety was trained in Incident and Unified Command. The State of Kentucky requires firefighters to have 100 hours of standard fire service training beyond what the FAA requires for Part 139 airports. There is a monetary incentive for firefighters in Kentucky if they meet certain requirements including having 100 hours of in-service training with a curriculum decided upon by the Department of Public Safety each year.

MEDIA INVOLVEMENT

Media was directed to one of the parking lots at the Keeneland Race Course located very close to the accident site. The airport has a mutual aid agreement with Keeneland and they willingly served as a staging area for the media. The parking lot was filled with satellite trucks and the reporters liked this area since they could use the airport as a backdrop for their live shots. A temporary flight restriction to keep all helicopters a certain distance away from the accident was also obtained from the FAA because noise from the helicopters interfered with communication among the responders. Scott Lanter personally met with the Keeneland Race Course president when the event was over in order to thank him. The airport's website received numerous hits from people trying to find information about the accident and a news station from Sweden called the airport six minutes after the accident. By 17:00 hours all of the major news crews had left.

Before the NTSB arrived at the accident scene, the Public Information Officer (PIO) of the police department gave a statement to the media. The airport then gave a statement to the media. As long as the airport gave the media information at pre-determined times, the media became more of a partner than an adversary. Once the NTSB arrived at the accident, the media was told that press releases would be one of the responsibilities of the NTSB. The media was also notified of what hotel the NTSB would be at to answer questions. NTSB has pre-determined agreements with local hotels in order to rent hotel rooms despite other events occurring in the city at the time.

FAMILY ASSISTANCE CENTER

The FAC was set up by the Red Cross at a different hotel than where NTSB was set up. Although the airport provided assistance to the Red Cross, no airport personnel were stationed at the FAC or tasked with directly providing assistance or support to the families of the victims.

DEBRIEFING

The first step of the Critical Incident Stress Debriefing (CISD) process began when Scott Lanter, serving as the incident commander, pulled all of the responders together and gave them the specific command to not do or say anything about the accident that would cause any additional grief to the family members. Additionally, LEX provided voluntary CISD and counseling services to all emergency responders; however, LEX required all Public Safety Officers to attend mandatory CISD sessions.

About two or three weeks after the accident, responders who went through the Oklahoma City Bombing incident came to LEX to have long sessions with the responders. First, all the responders were invited to meet with them in the training room at the airport firehouse. A group session was then held in the training room at the local fire department. The large group was broken into smaller groups: chiefs, midlevel supervisors, and firefighters.

BEST MANAGEMENT PRACTICES

Each small group talked about their experiences before they joined together to talk about the accident as a larger group.

The following best management practices were identified from the lessons learned from this event:

- Strive to develop strong working relationships with local responders.
 - During the Comair Flight 5191 response, police and firefighters had to work together to extricate the first officer from the wreckage. Police and firefighters can sometimes be very territorial during emergencies. Because the Department of Public Safety had close working relationships with both the local police and the fire departments, the focus of the event was initiating response instead of struggling with cooperation and communication between the different entities.
- New employees should be encouraged to learn incident command, triage activity, and safety officer duties.
 - Many airports rely on senior command staff to conduct incident command, triage activity, and safety officer duties. At LEX the newest individuals in the department are pushed to learn those responsibilities since the first responders to an accident may not always be of a senior level. In this case, the officer that pulled the first officer out of the airplane was considered a newer employee.
- Offer an incentive for attending additional training than what is required by FAA.
 - Offering some type of incentive program for training will cause more people to participate in a training session, which will be beneficial when an emergency does occur. Currently all certified firefighters in the Commonwealth of Kentucky receive \$3,300 dollars for completing at least 100 hours of in-service training annually. This additional training may have helped the Comair Flight 5191 response effort be more efficient and effective.
- Hold an annual tabletop review of the emergency response plan in addition to extra training.
 - At any airport this review will benefit both new and veteran employees by teaching and reiterating to them what should go on during different types of emergencies at the airport.
- Have a police and/or fire department chaplain or chaplaincy team that has been trained in both CISD and Post Traumatic Stress Disorder (PTSD) lead debriefing.
 - Following an emergency response, responders should not typically be debriefed by a professional psychologist or clinical psychologists in a clinical setting. Instead, experience has shown that emergency responders need to be debriefed by peers who have been trained in both CISD and PTSD. In Kentucky, these tasks usually are performed by police and/or fire department chaplains and chaplaincy teams. Responders are more open when they feel as though they can relate to the people leading the debriefing.
- The Comair Flight 5191 accident was located outside of the airport property. Encourage responders to be familiar with not only the airport property but surrounding areas as well.
 - Because responders were familiar with the surrounding areas, the description of the area where the accident occurred was enough information for all other responders to locate the accident and exact

location coordinates were not needed. Being familiar with surrounding areas may decrease the time in which first responders arrive at the accident scene.

- Good relationships among responders make it easier to work together as a team to achieve one goal.
 - The time to start building relationships with other responding agencies and community partners is now. Start to build the foundation now to have success in the future. The Department of Public Safety would have the local fire and police departments over for a casual meal or get-together and strike up conversations about what really happens in the event of an aircraft accident.

SOURCES

- NTSB/AAR-07/05 PB2007-910406
- Interview Scott Lanter, A.A.E., Director, Public Safety and Operations, Blue Grass Airport

SIoux CITY, IA

SYNOPSIS

United Airlines Flight 232, a DC-10-10, N1819U, experienced a catastrophic failure of the No. 2 tail-mounted engine during a cruise flight on July 19, 1989, at 15:16 hours in route from Denver, Colorado to Chicago, Illinois. The separation, fragmentation, and forceful discharge of stage 1 fan rotor assembly parts from the No. 2 engine led to the loss of the three hydraulic systems that powered the airplane's flight controls. The flight crew experienced severe difficulties controlling the airplane, which subsequently crashed at 16:01 hours during an attempted landing at Sioux Gateway Airport (SUX) in Sioux City, Iowa. There were 285 passengers and 11 crew members on board. One flight attendant and 110 passengers were fatally injured.

The airplane crashed on a closed runway. There was fuel and fire damage to this north-south runway but the primary runway at SUX opened the next day. Debris from the crash was scattered over the entire airport.

CAUSE

The NTSB determined that the probable cause of this accident was the inadequate consideration given to human limitations in the inspection and quality control procedures used by United Airlines' engine overhaul facility. This resulted in the failure to detect a fatigue crack originating from a previously undetected metallurgical defect located in a critical area of the stage 1 fan disk that was manufactured by General Electric Aircraft Engines. The subsequent catastrophic disintegration of the disk resulted in the liberation of debris in a pattern of distribution and with energy levels that exceeded the level of protection provided by design features of the hydraulic systems that operate the DC-10's flight controls.

GENERAL EMERGENCY RESPONSE

SUX is an aviation facility for commercial, general aviation, and military aircraft. The on-site fire department is a joint military and civilian department. Randy Curtis, the Sioux Gateway Airport Director at the time of the accident, and Gary Brown, Woodbury County Disaster Services Director, created an agency committee in 1987 that was very helpful during this accident. The committee was comprised of all the agencies involved in emergency response and was a way for these agencies to start building working

relationships and executed training exercises with each other. Randy Curtis was in Hawaii when the accident took place and had to fly back for the response. Both Gary Brown and Jim Hathaway, Fire Chief at SUX, acted as incident commanders.

The accident was updated to an Alert III emergency before the airplane crashed, even though this type of alert is usually only issued once a crash occurs. Since this alert was issued about a half hour before Flight 232 crashed, agencies had more time to prepare. A central command center was set up and the agency officials reported there to coordinate the response. Mutual aid assistance was offered from neighboring Ida and Buena Vista Counties. Before the accident occurred, extra ambulances and other emergency response vehicles were sent to SUX to prepare for the disaster and to help maintain normal operations in Sioux City.

A two-class triage system was set up on the airport before the accident occurred. This was known as the “scoop-and run” method. A victim would be assessed and if his or her injuries were life threatening, the victim was immediately transported. If the injuries were not life threatening, the victim was transported immediately as long as someone with life threatening injuries was not ahead of him or her. This method did not provide any on-site medical treatment to the victims in order to achieve the goal of transporting the patient to the emergency room within one hour of the accident. The victims were sent to one of two hospitals, both of which were about seven miles away from SUX. One hospital was a trauma center and the other was a burn center. The Iowa State Patrol placed a road block on the interstate between the two hospitals and in less than one hour all the victims needing medical care were transported.

The 185th Air National Guard, which is located on the airport, had 300 personnel on-site because of a drill they were performing at the time. These members helped recover the bodies from the accident. The accident also occurred as a shift change was occurring at both the regional trauma center and the regional burn center, allowing for more medical personnel to treat the injured.

A temporary morgue was set up in a military owned hangar building. The FBI and the NTSB performed the accident investigation and collected evidence and debris while the coroner began to identify the deceased and perform autopsies. The deceased victims were transported using refrigerated tractor trailers.

Other agencies that helped with the response included the Red Cross, Salvation Army, local Blood Banks, and an Amateur Radio Club. The phone system at SUX became useless since there were so many incoming calls. To overcome this communication barrier, a radio club volunteer was assigned to a person with information in order to transmit the information via radio. During the time of this accident the airport did not own cellular phones but during the continuing response of the accident a company from Kansas donated about 60 cellular phones. By the end of the response, there were between two and three thousand responders, governmental and volunteer, involved with the accident.

TRAINING

SUX performed their first disaster training exercise in 1987. At this time the FAA did not require a disaster exercise to take place. This training was very beneficial and made the response for this accident more efficient and effective since everyone knew the emergency response plan so well.

MEDIA INVOLVEMENT

The city manager coordinated the media response. Media operations were held in the airport terminal parking lot, but there was no formal structure for the media to receive information soon after the accident took place. There were about 300 media members stationed at the airport including the Good Morning America cast and Maury Povich who both did episodes of their shows on-site.

The day after the crash, buses were loaded with media personnel to take them out to the accident scene. Each bus had a spokesperson on it providing the media with consistent information.

FAMILY ASSISTANCE CENTER

Briar Cliff University, located about 10 miles from SUX was used to house the family members of the victims as well as survivors of Flight 232. The accident happened when the students were on a break and the college staff volunteered the use of their facilities. The family members were able to stay in one of the residence halls on campus and the university cafeteria provided food to them. A place for survivors and family members to talk to the media, if they desired, was set up across campus from the residence hall.

BEST MANAGEMENT PRACTICES

The following best management practices were identified from the lessons learned from this event:

- Pre-planning is very helpful. Comprise a committee that is an advocate for working relationships among local responders.
 - SUX had an agency committee that was formed in 1987 before the accident occurred. This committee was founded on the idea that working relationships among the airport, area hospitals, and the Woodbury County Disaster Services department are needed. It was also thought that all of the people involved with these agencies should train together. This greatly benefited the emergency response because the responders were already familiar with each other.
- Airports should have a well thought out and consistently rehearsed emergency response plan.
 - The AEP should be updated regularly and implemented during training sessions.
- Full-scale training exercises are very helpful and can pinpoint areas where emergency response teams need to focus.
 - The agency committee jointly authored the plan and all the practice runs of the plan were performed jointly with the different agencies. The plan was exercised once a year for a full scale disaster scenario. This process allowed the agencies to figure out their weaknesses and also build trust with one another. The drill in 1987 simulated the crash of a large airplane with 150 people on board. Gary Brown realized during the training that the strategic staging of the ambulances could lead to a quicker response time and that the mutual aid program should be expanded. This drill was very similar to the actual accident that occurred and was very beneficial to all the responders involved since they all had prior experience of an event of this magnitude.
- Position emergency response vehicles to minimize travel time to the accident site.
 - During this accident, ambulances were positioned around on highways and when the airplane crashed away from the runway the response time was decreased.

SOURCES

- NTSB/AAR-90/60 PB90-910406
- Interview with Randy Curtis, A.A.E., Director of Special Projects, Northwest FL Beaches International Airport

ADDITIONAL REFERENCES

- Alert 3 and Lessons Learned DVDs which can be purchased at <http://www.siouxcitygifts.com>

COLUMBIA, SC

SYNOPSIS

On Friday, September 19, 2008, at about 23:53 hours at Columbia Metropolitan Airport (CAE) in Columbia, South Carolina, a Bombardier Learjet Model 60 (Learjet 60), N999LJ, owned by Inter Travel and Services, Inc. and operated by Global Exec Aviation overran Runway 11/29 during a rejected takeoff. Those on board included two crew members and four passengers, two of whom were celebrities.

The incident occurred on Runway 11/29, which is an 8,601 feet long and 150 feet wide grooved asphalt surface. This was a nonscheduled domestic passenger flight from CAE to Van Nuys, California and was operated under 14 CFR Part 135.

The initial wreckage debris on the runway consisted of fragments of the right outboard main landing gear (MLG) tire. Some of these fragments were found coated with hydraulic fluid. Other aircraft debris found along the runway included the airplane landing light, various airplane pieces, the right inboard MLG tire, left inboard MLG tire, and fragments of the MLG wheel sets with few tire fragments attached.

The aircraft overran the runway, passed through the 1,000-foot runway safety area (RSA), struck airport runway approach lighting and a localizer antenna array, traveled down a steep hill, and hit a lighting pole and the airport perimeter fence. The airplane then struck a concrete roadway right-of-way marker, traveled across Highway 302 (a five-lane road), and struck another concrete post. The airplane then hit a 25-30 degree embankment, stopped, and the air traffic controller observed the airplane explode into a fireball. The captain, first officer, and two passengers were killed. The two celebrities on board were seriously injured by second and third degree burns.

CAUSE

“The NTSB determined that the probable cause of this accident was the operator’s inadequate maintenance of the airplane’s tires, which resulted in multiple tire failures during takeoff roll due to severe under inflation, and the captain’s execution of a rejected takeoff after V1 (takeoff decision speed), which was inconsistent with her training and standard operating procedures” (NTSB). Each tire was a Goodyear Flight Eagle, part number (P/N) 178K43-1, size 17.5 x 5.75-8. For use on the Learjet 60, the rated tire inflation pressure was 220 psi.

The severity of the accident was increased by deficiencies in the Learjet’s design of the FAA certification of the Learjet Model 60’s thrust reverser system, which caused an unprompted forward thrust. Learjet’s

safety analysis and FAA's review of the analysis failed to find and correct the thrust reverser and wheel well design deficiencies after an unprompted forward thrust accident that occurred in 2001. Inadequate industry training standards for flight crews in tire failure scenarios also contributed to this accident.

GENERAL EMERGENCY RESPONSE

CAE is a small hub airport and significant accidents have historically occurred once every two to three years. Most accidents occur late at night or early in the morning, when there are low ceilings and fog. When accidents occur at CAE, NTSB investigators are usually sent from Atlanta, Georgia. Because this accident involved celebrities, it was considered high profile and investigators were sent from Washington D.C. to CAE. Bill English, the leader of the NTSB team from Washington D.C. contacted Steve Baxter, the CAE Fire Chief, less than two hours after the accident had occurred. The airport staff was relieved to have the federal government involved with this accident since the federal government was in charge of the investigation and managing the media. The NTSB broke into teams and each team was assigned a specific task, such as an airport group that studied construction on the airfield, an airport staffing group, and a human factor group that studied the human factors that may have caused the accident. The survivors both wore their seat belts and, when interviewed, stated that they paid meticulous attention to the emergency briefing that included how to operate the door and where the nearest exit was located.

FIRST RESPONSE

Initially the incident commander was the on-duty CAE fire captain until Steve Baxter arrived and assumed command. The airport knew that there were six people on the aircraft and four fatalities so EMS was told to return the mass casualty trailer back before it had even arrived on the accident scene. The two survivors escaped the aircraft and were transported to the Joseph M. Still Burn Center at Doctors Hospital in Augusta, Georgia.

CONTINUING RESPONSE

There were many federal and state agencies involved including the NTSB, FAA, TSA, FBI, the American Red Cross, South Carolina Department of Transportation (SCDOT), South Carolina Highway Patrol (SCHP), and the Department of Health and Environmental Control (DHEC). There were also county and municipal responders that reacted to the accident as mutual aid partners. In total, there were over 20 agencies that were involved some of which were companies and local organizations that donated food during the response efforts.

The FBI and TSA investigated to determine whether the crash was a criminal act or act of terrorism, but the TSA left fairly quickly since the accident fell under neither category. The SCHP worked with the FBI in order to photograph, map, and determine GPS coordinates for each piece of evidence or debris that was found.

The firefighters removed the deceased victims from the airplane but the coroner was afraid to act without permission from the NTSB. The NTSB thought that it was better to leave the crash in place and do the investigation there rather than to transfer the wreckage to an empty hangar. Because of this, the highway that was closed because of the accident continued to be closed until the following week.

DHEC was involved in cleaning up the fuel that spilled due to the crash. They tested the soil and also found that fuel went into the storm drains. An outside contractor was brought in to perform the hazardous material clean-up.

The airport was ready to open before these tasks were completed, but the airport was closed for approximately 36 hours until NTSB gave the airport clearance to resume operations.

TRAINING

Emergency response training at CAE is based on a two-year rotation. Tabletop training sessions are completed one year followed by a full-scale exercise the following year.

FAMILY ASSISTANCE CENTER

There was no FAC set up during this event. The aircraft owner took care of the family assistance that was needed.

DEBRIEFING

Debriefing began with a group session where the psychologist discussed the accident and let the responders reflect on the situation and vent frustrations. There was an employee assistance program put in place for responders, but it was not mandatory. CAE told the responders that they would support anyone who needed to go for additional debriefing or counseling.

MEDIA INVOLVEMENT

The media did not show up to the accident scene until the following morning. Since celebrities were involved, the airport received many calls from various entertainment media outlets. Media representatives that arrived on-scene were initially separated from the scene of the accident, but the NTSB eventually let them move closer. A Temporary Flight Restriction (TFR) was set up so news helicopters could not get close during the emergency response process.

The NTSB had to change the hotel they were originally staying and delivering information to the media because it was located downtown and the traffic from a football game occurring that evening made commuting between the airport and the hotel difficult.

BEST MANAGEMENT PRACTICES

The following best management practices were identified from the lessons learned from this event:

- The ICS was a critical part of the emergency response. All airport staff should be trained in ICS.
 - During the response Steve Baxter, the Fire Chief, was the Incident Commander and directed responders and agencies that were not directed by NTSB.
- Having a group that meets regularly, like the Unified Chiefs group, allows different agencies to talk to each other on a regular basis and begin to work as a team before a major incident occurs.
 - Richland County has a Unified Chiefs group composed of EMS, fire, and police members. This group meets quarterly at a central location. Anytime there is a new procedure for any type of

accident, it is shared at the meeting ensuring the information is given to all the key people at once. There is always an open invitation to the meetings and staff at all levels to attend. The different municipalities take turns sponsoring the meeting and paying for lunch.

- Be cautious when communicating with the media, especially when celebrities are involved in the accident.
 - Because the event involved celebrity personalities, the media took a special interest in the event. The airport staff at CAE has learned over time when speaking to the media be cautious because they may misrepresent who they are or which organization they are affiliated. The media may also have access to emergency radios that can tap into what the responders are communicating to each other and may pick up on things that should not be published.
- Make sure airport staff has access to gates on airport property as well as to gates on adjacent properties.
 - During this accident a United Parcel Service (UPS) vehicle was parked near one of the gates and therefore, some of the emergency vehicles could not get to the scene right away.
- Look at areas beyond the FAA designated areas and remove obstacles that may become hazards during a response effort because accidents do not always occur within these designated areas.
- Be mindful of the stresses put on the first responders.
 - After working 10 hours straight some firefighters at CAE were told to take a break to rest. Sometimes responders need rest and need to be taken out of the scene.
- Train and cross-train enough responders to ensure the depth of staff necessary to allow responders to take needed breaks.
- The accident may have been caught on tape from someone unexpected. This can provide a lot of information that will help re-create the accident.
 - In this case a patrol car dash camera caught the fire ball of the airplane. There are many people that have video cameras rolling at all times and may have caught the accident on tape.
- Implement group debriefing sessions.
 - This is an efficient way to debrief following the event and can work to continue building bonds and camaraderie among responders. A team that works together debriefs together.

SOURCES

- NTSB/AAR-10/02 PB2010-910402
- Interview with Chuck Henderson, Deputy Director & Steve Baxter, Fire Chief (Columbia Metropolitan Airport)

HAITI RESPONSE: ORLANDO SANFORD INTERNATIONAL AIRPORT

SYNOPSIS

On January 16, 2010, Orlando-Sanford International Airport (SFB) was notified in the early hours of the morning that they were receiving repatriation flights from the evacuation of Haiti. The evacuation was occurring due to the magnitude 7.0 earthquake that occurred near the capital, Port-au-Prince. Victims of all ages were being flown into the airport, customs was not prepared to handle the volume of people, and volunteers were needed to help care for babies and very young children.

This incident was not the standard type of triage that is typical of an aircraft incident. Instead, there were many different medical issues that had to be addressed ranging from the common cold and stomach virus to gunshot wounds. Many victims were afraid that if they were identified as having an illness or injury, they would not be allowed to enter the United States. Therefore, many injuries went unnoticed until much later in the evacuation when medical personnel at customs identified the victim as being injured.

After going through customs, victims were moved to a large 10,000 square foot holding room that was isolated from the terminal, as to not interfere with normal airport operations. People were released in front of the terminal. Transportation was needed and the Emergency Manager coordinated with school buses and drivers and the LYNX public transportation system in order to get victims reunited with their families. The Orlando International Airport (MCO) was set up as a receiving point to assist victims once they arrived.

ISSUES

During this effort there were no major problems with the aircraft arriving at SFB. There was one minor problem with “contracted” fuel from a fixed-base operator (FBO) being used in the wrong aircraft.

Health and Human Services delayed the process of getting victims onto the airplanes and, in some cases, commercial airplanes sat empty and almost had to leave without passengers due to time constraints.

Many families had to wait in the main terminals for more than 36 hours to pick up victims. Families were not isolated because SFB did not have adequate space for them. There were some minor instances where officers had to calm individuals down, but there were no major problems.

NorComm Corporation helped out and set up an Air Terminal Operations Center. They served as the liaison between SFB and the military.

There were a few issues with victims bringing weapons on board airplanes but no incidents occurred from these actions. This resulted from crews who were not trained doing pat downs on victims that were boarding to come to the United States.

A total of 9,508 refugees were brought into SFB on 126 total flights (112 military and 14 civilian) and there were 71 medical transports of patients. The busiest day was January 20th with 1,220 passengers on 11 flights. This event is considered a success because SFB’s normal operations were kept under control even though extra flights and a large scale emergency event was taking place.

EMERGENCY OPERATIONS CENTER (EOC)

The initial phone call was to handle one airplane coming in from Haiti, but the event snowballed into more airplanes and victims, leading to the activation of the Seminole County Emergency Operations Center (EOC). The EOC shut down their normal operations and moved their operations to SFB. A separate meeting room at the airport was used for the EOC at the airport. Office equipment such as printers, copiers, phone lines, fax lines, and supplies had to be bought because the airport was still functioning and these items could not be borrowed from other parts of the airport.

INCIDENT COMMAND SYSTEM

Per executive order, all federal agencies and anyone accepting federal money must be trained and fluent in ICS and NIMS. Customs officials conformed to ICS but Health and Human Services (HHS) did not follow these standards causing some problems. HHS claimed they did not have enough personnel to staff the EOC and refused to talk to the media

AGENCIES INVOLVED

The agencies involved included the Red Cross, HHS, National Guard, Florida Department of Children and Families, and the NorComm Corporation. There were many churches and other organizations involved that helped by bringing warm meals to the airport for the victims. Unfortunately, since many of the incoming victims to SFB were sick and malnourished, they ended up getting sick from the food that they were not accustomed to eating. SFB ended up having to turn many of these groups away, causing a media backlash. Many businesses donated food for the people working to help the refugees. This was very appreciated as many crews were working 24 hour shifts.

MEDIA INVOLVEMENT

There were no major issues with the media and this event. Media representatives tried to take photographs of the planes and people, but information was primarily funneled through the Joint Information Center (JIC) and Public Information Officer (PIO) for SFB. Customs, Seminole County, and the hospitals also had PIOs. Unfortunately, HHS did not have a designated PIO. The PIOs were able to give informative briefings to the media. A spreadsheet was set up and updated twice a day with the number of passengers and flights that had come into SFB. This information seemed to help satisfy the media and proved useful to the PIOs.

There were a few minor problems with media personnel being mixed in with the victims on the airplanes coming into SFB. If there was a media representative on board, the PIOs or the Incident Commander (IC) was sent out to talk and discuss with them what was allowable once they exited the airplane.

BEST MANAGEMENT PRACTICES

The following best management practices were identified from the lessons learned from this event:

- No matter how prepared you think your EOC is, there are always unforeseen issues that will need to be addressed.
- Someone needs to be designated to keep track of financial records.
- Someone needs to be designated to keep track of borrowed resources.

- Be aware of the resources available on your airfield.
- Any agency that does not conform to established standards and protocols, can cause problems throughout the entire event.
- An experienced fire chief helped the event run more smoothly than would otherwise have occurred.
 - The fire chief had already set up a training regimen with every department in the county so they were familiar with the operations and had a general understanding of how to deal with an emergency response at the airport.
- Have great mutual-aid agreements and train on-site with the mutual-aid agencies.
- Have good communication between the military and customs.
 - Both of these entities restricted the sharing of their information and SFB had to find other sources in order to find out how many airplanes would be expected to land at SFB within the next day.
 - Do not be afraid to look outside the box for additional information sources.
- SFB had to call the airport in Haiti in order to obtain information about how many airplanes were loading up so that they knew what to expect at SFB within the next several hours. This information was not given to them by the military or customs.

US AIRWAYS FLIGHT 1549 – WEEHAWKEN, NEW JERSEY

SYNOPSIS

On January 15, 2009, US Airways Flight 1549 experienced an almost complete loss of thrust in both engines after encountering a flock of birds and was subsequently ditched on the Hudson River about 8.5 miles from LaGuardia Airport (LGA) in New York City, New York. The flight was en route to Charlotte Douglas International Airport in Charlotte, North Carolina. The aircraft had departed LGA about 2 minutes before the in-flight event occurred at about 1527 eastern standard time. **Figure 23** shows the track of the flight. The 150 passengers and 5 crewmembers evacuated the airplane via the forward and overwing exits in the Hudson River. One flight attendant and four passengers were seriously injured, and the airplane was substantially damaged.

CAUSE

The NTSB determines that the probable cause of this accident was the ingestion of large birds into each engine, which resulted in an almost total loss of thrust in both engines and the subsequent ditching on the Hudson River. Contributing to the fuselage damage and resulting unavailability of the aft slide/rafts were (1) the FAA's approval of ditching certification without determining whether pilots could attain the ditching parameters without engine thrust; (2) the lack of industry flight crew training and guidance on ditching techniques; and (3) the captain's resulting difficulty maintaining his intended airspeed on final approach due to the task saturation resulting from the emergency situation.



Figure 23 – Track of Flight 1549 (NTSB, 2010)

GENERAL EMERGENCY RESPONSE

According to air traffic control (ATC) records, LGA ATCT personnel activated the Emergency Alert Notification System using the red crash phone. According to the Port Authority of New York and New Jersey (PANYNJ) LGA Emergency Plan, when the FAA tower activates the crash alarm signaling an aircraft accident, a request for emergency equipment is immediately relayed through a conference circuit to various airport offices, including the airport police, airport emergency response agencies, the U.S. Coast Guard, New York Police Department (NYPD), Fire Department of New York (FDNY), and local EMS department. Upon notification of the accident, the NYPD incident logs showed that a Level 3 mobilization, which required a predetermined number of personnel and equipment to respond to an accident or incident, was transmitted to the NYPD, FDNY, EMS, New York Office of Emergency Management (OEM), FBI, and Red Cross. Personnel from the New York Waterway (NY WW), PANYNJ, Weehawken Police Department (WPD), and New Jersey OEM also responded to the accident. In addition, a rescue boat was dispatched from LGA.

The NY OEM uses a Citywide Incident Management System (CIMS), which implements the NIMS. CIMS also establishes the roles and responsibilities and designates authority for city agencies performing and supporting emergency response. When the New York City public safety agencies respond to a complex, multiagency and multijurisdictional incident or accident, the CIMS management doctrine defines how the emergency response is managed. After receiving the crash alarm, the New York OEM personnel began coordinating resource requests from the FDNY, NYPD, and Red Cross.

The airplane was ditched on the Hudson River near the NY WW Port Imperial Ferry Terminal in Weehawken, New Jersey. Many NY WW ferries were operating over established routes in the local waterway, and the ferry captains either witnessed the accident or were notified about it by the director of ferry operations. Seven NY WW vessels responded to the accident and recovered occupants. According to the U.S. Coast Guard and FDNY incident log, the first NY WW vessel arrived on scene about 1534, and the six other NY WW ferries arrived on scene by about 1540. The incident log also indicated that one FDNY fire rescue boat and two small U.S. Coast Guard boats arrived on scene about 1539 and 1548, respectively.

The Port Imperial Ferry Terminal was designated as the central triage site in accordance with the PANYNJ LGA Emergency Plan. Initially, the proximity of the airplane to the Port Imperial Ferry Terminal made it an ideal occupant drop-off location. However, as the fuselage and ferries drifted with the river current, delivery of the occupants to a central drop-off location became more challenging. As a result, several vessels dropped off passengers at different locations because they had occupants on board who were wet, and these locations were closer when they departed the floating airplane. Ninety-one of the 146 passengers contacted after the accident indicated that they were dropped off on the New York side of the Hudson River, and 55 of them indicated that they were dropped off on the New Jersey side of the river. The five crewmembers were dropped off on the New York side of the Hudson River.

In accordance with federal regulations, the U.S. Coast Guard assumed incident command and maintained radio contact with the NY WW ferry captains, NJ OEM, and NYPD. The U.S. Coast Guard incident commander shut down vessel traffic on the Hudson River about 1535. The WPD established an incident command post in New Jersey at the Port Imperial Ferry Terminal, and the New York OEM established three incident command posts at Chelsea Pier, the Jacob Javits Center, and the NY WW New York terminal.

TRAINING

In October 2008, NY WW participated in a planning table-top exercise with the PANYNJ. Furthermore, several months before the accident, New York and New Jersey emergency response agencies participated in a mass-casualty exercise at the Port Imperial Ferry Terminal. Before the accident, NY WW had asked to participate in the mass-casualty exercises with the New York and New Jersey response agencies; however, the request was not granted. The day after the accident, the PANYNJ informed the NY WW that they would be included in future mass-casualty emergency response exercises between New York and New Jersey emergency response agencies. NY WW also conducted a series of monthly drills, live exercises, and actual rescues before the accident.

According to the US Airways Airbus fleet captain, the company has been operating under the Advanced Qualification Program (AQP) since 2002. The AQP is a voluntary program approved and overseen by the FAA that seeks to improve the safety of Part 121 operations. The US Airways AQP included indoctrination training, qualification training (QT), and continuing qualification training (CQT). Furthermore, US Airways provided ditching training during ground school. The training consisted of a PowerPoint presentation that reviewed the US Airways Quick Reference Handbook (QRH) Ditching checklist, which assumed that at least one engine was running. US Airways also provided training on crew resource management (CRM) and threat and error management (TEM) during basic indoctrination training, CQT, and distance-learning modules. In addition, US Airways integrated CRM and TEM into all aspects of its training, including ground school and flight simulations.

MEDIA INVOLVEMENT

The media was heavily involved with the accident of Flight 1539. From the moment after the landing in the Hudson River, survivors were interviewed by local media groups given their close proximity to New York City. Some passengers were interviewed immediately after being pulled from the wings of the floating plane. The pilot and crew were heavily praised by the media for doing what was thought to be impossible. New York State Governor David Paterson called the incident “a Miracle on the Hudson” and U.S. President George W. Bush said he was “inspired by the skill and heroism of the flight crew,” and praised the emergency responders and volunteers. An NTSB board member called the ditching “the most successful ... in aviation history.” On February 1, 2009, the crew received a standing ovation at the Super Bowl XLIII. The Pilot later released a memoir in 2009, which was adapted into a full-length film released by Warner Bros. media in 2016.

FAMILY ASSISTANCE CENTER

US Airways set up a FAC at the Crowne Plaza Hotel on Ditmars Boulevard in Queens, New York City, to house the survivors of Flight 1549. American Red Cross in Greater New York (ARC/GNY) responded immediately with blankets, sweat suits, socks, and other supplies for passengers and crew members who safely evacuated the plane. Mental health counselors were on the buses to comfort passengers who were transported from the NY Piers to the FAC where counseling services were also being provided. Additionally, working with the New York Clothing Bank, ARC/GNY secured replacement clothing which was provided at the FAC, as needed.

RECOMMENDATIONS

A total of 35 recommendations were made by NTSB following the investigation of Flight 1539. All recommendations are included in the NTSB Accident Report (AAR-10-03) found on the NTSB webpage. Some of the recommendations made by NTSB include:

- Develop checklists and procedures that are designed “to minimize the risk of flight crewmembers becoming stuck in an inappropriate checklist or portion of a checklist.”
- Provide training and guidance to pilots to inform them about landing on water, and the approach and touchdown techniques to use during a ditching, with and without engine power.
- Provide passengers with information about life lines to ensure that the life lines can be quickly and effectively retrieved and used.
- Equip aircraft with enough flotation seat cushions and life vests for each occupant on all flights, regardless of the route.
- Implement creative and effective methods to overcome passengers’ inattention when providing safety information.
- Brief passengers on all flotation equipment installed on an airplane, including a full demonstration of correct life vest retrieval and donning procedures, before all flights, regardless of route.

- Conduct wildlife hazard assessments (WHA) to proactively assess the likelihood of wildlife strikes, and if the WHA indicates the need for a Wildlife Hazard Management Plan (WHMP), require the airport to implement a WHMP into its airport certification manual. Such a plan would:
 - Provide measures to alleviate or eliminate wildlife hazards;
 - Identify persons who have authority for implementing the plan;
 - Identify priorities for needed habitat modification;
 - Identify resources for the plan; and,
 - Establish procedures to be followed during air carrier operations.
- Improve wildlife management and implement technical innovations to reduce bird strikes. Technologies to help improve wildlife management and reduce the potential for bird strikes could include:
 - Wildlife harassment tools, such as air guns, lasers, dogs, wildlife patrols, trapping and removing the wildlife.
 - Radars used to detect birds at or near (within three to possibly five miles of) airports and be used to develop an airport bird strike advisory system. These systems generally work by overlaying the radar data on an airport geographic information system.

SOURCES

NTSB/AAR-10-03/PB2010-910403

ASIANA AIRLINES FLIGHT 214 – SAN FRANCISCO, CALIFORNIA

SYNOPSIS

On July 6, 2013, a Boeing 777-200ER operating as Asiana Airlines Flight 214 was on approach to Runway 28L when it struck a seawall at San Francisco International Airport (SFO) in San Francisco, California. The accident occurred at about 1128 Pacific daylight time. Three of the 291 passengers were fatally injured. Serious injuries were recorded for 40 passengers, 8 of the 12 flight attendants, and 1 of the 4 flight crewmembers. The other 248 passengers, 4 flight attendants, and 3 flight crewmembers received minor injuries or were not injured. The airplane was destroyed by impact forces and a fire after the crash. Flight 214 was a regularly scheduled international passenger flight from Incheon International Airport, Seoul, Korea.

When the main landing gear and the aft fuselage struck the seawall, the tail of the airplane broke off at the aft pressure bulkhead. The airplane slid along the runway, lifted partially into the air, spun around, and impacted the ground a final time. After the airplane came to a stop, a fire initiated within the separated right engine, which came to rest adjacent to the fuselage. **Figure 24** shows an aerial view of the wreckage. When one of the flight attendants became aware of the fire, an evacuation was initiated and 98 percent of the passengers successfully self-evacuated. As the fire spread into the fuselage, firefighters entered the airplane and safely evacuated five passengers who were injured and unable to self-evacuate.



Figure 24 – Aerial view of the wreckage from Flight 214 (NTSB, 2014)

CAUSE

The NTSB determined that the probable cause of the accident was the flight crew's mismanagement of the airplane's descent during the visual approach, the pilot flying's unintended deactivation of automatic airspeed control, the flight crew's inadequate monitoring of airspeed, and the flight crew's delayed execution of a go-around after they became aware that the airplane was below acceptable glidepath and airspeed tolerances. Contributing to the accident were (1) the complexities of the autothrottle and autopilot flight director systems that were inadequately described in Boeing's documentation and Asiana's pilot training, which increased the likelihood of mode error; (2) the flight crew's nonstandard communication and coordination regarding the use of the autothrottle and autopilot flight director systems; (3) the pilot flying's (PF's) inadequate training on the planning and execution of visual approaches; (4) the PM/instructor pilot's inadequate supervision of the PF; and (5) flight crew fatigue, which likely degraded their performance.

GENERAL EMERGENCY RESPONSE

Most of the airport emergency responders learned of the accident via an Alert 3 notification from the ATCT about 10 seconds after the initial impact. The first vehicle to arrive on scene was an airport operations pickup truck driven by an airfield security officer (ASO). At that time, the evacuation began at aircraft doors. The first ARFF vehicle arrived within three minutes of the accident. It was positioned near the aircraft and began to apply agent to the visible fire involving the right engine that was against the right side of the fuselage. The second ARFF arrived shortly after and also began applying agent to the engine fire.

Within about 20 seconds after the arrival of the second ARFF vehicle, most passengers had finished evacuating from the aircraft.

Five minutes after the crash, San Francisco Fire Department (SFFD) had seven firefighting vehicles on scene in various positions around the airplane. Additionally, two SFFD rescue vehicles had taken position on Taxiway F in the location that would become the triage area. A foam blanket was applied in front of the left wing near the missing left engine where fuel was leaking. On-vehicle camera footage showed several firefighters on the ground and one of the rescue vehicles near a victim (later identified as passenger 41E) lying in the grass near the left wing. Three firefighters entered the cabin to assist passengers. Some passengers were pinned beneath seats, and others had stayed with them to try to help. Firefighters and San Francisco Police Department (SFPD) officers helped with extricating and removing these passengers from the airplane. The fire was brought under control about 50 minutes after the accident. However, during the rescue and firefighting process, the deceased passenger 41E was covered by a layer of foam and rolled over by a rescue vehicle.

In addition to the firefighting personnel, who were all trained as either basic emergency medical technicians or paramedics, SFFD had two paramedics, one assigned to each of its medical vehicles. Those vehicles arrived on scene shortly after the accident and positioned on the north edge of Taxiway F. One of the paramedics assumed the role of medical group supervisor, and the other assumed the role of lead triage officer. The medical group supervisor responded to the incident command post and was in charge of coordinating the entire medical response while the lead triage officer began the Simple Triage And Rapid Treatment (START) process of placing red, yellow, green, or black triage tags on passengers' wrists.

While the firefighting personnel focused their efforts on controlling the exterior fire, the paramedics began triaging the wounded. Passengers were instructed to move toward the medical vehicles to assist with the triage process. About nine minutes after the accident, an ambulance already at the airport on an unrelated call became the hub of triage activity for passengers who evacuated from the left side of the airplane. A second group of passengers who evacuated from the right side and tail of the airplane gathered behind the airplane. About 1153, the first mutual aid ambulance was seen in the accident area. The last passenger was removed from the back of the airplane approximately 20 minutes after the accident.

Numerous SFPD officers and SFFD firefighters complained of a lack of backboards for seriously injured passengers, the quality of the available backboards, and the absence of a mass casualty supply bus. Airport operations had two medical buses equipped with mass casualty supplies (including backboards) that were stored at the Airfield Safety Building. In interviews, several ASOs remarked about a lack of mechanical reliability with the medical buses. Numerous personnel reported requesting the medical buses at different points after the accident, as early as five minutes after the event. However, one of the two buses would not start, so only one was driven by an ASO to the gate. The supplies from this bus were used in providing secondary triage to passengers in the terminal.

TRAINING

Title 14 CFR 139.319(i)(2) states that “all rescue and firefighting personnel are properly trained to perform their duties in a manner authorized by the Administrator. Such personnel must be trained before initial performance of rescue and firefighting duties and receive recurrent instruction every 12 consecutive calendar months.” The curriculum for initial and recurrent training must include at least 11 specific areas,

including live fire training. The SFFD shift captain had not yet received his FAA-required live fire training. The captain started work at the airport in April 2013, and according to the assistant deputy chief in charge of the SFFD, he was scheduled to attend a live fire burn in July 2013, but it had not yet occurred at the time of the accident.

Asiana Airlines provided its pilots with all training at its headquarters, including initial, recurrent, upgrade and transition ground training, simulator training, testing, and checks. Asiana employed contract instructors to conduct the full flight simulator portion of 777 training. All training curriculum, procedures, and standards were developed by the Asiana flight crew training team under the direction of the general manager of flight crew training. The Asiana Airlines Flight Crew Training Regulation established operational standards and procedures for flight crew training and evaluation. For 777 pilot training, Asiana Airlines also used Boeing's 777 flight crew operating manual (FCTM).

MEDIA INVOLVEMENT

Within minutes of the accident, a passenger boarding another plane posted a photo on social media (i.e., Twitter) of the incident. Less than 20 minutes later, a stream of journalists started using social media to get immediate updates on what happened. Journalists from multiple agencies, including Bloomberg News and National Public Radio, made multiple attempts via social media to ask for an interview with the passenger first reporting the accident.

A few hours after the incident, a passenger aboard Flight 214 posted "I just crash landed at SFO. Tail ripped off. Most everyone seems fine. I'm ok. Surreal..." to social media. According to Wall Street Journal, this passenger's social media post prompted a flood of questions. Reporters and the general public started visiting social media to find news updates of the accident. This all occurred before Asiana Airlines, NTSB, or Boeing could comment on the situation of Flight 214.

Boeing and the NTSB first responded to the incident via social media platforms a couple hours after reports by civilians. Both recognized the situation and informed viewers that they were gathering information. NTSB held a press conference while also doing continuous updates with photos to social media platforms, namely Twitter. Asiana Airlines released its first statement via Twitter giving its thoughts and prayers to the passengers and crew on the flight. Seven hours after the flight, Asiana releases a press statement via social media platforms Twitter, Facebook, Google+, and the company website. The press release stated that Asiana Airlines was working to determine the cause of the incident and that the airline is cooperating with government agencies during the investigation. The release finishes with Asiana Airlines claiming that nothing else can be confirmed at that point in time.

FAMILY ASSISTANCE CENTER

The Family Assistance Program, as outlined in the SFO AEP, was implemented and airport personnel were well aware of their respective roles outlined in the plan. Space for uninjured passengers, family and friends was located in the Federal Inspection Station in-transit lounge. A family reception center was opened and jointly operated by Asiana Airlines and its Star Alliance Partner, United Airlines. Family members and friends that came to the airport for information were directed to the air carrier for information. A reunification center was set up initially in the SFO Reflection Room but was quickly rendered unusable because it was not secure and was overrun by the media. The airline FAC was established at the SFO

Crowne Plaza Hotel, approximately 3 miles away from the airport. At the FAC, a clothing room was set up to provide necessities to passengers of Flight 214. Translators also accompanied passengers to hospitals and helped communicate with physicians.

RECOMMENDATIONS

A total of 27 recommendations were made by NTSB following the investigation of Flight 214. All recommendations are included in the NTSB Accident Report (AAR1401) found on the NTSB webpage. Some of the recommendations made by NTSB include:

- Develop and distribute more specific policies and guidance about when, how, and where to use the high-reach extendable turret's unique capabilities.
 - The airport's fire department had two vehicles equipped with high-reach extendable turrets (HRETs) that were not used to the best of their capabilities. This was partially the result of departmental guidance that discouraged penetration of the fuselage using the skin-piercing nozzles on the HRETs until all of the occupants were known to have evacuated the airplane.
- Work with medical professional organizations to develop and distribute guidance on task prioritization for responding ARFF personnel that includes recommended best practices to avoid striking or rolling over seriously injured or deceased persons with ARFF vehicles in a mass casualty situation.
 - There is currently no guidance or any recommended protocols for ensuring the safety of passengers and crew at risk of being struck or rolled over by a vehicle during ARFF operations.
- Develop and distribute guidance and training materials to ensure that all airport and mutual aid firefighting officers placed in command at the scene of an aircraft accident have at least a minimum level of ARFF training.
 - The arriving incident commander placed an officer in charge of putting out the fire who had not received ARFF training, and this individual made decisions that reflected his lack of ARFF training.
- Develop a minimum aircraft rescue and firefighting staffing level that would allow exterior firefighting and rapid entry into an airplane to perform interior firefighting and rescue of passengers and crewmembers.
 - Seven ARFF vehicles and 23 ARFF personnel from SFO's fire department were involved in the initial response to the accident. This equipment level exceeded the FAA-required minimum of three vehicles, and there is currently no FAA-required minimum staffing level.
- Routinely integrate the use of all SFFD medical and firefighting vehicles in future disaster drills and preparatory exercises.
 - Monthly emergency drills conducted by the airport did not include deployment of the buses either as a matter of routine or as part of the unique scenario being evaluated. This lack of integration of the medical buses into the airport's preparation drills likely played a part in their lack of use in the initial response to the accident.

SOURCES

NTSB/AAR-14-01/PB2014-105984

CONCLUSION

The *Guidebook* should serve as an important resource for both emergency response staff at Florida’s public-use airports and non-airport emergency responders. The *Guidebook* also serves as a tool for airport directors, management, and staff when developing, evaluating, updating, or exercising an AEP and for emergency responders who are not experienced with airport operations or airport emergencies. The *Guidebook* provides important information regarding types of aviation-related emergencies, the various agencies that may be involved, specialized equipment that may be needed, and best management practices. The *Guidebook* also includes AEP templates to provide guidance to airport staff when developing or updating an airport’s AEP, which can be used for training purposes as well as for a reference guide for emergency responders who are not familiar with aviation facilities, protocols, and communications procedures. As a companion document to the *Guidebook*, the Basic Aircraft Guide identifies critical details about different makes and models of aircraft, as well as diagrams that illustrate important aspects of the aircraft. Combined, these statewide resources should enhance the preparedness and response to aviation-related emergencies both on and outside of airport property.

Appendix A

Specialized Equipment Photo Log

COMMUNICATION EQUIPMENT

CELL PHONE




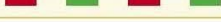
Cell phones and smart phones are common mobile electronic devices used to make telephone calls across a wide of geographic areas. This phone picks up signals from towers and allows emergency responders to communicate with one another through voice or text message.



LIGHT GUN

A light gun is a handheld directional light signaling device which emits a brilliant narrow beam of white, green, or red light as selected by the tower controller. The color and type of light transmitted can be used to approve or disapprove anticipated pilot actions where radio communication is not available. The light gun is used for controlling air traffic operations in the vicinity of the airport and on the airport movement area. The table below describes the meaning of the different signals.



Color and Type of Signal	Movement of Vehicles, Equipment and Personnel	Aircraft on the Ground	Aircraft in Flight
Steady green 	Cleared to cross, proceed or go	Cleared for takeoff	Cleared to land
Flashing green 	Not applicable	Cleared for taxi	Return for landing (to be followed by steady green at the proper time)
Steady red 	Stop	Stop	Give way to other aircraft and continue circling
Flashing red 	Clear the taxiway/runway	Taxi clear of the runway in use	Airport unsafe, do not land
Flashing white 	Return to starting point on airport	Return to starting point on airport	Not applicable
Alternating red and green 	Exercise extreme caution!!!!	Exercise extreme caution!!!!	Exercise extreme caution!!!!

RING DOWN PHONE

A ring down phone is used in the first step of the emergency notification process. This phone does not have a keypad and immediately calls the programmed entity or entities, which usually includes the local police department, airport operations, and air traffic control tower. The call is initiated just by picking up the handset. These phones are tested by the ARFF facility daily, if available.



SATELLITE PHONE

A satellite phone is a type of mobile phone that connects to low earth orbiting (LEO) satellites. These phones can be used virtually anywhere, even in the absence of cell phone coverage. Satellite phones can call and receive calls from land-lines and cell phones. The most secure calling occurs from one satellite phone to another satellite phone. Calls between satellite phones are transmitted from the sending satellite phone to the LEO satellites and then to the ground station. The call is then transmitted back to the satellites and to the receiving satellite phone. These calls are secure because the call never goes to a land-line or public-switched telephone network (PSTN).



ULTRA HIGH FREQUENCY (UHF) BAND

The Ultra High Frequency (UHF) band is the military aviation band which ranges from 225 to 400 MHz. The military “Guard” frequency is 243.0 MHz. Ultra High Frequencies do not refract off the ionosphere as much as Very High Frequencies (VHF). Since UHF waves have shorter wavelengths, they can use smaller antennas and radios. This band has more predictable coverage versus the VHF band, and is less likely to be affected by interference.



VERY HIGH FREQUENCY (VHF) BAND

Airband, also known as “Victor” or VHF, is a band of frequencies used in the field of aviation for radio communications. Airband refers to the Very High Frequency (VHF) band between 108 MHz and 137 MHz, which covers use for commercial and general aviation aircraft, air traffic control towers and other aviation related uses.

The aircraft emergency frequency, also known as “Guard,” is a frequency reserved for emergency communications for aircraft in distress. For civilian aircraft, the frequency is 121.5 MHz.



DEBRIS/AIRCRAFT REMOVAL & CLEANUP EQUIPMENT

AIR LIFTING BAGS

Air lifting bags aid in lifting and stabilizing an aircraft and keeping aircraft from rolling, sliding, shifting, twisting or collapsing. They are inflated by connecting a quick release air supply hose to the control console attached to a compressed air tank.



AIRCRAFT REMOVAL JACK & DOLLY

Jacks and dollies are made specifically to aid in aircraft removal. The jack shown works with all tow bars and dollies in order to lift the nose of an aircraft up for maintenance. A dolly such as the one shown raises the wheel of the aircraft, allowing it to be moved 360°. These dollies can be used with toe straps in order to move aircraft with minor damage from the runway if a crane is not needed.



COME-ALONG



A Come-along is a device consisting of a ratchet lever, cable, and pulleys. It is used for moving heavy loads by hand and for tightening wire.

CRIBBING

Cribbing can be used to stabilize an aircraft and prevent rolling, sliding, shifting, twisting or collapse. Cribbing can be made out of hard wood, soft wood, or plastic. These pieces of wood or plastic are stacked in a certain way so the weight from the aircraft is directed to the area created by the cribbing. Cribbing is normally in the shape of rectangular blocks, wedges and step chocks.



HI-LIFT JACK®

A Hi-Lift Jack® is comprised of a steel beam with a series of equally spaced holes along its length. The jack is used for lifting a vehicle or aircraft that is too tall to be lifted by a conventional jack.



HYDRAULIC JACK



A hydraulic jack is a jack in which force is applied through a hydraulic press. A hydraulic press is a machine that uses hydraulic fluid under pressure to exert a large force.

OIL-DRI®

Oil-Dri® is a company that manufactures granular clay absorbents. The clay comes in both coarse and fine types. These absorbents can be used to soak up oil, grease, water and coolant spills.



EQUIPMENT USED TO EXTRACT VICTIMS FROM AIRCRAFT WRECKAGE

AIR CHISEL

An air chisel is similar to a jackhammer but is much smaller. It uses air pressure to drill the chisel down in a rapid motion. The smaller size makes the cycling rate faster.



BOLT & CABLE CUTTERS



Bolt and cable cutters are fast and efficient tools for cutting through metal objects such as bolts, wires, cables, chains, or metal bars.

CHAINSAW

A chainsaw is a portable power saw with cutting teeth that are linked to a continuous chain. The chain is rotated approximately two pivot points by an electric or gasoline power mechanism.



HAND TOOLS



Hand tools are used to extend or multiply a firefighter's body actions. They increase task effectiveness and use simple machine principles to perform tasks. The functions of hand tools include rotating, pushing or pulling, prying or spreading, and striking or cutting.

Prying tools, or forcible entry tools, have one end with two prongs and another end that is filed down to a blade in order to force into a door or window. Crow bars are a common type of pry bar.



Pushing and pulling tools are used to extend a firefighter's reach and increase the power exerted on an object. These tools allow the firefighter to perform tasks while keeping them at a safe distance. Some push-pull tools include a ceiling hook, clemens hook, closet hook, K tool, pike pole, and wrenches.



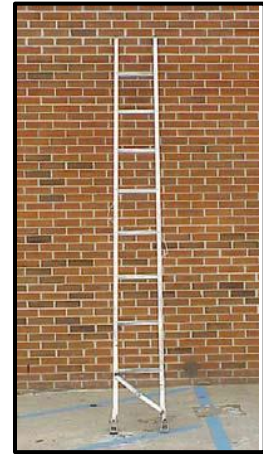
HYDRAULIC RESCUE TOOL



An example of a hydraulic rescue tool is the Jaws of Life which is a brand created by the Hurst Jaws of Life company. The name is regularly used for other brands of hydraulic rescue systems as well. This term is used to describe several types of piston-rod hydraulic tools known as cutters, spreaders, and rams. This equipment is used to pry metal away from a victim when either he or she is trapped.

LADDER

There are many variations of ladders, each of which is used for a specific purpose. The most common ladder is a device, usually made of metal or fiberglass, that consists of two beams, also known as side rails, that are joined at consistent intervals by cross pieces known as rungs. A person climbing the ladder is supported by these rungs. A ground ladder consists of different parts including the butt, spurs, dogs, bed, beam, fly section, halyard, pulley, rungs, hooks, and tip.



K-12 RESCUE SAW



The K-12 Rescue Saw is specifically designed for fire rescue. It is used to cut almost anything at the scene of an accident and, in aircraft accidents, is used for extrications. The saw comes in 12-inch and 14-inch models.

RECIPROCATING SAW

A reciprocating saw is a portable power saw with a reciprocating blade. It can be used with a variety of blades depending on the material that needs to be cut and the type of cut needed.



RESCUE CHAINS

Rescue chains are used for pulling and for rapid hook-ups. They can be used in conjunction with power rescue tools and come-alongs.



ROPES

Emergency responders use both life safety ropes and utility ropes. A life safety rope is used to support people during rescue. A utility rope is used to hoist equipment, secure unstable objects, or rope off an area. All ropes need to be inspected regularly for damage.



STRIKING TOOLS

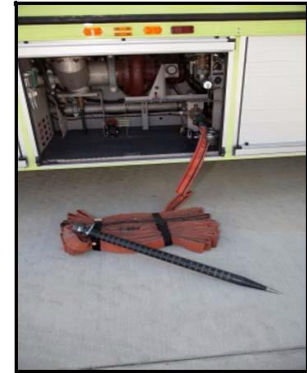
Striking tools are used to apply impact force to an object to gain entry or to make openings. Common striking tools include hammers, mallets, sledgehammers, axes, and chisels.



FIRE/AIRCRAFT RESCUE FIREFIGHTING (ARFF) EQUIPMENT

PIERCING NOZZLE

A piercing nozzle is a device used to penetrate a hard surface such as the fuselage of an aircraft. The pointed nozzle is attached to a hose, which is attached to the ARFF truck. Once the metal tip pierces the fuselage, a mist of water is released through the nozzle into the enclosed space, steam is created, and the fire begins to lose oxygen, lowering the temperature of the fire. This equipment allows a firefighter to get to fires otherwise unreachable with conventional equipment.



SNOZZLE®

A Snozzle® is an ARFF tool that includes a camera and a piercing nozzle. There are different models, each of which can be mounted to the top of any model of ARFF truck. The Snozzle® has a 50-foot vertical reach. The camera transmits images to the cockpit, allowing the driver to see through the smoke. The main purpose is to scan an aircraft's fuselage to search for hot spots, such as cargo fires. The piercing nozzle is 44 inches long and is made of carbon steel. It has a perforated tip with about 140 holes that are about 6mm in diameter. Once the fuselage is pierced, the nozzle sprays a fire extinguishing agent in a 20-foot circular area.



VEHICLE MOUNTED WINCH

A vehicle mounted winch is a motor-driven machine that is mounted to the front of a vehicle and used for hoisting or hauling.



EMERGENCY RESPONSE GEAR

AIR CASCADE SYSTEM



Air cascade systems may either consist of ASME or UN/ISO (DOT) cylinders. They may be used as either bulk refilling systems or cascade refilling systems. They may be either situated horizontally or vertically. The ASME cylinders do not have to be hydrostatically retested, whereas the UN/ISO cylinders do require scheduled hydrostation retesting. This retesting is done in order to make sure the cylinder is safe to use. The UN/ISO cylinders are most widely used to refill a self-contained breathing apparatus (SCBA).

BUNKER GEAR

Bunker gear, also known as “Turnout Gear,” is the protective clothing that firefighters wear for protection from high temperatures, fires, and smoke. It is typically khaki, yellow, or black in color. Bunker gear consists of pants, shirt, overalls, jacket, boots, gloves, hat, and hood. The gear is made out of fire retardant coated cotton and velcro so they will not burn under extreme heat. The basic cotton material is submerged in fire-retardant chemicals before it is sewn into a jacket or pants. This gear is also equipped with reflective strips so a firefighter can be seen through a smoky environment.

Bunker gear does not handle radiant heat well. If a firefighter is sweating when heat penetrates the gear, steam may be created and may cause second- and third-degree burns.



HAZARDOUS MATERIALS SUIT

A hazardous materials suit is an overall garment worn to protect people from hazardous material or substances, including chemicals, biological agents, or radioactive materials.



PROXIMITY GEAR



Proximity gear is silver in color, reflects heat much more efficiently than bunker gear and is mainly used in fighting aircraft and chemical fires. This gear consists of a coat, hood, helmet, gloves, footwear, and trousers. The coat and trousers should meet the requirements of NFPA 1976, Standard on Protective Clothing for Proximity Firefighting. The helmet, gloves, footwear, and hoods should meet the requirements of NFPA 1971, Standard on Protective Ensemble for Structural Firefighting, and should have additional radiant reflective criteria that is approved for proximity firefighting.

SELF-CONTAINED BREATHING APPARATUS (SCBA)

A self-contained breathing apparatus (SCBA) is an atmosphere-supplying respirator for which the source of breathing air is designed to be carried by the user. This apparatus consists of a face mask, hose, and tank of compressed air.



EMERGENCY RESPONSE VEHICLES AND TRAILERS

AIRCRAFT RESCUE FIRE FIGHTING (ARFF) AIRPORT INDEX AND VEHICLE CLASS REQUIREMENTS

ARFF REQUIREMENTS					
Airport Index	Class 1	Class 2	Class 3	Class 4	Class 5
	100 Gallon Water/AFFF, and Dry Chemical (500 lbs sodium- or 450 potassium-based), or Halogenated Agent (460 lbs) (Note 1)	300 Gallon Water/AFFF, and Dry Chemical (500 lbs sodium- or 450 potassium-based), or Halogenated Agent (460 lbs) (Note 1)	500 Gallon Water/AFFF, and Dry Chemical (500 lbs sodium- or 450 potassium-based), or Halogenated Agent (460 lbs) (Note 1)	1500 Gallon Water/AFFF	3000-4500 Gallon Water/AFFF (Note 1)
A	1	In lieu of Class 1	In lieu of Class 1 or 2	N/A	N/A
B	1	In lieu of Class 1	In lieu of Class 1 or 2	1 (Note 2)	N/A
C	1	In lieu of Class 1	In lieu of Class 1 or 2	2	
D	1	In lieu of Class 1	In lieu of Class 1 or 2	1	1
E	1	In lieu of Class 1	In lieu of Class 1 or 2		2

NOTES:

- For Index A-E, a Class 1, 2, or 3 vehicle is required (see Note 2 for exception)
- If the Class 4 vehicle has Dry Chemical/Halogenated agent, a Class 1 vehicle is not required for an Index B Airport. If the Class 4/5 vehicle does not have Dry Chemical/Halogenated agent, a Class 1 vehicle is required.

AIRCRAFT RESCUE FIRE FIGHTING (ARFF) VEHICLE

The FAA's standardized ARFF vehicle classifications are Classes 1 through 5. These classifications separate vehicles by the type of firefighting agent employed on the vehicle and the vehicle's agent carrying capacity. The Airport Index and Vehicle Class Requirements can be found in the FAA Advisory circular 150-5220-10E and are shown above.



ALL-TERRAIN UTILITY VEHICLE

An all-terrain utility vehicle is one that has low pressure tires and can hold at least two passengers. It can handle a wide variety of terrains, is more maneuverable than a full-sized four-wheel drive vehicle, and is useful if an aircraft incident occurs in a heavily wooded area. It also has an open-bed design to haul cargo or medical supplies in case of an emergency.



HAZARDOUS MATERIALS TRUCK & TRAILER

The purpose of a hazardous materials truck and trailer is to have all hazardous material clean-up equipment on hand in one area if a spill occurs due to an aircraft accident. The fire department or local public works department usually has access to these cleanup materials. Once the spill is cleaned up, the fire department will contact the Florida Department of Environmental Protection (FDEP), who will perform testing at the site. If excavation is needed to remove contaminated soil, FDEP will contact a contractor to perform the work.



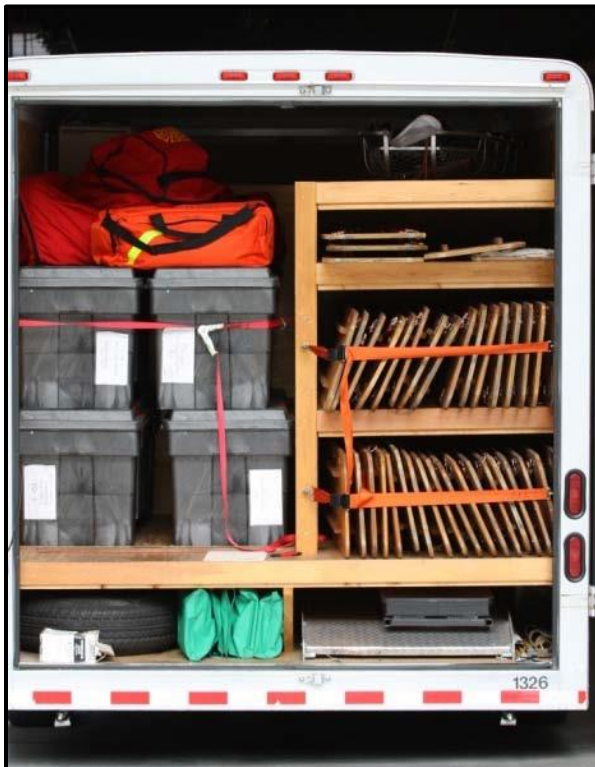
INTERIOR ACCESS VEHICLE

The prime function of an interior access vehicle is to carry water in a water tank or to transport water from an outside source such as a fire hydrant or other water body. There are many different sizes of interior access vehicles. Water is discharged through water lines or hoses that are connected at points around the truck. Some interior access vehicles also have a foam system where the foam tank is embedded within the main water tank. The size and quantity of an airport's interior access vehicles will vary depending on the size of the airport.



MASS CASUALTY TRAILER

The purpose of a mass casualty trailer is to have medical equipment such as backboards and trauma kits on board to respond to emergencies with multiple injuries. There are different sizes of mass casualty trailers corresponding to the amount and type of equipment carried.



For more information regarding backboards, trauma kits, body bags, and other medical equipment commonly found on a mass casualty trailer please refer to the Medical Equipment section of this Specialized Equipment Photo Log.

MOBILE COMMAND COMMUNICATION UNIT

A mobile command communication unit is used during a major event and is equipped with many types of communication equipment that may be needed. These units may be equipped with work stations, a conference room, and even infrared cameras. The conference room may be used for command personnel, mapping and planning operations, and keeping track of different crews as they arrive on the accident scene.



TANKER TRUCK

A tanker truck is a fire truck that is used primarily to carry large quantities of water for rural firefighting. A tanker fire truck has a water tank that can vary in size, usually from 500 to 1,000 gallons. Most tanks have perforated plates or "baffles" that will prevent the water from sloshing around while the truck is in motion.



EVIDENCE EQUIPMENT

BODY BAG

A body bag is a plastic, rubber, or vinyl bag with a zipper designed to hold a dead body. Body bags are non-porous and are used for the transportation of corpses as well as the storage of corpses within morgues.



REFRIGERATED TRUCK

A refrigerated truck, also known as a “reefer” truck, is a truck or van, usually larger than one-ton, containing a refrigerated unit that is operated by diesel-powered generators and liquid carbon dioxide. This mobile refrigeration is used as bodies are recovered from an aircraft incident and when they are being transported from the morgue to the funeral home. This equipment enables bodies to be kept under cool temperatures in order to slow the rate of decomposition. There are also specially designed refrigerated mobile morgues that can be used in very larger disasters.



FIRE EXTINGUISHING AGENTS

CLASSES OF FIRES

ARFF REQUIREMENTS

Class of Fire	Fuel Source	Fuel Source Examples	Extinguishing Agent
A	Ordinary combustibles	Trash, wood, paper, cloth	Water; chemical foam; dry chemical*
B	Flammable liquids	Oils, grease, tar, gasoline, paints	Carbon dioxide; halon**; dry chemical; aqueous film forming foam (AFFF)
C	Electricity	Live electrical equipment	Carbon dioxide; halon**; dry chemical
D	Combustible metals	Magnesium, titanium	Dry powder (suitable for the specific combustible metal involved)

* Dry chemicals, carbon dioxide, and halon can be used on Class A fires, but may need to be used with water in order to be effective.

** Halon extinguishers are no longer made, but some may still be in use. Dangerous gases are formed when halon is used to put out fires. In order to cause no harm to humans, proper respiratory equipment should be worn and no one should enter the enclosed area until it has been well ventilated.

PRIMARY AGENTS

Primary agents are foams used in the extinguishing of aircraft fires. They should consist of an aggregation of bubbles of a lower specific gravity than that of water or the hydrocarbon fuels being used. The foam should be dense and long lasting, stable in intense thermal radiation, able to resist disruption by wind, and capable of establishing a blanket or re-sealing in the event of mechanical rupture. The foam should be capable of clinging to and covering both horizontal and vertical surfaces. Primary agents must flow freely over a burning liquid surface to form an air-excluding blanket to seal off volatile flammable vapors.



AQUEOUS FILM FORMING FOAM (AFFF)

Aqueous Film Forming Foam (AFFF) is used to rapidly extinguish hydrocarbon fuel fires. It acts as a barrier to exclude air and oxygen and produces an aqueous film on the surface of the fuel to suppress vapors. AFFF has self-healing capabilities whereby scars in the film layer, caused by firefighting activities and falling debris, are resealed to prevent re-igniting of the fuel. AFFF can be used in combination with fresh or salt water and is dry chemical compatible.



FILM FORMING FLUOROPROTEIN (FFFP) FOAM



Film Forming Fluoroprotein (FFFP) Foam is used to fight fires caused by wood as well as fires caused by flammable liquids and gases. This type of foam is sometimes added to a flammable solvent that has not yet been ignited in order to seal the surface, so that a serious fire does not result in case the solvent does ignite. This foam contains fluorocarbon surfactants that are added to the protein hydrolyzate in order to decrease the surface tension of the solution that drains from the expanding foam. This enables the foam to spread across and seal the surface of a flammable solvent.

FLUOROPROTEIN FOAM (FP)

Fluoroprotein Foam (FP) has many of the same properties as protein foam with the addition of fluorochemical surfactants. The foam comes in a concentrated form that is meant to be mixed with either fresh or salt water. The additives in this foam increase the fluidity and create a good burn back resistance. This foam is used to fight Class B fires. Class B fires include those involving flammable or combustible liquids such as grease, oil, gasoline, or kerosene.



PROTEIN FOAM

Protein foam is packaged in a liquid concentrate form of 3% or 6% concentrations. These foams extinguish fires by forming a blanket to remove oxygen from the fuel's surface, with water in the foam providing cooling to the fire. Protein foam can be used with either fresh or salt water, and is compatible with dry powder extinguishing agents. These foams include substances to protect against freezing, destruction of machinery, and to control their viscosity. Foam liquids of different types or different manufacturers should not be combined unless it is stated that they are compatible.



SUPPLEMENTARY AGENTS



Supplementary agents, also known as secondary agents, are carried on rescue vehicles to satisfy unique firefighting requirements common to aviation firefighting uses. Supplementary agents can be employed either singularly or in combination with primary agents to accomplish particular aircraft firefighting operations.

CARBON DIOXIDE

Carbon dioxide is used to extinguish fires caused by flammable liquids and electrical fires. This molecule removes the oxygen from the fire which stops the burning. The downside to using carbon dioxide as a fire extinguishing agent is that it has a very limited range. Tests have shown that it is more effective to fight aircraft fires with low-pressure carbon dioxide than high-pressure carbon dioxide, and that low-pressure carbon dioxide can be used with dry chemical powder to extinguish fires.



CLASS D EXTINGUISHERS



There are special-use agents used in fighting Class D fires. Class D fires involve combustible metals and can be extinguished using sodium chloride or a copper-based dry powder. The copper-based dry powder is used as a Lithium firefighting agent, whereas the sodium chloride is used to fight fires caused by magnesium, sodium, potassium or uranium.

DRY CHEMICALS

Dry chemicals aid in extinguishing fires. They are both reliable and compatible with AFFF agents, adding to their popularity. There has been a change in the composition of dry chemicals that are used to extinguish fires. In the past they have been sodium bicarbonate-based, but the U.S. airport firefighting industry now uses potassium-based chemicals.



HALOTRON® I



Halotron ® I is a modified version of its predecessor halon. The U.S. stopped production of halon as part of the Montreal Protocol because of its ill effects on the environment. Halon-based substances were no longer allowed to be used in live fire training. Halotron ® I is approved as an alternative to Halon 1211 by the Federal Aviation Administration, the Environmental Protection Agency, and other regulatory agencies. Tests have proven that Halotron ® I and Halon 1211 are very similar in the way they extinguish fires.

WETTING AGENTS



A wetting agent is a substance that decreases the surface tension of a liquid. When the surface tension of a substance is reduced, the substance can penetrate and spread more easily. This, in turn, allows for quicker extinguishment and the amount of water needed to fight the fire is reduced. Some of these agents can be pre-mixed with water, but the majority of these agents are discharged through an in-line proportioning system. These agents should not be combined in the main agent tanks, because this could lead to contamination of the primary foam system.

HEAVY EQUIPMENT

BACKHOE



A backhoe is a piece of excavating equipment that has a digging bucket on the end of a two-part articulated arm.

CRANE

A crane is a lifting machine used to both lift and lower materials and to move them horizontally. As shown in the photo to the left, a crane is sometimes used to lift damaged aircraft.



DUMP TRUCK



A dump truck is a vehicle used for transporting loose material such as sand, gravel, or dirt. This vehicle may also be used to haul aircraft debris from an accident site to a designated area either on or off airport property.

FRONT END LOADER

A front end loader is a type of machine used to load material such as dirt or debris into or onto another type of machinery such as a dump truck.



SWEEPER

There are three types of sweepers: mechanical, vacuum, and regenerative. These sweepers are used to clear debris from pavement. Some sweepers have jets that spray water on the pavement to control the spread of dust. On mechanical sweepers, the brush sweeps the debris onto a conveyor belt that brings the debris to a storage container. Vacuum sweepers use a brush to sweep the debris into a pile and a vacuum to suck the debris into a container. Regenerative sweepers use a hydraulic air jet system to pick up dirt from the surface being cleaned.



TRACTOR

A tractor is a vehicle designed to deliver high torque at slow speeds and is usually used for hauling a trailer, machinery, or a damaged aircraft from the runway or airfield.



MEDICAL EQUIPMENT

BACKBOARD/SPINEBOARD

A backboard or spineboard is a wooden or plastic board placed beneath a victim with a neck or back injury in order to transport the patient to a medical facility without causing further injury.



BAG VALVE MASK (BVM)



A bag valve mask (BVM) is a common ventilation device consisting of a self-inflating bag, a one-way valve, a mask, and an oxygen reservoir.

CERVICAL COLLAR (C-COLLAR)

A cervical collar (or C-collar) is designed to stabilize the head and neck of a patient who has signs of a spinal injury. The collar is rigid and has an enlarged opening in the front to allow for pulse examination and observation of tracheal deviation, and to prevent the constriction of the victim's jugular vein. Most C-collars have Velcro closures.



DEFIBRILLATOR



A defibrillator is a device used to correct a dangerously atypical heartbeat. This machine is used to restart the heart by depolarizing its electrical conduction system and delivering brief, precise electrical shocks to the chest wall or the heart muscle itself.

OXYGEN SUPPLY

The oxygen used in most EMS systems is stored in pressurized tanks that come in various sizes. The small, medium, and large tanks shown in the photo to the left are denoted by the letters D, E, and M, respectively. Each tank is usually filled to about 2,000 pounds of pressure per square inch. An oxygen regulator is used to control the flow (liters per minute) of oxygen from the tank.



STOKES BASKET



Stokes baskets, also known as litter rescue baskets, are used to transport victims who are trapped in an unstable environment. Stretchers or litters can be secured to the rigid stokes baskets. A stokes basket can also be attached to a helicopter in order to hoist the victim to be airlifted to a medical facility.

WATER RESCUE EQUIPMENT

PERSONAL WATERCRAFT (PWC)

Personal watercraft (PWC) generally carry one to four people, and can travel at high speeds in shallow water because they are driven by jet propulsion. When used during rescue operations, the victim either sits on the seat of the PWC with the responder or lies on a floatation device called a rescue sled that is towed behind the PWC, depending on the severity of the victim's injuries. During a water rescue incident where a PWC is not required, they may be used to spook wildlife, such as alligators and snakes, in order to keep them away from victims in the water. "Jet ski" and "waverunner" are brand names for personal watercraft, but are often used generically to refer to PWC in general.



LIFE JACKETS (PERSONAL FLOTATION DEVICES)

Life jackets are made of a buoyant material and come in both adult and child sizes. A life jacket is lightweight and can either be handed or thrown to a victim during a water rescue to keep them from drowning. Although there are many types of life jackets, Type I life jackets are the personal flotation device most commonly used for water rescue.



MOTOR BOATS

Different types of boats are used for water rescue. Florida's airports typically use Jon boats or airboats for aircraft emergencies that occur over water. A Jon boat is a small, flat bottomed boat for use in calmer waters. Jon boats usually have a transom where an outboard motor can be mounted. An airboat is a flat bottomed boat that is driven by a caged airplane propeller mounted above the transom. These boats can travel in very shallow water at high speeds. The type of boat and motor used at an airport for water rescue depends on the size of the airport and on the size, depth, and type of water body through which the responders will be traveling. A larger motor boat would be used for water rescues in a large body of water such as a bay or ocean, whereas a Jon boat with a smaller motor would be used for a water rescue in a lake.



SCUBA GEAR

The acronym SCUBA stands for self-contained underwater breathing apparatus. Scuba gear consists of a mask, fins, snorkel, buoyancy compensator vest, regulator and octopus (spare demand valve), depth gauge, tank-pressure gauge, underwater timer, compass, wetsuit, and underwater light. This equipment allows a diver to breathe underwater, and aids a rescue diver in the response to a victim stranded in a deep body of water.



THROW ROPE

A throw rope is a rope with a buoy attached to the end that can be thrown to a victim in a body of water so the rescuer can belay them to the shoreline of the water body.



TORPEDO BUOY

A torpedo buoy is a type of rescue equipment, shaped like a torpedo, which allows it to easily cut through water when it is used for rescue purposes. Since the buoy is made out of buoyant material, it is used to keep a victim afloat during a water rescue.



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Appendix B

General Information Specific to Airport Operations

DISCLAIMER

Florida's airports play a vital role in the transportation of both people and goods throughout the state, the nation, and the world. The type and size of Florida's airports vary greatly, but the procedures set in place to address emergency situations at each airport are similar.

The "General Information Specific to Airport Operations" outlines some of the basic features of standard airport operations, and is intended to serve only as guidance. Regular coordination and communication with airport staff is important and will aid in the understanding of protocol at specific airports.

For the safety of emergency responders, as well as other people at the airport during the emergency, always:

- Follow all access and escort procedures
- Avoid all restricted areas unless you have specific authorization to enter
- Communicate effectively and appropriately with the Air Traffic Control Tower (when applicable) and airport staff
- Follow instructions promptly
- Be aware that aircraft always have the right-of-way

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INTRODUCTION

Florida's airports play a vital role in the transportation of both people and goods throughout the state, the nation, and the world. The type and size of Florida's airports vary greatly, but the procedures set in place to address emergency situations at each airport are similar.

At most public use airports throughout Florida, there are common key contacts first responders need to communicate with during an airport emergency. The first contact is the **Airport Manager/Operator**, the second is the **Fire and Rescue Coordinator** [who may be part of the airport operations team or a member of the on-airport Airport Rescue Fire Fighting (ARFF) group], and the third contact is the **Security Manager**. At smaller general aviation airports, one person may act in all three of these roles.

The following pages of the "General Information Specific to Airport Operations" outline some of the basic features of standard airport operations including: key terms and definitions, standard airport layouts, communications, typical airside airport signage, and standard airside pavement markings.

KEY TERMS AND DEFINITIONS

Accident — An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, an in which any person suffers death of serious injury, or in which the aircraft receives substantial damage.

Air Operations Area (AOA) — All airport areas where aircraft can operate, either under their own power or while in tow. The AOA includes runways, taxiways, apron areas, and all unpaved surfaces within the airport's perimeter fence.

Aircraft Rescue and Fire Fighting (ARFF) Facility — A facility located at an airport that provides emergency vehicles, extinguishing agents, and trained personnel responsible for minimizing the impacts of an aircraft accident or incident.

Airport Traffic Control Tower (ATCT) — A facility in the terminal air traffic control system located at an airport which consists of a tower cab structure and an associated instrument flight rules room, if radar equipped. The tower uses ground-to-air and air-to-ground communications and radar, visual signaling, and other devices to provide for the safe and expeditious movement of terminal area air traffic in the airspace and airports within its jurisdiction. Not all airports have an ATCT, and not ATCTs are operational 24 hours a day.

Note: For airports with an ATCT, the ATCT must grant permission to first responders to enter the airside of the airport during hours that the ATCT is operational.

Airside — The portion of an airport that contains the facilities necessary for the operation of aircraft, such as runways, taxiways, ramps, and fuel farms.

Apron — A defined area within an airport or heliport, paved or unpaved, intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance.

Fixed Base Operator (FBO) — An individual or firm operating at an airport and providing general aircraft services such as maintenance, storage, aircraft fueling, and flight instruction.

Common Traffic Advisory Frequency (CTAF) — A designated frequency for the purpose of carrying out airport advisory practices at an airport that does not have a control tower or an airport where the control tower is not operational.

Landside — The portion of an airport that provides the facilities necessary for the processing of passengers, cargo, freight, and ground transportation vehicles.

Obstacle Free Zone (OFZ) — The airspace below 150 feet (45 m) above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, with the exception of visual navigational markers (NAVAIDs) that need to be located in the OFZ because of their function. The OFZ provides clearance protection for aircraft landing or taking off from the runway and for missed approaches.

Runway — A defined rectangular area at an airport designated for the landing and take-off of an aircraft.

Transportation Security Administration (TSA) — Agency of the U.S. Department of Homeland Security responsible for the safety and security of the traveling public.

Flight Service Station (FSS) — Facility that provides information and services to pilots, but unlike ATC, is not responsible for giving instructions, clearances, or providing separation.

Air Route Traffic Control Centers (ARTCC) — Controllers who talk to pilots in between departure and destination.

Incident — An occurrence other than an accident with the operation of an aircraft, which affects or could affect the safety of operations.

International Civil Aviation Organization (ICAO) — A specialty agency of the United Nations, ICAO promotes the safe and orderly development of international civil aviation throughout the world.

Instrument Landing System (ILS) — A ground based system that provides precision guidance to an aircraft approaching and landing on a runway.

Precision Obstacle Free Zone (POFZ) — As section of airspace above an area beginning at the runway threshold, at the threshold elevation, and centered on the extended runway centerline.

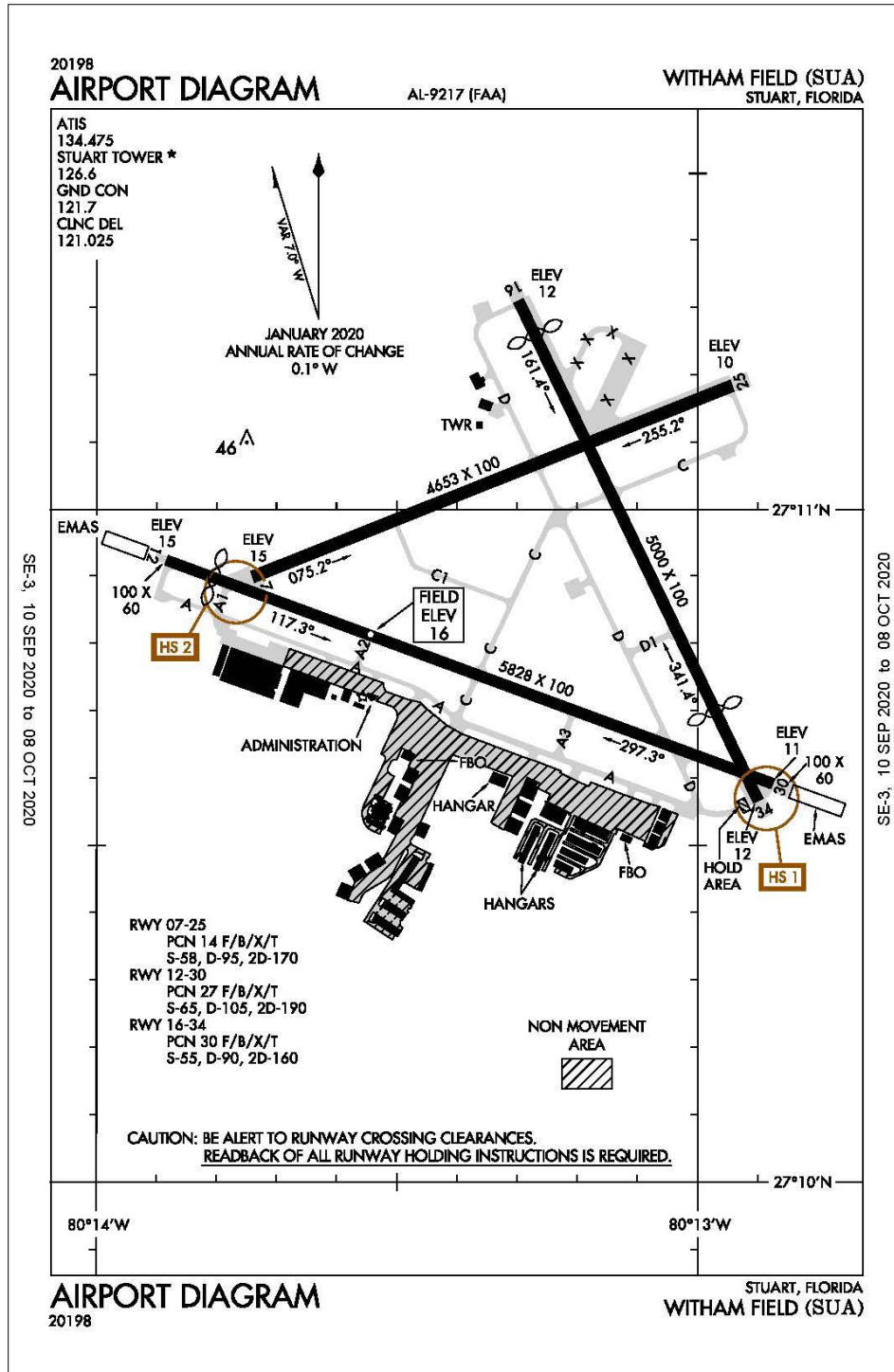
Runway Safety Area — The surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.

FAA ADVISORY CIRCULARS

Advisory circulars (AC) are offered by the Federal Aviation Administration (FAA) to provide guidance for compliance with aviation-related regulations, operations standards, emergency response, environmental requirements, and training standards. Included below are ACs that relate to emergency response and to aviation-related incidents. For more information and to access these and other ACs, please visit: http://www.faa.gov/airports/resources/advisory_circulars/.

- AC 90-42F/AC 90-66, *Traffic Advisory Practices at Airports without Operating Control Towers*
- AC 150/5200-12C, *Fire Department Responsibility in Protecting Evidence at the Scene of an Aircraft Accident*
- AC 150/5200-18C, *Airport Safety Self-Inspection*
- AC 150/5200-31C, *Airport Emergency Plan*
- AC 150/5200-32B, *Reporting Wildlife Aircraft Strikes*
- AC 150/5210-6D, *Aircraft Fire Extinguishing Agents*
- AC 150/5210-7D, *Aircraft Rescue and Firefighting Communications*
- AC 150/5210-13C, *Airport Water Rescue Plans and Equipment*
- AC 150/5210-14B, *Aircraft Rescue Fire Fighting Equipment, Tools and Clothing*
- AC 150/5210-15A, *Aircraft Rescue and Firefighting Station Building Design*
- AC 150/5210-17C, *Programs for Training of Aircraft Rescue and Firefighting Personnel*
- AC 150/5210-24, *Airport Foreign Object Debris Management*
- AC 150/5220-4B, *Water Supply Systems for Aircraft Fire and Rescue Protection*
- AC 150/5220-17B, *Aircraft Rescue and Firefighting Training Facility*
- AC 150/5230-4B, *Aircraft Fuel Storage, Handling, and Dispensing on Airports*
- AC 150/5320-15A, *Management of Airport Industrial Waste*

TYPICAL AIRPORT LAYOUT



The following pages illustrate the basic elements found at a typical Florida airport. It is important to note the relationships between each element, how these elements are connected, and where the high risk hazards areas (such as fuel storage areas and taxiways) are located within each airport facility.

HAZARDOUS AREAS

Temporarily closed taxiways are usually treated as hazardous areas that no part of an aircraft may enter, and are usually blocked with barricades. Another alternative for indicating that a taxiway or a runway is closed is to place a yellow cross at each entrance, as shown in the photograph below.

Hazardous materials include, but are not limited to, acids, gasoline, chemicals, and different kinds of vapors. Potentially hazardous areas include areas where these substances can be found; these are:

- **Oil depots** — These are also known as fuel farms. Aviation fuel is stored in oil depots prior to being discharged into aircraft fuel tanks.
- **Storage areas for oil barrels** — According to the FAA Advisory Circular 150/5320-15a, the sump fuel storage area will be equipped with a drip pad, and concrete curbing will be placed around the outdoor oil barrel storage areas.
- **Mobile Refuelers** — These consist of a bulk storage container onboard a vehicle that is designed or used to store and transport fuel for transfer into or from an aircraft.
- **Hydrant Fuelers** — These are also known as fueling pits or cabinets. Hydrants with cathodic protection will reduce corrosion and subsequent leaks. Another source of fueling spills may result from faulty



The yellow cross shows that Runway 22 is temporarily closed.



On March 22, 2011, a major fire at Miami International Airport's Fuel Farm destroyed 14 pumps and forced many flights to be cancelled.



A typical fuel farm

ACCESS PROCEDURES

During an emergency on an airfield, emergency responders should be escorted by someone who is familiar with the airfield and has been properly trained to drive on the airfield. Police officers stationed at the airport usually become escorts for outside agencies during an emergency. Airports that have an Aircraft Rescue Fire Fighting (ARFF) Facility on-site will use a trained fire fighter in an emergency response vehicle to escort agencies onto the airfield, depending on the extent of the emergency.

It is imperative that an airport's mutual-aid partners are trained to be able to drive on the airfield. All escorts should be trained to drive on the airfield to bring the emergency responder to the accident scene safely. This escort will communicate with other airport personnel and air traffic on the Common Traffic Advisory Frequency (CTAF). This will let the trained escort know when they have clearance to cross a runway or taxiway. At some airports with an air traffic control tower (ATCT), the tower can remotely open a gate to the airfield for emergency responders if all parties that normally act as escorts have other, higher priorities. The ATCT will safely give clearance to the vehicle that is driving on the airfield.

The number one rule to follow while driving on the airfield is that the aircraft always has the right-of-way. Emergency responders will usually want to take the direct and shortest route to the accident scene, but this may not always be the safest route.



A typical security gate on airfield



Emergency vehicle accessing airport security gate

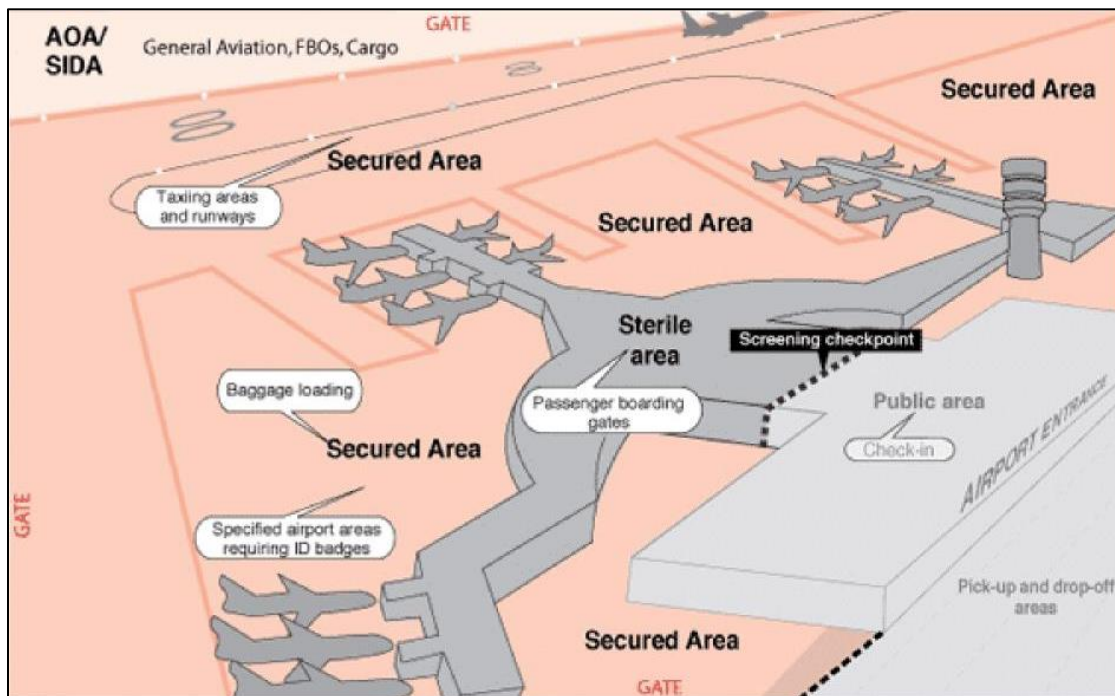
AIRFIELD ACCESS POINTS

The Air Operations Area (AOA) consists of the restricted ground areas of the airport including taxiways, runways, and aircraft parking areas. The Transportation Security Administration (TSA) defines these areas as all areas contained within the airport's security fencing, except the Security Identification Display Area (SIDA).

A security program must be established for the AOA, unless the entire area is designated as a secure area. Each airport operator required to establish an AOA must prevent and detect the unauthorized entry, presence, and movement of individuals and ground vehicles into or within the AOA.

Security Identification Display Areas (SIDA) are limited access areas that require a badge issued in accordance with procedures in CFR 49 Part 1542. Movement through or into these areas is prohibited without proper identification being displayed. If you are unsure of the location of the SIDA, contact the airport authority for additional information. AOA access badge holders are NOT necessarily authorized to operate in the SIDA.

Each individual who is granted unescorted access to the secured area must obtain an airport-issued AOA access badge and must be trained in airport driving rules and regulations. Signs are posted at secured area access points and on the perimeter to provide warnings against unauthorized entry.



Airport diagram showing secured and AOA/SIDA areas

COMMUNICATIONS

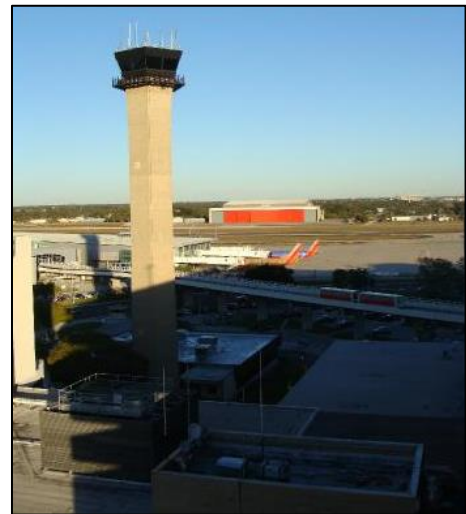
Each public use airport in Florida should have a designated Fire and Rescue Coordinator who is the first responder for any emergency at the airport, and is the primary contact for all subsequent first responders. This individual is most likely part of the airport operations team, and is responsible for working with local fire chiefs to ensure availability of sufficient numbers of qualified and trained Aircraft Rescue Fire Fighting (ARFF) personnel. It is critical to understand the various forms of communication used at different airports to better receive and process information accurately and in a timely manner. There are specific communication procedures that should be followed when responding to emergencies at airports. These instances are described below:

AIRPORTS WITH AN AIR TRAFFIC CONTROL TOWER (ATCT)

Air traffic control facilities include air surveillance radars, airport surface detection equipment, remote transmitters and receivers, wind shear detectors, weather observing equipment, and other types of equipment. The ATCT is responsible for coordinating the movements of aircraft to prevent collisions, organizing and expediting the flow of traffic, providing information and other support to pilots, and providing clearance to first responders entering the airside area of the airport.

When communicating with the ATCT, emergency responders should follow these guidelines:

- Practice radio transmissions that are **timely, precise, concise** and **disciplined**. Avoid radio transmissions that are slow (or late), sloppy, long-winded (or disorganized), or are filled with pauses and extraneous verbiage.
- Always speak clearly and in a normal conversational tone.
- Always comply promptly and correctly with ATCT clearances and instructions. Listen before a transmission is made so instructions from the ATCT can be followed in a timely manner.
- Think before you speak. Each radio transmission should be to the point and should not include the words “uh” and “um.”
- Make sure every initial call-up follows this specific four-part sequence as requested by FAA – **who** you are calling, **who** you are, **where** you are, and **what** you want if it is a request or **what** you are doing if it is a report.
- Follow the standard sequence:
 - The full and proper name of the facility being called (on initial call-up only)
 - Your identity and/or responding entity (on initial call-up only)



ATCT at Tampa International Airport

- Your location (if needed) and
- The type of message to follow or your request (if it is short)

Example: “TALLAHASSEE TOWER, EMERGENCY VEHICLE, SOUTH RAMP, RESPONDING TO AIRCRAFT FIRE AT INTERSECTION OF TAXIWAY ALPHA AND TAXIWAY CHARLIE.”

AIRPORTS WITHOUT AN AIR TRAFFIC CONTROL TOWER

If an airport does not have an ATCT or when the ATCT is closed, the aircraft with an emergency should contact the Air Route Traffic Control Center (ARTCC) on the guard frequency (121.5 MHz). Under normal circumstances aircraft can communicate with airport staff at an airport without an ATCT via Common Traffic Advisory Frequency (CTAF). Responders should monitor the guard frequency in order to be aware of an emergency to which they may need to respond.

Pilots approaching an airport without an ATCT are able to communicate their intentions and obtain airport/air traffic information using the following methods:

- Communicating with a FSS (Flight Service Station) that is providing airport advisories on CTAF
- Making self-announcing broadcast on CTAF

All inbound air traffic should continuously monitor and communicate, as appropriate, on the designated CTAF starting from at least ten miles from the airport until clear of the movement area. Departing aircraft should continuously monitor/communicate on the appropriate frequency from startup, during taxi, and until ten miles from the airport unless the Federal Aviation Regulations or local procedures require otherwise.

Emergency responders should use the same phraseology on CTAF as pilots arriving at the airport. Make sure every initial call-up follows this specific four-part sequence as requested by FAA:

- The full and proper name of the facility being called
- Your identity and/or responding entity
- Your location and
- The type of message to follow or your request
- The name of the location once again

For example, if an emergency vehicle were to respond to an aircraft emergency at the Tallahassee Regional Airport (TLH), the message over CTAF should be:

Example: “TALLAHASSEE TRAFFIC, EMERGENCY VEHICLE, SOUTH RAMP, RESPONDING TO AN AIRCRAFT FIRE AT INTERSECTION OF TAXIWAY ALPHA AND TAXIWAY CHARLIE, TALLAHASSEE.”




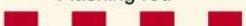
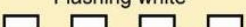
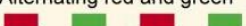
This message clearly informs all other air traffic and responders of the situation without being too verbose. If the emergency is located on a runway or taxiway, the information should be repeated on CTAF at regular intervals until the scene is clear or when an aircraft announces their intention to land at the airport.

LIGHT GUNS

In the case of radio failure, a light gun, also known as a signal lamp, can be used by the air traffic control tower to communicate with an aircraft in flight, an aircraft on the ground, or group vehicles and personnel. According to the FAA, a light gun is a handheld directional light signaling device which emits a brilliant narrow beam of white, green, or red light as selected by the tower controller. The color and type of light transmitted can be used to approve or disapprove anticipated pilot actions where radio communication is not available. The light gun is used for controlling traffic operating in the vicinity of the airport and within the airport movement area. The table below describes the meanings of the different red, green, and white signals used when communicating through the use of a light gun.



Typical Light Gun

Color and Type of Signal	Movement of Vehicles, Equipment and Personnel	Aircraft on the Ground	Aircraft in Flight
Steady green 	Cleared to cross, proceed or go	Cleared for takeoff	Cleared to land
Flashing green 	Not applicable	Cleared for taxi	Return for landing (to be followed by steady green at the proper time)
Steady red 	Stop	Stop	Give way to other aircraft and continue circling
Flashing red 	Clear the taxiway/runway	Taxi clear of the runway in use	Airport unsafe, do not land
Flashing white 	Return to starting point on airport	Return to starting point on airport	Not applicable
Alternating red and green 	Exercise extreme caution!!!!	Exercise extreme caution!!!!	Exercise extreme caution!!!!

ADDITIONAL NOTIFICATION PROCEDURES

Off-Airport Fire Department — With some exceptions, Aircraft Rescue Fire Fighting (ARFF) is required at the airport during air carrier operations at 14 CFR Part 139 certificated airports. At non-certificated airports, when an off-airport fire department furnishes the ARFF equipment and personnel, the alerting/dispatch system for airport emergencies is handled by an emergency direct-line telephone between the airport alerting authority and the off-airport fire department. The off-airport fire station alarm(s) sounds upon activation of the direct emergency line. If there is no direct-line telephone between the airport and the off-airport fire department, the non-certificated airport will call 911, and the local emergency communications center will notify the local fire department of the emergency.

Notification of Firefighters — Fire stations in which personnel are normally present for duty, but may be preoccupied with “housekeeping” or training duties, are equipped with a public address (PA) system. This is particularly important in fire stations where the dispatcher room, training room, and living quarters are

physically separated from the apparatus floor. A PA system can significantly enhance response time and firefighter effectiveness by providing vital details of the emergency to the firefighters such as location of accident or incident site, type of aircraft, number of persons involved, aircraft fuel load, and preferred vehicle routing during turnout. The turnout is the time interval between the discovery of an alarm to the wheels on the fire trucks moving.

Notification of Mutual Aid Entities — A mutual aid agreement is between the airport and another entity, and states that each will assist the other in the event of an emergency. A communication center should be set up in order to notify mutual aid entities. This communication center may consist of a team in the airport operations department at a larger commercial airport or a single person designated for this role during an incident at a general aviation airport. If the airport is understaffed and no communications role can be fulfilled, this role should be given to and agreed upon by the city's or county's emergency response communication center.

In the event of an aircraft emergency, the communications center should have a list of mutual aid entities to automatically contact including the ARFF facility or fire station with ARFF capabilities, the local police or sheriff's department, the NTSB, and the FAA. Other mutual aid entities should be contacted when the incident commander, or airport operations personnel, on the accident scene states that certain mutual aid entities must be contacted. These entities may include EMS personnel, additional fire stations, the Red Cross, hospital, burn center, and mutual aid entities that will help with the set-up of a joint information center (JIC) and family assistance center (FAC).

FEDERAL AVIATION ADMINISTRATION (FAA) – PHONETIC ALPHABET

The International Civil Aviation Organization (ICAO) phonetic alphabet is used by FAA personnel when communication conditions are such that the information cannot be readily received without use. Air traffic control (ATC) facilities may also request pilots to use phonetic letter equivalents when aircrafts with similar sounding identifications are receiving communications on the same frequency. Responders should be familiar with the phonetic alphabet as pilots are instructed to use it when identifying their aircraft during initial contact with ATC facilities.

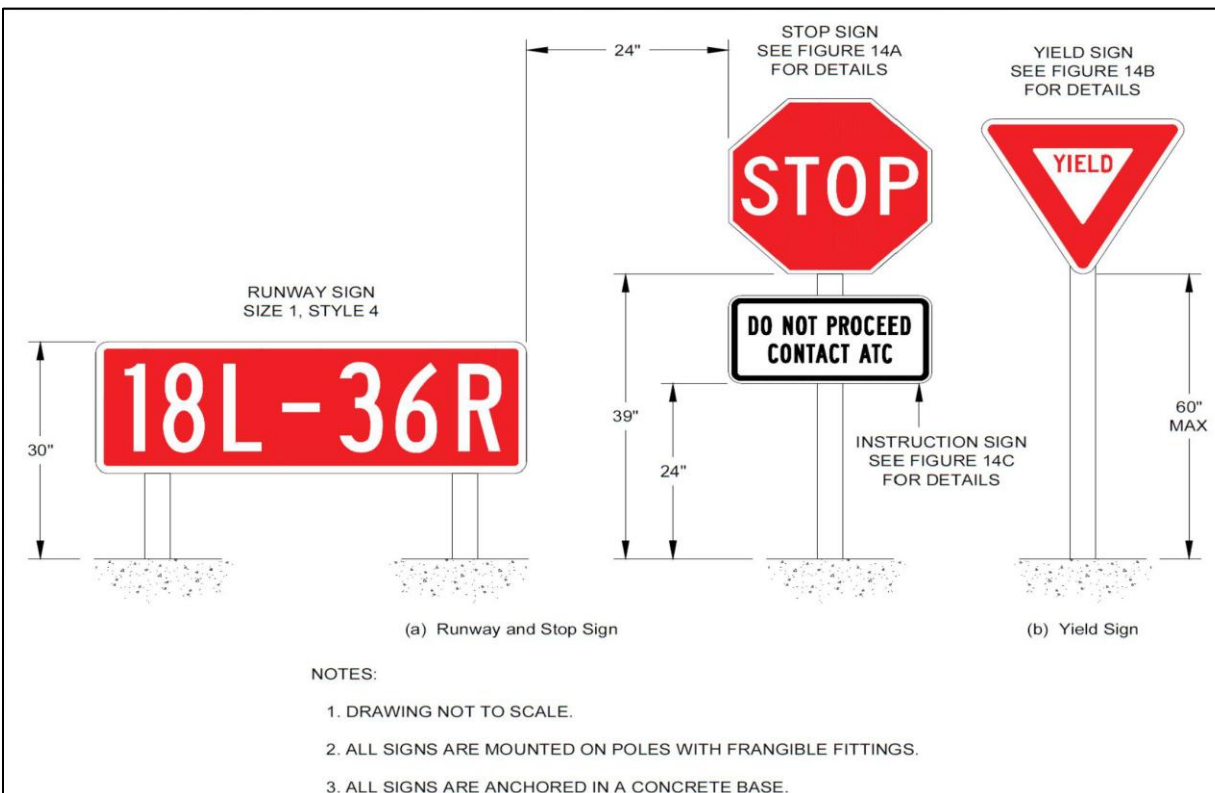
The use of the phonetic equivalents should also be used for single letters and to spell out groups of letters, or difficult words, during adverse communications conditions.

PHONETIC ALPHABET					
Character	Telephony	Phonic (Pronunciation)	Character	Telephony	Phonic (Pronunciation)
A	Alfa	(AL-FAH)	S	Sierra	(SEE-AIR-RAH)
B	Bravo	(BRAH-VOH)	T	Tango	(TANG-GO)
C	Charlie	(CHAR-LEE) or (SHAR-LEE)	U	Uniform	(YOU-NEE-FORM) or (OO-NEE-FORM)
D	Delta	(DELL-TAH)	V	Victor	(VIK-TAH)
E	Echo	(ECK-OH)	W	Whiskey	(WISS-KEY)
F	Foxtrot	(FOKS-TROT)	X	Xray	(ECKS-RAY)
G	Golf	(GOLF)	Y	Yankee	(YANG-KEY)
H	Hotel	(HOH-TEL)	Z	Zulu	(ZOO-LOO)
I	India	(IN-DEE-AH)			
J	Juliet	(JEW-LEE-ETT)	1	One	(WUN)
K	Kilo	(KEY-LOH)	2	Two	(TOO)
L	Lima	(LEE-MAH)	3	Three	(TREE)
M	Mike	(MIKE)	4	Four	(FOW-ER)
N	November	(NO-VEM-BER)	5	Five	(FIFE)
O	Oscar	(OSS-CAH)	6	Six	(SIX)
P	Papa	(PAH-PAH)	7	Seven	(SEV-EN)
Q	Quebec	(KEH-BECK)	8	Eight	(AIT)
R	Romeo	(ROW-ME-OH)	9	Nine	(NIN-ER)

VEHICLE ROADWAY SIGNS

SIGNS FOR VEHICLE OPERATORS

If an airport has more than one runway, a standard runway holding position sign (as shown in Figure 1A below) will be installed to help vehicle operators maintain their situational awareness when approaching runways and provide a visual reference to aid in identifying them. In some cases, the holding position sign may be attached to the same mounting pole as the STOP and DO NOT PROCEED signs, but typically it is a separate assembly located near the STOP sign. For the holding position sign, the runway designations must be arranged to indicate the direction to the corresponding runway threshold. Figure 1A is a visual cue that tells the vehicle that an intersection with a runway or taxiway is ahead. A standard highway stop or yield sign (as shown in the Figure 1B and Figure 1C below) is installed at the intersection of each roadway with a runway or taxiway. At controlled airports, unless there is a letter of agreement with the air traffic control (ATC) allowing a driver to cross taxiways without clearance, a “DO NOT PROCEED CONTACT ATC” sign will be installed underneath a stop sign (as shown in Figure 1B below). The driver of the vehicle should not proceed past the sign without clearance from ATC.



MANDATORY INSTRUCTION SIGNS

WHITE TEXT WITH A BLACK OUTLINE ON A RED BACKGROUND

At controlled airports (airports with an operating ATCT), vehicles and aircraft are required to hold at mandatory instruction signs unless cleared by the ATCT. At uncontrolled airports, vehicles and aircraft may proceed beyond mandatory instruction signs only after appropriate precautions are taken.

- Mandatory Instruction Signs are used at:
- Taxiway/runway intersections
- Runway/runway intersections
- Instrument Landing System (ILS) critical zones
- Precision Obstacle Free Zone (POFZ) boundaries
- Runway approach areas
- Category II/Category III (CAT II/III) operation areas
- Military landing zones

Runway Designations—The runway numbers are separated by a dash, and their arrangement indicates the direction to the corresponding runway threshold. For example, "15-33" indicates that the threshold for Runway 15 is to the left and the threshold for Runway 33 is to the right. The sign at each runway end contains the inscription only for the takeoff runway, while all other signs contain both runway designation numbers. A runway is named according to its magnetic heading. Therefore, the name Runway 15 would indicate the runway has a magnetic heading of 150 degrees.



Holding Position Sign



Typical Airport Signage



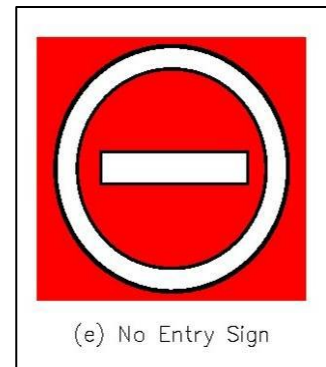
This sign alerts you that you are approaching a runway. When on a taxiway, this sign is accompanied by a runway holding position marking as shown on page 30. This sign indicates that Runway 15 is to the left and Runway 33 is to the right.



ILS stands for Instrument Landing System which is a type of navigational signal used by landing aircraft during inclement weather. This sign tells pilots and vehicle operators where to stop to avoid interruption. If a vehicle proceeds past this sign, it may cause a false signal to be transmitted to the landing aircraft.



This sign is installed on taxiways located in approach areas where an aircraft on a taxiway would either cross through the Runway Safety Area (RSA) or penetrate the airspace required for the approach or departure runway (including clearway). Taxiing past this sign may interfere with operations on the runway, even though it is not located at a runway intersection.



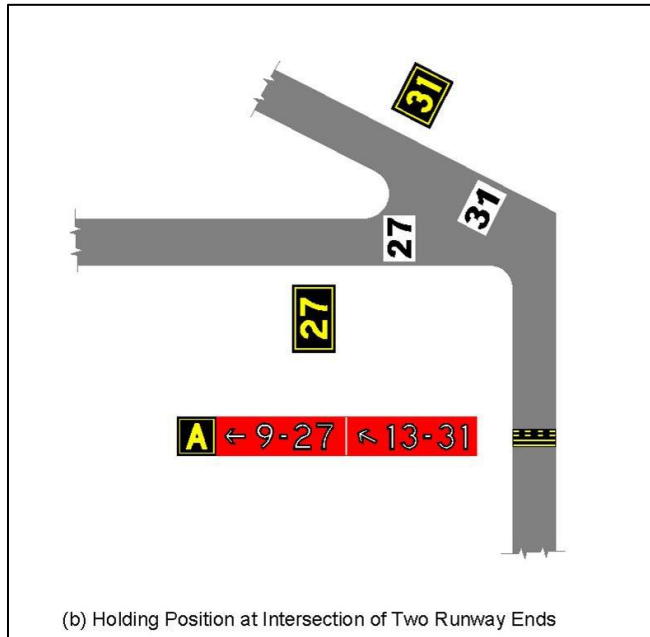
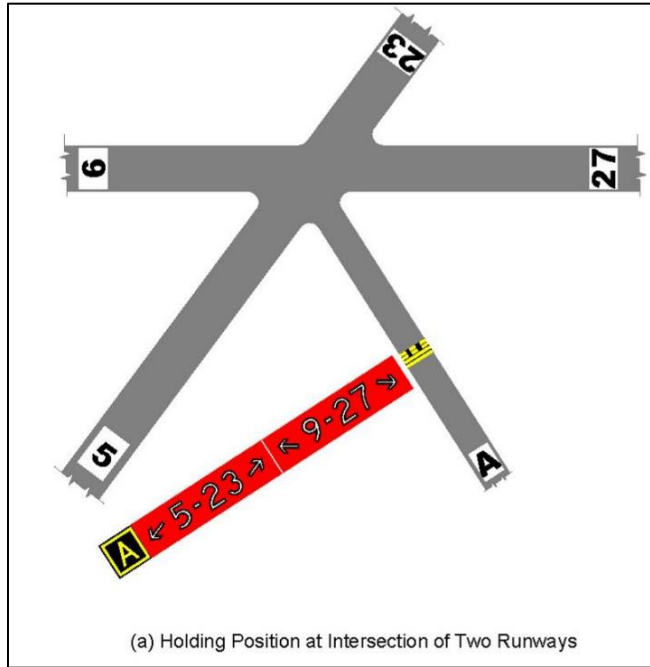
This sign indicates an area prohibited to aircraft but not vehicles. Typically, this sign would be located on a taxiway intended to be used in only one direction or at the intersection of vehicle roadways with runways or taxiways where the roadway may be mistaken as a taxiway.



The sign is installed on a taxiway that is parallel to a runway used during CAT II/III operations to indicate where aircraft are to hold during CAT II/III operations to ensure proper aircraft separation.



The sign is located at the intersection of two runways and a taxiway



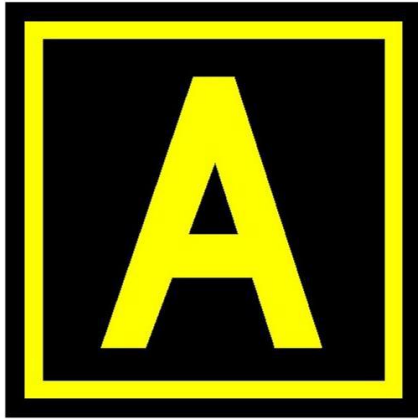
LOCATION SIGNS

YELLOW TEXT WITH A YELLOW BORDER ON A BLACK BACKGROUND

Location signs identify the taxiway or runway upon which the aircraft is located, and do not contain arrows. Location signs include the following:

Taxiway Location Sign—This sign identifies the taxiway on which an aircraft is located. A typical sign is shown below.

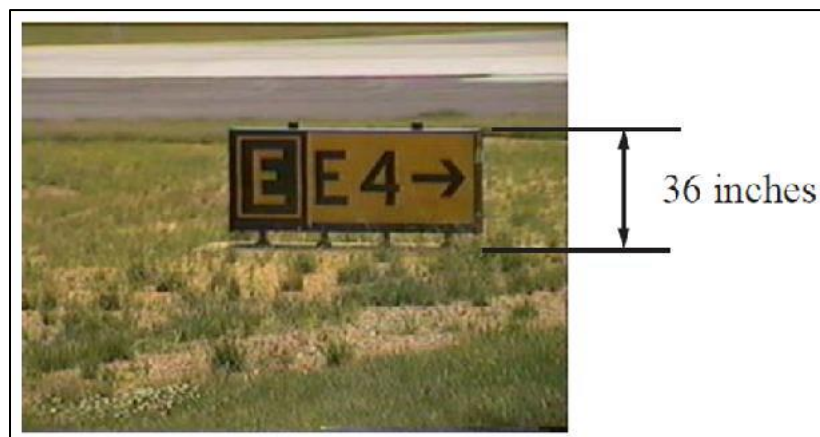
Runway Location Sign—This sign is installed on runways where the proximity of two runways could create confusion, as shown in the figure below. This sign is also installed on runways at runway/taxiway intersections used for intersection takeoffs. This sign is located to clearly identify the runways, and only contains the runway designation for the one runway end.



(a) Taxiway Location Sign



(b) Runway Location Sign



BLACK TEXT ON A YELLOW BACKGROUND, ALWAYS CONTAINING AN ARROW

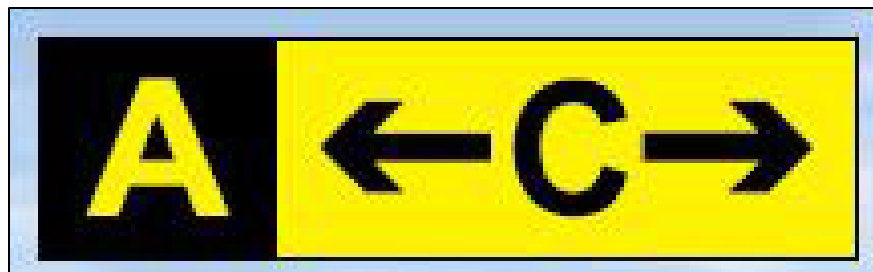
These signs indicate directions of other taxiways leading out of an intersection. The arrows should be oriented to approximate the direction of the turn. Direction signs are not placed adjacent to holding position signs or boundary signs, and are not installed between the holding position marking and the runway. Signs used to indicate the direction of taxiways on the opposite side of a runway are located on the opposite side of the runway.

Taxiway Direction Sign— A typical taxiway direction sign is shown below.



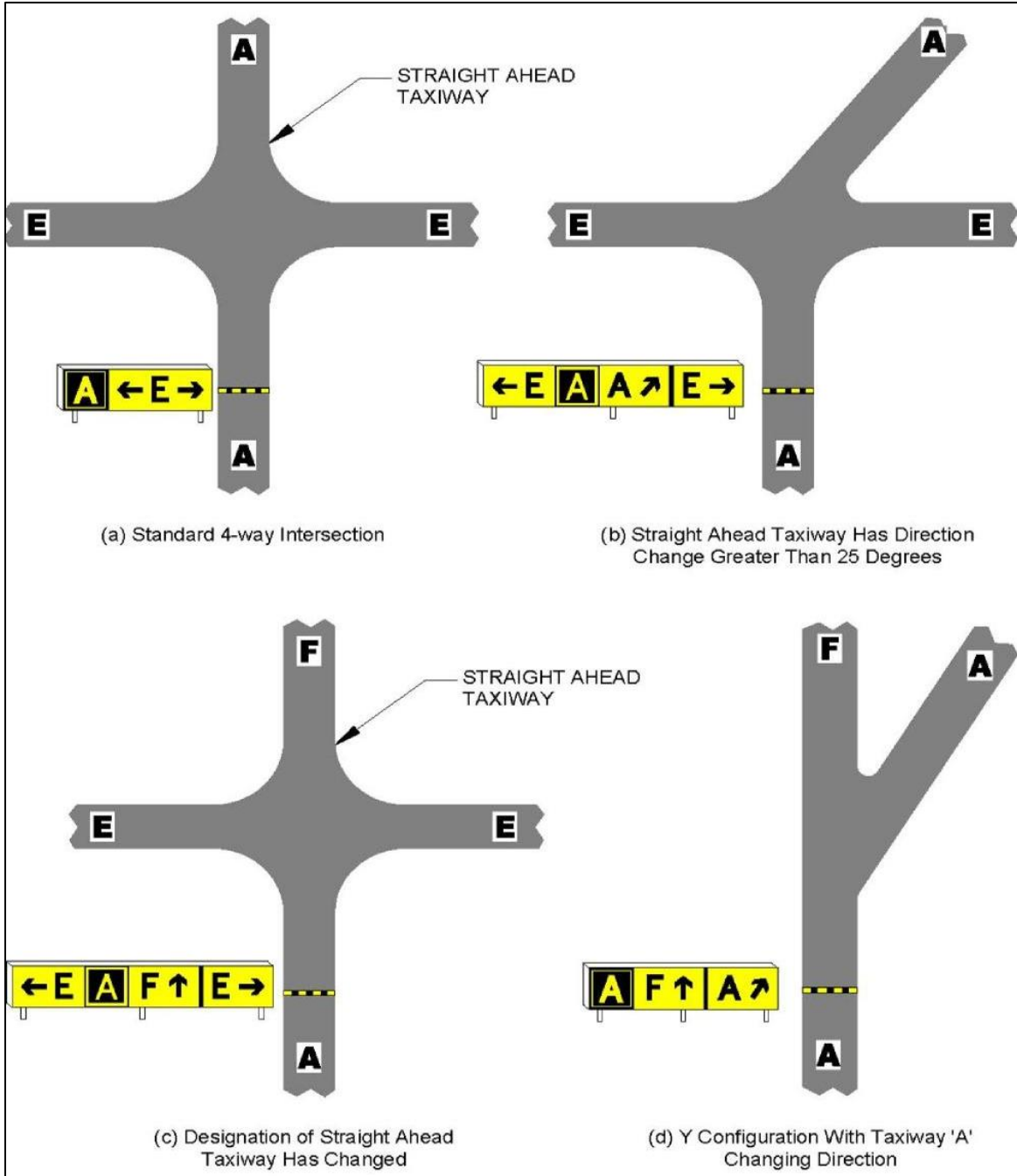
The sign is used to identify a taxiway

Runway Exit Sign— A typical runway exit sign is shown above. Signs for runway exits are located prior to the runway/taxiway intersection on the side, and in the direction to which the aircraft is expected to exit. “Bracketing” a runway exit sign (where a sign is placed before and after the exit) is not permitted.

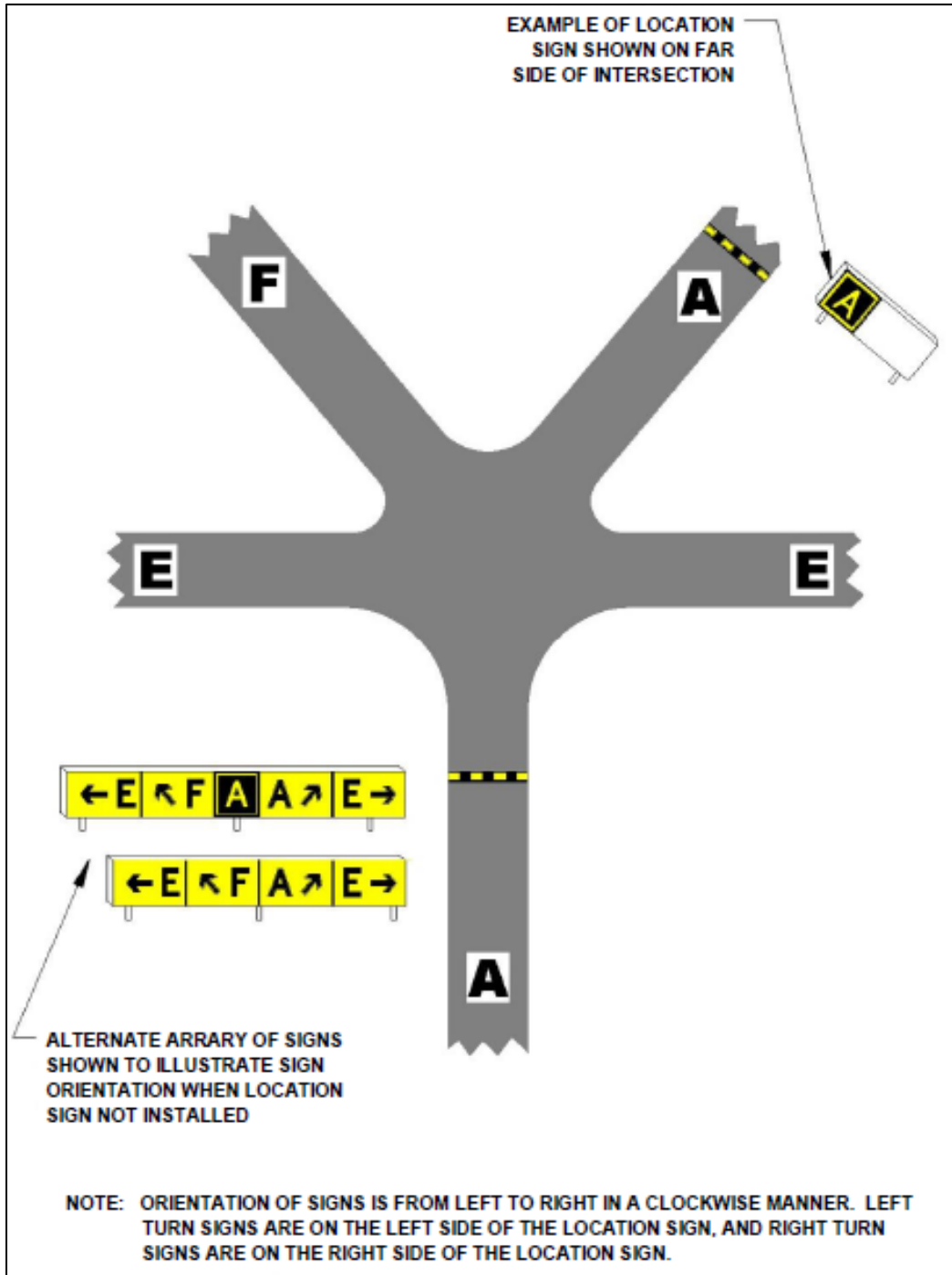


The sign indicates that you are approaching the intersection of two taxiways

TAXIWAY / TAXIWAY INTERSECTION



COMPLEX TAXIWAY / TAXIWAY INTERSECTION

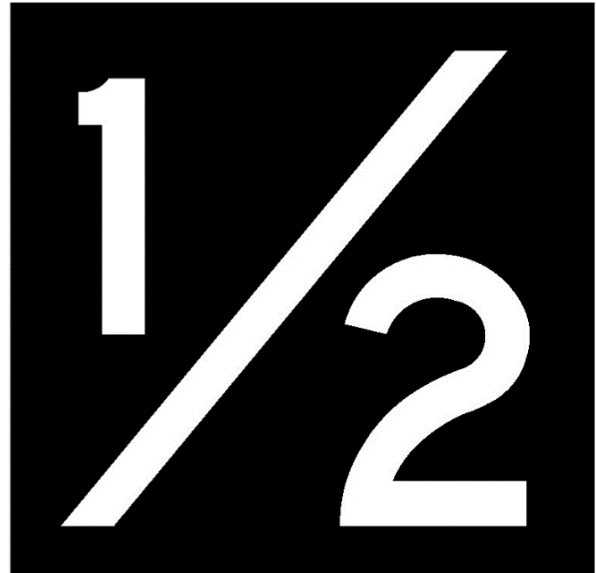


RUNWAY DISTANCE REMAINING SIGNS**WHITE NUMBER ON A BLACK BACKGROUND**

The signs below indicate thousands of feet remaining to the end of the runway.



Runway distance remaining sign (indicates 3,000 feet)



Runway distance remaining sign (indicates 500 feet)



Typical Runway distance sign indicating 1,000 feet left until the end of the runway

DESTINATION SIGNS

BLACK TEXT ON A YELLOW BACKGROUND, ALWAYS CONTAINING AN ARROW

This sign indicates the general direction to a remote location. At many larger airports, taxiway routing is a dynamic process, dependent on many variables, including airfield construction and runway use. In such cases, destination signs may provide information that conflicts with air traffic control direction. Therefore, use destination signs at such airports only in cases of remote locations and/or where taxiway location signs and direction signs alone would not adequately guide someone to their desired destination. Destination signs are more beneficial at uncontrolled airports.

Outbound Destination Sign—Outbound destination signs identify directions to takeoff runways. These routes usually begin at the entrance to a taxiway from an apron area. The inscription is the runway number plus an arrow indicating the direction (see graphic below). More than one runway number, separated by a dot, may be shown where the taxiing route is common to both runways (see figure below). The outbound destination sign should always direct the pilot to the beginning of a takeoff runway.

Inbound Destination Sign—Major destination areas are usually shown on inbound destination signs. For example, at many airports, signs indicating the route to the apron may be adequate; whereas at other airports, it may be necessary to make a distinction between passenger aprons, cargo aprons, and military aprons, or between aprons in different locations at the airport, such as the north apron or east apron. At points closer to the major destination areas, more detailed destination signs should be provided to indicate specific areas that are designated for parking service, passenger handling, or military aircraft (see Figure (d) for a typical sign).



(b) Typical Outbound Destination Sign



(c) Outbound Destination Sign to Different Runways

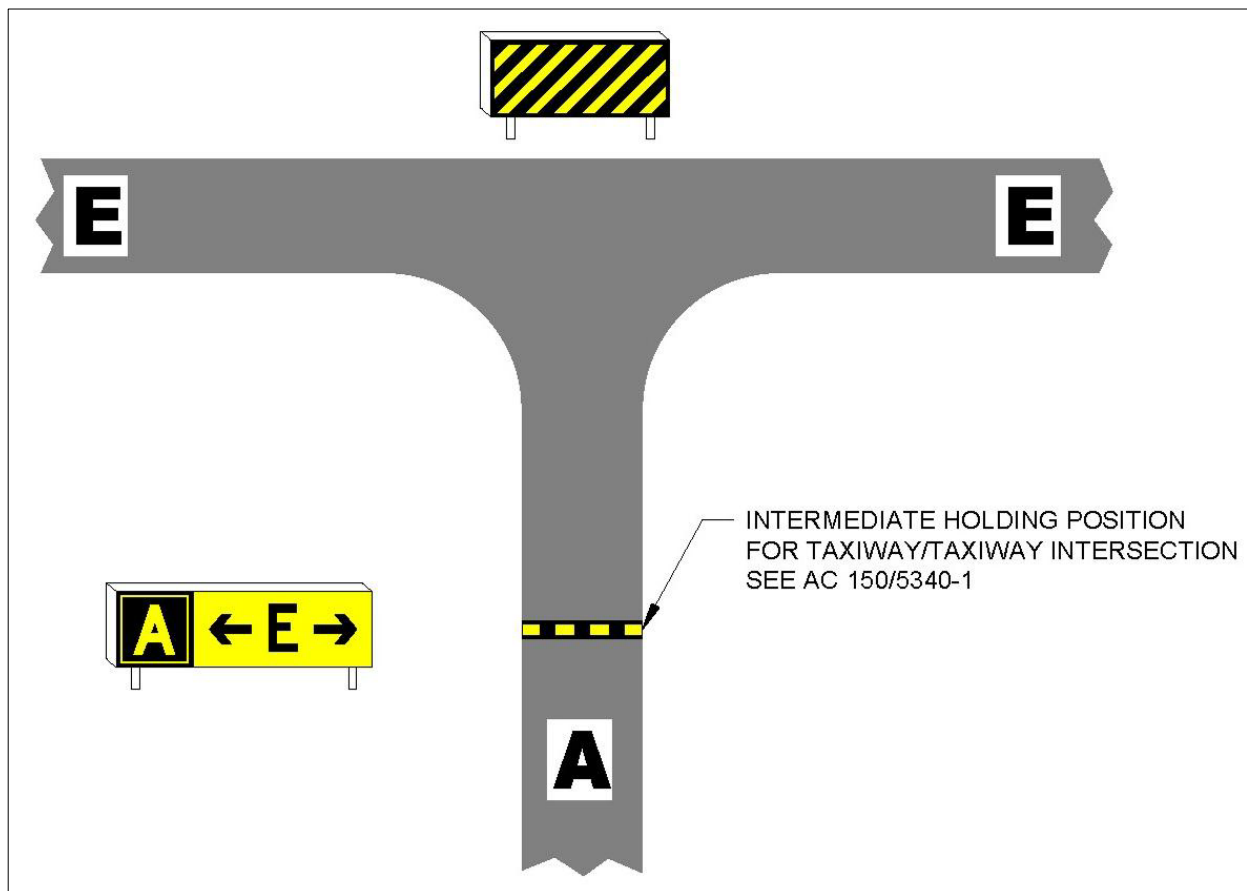


(d) Inbound Destination Sign

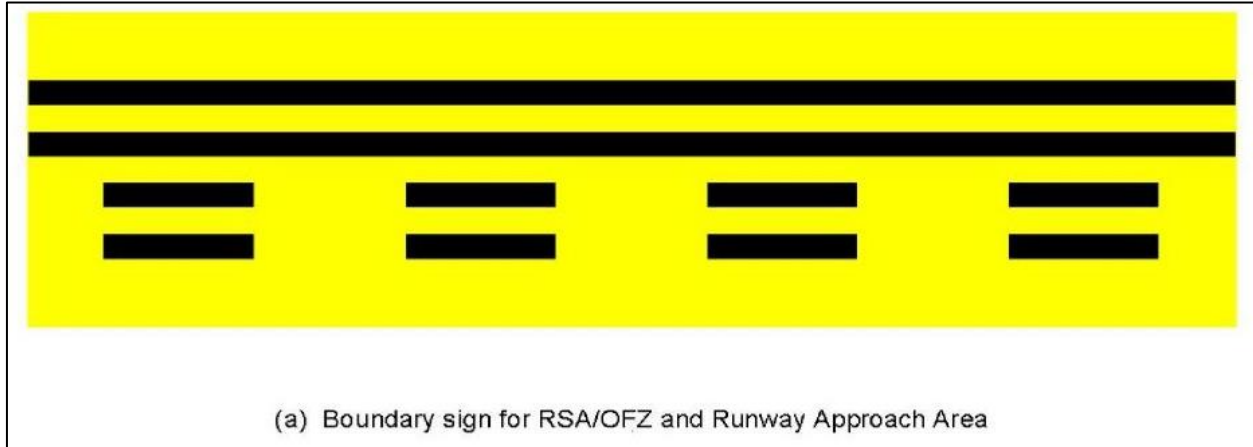
TAXIWAY ENDING MARKERS

In the diagram below, the “A” specifies your current location on the taxiway, and the “E” indicates the intersecting taxiway ahead. The sign with the alternating 45-degree yellow and black stripes indicates that Taxiway A does not continue further.

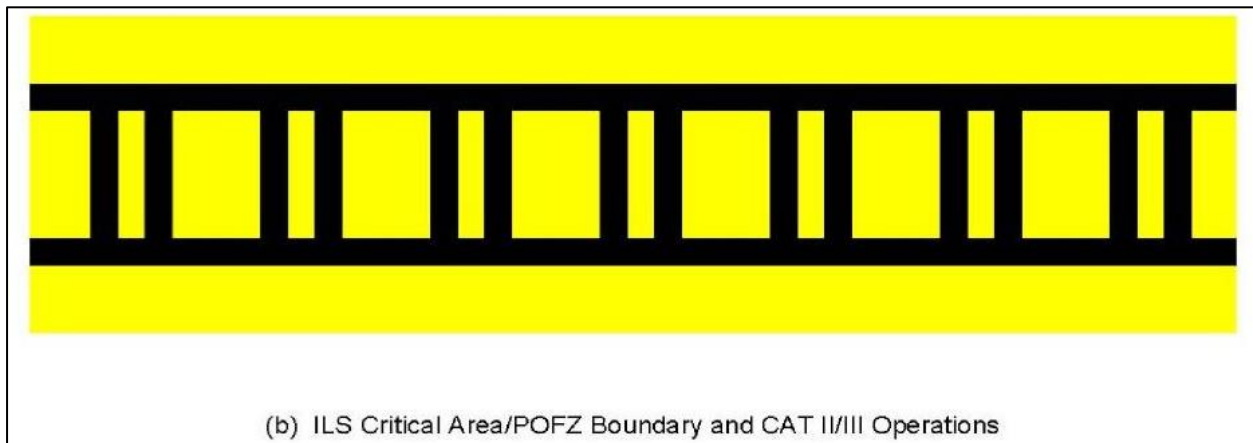
This Taxiway Ending Marker is a frangible retro reflective barrier installed on the far side of an intersection if the normal visual cues, such as marking and lighting, are inadequate.



BOUNDARY SIGNS



This sign identifies the boundary of the RSA/OFZ or the runway approach area for pilots who are exiting these areas. It is located next to the yellow holding position markings painted on the taxiway pavement. The sign is typically used only at controlled airports upon the request of the ATCT, and is located on taxiways where the controller commonly asks the pilot to report "clear of the runway" or where an aircraft is regularly required to stop upon exiting the runway.



This sign identifies either the boundary of the Instrument Landing System (ILS) critical area, or the POFZ, or the holding position for CAT II/III operations. This sign is used at controlled airports on taxiways where the controller commonly asks pilots to report, "clear of the ILS critical area" when exiting these areas. This sign is installed only on the reverse side of an ILS, POFZ, or CAT II/III operations holding position sign.

TAXIWAY AND RUNWAY HOLDING POSITION PAVEMENT MARKINGS

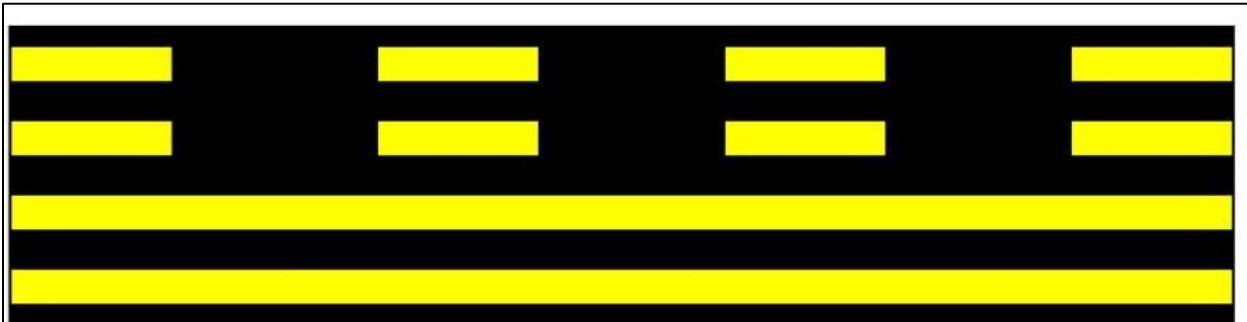


Figure B-1. Runway Holding Position Marking

The Hold Short Line is a critical marking on the airfield. This marking indicates where an aircraft is to hold before entering a runway. If the aircraft is facing the two solid lines, clearance needs to be granted in order to cross. If the aircraft is facing the two dashed lines, taxiing across can be made without clearance.

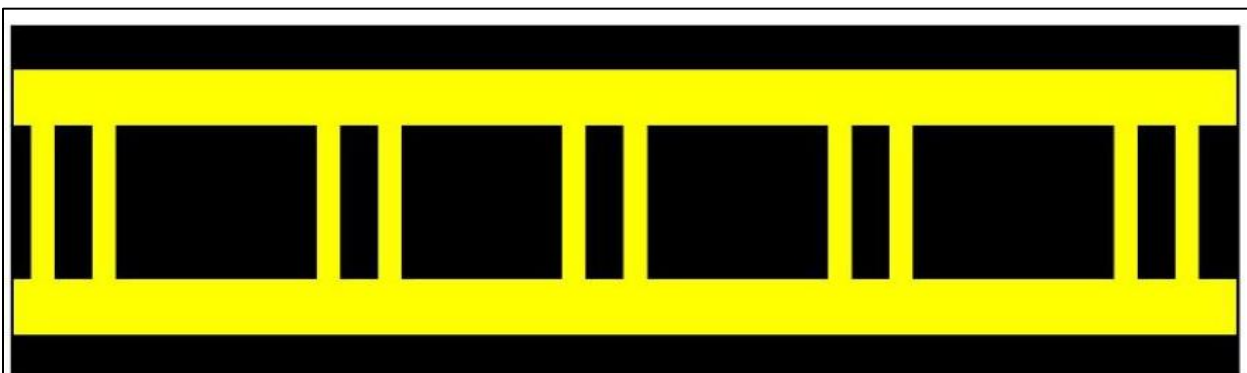
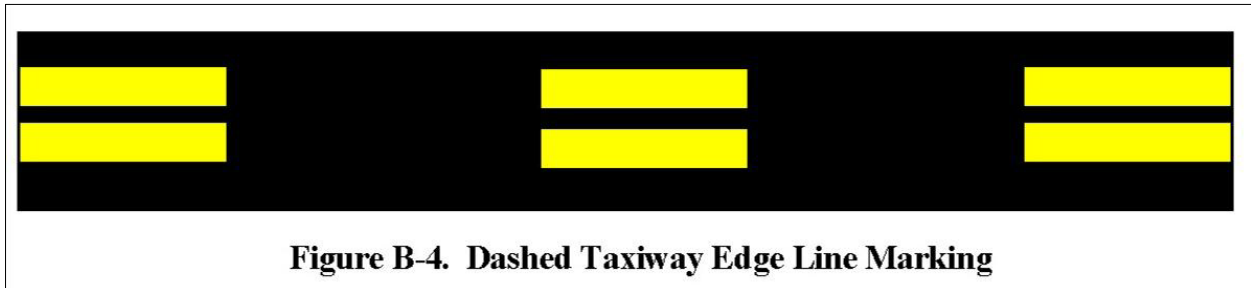


Figure B-2. ILS/MLS Holding Position Marking

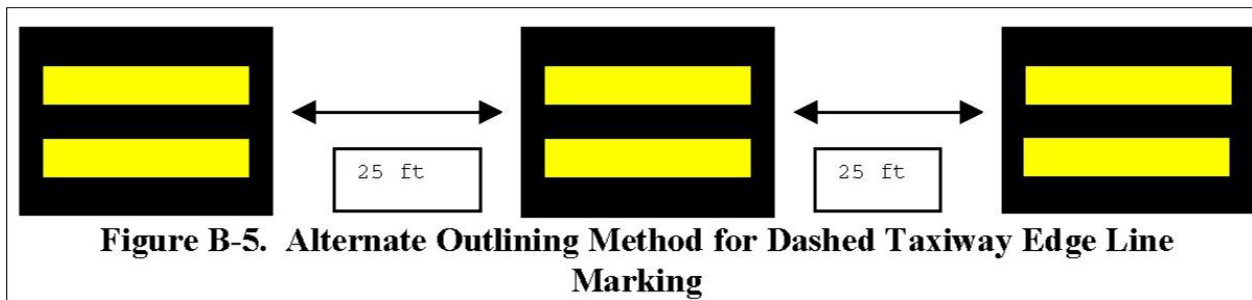
This marking indicates the edge of the Instrument Landing System (ILS) critical area. You may be directed to hold short at this line if an aircraft is using the ILS.

The taxiway edge marking, a dual continuous marking (shown in Figure B-3) or dashed marking (shown in Figure B-4), is used along a taxi route when it is deemed necessary by the airport operator or the FAA to:

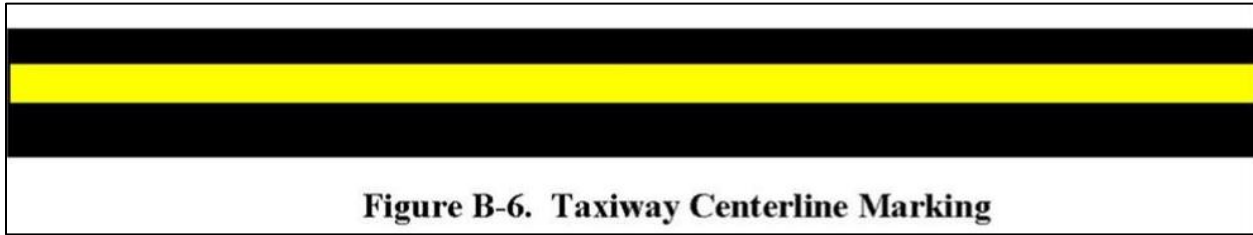
- Alert pilots where the demarcation line exists between usable pavement for taxi operations and unusable pavement
- Identify the edge(s) of a taxi route located on sizeable paved areas that can be crossed over by the pilot.



The dashed taxiway edge marking is used where there is an operational need to define the edge(s) of a taxi route on or contiguous to a sizeable paved area that permits pilots to cross over this surface marking. A common application for this surface marking is a taxi route along the outer edge of a terminal apron.



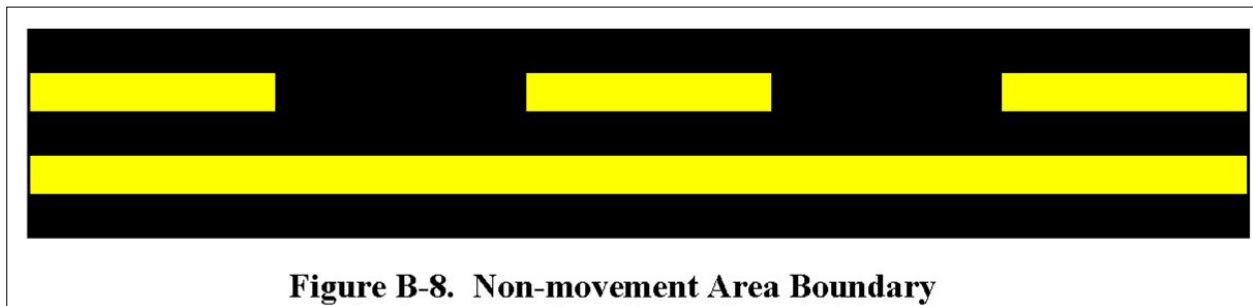
This figure shows an alternate method of indicating the taxiway edge using dashes.



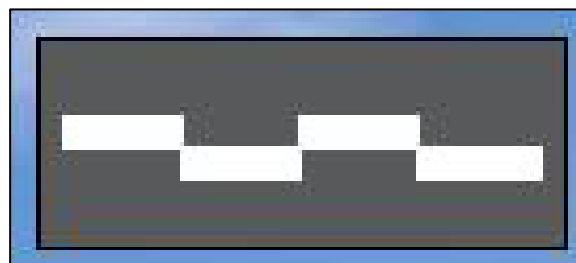
This marking denotes the centerline of the taxiway. All taxiways, regardless of their widths, have a surface painted taxiway centerline. The taxiway centerline marking provides pilots continuous visual guidance to permit taxiing along a designated path.



Stopping behind this marking will ensure wingtip clearance for aircraft on an intersecting taxiway.

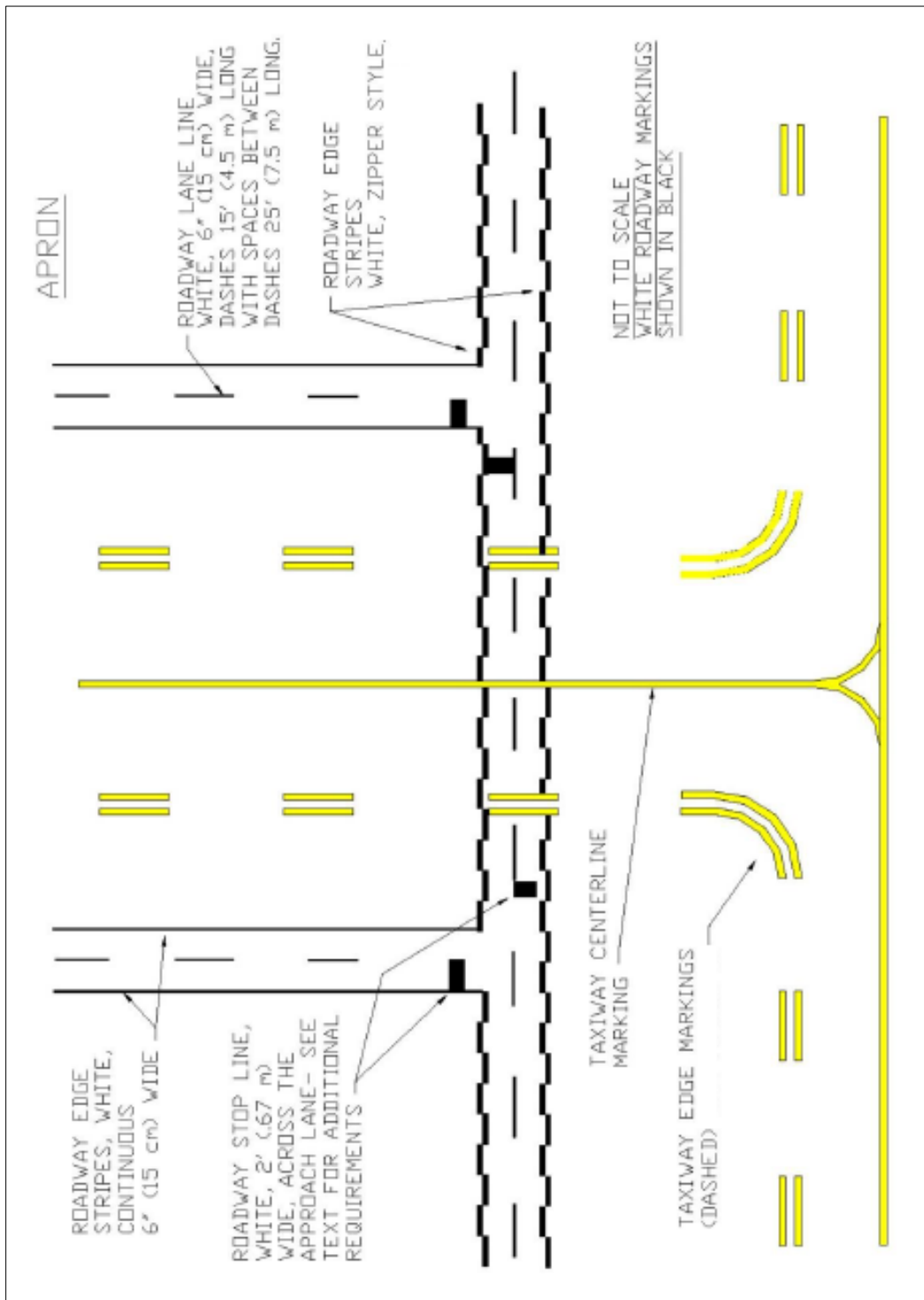


This painted marking indicates the line between a movement area and a non-movement



This marking indicates the edge of a path for vehicle traffic on areas also intended for aircraft.

VEHICLE ROADWAY MARKINGS



Appendix C

Example Mutual Aid Agreements and Letters of Agreement

EXAMPLE MUTUAL AID AGREEMENTS

MUTUAL AID AGREEMENTS

Information was gathered from the Federal Aviation Administration Advisory Circular 150 in order to compile *Sample 1* and *Sample 2 Mutual Aid Agreements*. A form similar to these can be filled out in order to implement an agreement between an airport and a private, county, or city agency. If a mutual aid agreement or letter of agreement is in place before an emergency occurs, the response time will be much faster, since each party understands their respective duties.

SAMPLE 1

[*NAME OF AIRPORT*] AIRPORT TRAFFIC CONTROL TOWER AND [*NAME OF AIRPORT*]

LETTER OF AGREEMENT EFFECTIVE: [*DATE*]

SUBJECT: AIRPORT EMERGENCY SERVICE

PURPOSE. The purpose of this agreement is to prescribe procedures to be used, to the extent practicable, in the event of an emergency, actual or potential, on or in the vicinity of the [*name of airport*] during the hours that the [*name of airport*] is operational.

1. **CANCELLATION.** [*Name of airport*] Airport Traffic Control Tower (ATCT) and [*name of airport*] Letter of Agreement dated [*DATE*].
2. **SCOPE.** In the event of an aircraft accident, bomb threat, or other emergency, actual or potential, on or in the vicinity of the [*name of airport*], [*name of airport*] Airport Traffic Control Tower (ATCT) personnel will alert emergency equipment when any of the following request such action:
 - a. A specialist on duty in the operating quarters.
 - b. The pilot of the aircraft concerned.
 - c. The operator of the aircraft or his/her representative.
 - d. A representative of airport management.

The airport will automatically be closed when:

- a. Off-airport fire equipment responds to any emergency which requires travel on the designated Movement Area.
- b. Any aircraft accident or incident, or other emergency, which occurs on, or in the vicinity of, the airport to which airport Aircraft Rescue and Fire Fighting equipment responds.

NOTE: The airport operator should insert any additional closure criteria specific to the particular airport in this section.

The airport will remain closed until ATCT personnel have received authorization from the airport manager or designated representative to open partial or complete areas of the airport. In cases of minor incidents, telephone permission will be allowed.

The type and amount of equipment and number of personnel responding to the emergency will be determined by the Incident Commander (IC). After receiving the notification of the emergency, the personnel operating the equipment will be responsible for handling the emergency.

3. RESPONSIBILITIES.

- a. **Airport Traffic Control Tower (ATCT):** It will be the responsibility of [*name of airport*] Airport Traffic Control Tower personnel to:

- (1) Alert emergency response personnel in accordance with established procedures for:
 - (a) Each of the three types of alert classifications listed below in paragraph 4.a.(1)(a) through (c).
 - (b) Any other emergency, actual or potential, which comes to the attention of ATCT personnel.
 - (c) Test the Crash Phone system daily at 09:00. Problems will be reported immediately to the Airport Manager or designated representative.
- (2) Assist the airport operator in the development of necessary emergency plans and procedures, as appropriate.

- b. **Airport Operator:** It will be the responsibility of [*name of airport*] personnel to:

- (1) Ensure that at least one on-scene individual/vehicle maintains two-way radio communications with the ATCT.
- (2) Provide training to emergency response personnel regarding the operation of vehicles on the airport Movement Area, including the use of two-way radios and standard ATCT light signals
- (3) In coordination with the ATCT, as appropriate, develop and maintain necessary emergency plans and procedures.

4. PROCEDURES.

- a. **Aircraft Emergencies:**

(1) **Classifications:**

- (a) **ALERT I - Minor Difficulty:** Potential minor emergency; equipment not requested at standby positions. Airport not closed unless off-airport equipment responds to the designated Movement Area. The Airport Traffic Control Tower will:
 - (i) Notify designated emergency response personnel in accordance with established procedures (crash phone, hot line, radio, pager, cell phone).
 - (ii) Notify airport manager or designated representative.

- (iii) Notify aircraft operator or designated representative, if able.
- (b) **ALERT II** - Major Difficulty: Potential major emergency; aircraft has fire on board, faulty landing gear, no hydraulic pressure, etc. Airport is closed after aircraft lands. The ATCT will:
- (i) Notify emergency response personnel in accordance with established procedures (crash phone, hot line, radio, pager, cell phone).
 - (ii) Notify airport manager or designated representative.
 - (iii) Notify aircraft operator or designated representative, if able.
 - (iv) Notify fixed-base operator, if appropriate.
 - (v) Provide appropriate ground control clearances to responding emergency vehicles, as needed.
 - (vi) To the extent practicable, keep other aircraft and ground vehicle operators clear of the area involved in the emergency.
- (c) **ALERT III** - Aircraft Accident: Aircraft involved in an actual accident on or near the airport. Airport closed if on-airport or emergency equipment must traverse the airport to reach the scene. ATCT will:
- (i) Notify emergency response personnel in accordance with established procedures (crash phone, hot line, radio, pager, cell phone).
 - (ii) Close the airport.
 - (iii) Notify airport manager or assistant manager.
 - (iv) Notify aircraft operator or his or her representative, if able.
 - (v) Notify fixed-base operator, if appropriate.
 - (vi) Provide appropriate ground control clearances to responding emergency vehicles, as needed.
 - (vii) Control the movement of aircraft and vehicles in the Movement Area to permit emergency response vehicle access to/from the accident area. The movement of emergency vehicles will take priority over that of taxiing aircraft until the emergency condition has ended.
- (2) **Information.** The *[name of airport]* ATCT will provide the following information to emergency response personnel whenever possible:
- (a) Aircraft identification.
 - (b) Aircraft type.
 - (c) Nature of emergency.
 - (d) Estimated time of arrival.
 - (e) Runway being used.
 - (f) Number of persons on board (crew and passengers).
 - (g) Amount of fuel on board.
 - (h) Type and location of dangerous cargo on board.
 - (i) Type and location of any animals on board.

- (3) **Bomb Threat, Hijack, Dangerous Cargo, and Other Emergencies.** Any time ATCT personnel become aware of an actual or potential situation which may present a threat to the health and safety of the public, the [*name of airport*] ATCT will:
- (a) Notify designated emergency response personnel in accordance with established procedures (crash phone, hot line, radio, cell phone).
 - (b) Notify airport manager or designated representative.
 - (c) Notify aircraft operator or designated representative, if able.
 - (d) Close the airport to all traffic except the distressed aircraft.
 - (e) Direct the distressed aircraft to the designated search area.
 - (f) Standby to assist in communications, if requested.
 - (g) Control the movement of aircraft and vehicles in the Movement Area to permit access to/from the designated search area. The movement of emergency vehicles will take priority over that of taxiing aircraft until the emergency condition has ended.

[Signature]

[*Name*]

Air Traffic Manager, [*name of airport*] Airport Traffic Control Tower

[Signature]

[*Name*]

[*Name of airport*] Director

[Signature]

[*Name*]

Fire Chief, Off-Airport Fire Department(s)

SAMPLE 2

MUTUAL AID AGREEMENT

STATE OF FLORIDA AND COUNTY OF []

This agreement entered into by and between the County of [] Airport Authority and

[] on the [] day of [], 20[___], for a term of [*months/years/until terminated in writing by either party*]

WHEREAS, the County of [] Airport Authority is a political subdivision of the State of Florida established and empowered to operate, maintain, and protect the airports and air facilities of the Authority and to promote the safety of said airports and the public therein; and

WHEREAS, the [] is a [municipality/state agency/political subdivision] of the State of Florida established and empowered to [recite powers as appropriate]; and

WHEREAS, the parties hereto find that the possibility of major disasters threatening life and property within their respective jurisdictions presents a common danger most effectively to be met by collective planning and effort; and

WHEREAS, the parties desire in advance of a major disaster or emergency condition to coordinate life-saving, firefighting, law enforcement, and other related activities; and

WHEREAS, the parties hereto have, through their respective governing boards or commissions, approved the terms and covenants set forth hereinafter by appropriate resolutions;

NOW THEREFORE the parties hereto do agree and covenant one to another as follows:

ARTICLE ONE—DEFINITIONS

The following terms and phrases shall be understood to mean:

- a. **“Incident Command Post”** – a point where responding agencies are briefed on the situation as they arrive to report and assume control of the individual aspects of the operation.
- b. **“Disaster”** – an occurrence of a natural catastrophe, technological accident, or human-caused event that has resulted in severe property damage, deaths, and/or multiple injuries.
- c. **“Emergency”** – any occasion or instance—such as a natural disaster (e.g. hurricane, tornado, storm, flood, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mud slide, snowstorm), aircraft crash and/or, fire; structural fire; sabotage, hijack incident, or otherwise unlawful interference with operations; major power failure; nuclear accident; chemical, biological, radiological, nuclear, and high yield explosive (CBRNE incident); or any other natural or man-made catastrophe—that warrants action to save lives and to protect property, public health, and safety.

- d. **“Emergency Plan”** – a document that describes how people and property will be protected in disaster and disaster threat situations; details who is responsible for carrying out specific actions; identifies the personnel, equipment, facilities, supplies, and other resources available for use in the disaster; and outlines how all actions will be coordinated.
- e. **“Emergency Operations Center”** – a protected site from which emergency officials coordinate, monitor, and direct emergency response activities during an emergency.
- f. **“Incident Commander”** – the individual who directs and controls emergency response personnel and equipment, as well as providing overall management at a specific incident site, including public safety and public information. The goal of the Incident Commander (IC) is to obtain the maximum productivity from all on-scene resources. The individual in this position may change depending on the scope, intensity, and duration of the incident.
- g. **“Incident Command System”** – a standardized organizational structure used to command, control, and coordinate the use of resources and personnel who have responded to the scene of an emergency. The concepts and principles for ICS include common terminology, modular organization, integrated communication, unified command structure, consolidated action plan, manageable span of control, designated incident facilities, and comprehensive resource management.
- h. **“Letter of Agreement”** – a written undertaking by and between the parties hereto for the purpose of supplementing the terms hereof.
- i. **“Party”** – the parties hereto through their respective governing boards or commissions.
- j. **“Requesting Party”** – the party hereto in the jurisdiction of which a major disaster has occurred, including, but not limited to, fire, flood, earthquake, riot, civil commotion, or other emergencies threatening to life and/or property, of such magnitude that the resources of the said party are, in the determination of the Incident Commander (IC) of said party, not sufficient to control or abate the disaster or emergency conditions.
- k. **“Responding Party”** – the party hereto receiving a request for assistance from the requesting party.

ARTICLE TWO – OPERATIONAL PROVISIONS

- a. The responsibility for determining the magnitude of a major disaster or emergency condition and for taking initial measures to meet such disaster or emergency condition shall rest with the party in the jurisdiction of which the disaster or emergency arises in accordance with the emergency plan of said party.
- b. In the event a disaster or emergency condition is found by a party, the said party shall immediately identify an Incident Commander (IC) and establish an Incident Command Post.

- c. The IC shall determine if any requirement exists for assistance from other parties and shall, as the requesting party, communicate such requirement to responding parties.
- d. Both parties agree to implement the National Incident Management System (NIMS) during all emergency responses on and off the airport.
- e. The responding party shall, in accordance with its emergency plan and/or any Letters of Agreement with the requesting party, determine the availability of resources that can be dispatched to the requesting party to serve with the requesting party in controlling or mitigating the disaster or emergency condition.
- f. All resources of the responding party, including but not limited to personnel, law enforcement and firefighting equipment, medical supplies, life-saving equipment, and other emergency supplies, that shall be dispatched to the requesting party, shall be under the direction and control of the (IC) of the requesting party, and shall act as the sole agents of the requesting party for the duration of the disaster or emergency condition or until such time as the said resources are released by the requesting party.

NOTE: *In Florida, the responding mutual aid forces remain under the operational control of the agency requesting the mutual aid, unless the requesting agency asks the assisting mutual aid agency to take over certain parts or all of the operation. In some other states, the control of the assisting mutual aid forces remains under the operational control of the jurisdiction, department, or agency furnishing the force. This should be reviewed before developing a Mutual Aid Agreement.*

- g. The rendering of assistance by a responding party under the terms of this Agreement shall be voluntary and not mandatory as conditions in the jurisdiction of the responding party shall warrant. The inability of a responding party to render aid shall in no case give rise to liability of the responding party to the requesting party or any third person for damages as a result of such inability, and the parties hereto expressly agree that the responding party shall be indemnified and held harmless by the requesting party for any and all damages resulting from rendering of or failure to render assistance under the provisions hereof. If a responding party is not able to provide the requested assistance, or any portion of it, to the requesting party, the responding party will advise the requesting party of such inabilities.
- h. The rendering of assistance by a responding party under the terms of this Agreement shall be without compensation and at no cost to the requesting party.

ARTICLE THREE – AMENDMENT

- a. This Agreement may be supplemented by the Letters of Agreement between the parties for the purpose of exchanging information, identifying responsible officials, coordinating specific operations, or in any other manner providing detailed guidance for discharge of the mutual responsibilities undertaken by the term hereof.
- b. Any change of the responsibilities, procedures and/or liabilities set forth herein above shall be written modification of this Agreement and not otherwise.

IN WITNESS WHEREOF the parties hereto have set their hands and seals to this Agreement as of the date first set forth at, State of Florida

ATTEST:

County of _____.

AIRPORT AUTHORITY

BY: __[Signature]_____

Its __[Title]_____

ATTEST:

BY: __[Signature]_____

Its __[Title]_____

EXAMPLE LETTERS OF AGREEMENT

LETTERS OF AGREEMENT

The *Sample 3 Letter of Agreement* can be used as an agreement between an airport with an airport traffic control tower (ATCT) and an outside agency that will aid in emergency response at the airport. The agreement will set forth the responsibilities each party will handle during an emergency, as well as the designated locations on the airfield to which the outside agency is granted access and the designated locations on the airfield from which the outside agency should be restricted. If both parties follow their duties, a faster, more efficient response can be made. The *Sample 4 Letter of Agreement* can be used as an agreement between an airport without an ATCT and an outside agency that will aid in emergency response at the airport.

SAMPLE 3

[*Name of airport*] Management and [*Outside agency*]

Letter of Agreement

Effective: [*date*]

SUBJECT: Aircraft Accident/Emergency Procedures

1. **PURPOSE:** To prescribe procedures utilized to the fullest extent practicable in the event of an aircraft accident/incident, emergency or potential emergency on or in the vicinity of the [*name of airport*].

2. **CANCELLATION:** [*Name of airport*] Air Traffic Control Tower and [*name of airport*] Management, subj. Aircraft Accident/Emergency Procedures dated [_____].

3. **SCOPE:** In case of an aircraft accident/incident, emergency or potential emergency on or in the vicinity of the [*name of airport*], [_____] shall alert [*outside agency*] dispatcher when one of the following personnel request such action:

- a. The specialist on duty in the [*name of airport*] Airport Traffic Control Tower.
- b. The pilot or operator of the aircraft concerned or his representative.
- c. A representative of the airport management.

4. **ALERT DEFINITIONS:** [*Name of airport/Specific airport control tower*] shall utilize one of the following terms when advising [*outside agency*] of an aircraft accident or emergency requiring their assistance:

ALERT 1 - Minor Difficulty: Indicates a deferred potential emergency exists that may require dispatch of emergency equipment at a later time. Emergency equipment and crews will stand by for further instructions.

ALERT 2 - Major Difficulty: Indicates a potential emergency exists requiring immediate dispatch of emergency equipment to the standby position on the airfield.

See Attachment 1.

ALERT 3 - Aircraft Accident: Indicates an aircraft accident on or near the airport has occurred. Immediate dispatch of emergency equipment to the scene is required.

5. RESPONSIBILITIES:

a. [*Specific airport control tower*]:

(1) Shall notify [*outside agency*] via the [*type of radio*] (primary) or telephone 911 (secondary) of the Alert classification and pertinent information.

(2) Shall advise [*outside agency*] of the required staging area for their response. [_____] will be the primary entrance point for responding emergency vehicles. Staging areas are depicted in Attachment 1.

(3) Shall issue any necessary runway crossing clearances to the [_____] or Designated Representative (DR) on ground frequency [which frequency and/or channel] as coordinated.

(4) Notify the [*name of airport*] Management.

b. [*Outside agency*]:

(1) Shall determine the amount and type of equipment and number of personnel required to respond to an emergency after receiving an Alert.

(2) The [_____] or DR will establish communications with [*name of airport*] Airport Traffic Control Tower (ATCT) on the [*type of radio and/or frequency*] upon arrival at the airport.

(3) The [_____] or DR will be responsible for all responding emergency vehicles and ensuring they remain clear of all runways/taxiways unless otherwise directed by [*name of airport*] ATCT.

(4) No emergency vehicle shall cross any runway or taxiway unless clearance is received from [*name of airport*] ATCT.

(5) The [_____] or DR shall advise [*name of airport*] ATCT when they cancel the emergency.

c. [*Name of airport*] Management:

(1) Shall make any other notifications to agencies or personnel that may be required.

(2) Shall determine if runway inspection is required and will notify [*name of airport*] ATCT when the affected runway is returned to service.

[*Signature*]

[*Name*]

Air Traffic Manager, [*Name of airport*] Airport Traffic Control Tower

[*Signature*]

[*Name*]

[*Name of airport*] Director

[*Signature*]

[*Name*]

[*Outside Agency*]

Attachment 1: Airport Fire Rescue Staging Area (Include diagram of staging area locations)

SAMPLE 4

[*Name of airport*] Management and [*Outside agency*]

Letter of Agreement

Effective: [*date*]

SUBJECT: Aircraft Accident/Emergency Procedures

1. **PURPOSE:** To prescribe procedures utilized to the fullest extent practicable in the event of an aircraft accident/incident, emergency or potential emergency on or in the vicinity of the [*name of airport*].

2. **CANCELLATION:** [*Name of airport*] Management, subj. Aircraft Accident/Emergency Procedures dated [_____].

3. **SCOPE:** In case of an aircraft accident/incident, emergency or potential emergency on or in the vicinity of the [*name of airport*], [_____] shall alert [*outside agency*] dispatcher when one of the following personnel request such action:

- a. The pilot or operator of the aircraft concerned or his representative.
- b. A representative of the airport management

4. **ALERT DEFINITIONS:** [*Name of airport/Local emergency communication center*] shall utilize one of the following terms when advising [*outside agency*] of an aircraft accident or emergency requiring their assistance:

ALERT 1 - Minor Difficulty: Indicates a deferred potential emergency exists that may require dispatch of emergency equipment at a later time. Emergency equipment and crews will stand by for further instructions.

ALERT 2 - Major Difficulty: Indicates a potential emergency exists requiring immediate dispatch of emergency equipment to the standby position on the airport.

See Attachment 1.

ALERT 3 - Aircraft Accident: Indicates an aircraft accident on or near the airport has occurred. Immediate dispatch of emergency equipment to the scene is required.

5. RESPONSIBILITIES:

a. *[Local emergency communication center]:*

(1) Shall notify *[outside agency]* via the *[type of radio]* (primary) or telephone 911 (secondary) of the Alert classification and pertinent information.

(2) Shall advise *[outside agency]* of the required staging area for their response. will be the primary entrance point for responding emergency vehicles. Staging areas are depicted in Attachment 1.

(3) Shall issue any necessary runway crossing clearances to the or Designated Representative (DR) on ground frequency *[which frequency and/or channel]* as coordinated.

(4) Notify the *[name of airport]* Management.

b. *[Outside Agency]:*

(1) Shall determine the amount and type of equipment and number of personnel required to respond to an emergency after receiving an Alert.

(2) The or DR will establish communications with *[specific airport]* personnel on the *[type of radio and/or frequency]* upon arrival at the airport.

(3) The or DR will be responsible for all responding emergency vehicles and ensuring they remain clear of all runways/taxiways unless otherwise directed by *[specific trained escort]*.

(4) No emergency vehicle shall cross any runway or taxiway unless clearance is received from *[specific trained escort]*.

(5) The or DR shall advise *[name of airport]* Management when they cancel the emergency.

- c. *[Name of airport]* Management:
- (1) Shall make any other notifications to agencies or personnel that may be required.
 - (2) Shall determine if runway inspection is required, and will notify *[specific airport]*
 - (3) Management when the affected runway is returned to service.

[Signature]

[Name]

[Name of airport] **Director**

[Signature]

[Name]

[Outside Agency], [Title]

Attachment 1: Airport Fire Rescue Staging Area (Include a diagram of staging area locations.)

Appendix D

Airport Emergency Response Plan Templates

Appendix D1

Airport Emergency Plan Guide for Airports Not Certified in Accordance with Title 14 Code of Federal Regulations, Part 139



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PART 1 – INTRODUCTION

OVERVIEW

Airports differ in complexity, but each has unique features. Some are small, uncomplicated facilities serving a more rural environment, while others represent a good sized community complete with residential, industrial, and commercial installations serving major metropolitan areas. Airports are operated by the local government such as a city or county; or by an authority representing multiple local governments; and some are operated by the State. However, one thing they all have in common is that they are all subject to emergencies and incidents.¹

Notes provided in the right margin of the page provide important information and useful resources to further assist in the development of your facility's plan

This Airport Emergency Plan Guide provides information to staff at Florida airports on the processes and procedures involved with responding to an emergency and can be revised to meet the specific needs of individual airports.

A. WHAT IS AN AIRPORT EMERGENCY PLAN (AEP)?

The purpose of an Airport Emergency Plan (AEP) is to provide guidance to the local government, the Airport Authority and the State in assuring prompt response to airport emergencies and other unusual conditions, minimizing the possibilities and extent of personal injury and property damage on the airport. The AEP is intended to facilitate the timely and appropriate responses performed by the emergency response agencies having responsibilities for responding to emergencies occurring on or in the immediate vicinity of the airport. The following is a sample list of agencies and facilities that should be provided with a copy of the completed AEP.

- Local airport authorities
- Local Emergency Operations Center
- Local American Red Cross
- On-site airport maintenance shop
- Local/regional health facilities
- Florida Highway Patrol
- Transportation Security Administration
- Local police department
- Local Military Support Facilities

As defined in AC 150-5200-31C, "An airport emergency is any occasion or instance, natural or man-made that warrants action to save lives and protect property and public health."

All persons/agencies involved with the creation of the AEP should have a copy of the plan and their emergency contact information should be posted.

¹ Introduction in the U.S. Department of Transportation, FAA, AC 150-5200-31C.

- Local fire department
- Local sheriff department
- Florida Division of Emergency Management

It is recognized that not all emergencies can be anticipated and, if an emergency situation arises that is not covered by this plan, the Executive Director, Operations Manager, or the Aircraft Rescue and Fire Fighting personnel has the authority to modify the plan to manage the emergency.

B. PURPOSE OF THE EXAMPLE AIRPORT EMERGENCY PLAN GUIDE

The purpose of the Airport Emergency Plan Guide is to provide information to staff at Florida airports on the processes and procedures to be included when preparing an Airport Emergency Plan (AEP) for their facility. The Airport Emergency Plan Guide is to be used as a basic template that can be revised to meet the specific needs of each airport and their community. While every emergency situation cannot be anticipated and prepared for, a strong emergency preparedness program can assist in limiting the negative impacts of these events, including liability and other post-emergency issues. To be effective, all entities involved in emergency response should be familiar with the contents of the plan and involved in regular trainings and exercises.

To be effective, all entities involved in emergency response should be familiar with the contents of the plan and involved in regular trainings and exercises.

The recommendations and guidelines provided in the U.S. Department of Transportation, Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5200-31C, and the recommendations in 14 Code of Federal Regulations (CFR), Part 139 are outlined within this document. Although it is not mandatory for non-certificated airports to follow all requirements outlined in the AC they must follow the general guidelines prescribed by Homeland Security Presidential Directive 5 (HSPD-5), Management of Domestic Incidents and Homeland Security Presidential Directive 8 (HSPD-8), National Preparedness. The FAA also recommends that all airports (certificated and non-certificated) use certain provisions in the National Fire Protection Agency (NFPA) Standards [i.e. only 424, 1500, 1561, and 1600 (latest editions)]. The Airport Emergency Plan Guide is not all-inclusive, but rather is intended to serve as a tool to facilitate the process of developing an AEP.

This template is intended to be used by an airport not certificated in accordance with Title 14 CFR, Part 139 in the development or update of its own emergency response plan specific for its facility. The template provides an outline and checklist of processes and procedures to be tailored to each region, mission, and operational location. The practices and procedures outlined in this plan provide support to the Florida Department of Transportation (FDOT) by assisting federal, state, tribal and local governmental entities, voluntary organizations, non-governmental organizations and the private sector in the management of aviation facilities during domestic threats or in response to emergencies. This guide carries out the FDOT's statutory responsibilities, including regulation of transportation, management of the State's airspace and ensuring the safety and security of the State transportation system.

C. HOW TO USE THIS GUIDE: PLAN DEVELOPMENT AND MAINTENANCE

Personnel preparing this plan should be familiar with existing emergency response procedures prepared and practiced by the local airport as well as with any regional and state emergency response policies and procedures in place. Training that covers changes to these policies and procedures should be provided to ensure that all personnel are familiar with the most current information.

The sections listed below are described in detail throughout the Airport Emergency Plan Guide, including questions and examples to assist each airport in gathering information, guidance for deciding what issues to be included in the plan, and suggestions on how they can be incorporated to best support the facility. Not all sections or scenarios in the Airport Emergency Plan Guide will be applicable for every airport facility; in addition, some airports may require additional sections to be included to address areas or events specific to that facility. Those sections will need to be addressed on a case by case basis by individual airports.

Outline of sections to be included in an Airport Emergency Plan:

- Introduction
- Emergency Response Participants
- Training and Review
- Aircraft Emergency Response Procedures
- Hazard Specific Sections
- Appendices

THINGS TO THINK ABOUT:

The “Things to Think About” sections placed throughout the Airport Emergency Plan Guide are recommended additional information that can be included in each section. Though these suggestions are optional and not required, consideration should be given to including them in the plan.

PART 2 – PLAN SECTIONS AND CHECKLIST

INTRODUCTION

A. GENERAL

This section should provide a brief introduction to the Airport Emergency Plan (AEP), including an overview of what type of information will be presented in the plan and how it should be implemented before, during, and following an emergency at your facility. Sample language has been provided below that can be used to create the introduction section of the plan.

Sample Introduction Language

The Airport Emergency Plan (AEP) is a comprehensive set of policies and procedures to be followed by all agencies involved in and responsible for public protection in an emergency or disaster situation involving the *(insert name of airport facility)*. The AEP has been created in coordination with *(list those agencies and organizations involved in the creation of this plan)*, and a copy of the completed plan has been provided to the following:

- *(List those agencies that received a copy of the completed plan)*

Sample List of Possible Participating Agencies and Organizations

Facility Operations and Departments

- Director of Aviation
- Airport Administrative and Operations Coordinator
- Airport maintenance personnel
- Airport Traffic Control Tower (ATCT)
- Fixed Base Operators (FBOs) and airport tenants

State and Federal Agencies

- Florida Highway Patrol (FHP)
- Federal Bureau of Investigation (FBI)
- U.S. Department of the Treasury - Bureau of Alcohol, Tobacco, and Firearms (ATF)
- U.S. Secret Service
- U.S. Postal Service (USPS)
- U.S. Air Force Explosive Ordinance Disposal (EOD)

It is strongly encouraged that stakeholder agencies and organizations involved in the creation of the AEP continue to be involved when updates to the plan are needed. The other agencies listed as receiving a copy of the plan will need to be notified upon the completion of each update and provided with an updated version or with a narrative of the changes to the plan.

This sample list of agencies is not all-inclusive as some airport facilities may have additional points of contact or resources not listed to the left. Please add any additional agencies or organizations involved or in the immediate vicinity of the airport.

- Florida Division of Emergency Management

Local Agencies

- Public Information Officer (PIO)
- Local/amateur radio club
- Public Works department
- Fire department
- Police department
- Sheriff’s office
- Health Department
- Salvation Army
- Funeral director(s)
- Local emergency manager

THINGS TO THINK ABOUT:

It may be beneficial to include a brief description of your airport facility in the Introduction section; describing its location, size and the general type of aviation activities that take place at the facility on a daily or annual basis. This will help those agencies/organizations not local to the airport become more familiar with the facility and its surrounding areas.

B. REVIEW

The purpose of the AEP is to provide guidance to the local government, the Airport Authority and the State in assuring prompt response to airport emergencies and other unusual conditions, minimizing the possibilities and extent of personal injury and property damage on the airport. This plan is intended to facilitate the timely and appropriate responses performed by the emergency response agencies. These policies and procedures are not effective unless properly implemented. With implementation comes the responsibility of updating the information and materials, as new rules and regulations are passed and new emergency response procedures are created.

It is recommended that the review schedule be set to take place at least annually.

This section of the plan should discuss the schedule in which a review of the AEP will take place, describing also the process of how revisions or updates will be performed and executed.

Sample Review Schedule Language

The airport shall conduct a review of the AEP once every 12 months, or more frequently as needed when new regulations and policies are adopted. An ongoing assessment and open dialogue will take place with off-airport facilities that may affect the airport’s emergency response efforts, such as road construction, road closures, and major utility work. All agencies that have responsibilities under the AEP will be invited

and encouraged to participate in the review process. Suggested changes and additions should be submitted in writing to the Director of Aviation (or other appropriate contact person), (*insert airport name, facility address, and phone number*). At a minimum, the following items will be reviewed and updated upon each annual review.

- Telephone numbers - assigned to specific agencies or individuals listed in the plan, specifically those listed as direct points of contact in the case of an emergency (as typical emergency telephone directory can be found in **Attachment A**)
- Emergency resources [e.g.: local fire, police and emergency medical services (EMS)]
- Mutual Aid compacts - should be reviewed and renewed as needed to avoid expiration or loss of assistance

THINGS TO THINK ABOUT:

The best way to update phone numbers and contacts is to call the individuals/organizations listed. This will provide an opportunity for both the airport and the agency to discuss any changes that have taken place in the past year or any concerns that either agency or individual may have.

C. TRAINING

An important part of the plan, maintenance and validation comes from the overall training, drill and exercise program. As training, drills and exercises are conducted, it is important that a functional critique/feedback program be in place. The training section of the plan should discuss the types of programs available to assist other agencies and organizations on how to best implement the emergency response procedures. All entities included in the AEP are responsible for the training and familiarization of each of their employees of the procedures contained within the plan.

AIRPORT EMERGENCY RESPONSE PARTICIPANTS

A. GENERAL

The Executive Director or the Airport Operations Manager shall be in charge of all airport operations and shall coordinate responses with all other agencies until the conclusion of the emergency situation and normalization of airport operations. In the case that an emergency occurs within the airport property, be mindful of all aspects of the safety and security requirements of the airport.

B. ACTIVATION OF THE EMERGENCY RESPONSE PLAN

The Air Traffic Control Tower (ATCT) will normally activate applicable sections of this plan by means of radio and/or telephone communications with the Communication Center. The airport staff may also activate portions of this plan by means of radio or telephone communications to the ATCT and the Communications Center.

Airports with a low volume of general aviation traffic and airports without an ATCT rely on the Common Traffic Advisory Frequency (CTAF) which is a frequency that allows an aircraft to communicate with airport staff. If an aircraft

Radio frequencies and direct phone numbers designated for communications during emergency responses should be tested regularly and visibly posted in active workstations.

has an emergency, it should contact the Air Route Traffic Control Center (ARTCC) on the guard frequency (121.5 MHz). This contact point activates the emergency response plan and notifications about runway closures or important information regarding the specific airport are broadcast on CTAF to notify all aircraft in close proximity.

THINGS TO THINK ABOUT:

*Radio frequencies and direct phone numbers designated as active emergency communication resources should be listed within this section as well as in **Attachment A** the plan for easy accessibility.*

C. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

This section should outline the individual/agency and provide a brief description of their roles and responsibilities. Depending on the size, operations and location of the airport, it may not be necessary to include all of the agencies listed below. Consideration should be given to the organizations listed below for inclusion in the AEP.

Airlines and Airport Tenant/Staff

Air carrier(s)/Aircraft operator(s)

- Provide full details of aircraft information, as appropriate, to include number of persons, fuel, and dangerous goods on board
- Coordinate transportation, accommodations, and other arrangements for unharmed passengers
- Coordinate utilization of their personnel and other supplies and equipment for all types of emergencies occurring at the airport

Airport Authority/Management

- Establish, maintain and implement the AEP
- Coordinate the closing of the airport when necessary and assume responsibility for response and recovery operations

Air Traffic Control (ATC)

- Contact Aircraft Rescue Fire Fighting (ARFF) service regarding aircraft incidents/accidents and provide them information relevant to the emergency
- Coordinate the movement of support aircraft to and from the emergency scene, and the movement of non-support aircraft away from the emergency scene

Airport Tenants

- Coordinate with the airport tenants to make use of their available equipment, supplies, and personnel during emergency situations

THINGS TO THINK ABOUT:

Not all tenants located at an airport are aviation related. Some airports include local shops and services inside the airport provided for passenger convenience. In this section, specific notification procedures need to be established to address communication obstacles that may arise in the event of an emergency related to communicating with these services and stores.

Federal Agencies**FAA-Air Traffic Control (FAA-ATC)**

Notifying a member of the local airport when in the opinion of the supervisor on duty, the Tower, or when a potential or actual emergency exists, as categorized below:

- Aircraft emergency
- Structural fires
- Bomb threats, civil distributions and other types of emergencies

If time permits, the Air Traffic Control Tower shall notify the aircraft owner/operator, if known. During the hours of operation of the ATCT, the ATCT shall control air and ground traffic so as to facilitate the handling of the emergency by those responding to it.

Federal Aviation Administration (FAA)

- Ensure that practices and procedures of the aviation industry are followed
- Potentially provide investigative services after the emergency

FAA Southern Region – Airports Division – ASO 620

P.O. Box 20636
Atlanta, GA 30320
Phone: (404) 305-6700.

Federal Bureau of Investigation (FBI)

- Assuming command in the event of certain criminal and hijacking situations
- Investigate activities involving federal criminal offenders

Airports in Florida are covered by the Orlando Airports District Office, under the Southern Region Airport Division of FAA.

http://www.faa.gov/airports/southern/about_airports/airports_district_offices

Contact information can be obtained from the website above to be included in the plan.

Contact information can be obtained from the below site pertaining to local FBI offices in Florida.

http://www.fbi.gov/contact-us/field/listing_bystate#f

THINGS TO THINK ABOUT:

The FBI has 56 field offices (also called divisions) centrally located in major metropolitan areas across the U.S. and Puerto Rico. In Florida, the field offices are located in Jacksonville, Tampa, and North Miami Beach. Each field office is overseen by a special agent in charge. Within these field offices are a total of about 400 resident agencies located in smaller cities and towns. Resident agencies are managed by supervisory special agent. Coordination should be arranged with the local office and their contact information should be included in the plan.

National Transportation Safety Board (NTSB)

- Conduct and control all accident investigations involving civil aircraft, or civil and military aircraft, within the United States, its territories and possessions.
- Reports of accidents or incidents should be made to the Regional Office

The U.S. Department of Transportation publishes the Emergency Response Guide (ERG) as a primary guide for first responders involved in hazardous materials incidents.

Eastern Region – Doral, Florida – Regional Office

8240 NW 52nd Terrace, Suite 418
Doral, Florida 33166
Phone: (305) 597-4600 or (305) 597-4610

Military

- Where a military facility is located in the vicinity of an airport, coordination between the airport and the military facility should be sought in the development of the AEP.
- Military personnel help recover bodies from a large scale accident as was the case with the 185th Air National Guard in the Sioux City United Airlines Flight 232 accident.

State Agencies

Florida Highway Patrol (FHP)

- Provide traffic control operations and emergency assistance if the aircraft incident affects a State maintained highway system.
- Including a map of the Florida's State Highway System as an appendix to the AEP may be helpful for identifying Florida Highway Patrol jurisdictions

Contact information for the FHP local to you can be found at <http://www.flhsmv.gov/offices/>

Florida Department of Transportation – Aviation Office

- Serve as an informational resource and provide technical assistance related to aviation emergencies and AEPs.

Florida Department of Environmental Protection (FDEP)

- Provide support for hazardous material or other environmental emergencies

Florida Division of Emergency Management (FDEM)

- Provide assistance with emergencies that are beyond the capabilities of the local agencies.
- The Florida Division of Emergency Management (FDEM) should be considered for inclusion in the AEP and to coordinate with any Comprehensive Emergency Management Plan (CEMP).
- A map depicting the seven FDEM regions along with a list of the Region Coordinators is included in this document as **Attachment B**.

A map of the FDEP Districts and their contact information is provided in the appendices. Additional information can be found here: <http://www.dep.state.fl.us/secretary/dist/>

U.S. Coast Guard/Harbor Patrol

- For airports located near large bodies of water, consideration should be given for inclusion of the U.S. Coast Guard/Harbor Patrol in the AEP.
- The U.S. Coast Guard/Harbor Patrol can aid in search and rescue for an aircraft accident that occurs over water.

Contact information specific for each region of Florida and division of the U.S. Coast Guard can be found at, <http://www.uscg.mil/d7>

The District 7 command center phone number is 305-415-6800.

THINGS TO THINK ABOUT:

The U.S. Coast Guard has several districts which are then split into smaller units. It is recommended under this heading that the specific unit that would be closest to your facility be identified and their contact information included.

National Guard

- Where a National Guard facility is located in the vicinity of an airport, coordination between the airport and the National Guard facility should be considered in the development of the AEP.
- The National Guard can help recover bodies from a large scale accident as was the case with the 185th Air National Guard in the Sioux City United Airlines Flight 232 accident.

Local Agencies

Aircraft Rescue and Firefighting

- Manage and direct firefighting and rescue operations until life, property and safety threats have been eliminated.

Animal Care/ Control

- Agencies such as the Humane Society or other non-profit organizations can provide professional assistance for handling animal cargo during emergencies.
- Consideration should be given for the inclusion of animal care/control in the AEP.

Clergy and Therapists (Grief Counselors)

- Provide comfort to survivors and the relatives of the victims during an emergency. Coordination of duties should be outlined to avoid duplication of effort between other health and human service agencies that may play a similar role.

Communications Providers

- Provide additional personnel, equipment and facilities during an emergency to augment the airport's communications.
- Identify and coordinate repairs to the communication system in the event it is damaged during an emergency.

Coroner

- Identification of bodies and other investigative activities including determining the cause and time of death, if needed.

Explosive Ordnance Disposal (EOD)

- Provide assistance to the airport with explosive ordnance disposal during the event of a bomb threat.
- Contact information and procedures for addressing bomb threats should be included in the plan. A sample of *Bomb Threat Call Procedure* and a *Bomb Threat Checklist* is included as **Attachment C**.

Governmental Authorities

- Some circumstances, such as bomb threats, bombings and post-accident investigations may fall under the jurisdiction of authorities other than the Airport Authority.
- The AEP should outline the controls and limitations placed on the Airport Authority by these other governmental authorities.

Hazardous Materials Response Team

- Provide response and recovery support for hazardous material emergencies in accordance with 29 CFR, Part 1910; 40 CFR, Part 311; Chapters 376 and 403, Florida Statutes; and Rules 62-700.160, 62-770.200, 62-770.250, and 62-770.300, Florida Administrative Code.

Local Police and Fire Department

- Depending on the size and resources of the airport, the local police and fire departments may be responsible for responding to emergencies on the airport. Coordination between the airport and these agencies during the development of the AEP should take place and the roles and responsibilities of each agency should be outlined.

Public Works and Engineering

- Coordination with the local public works and engineering departments during the development of the AEP can be beneficial because they can manage public works resources and direct public works operations, and coordinate the shutdown of power and gas with private utility companies during an emergency.

Red Cross

- Coordinate and provide support services to victims, their families and to emergency responders.

Search and Rescue

- Identify appropriate entities, such as the civil air patrol, to coordinate and provide search and rescue services as needed, usually for off-airport aircraft emergencies.

Medical Providers

Emergency Medical Services

- Provide emergency assistance and coordination with local hospitals, the American Red Cross and the airport during airport emergencies.

Hospital(s)

- Provide medical treatment to victims of an emergency.
- Local hospitals should be included in the AEP and hospital disaster plans should be considered when developing the AEP.

Mental Health Agencies

- Provide a program for addressing possible long-term effects to individuals involved in an emergency. These would include, but are not limited to survivors, relatives and emergency response personnel.

Public Information Officers

National Weather Service

- Provide assistance with alerts and warnings during weather related emergencies.
- Coordination should be sought with the National Weather Service in the development of the AEP.

Public Information/Media

- During an emergency, transmit factual information efficiently to the public.

TRAINING AND REVIEW

This section should outline the training and review times necessary to ensure personnel remain current with the latest version of the AEP and to ensure the AEP is kept up to date. The airport should conduct a review of the AEP at least once every 12 months to ensure the effectiveness of the plan and to ensure that all agencies with responsibilities in the plan are familiar with their roles.

For Aircraft Rescue and Fire Fighting personnel, there are training requirements in at least 11 additional subject areas plus a live fire training requirement. All of these subject areas require personnel to be trained and have documentation prior to the initial performance of such duties at least once every 12 consecutive calendar months (Part 139.319(i)(2)).²

SAMPLE TRAINING LOG

Subject Area	Last Trained	Due by end of
Aircraft Familiarization	Mar-10	Mar-11
NOTAM Procedures	Sep-10	Sep-11
Use of Hoses, Nozzles, Turrets	Apr-10	Apr-11
Application of Extinguishing Agent	Feb-10	Feb-11
Airport Self Inspection	Mar-10	Mar-11
Live Fire Training	Sep-10	Sep-11

² Information taken from the CertAlert Number SO-10-04, issued September 23, 2010 by DOT/Federal Aviation Administration, Southern Region Airport Division, Airport Certification Safety Team (ASO-620).

THINGS TO THINK ABOUT:

Record of training must include, at a minimum, a description and the date of the training received. Records must be maintained for 24 consecutive calendar months after completion of training.

TRAINING EXERCISE TYPES

The FAA Office of Airport Safety and Standards has developed a new training DVD entitled “Aircraft Rescue and Fire Fighting – Aircraft Forcible Entry, Fire Fighting with the HRET, Cargo Aircraft Fire Fighting” to supplement your initial and recurrent ARFF curriculum.

THINGS TO THINK ABOUT:

This DVD was scheduled to be sent out to all Part 139 certificated airports and Safety Inspectors. Non-certificated airports may obtain a copy by contacting the FAA Southern Region, Airport Division at (404) 305-6700.

The following types of exercises should be included in the AEP.³

Table Tops

A table top exercise is a brainstorming and problem solving session among all agencies involved in airport emergency response. It can be used to create an action plan that can be implemented in the event of an emergency. This session is usually held in a group setting, with very little structure, and is relatively stress-free. It is recommended that a table top exercise be held at an emergency operations center because it provides the most realistic setting where maps and plans for the airport are readily available.

In order to be most effective, table top exercises should at least be done quarterly

Functional Exercises

Functional exercises simulate an emergency in the most realistic manner possible, short of moving real people and equipment to an actual site. As the name suggests, the goal of a functional exercise is to test or evaluate the capability of one or more functions in the context of an emergency event.

Night training is a best management practice that allows airports to simulate an emergency and execute a plan if the incident occurs outside of normal daylight

THINGS TO THINK ABOUT:

It is important not to confuse “functional exercises” with emergency “functions.” All exercises (tabletop, functional, and full-scale) test and evaluate functions contained in the AEP. In Emergency Planning, “functions” refers to actions or operations required in emergency response.

³ Information obtained from the Independent Study IS-139 Exercise Design manual created by FEMA March 2003.

Full-scale Exercises

Full-scale exercises are as close to simulating real events as possible. They are lengthy exercises which take place on location, using, to the extent possible, equipment and personnel that would be called upon in a real event. Full-scale exercises combine the interactivity of functional exercises with a field element. They differ from drills in that a drill focuses on a single operation and exercises only one organization.

More information regarding any of these exercise types can be found at <http://training.fema.gov/emiweb/is/is139lst.asp>

Periodic follow-up training is suggested in order to make sure knowledge from the training is maintained.

THINGS TO THINK ABOUT:

Eventually, every emergency response organization must hold a full-scale exercise because of the necessity to test capabilities in an environment as near to the real one as possible.

AIRCRAFT EMERGENCY RESPONSE PROCEDURES

This section focuses on special planning procedures and needs pertaining to typical hazards that airports may encounter. Airports certificated in accordance with 14 CFR, Part 139 must ensure that their AEP contains procedures and instructions for responding to the following potential hazards:

- Aircraft incidents and accidents
- Bomb incidents, including bomb incidents in designated parking areas
- Structural fires
- Fuel farm fire or fuel storage areas
- Natural disasters
- Hazardous materials and dangerous goods incidents
- Sabotage, hijack and other unlawful interference with operations
- Failure of power for movement area lighting
- Water rescue situations, as appropriate

The following sections within this chapter provide sample standard language that should be included within your plan, including definitions and procedural operations that are universal for emergency response procedures.

A. HAZARDS VULNERABILITY ASSESSMENT⁴

A hazard vulnerability assessment is a recommended technique for airports to use to prioritize hazards with higher probability to occur in their area. The vulnerability assessment can be used to:

- Develop planning priorities
- Develop hazard maps
- Educate emergency response personnel, elected officials and other decision-makers, as well as the general public
- Develop realistic plans and resources management strategies
- Prepare mitigation programs

A broad based team approach should be used for the hazard vulnerability assessment. In addition to airport employees, stakeholders from agencies outside of the airport should participate in the emergency planning, mitigation, response or recovery activities. The more people that are involved and the more diverse the organizations involved are, the better the results will be.

Attachment D is a sample Hazards Vulnerability Analysis Worksheet that can be used as a guide to rate the probability of hazards most likely to occur in your area. Probability is the number of chances per year that an incident of specific or greater size will occur. This can be based on historical factors, experience, and to some degree scientific reasoning. The following scoring system can be used to rate the probability of the hazards.

0 Points - Not possible in our community (e.g. volcanic eruption in Florida)

1 Point - It is possible, but probably will not happen

2 Points - It will probably happen, but not very often

3 Points - It is possible and is likely to happen

THINGS TO THINK ABOUT:

The hazards list is not all inclusive. There is always a potential for new and unexpected hazards, and hazards may not be independent of one another (e.g. an aircraft crash might also initiate a major structure fire.).

Once the probability of the hazards occurrence has been assessed the response management difficulty needs to be reviewed. The step is mainly concerned with the magnitude and duration of the emergency, the airport/community's capabilities to direct and control responses activities, and the effects of time on those activities. Having the local community involved to assess resource utilization as part of the planning process is important. The scoring system for this step is as follows:

⁴ AC 150/5200-31C – Appendix 1 General Procedures for Hazard Analysis

0 Points - Absolutely no problem, routine

1 Point - Can be managed with local resources

2 Points - Would require assistance from local communities

3 Points - Would require considerable support from state and federal agencies

To complete the hazards vulnerability assessment, record the vulnerability factor which is determined by adding the points across the row of categories for each hazard. Once completed a list should be developed ranking the hazards from highest to lowest vulnerability. It is recommended that the analysis be reassessed regularly to accommodate changing situations and technologies.

THINGS TO THINK ABOUT:

This is only one suggested method to assess hazards in your area. You may find that a more detailed analysis is necessary to assess your current response procedures or to account for other factors

B. GENERAL

An aircraft emergency is defined as any crash, accident, fire or other casualty involving aircraft or any potential mishap for which emergency response equipment is required. An aircraft emergency will normally be declared by:

- The pilot in command
- Local Air Traffic Control
- Aircraft owner
- Airport Authority management
- Local Flight Services Station
- Local Army National Guard
- Local or State level government

This section outlines the initial actions that should be taken during an emergency and the controlling authority. In accordance with NTSB 8-30, the first authority on the scene shall assume command until the authority appropriate to the situation arrives.

THINGS TO THINK ABOUT:

Where generic titles or agencies are listed as guides it is beneficial to include the actual division office or agency department specific to the region in which the airport is located.

Communication

This section should provide information for the establishment, maintenance and use of the communication system needed during an emergency response situation. It should also outline all tasked organizations and individuals along with their responsibilities for maintaining their equipment and ensuring redundancy in their system. Clearly identify alternate radio frequencies for use in the event that the primary communications system goes down.

This section should include a schedule of regular, daily or weekly, tests of the emergency notification system.

THINGS TO THINK ABOUT:

It is important for the Public Information Officer (PIO) to be clear about the times when information will be released. The PIO should say something similar to, “We will provide an update on (the accident) from (location) starting at (time) and then every (set interval) thereafter.” The PIO should also provide a phone number for family members to call if available.

Staging for Off-site Resources

This section should identify staging areas for off airport agencies responding to the emergency. Typically, at least one primary and one secondary location should be identified.

Public Information

This section should outline the public involvement procedures prior to, during and after an emergency. Prior to the arrival of the identified Public Information Officer (PIO), the airport director or other identified person should act as the PIO. Identify a media room or a specified location for press conferences. This facility should be located away from any survivors of the accident or the families of the victims, and should not interfere with airport operations.

A command post should be outlined in this section and should be readily accessible by a locally accepted marking system.

Sample: Media Control

News media representatives will be asked to report to the (insert room or facility name and address) for all news briefings. All available information and updates pertaining to an incident will be disseminated at the regularly scheduled intervals by a designated Public Information Office from this location only. All escorted camera trips to the disaster scene will be coordinated from this location. Provide the name of the room or facility of where media personnel and equipment will be staged.

Provide the name of the room or facility of where media personnel and equipment will be staged.

Mobile Network Satellite Trucks and similar equipment will be grouped and located (provide a designated area for this equipment to be located).⁵

Protective Actions

This section outlines the procedures for notifying the airport tenants and other users of the airport of the emergency situation as warranted. In the event that a portion of or the entire airport has to be closed, a plan

⁵ Language taken from the Salina Municipal Airport Emergency Plan.

should be set up to notify and evacuate tenants. The following precautionary measures should take place to avoid further incidents with civilians or tenants.

- Respond to the initial notification of crowd gatherings or unsecured areas and contact the police department
- Ensure that passenger perimeter gates are locked and check as often as necessary to prevent unauthorized entrance to passenger loading ramps
- Evacuate any necessary areas
- Advise Fixed Based Operations (FBO) and airline tenants to be prepared to hanger aircraft or move aircraft to a remote area
- Secure all fuel tanks, discontinue any fuel deliveries and move all fuel trucks to a remote area

C. ACTIVATION/NOTIFICATION

This section should outline the activation/notification procedures to facilitate a response to an emergency. During operational hours, the control tower shall use the emergency phone to notify airport operations, fire and rescue and the local police department of the emergency. During the hours that the control tower is not operating, a method of notification should be outlined. This may include using other local ATCTs, the local 911 dispatch center or emergency communication centers.

Sample: Agency List to be Notified

Once it has been determined that an airport/aircraft emergency exists, the following agencies and individuals should be notified. For convenience, these numbers should appear in an appendix that can be easily updated and replaced as personnel change.

It is suggested that a laminated wallet sized card of entities to be contacted during an emergency be made available for immediate access to pertinent information

Sample Agency List	
Local Fire/Police Department	Emergency: 911 Day Time: XXX-XXX-XXXX After Hours: XXX-XXX-XXXX
Florida Highway Patrol	Emergency: *FHP (*347) Day Time: XXX-XXX-XXXX After Hours: XXX-XXX-XXXX
Airport Operations Manager City/County Manager/Mayor	Day Time: XXX-XXX-XXXX After Hours: XXX-XXX-XXXX Day Time: XXX-XXX-XXXX After Hours: XXX-XXX-XXXX
FAA Operations Center	Day Time: XXX-XXX-XXXX After Hours: XXX-XXX-XXXX
Other Staff (If Operations can't be reached)	Day Time: XXX-XXX-XXXX After Hours: XXX-XXX-XXXX
Public Works	Day Time: XXX-XXX-XXXX After Hours: XXX-XXX-XXXX

D. EMERGENCY CLASSIFICATION

This section should set standards for outlining the emergency type classification. It should be set up for simplicity to allow for a quick assessment of the emergency. Flowcharts are provided in the Summary of Agencies Involved section of the Aviation Emergency Response Guidebook and also as **Attachment E** of this document and should be adopted and utilized as part of the plan. An example of emergency type classes is given below.⁶

Samples Emergency Type Classifications

Alert I (Local Standby Alert)

This type of alert is warranted when an aircraft is known or suspected to have an operational defect that should not normally cause serious difficulty in achieving a safe landing. This is notification only and no response is required, but is sometimes taken as a precautionary effort. The emergency response outlined for Alert I should be followed and emergency equipment and responders should be placed on standby.

Alert II (Full Emergency Alert)

This type of alert is warranted when an approaching aircraft has a known or suspected operational defect that affects normal flight operations to the extent that there is danger of an accident. Emergency responders should proceed to predetermined standby locations and alert the ATCT before proceeding onto any taxiways or runways. If the airport does not have an ATCT or the ATCT is non-operational, the emergency

Additional examples are provided in International Civil Aviation Organization (ICAO), Airport Services Manual, Part 7, Airport Emergency Planning, and NFPA 424, Guide for Airport Community Planning.

⁶ 6 AC 150/5200-31C, 7-1-4

responders should broadcast their intentions onto a previously defined frequency before moving onto taxiways or runways.

Alert III (Aircraft Accident Alert)

This type of alert is warranted when an accident has occurred or is imminent on or in the vicinity of an airport. Emergency equipment and responders should be notified immediately and should proceed to the scene of the accident, following the standard notifications for entering the taxiway and runway. The emergency response to an Alert III is different depending on if the accident occurs on or off airport property. The emergency response to an Alert III is different depending on if the accident occurs on or off of airport property.

Note: There is also an Alert on the Ground emergency type. For more information on this alert as well as Alerts I–III, see Attachment E.

E. CLASSIFICATIONS RESPONSE PROCEDURES

This section outlines the procedures for notifying the airport tenants and other users of the airport of the emergency situation as warranted. In the event that a portion of or the entire airport has to be closed, a plan should be set up to notify and evacuate tenants. This section should also outline the response procedures for notifying the first responders. For airports certificated under 14 CFR Part 139, Certification of Airports, 14 CFR 139.325, Airport Emergency Plan, 139.325(e) requires that procedures be in place,

“...for notifying the facilities, agencies, and personnel who have responsibilities under the plan of the location of an aircraft accident, the number of persons involved in that accident, or any other information necessary to carry out their responsibilities, as soon as that information is available.”

Alert I (Local Standby Alert)

Notification

In the event that an aircraft is having a minor emergency such as an oil leak, engine shutdown or other minor flight problem that could lead to a major emergency, the pilot will notify the ATCT or entity responsible for notifications in the absence of an ATCT.

Response

The ATCT or notifying agency should provide the following information to emergency responders in the event of an emergency:

- Nature of emergency
- Flight number
- Type of aircraft
- Location of emergency
- Estimated time of arrival (ETA)

- Number of people involved
- Amount of and type of fuel (if known)
- Other Information deemed to be important

Additional response procedures for the control tower, the local fire department, and first responder personnel should be established in this section.

If the emergency is upgraded to Alert II, responders should go to standby positions. After the aircraft lands, they should follow to the parking ramp and standby until the aircraft engine shuts down.

Alert II (Full Emergency Alert)

Notification

An aircraft with faulty landing gear, engine fire, loss of hydraulic pressure or any other problem that could likely result in a crash is classified as Alert II. Once the ATCT is notified of the problem by the pilot, Alert II response procedures should be initiated.

An aircraft having hydraulic or wheel problems that manages to land safely will have mechanical down locks installed, emergency equipment should escort aircraft to the parking ramp

Response

- ATCT personnel should be provided with the same information as in an Alert I scenario plus any additional details that will allow preparation for likely contingencies. Fire/police dispatch should advise airport staff of the applicable fire department radio talk group or provide a radio patch to facilitate efficient response coordination. A full response should be made with the emergency equipment manned and positioned with the response vehicle engines running. All emergency lights should be in operation so that rapid response to the emergency site can be accomplished.
- Standby locations on the airport should be accessed through the terminal apron gates and responding units should position themselves to have a clear view of the runway and taxiways.
- Airport staff should communicate with the aircraft on the guard frequency (121.5 MHz) and pass information on to the fire/police department. This provides a safety factor for rollout and, should an emergency vehicle be required, it could be moved to the aircraft stopping point from the upwind direction.

Contact information for entities, such as the FAA Operations Center should be readily accessible in the plan.

At the termination of the Alert II emergency, the fire officer in charge will dispatch the emergency equipment for return to the station.

Alert III (Aircraft Accident Alert)

- Full ATCT procedures should be put into effect. All pertinent updated information should be relayed by the airport staff or dispatching agency to responding emergency units and include the location of the accident using direction and distance from the terminal building, thresholds, mid-field, road intersections or landmarks.

- When complete aircraft related information is not available, the ARFF personnel should anticipate the worst-case situation and prepare accordingly.
- Notify the FAA Operations Center of conditions at the site, particularly if such conditions could interfere with flight operations. Airport staff should issue applicable Notice to Airmen (NOTAM) and ensure appropriate Common Traffic Advisory Frequency (CTAF) advisories are communicated.

Whenever possible, wreckage should remain undisturbed until the arrival of the first National Transportation Safety Board (NTSB) accident investigator. Prior to the time the NTSB or its authorized representatives take custody of aircraft wreckage, mail or cargo, such material may not be disturbed or moved except to the extent necessary for emergency response including:

- To remove persons injured or trapped
- To protect the wreckage from further damage
- To protect the public from injury⁷

An aircraft with an uncontrolled fire (e.g. engine, fuselage) will evacuate passengers and crew without delay as emergency units initiate firefighting and rescue operations.

Airport fire fighters and other rescue personnel should understand the basic need for and the techniques and procedures used, in aircraft accident investigation. Emergency first responders should adhere to the criteria contained in AC 150/5200-12, Fire Department Responsibility in Protecting Evidence at the Scene of an Aircraft Accident.

THINGS TO THINK ABOUT:

When it is necessary to move aircraft wreckage including mail or cargo, sketches, descriptive notes and photographs will be made, if possible. Otherwise, original position and condition of the wreckage and any significant impact marks will be recorded. (Refer to 49 CFR, Part 831, Accident/Incident Investigation Procedures.)

HAZARD-SPECIFIC SECTION

The Hazard-Specific Section provides additional detailed information applicable to the performance of a particular function in support of a particular hazard. Per CFR, Part 139.325, Airport Emergency Plan, the airport operator must develop plans and procedures in response to the following emergencies:

- Aircraft incidents and accidents
- Bomb incidents, including bomb incidents in designated parking areas
- Structural fires
- Fuel farm fire or fuel storage areas
- Natural disasters
- Hazardous materials dangerous goods incidents

The responsibility for making the decision on what to include in the hazard-specific section is vested with the airport's planning team

⁷ AC 150/5200-31C, 7-1-4(h)

- Sabotage, hijack, and other unlawful interference with operations
- Failure of power for movement area lighting
- Water rescue situations, as appropriate

Through the Hazards Analysis Program, guidance has been provided to assist in the identification of hazards and disasters specific to an airport that warrant planning attention. The following sections within this chapter provide a basic description of the hazards listed above to assist in the development of functional hazard-specific plans and procedures. Below is the standard outline of the sections that should be included and addressed in response to each hazard.

A. HAZARD SPECIFIC APPENDIX OUTLINE

Introduction

This section describes the hazard and discusses the areas at risk and breaks down the risk assessment measures that should be taken to prepare the response plan.

Situation and Assumption

Within this section information should be included that discusses the airports susceptibility to the specific hazard. Assumptions are advance judgments concerning what might happen in the event of the specific hazard. The situation includes major findings from the:

- Hazard Analysis and Risk Assessment;
- Identified facilities that may be impacted;
- Included maps and descriptions of geographic features;
- Sensitive environmental areas;
- Transportation routes;
- Pertinent climates and weather factors; and
- Any other critical variables which may impact the emergency response.

Operations

This section explains the airport's overall approach to the emergency situation and discusses what action should take place and the person/agency that should be in command. Topics should include:

- Division of airport and local responsibilities, to include roles and relationships of emergency response organizations
- A list of mutual aid agreements relative to specific emergency
- Criteria for activation of the EOC
- A description of the sequence of actions before, during and after the emergency situation.

As with other emergencies and emergency-specific standard operating procedures (SOPs), a checklist should be prepared to ensure the procedures are followed correctly. Associated training programs should also be developed and implemented.

Organization and Assignment of Responsibilities

- Airport Traffic Control Tower (ATCT)
- Aircraft Rescue and Fire Fighting (ARFF)
- Law Enforcement
- Emergency Medical Services (EMS)
- Airport Operator
- Communications

Administration and Logistics

This section of the document should cover those general support requirements specific to the hazard.

Plan Development

This section should identify who is responsible for coordinating revisions of the hazard appendix, keeping its attachments current, and ensuring that SOPs and checklists are developed and maintained.

Authorities and References

This section should identify any hazard-specific statutes, regulations, etc. that address related authority, (e.g. Building Codes). Any documents used as guidance or for information should be included as an appendix.

Unique Planning Considerations

This section contains a listing of the functional sections that would typically be required in the preparation of a hazard-specific appendix. It also identifies the unique and/or regulatory planning considerations that should be used by the airport AEP planning team.

Standard Operating Procedures (SOP) and Checklists

This section should outline the Standard Operating Procedures and checklists to be performed before, during and after an emergency.

THINGS TO THINK ABOUT:

The degree of involvement may vary from situation to situation. (See Responding to An Airport Accident – How to Support the NTSB (A Guide for Police and Public Safety Personnel) at www.nts.gov.)

B. AIRCRAFT INCIDENTS AND ACCIDENTS

An aircraft accident is any occurrence associated with the operations 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 suffers serious injury as a result of the occurrence or in which the aircraft, including cargo aircraft, receives substantial damage.⁸ An incident is an occurrence that an accident affects or could affect the safety of operations.

*(See 49 CFR, Part 830.)
Refer to 'Reporting an Accident to the NTSB'*

This section should include an emergency preparedness plan for an aircraft incident or accident, including cargo aircraft, under a number of circumstances:

- On the airport
- Off the airport on adjacent property and within the authority and responsibility of the airport to respond

C. TERRORISM: BOMB INCIDENTS

The history of terrorism incidents is such that no report or rumor, however vague, can be ignored. Each case must be thoroughly investigated in a manner that will safeguard the public and minimize damage if the bomb is actually present.

The information contained in this section is intended to supplement the Basic Plan and Functional Section of the Airport Emergency Plan. It should define responsibilities and describe actions that should be taken in the event of a bomb threat or an actual incident occurrence at the airport.

The FBI is the agency responsible for investigating bomb threats. In the event that a bomb threat is made or an explosive device is located, the recipient should contact the Airport Authority and begin the predetermined notification procedures.

Specific information regarding terrorism incidents is considered Sensitive Security Information (SSI). Specific information is contained in the appropriate sections in the Airport Security Program. As SSI the information is published and distributed on a need-to-know basis only.

This section should be divided into two parts, one for bomb threats involving aircraft and one for bomb threats involving buildings. Outline the procedures for both scenarios. A bomb threat call procedure brochure is included in the appendices.

⁸ AC 150/5200-31A, 7-1-1 (a)(1)

D. STRUCTURAL FIRES, FUEL FARM FIRE AND FUEL STORAGE AREAS

This section should address practical procedures to address structural fires occurring at or in airport properties, structures, facilities, buildings, equipment and/or infrastructure support systems. Fuel farm and fuel storage area fires are fires occurring in fuel storage facilities.

A risk assessment should be prepared by the AEP planning team which identifies the facilities, properties, or equipment that may be vulnerable to structural or fuel fire. The assessment provides the team with the essential data it needs to determine the type of equipment and other resources necessary to effectively respond to the various types of structures or fuel facilities. The assessment should identify those facilities which may present special response concerns, such as the terminal, cargo buildings or fuel storage areas. Once identified, each section should be addressed from the emergency plan flow chart to respond to this hazard. A typical Fuel Farm Quality and Material Safety Data Sheet (MSDS) is included as **Attachment F**.

E. NATURAL DISASTERS

Natural Disasters are events that all airports face and nothing can be done to avert these weather caused emergencies. There are actions that can be taken to minimize impact and damages to the airport and to aid in restoration of services. Preventative actions for each type of natural disaster facing the airport should be outlined and addressed in this section. The main natural disasters that Florida faces are:

- Hurricanes
- Tornados
- Flooding
- Lightning strikes

F. HAZARDOUS MATERIALS INCIDENTS

The severity of these hazards depends on the types and quantities of the hazardous material produced, processed, used or stored near or on the airport property. A hazardous material spill or release can pose a risk to life, health or property. An incident can result in the evacuation of a few people, part of a building or a whole neighborhood.

Hazardous materials are defined as any substance or material that, when involved in an accident and released in sufficient quantities, poses a risk to people's health, safety, and/or property. These substances and material include explosives, radioactive materials, flammable liquids or solids, combustible liquids or solids, poisons, oxidizers, toxins and corrosive materials.⁹

Significant information is available concerning hazardous materials through the FDOT Pipeline and Hazardous Materials Safety Administration website at www.phmsa.dot.gov

Hazardous Material Emergency Preparedness Training that addresses response, planning and prevention is available from the U.S. Fire Administration (www.usfa.dhs.gov).

Additionally, OSHA provides online hazardous material training.

⁹ AC 150/5200-31C, 7-5-1, Hazardous Materials Incidents

THINGS TO THINK ABOUT:

Airports regulated under 49 CFR, Part 1542, Airport Security, have established response procedures for sabotage, hijack and other criminal interference of Civil Aviation as specified in their Airport Security Program (ASP).

G. SABOTAGE, HIJACKING, AND OTHER UNLAWFUL INTERFERENCE WITH OPERATIONS

This section should outline the notification procedures in the event that the airport is the destination of sabotage, hijack or other unlawful interference with normal operations. Provide a brief description of the ATCT responsibilities when notifying airport personnel and FAA.

THINGS TO THINK ABOUT:

Alternative lighting resources should be identified and described within this section along with procedures to expedite repowering the original lighting source. If no alternative lighting is available steps should be made to address this potential hazard prior to an actual emergency.

H. FAILURE OF POWER FOR MOVEMENT AREA LIGHTING

This section should provide guidance to the airport operator for any situation which involves the failure of power for movement area lighting that may potentially impact that airport.

Airfield lighting criteria are contained in the Advisory Circular 150-5345.

I. WATER RESCUE SITUATIONS

This section should prescribe procedures to respond to water rescue situations, including those in Certification of Airports, 14 CFR §139.325(f), Airport Emergency Plan (www.access.gpo.gov) which states that:

Advisory Circular 150/5210-13, Water Rescue Plans, Facilities, and Equipment, provides requirements for airports located near water bodies.

“The plan required by this section shall contain provisions, to the extent practicable, for the rescue of aircraft accident victims from significant bodies of water or marsh lands adjacent to the airport that are crossed by the approach and departure flight paths of air carriers. A body of water or marsh land is significant if the area exceeds one-quarter square mile and cannot be traversed by conventional land rescue vehicles. To the extent practicable, the plan should provide for rescue vehicles with a combined capacity for handling the maximum number of persons that can be carried on board the largest air carrier aircraft that the airport can reasonably be expected to serve.”¹⁰

THINGS TO THINK ABOUT:

Significant bodies of water as defined above located within two miles of the end of an airport runway should be included in the emergency plan area of response. As additional information a map should be created and included in this plan illustrating the locations of all water bodies and boat ramps/public accesses near the airport.

¹⁰ AC 150/5200-31A, 7-8-1 Water Rescue Situations

ATTACHMENTS

Attachment A – Emergency Telephone Directory

Attachment B – Florida Department of Emergency Management Regions

Attachment C – Bomb Threat Call Procedures and Checklist

Attachment D – Hazards Vulnerability Analysis Worksheet

Attachment E – Generated Emergency Response Flowchart

Attachment F – Fuel Farm Qualities and Material Safety Data Sheets (MSDS)

ATTACHMENT A – EMERGENCY TELEPHONE DIRECTORY

AGENCY **TELEPHONE NUMBER**

FLORIDA, STATE OF

Highway Patrol..... XXX-XXX-XXXX

XXXX, COUNTY OF

Civil Defense.....XXX-XXX-XXXX

Emergency Medical Services (EMS)XXX-XXX-XXXX

Sheriff (Emergency 911)XXX-XXX-XXXX

HOSPITAL AND AMBULANCE

AMT Ambulance (Emergency 911XXX-XXX-XXXX

(Local) Medical Center.....XXX-XXX-XXXX

XXXX, CITY OF

Police Department (Emergency 911)XXX-XXX-XXXX

Fire Department (Emergency 911)XXX-XXX-XXXX

Fire Department Station #X.....XXX-XXX-XXXX

(Local) Utilities CommissionXXX-XXX-XXXX

General Aviation Department

Director of AviationXXX-XXX-XXXX

Airport OperationsXXX-XXX-XXXX

Airport MaintenanceXXX-XXX-XXXX

UNITED STATES GOVERNMENT

Federal Aviation Administration

Control TowerXXX-XXX-XXXX

Air Force Base (AFB) Explosive Ordnance Disposal (EOD)XXX-XXX-XXXX

Federal Bureau of Investigation (FBI).....XXX-XXX-XXXX

Postal ServiceXXX-XXX-XXXX

Secret ServiceXXX-XXX-XXXX

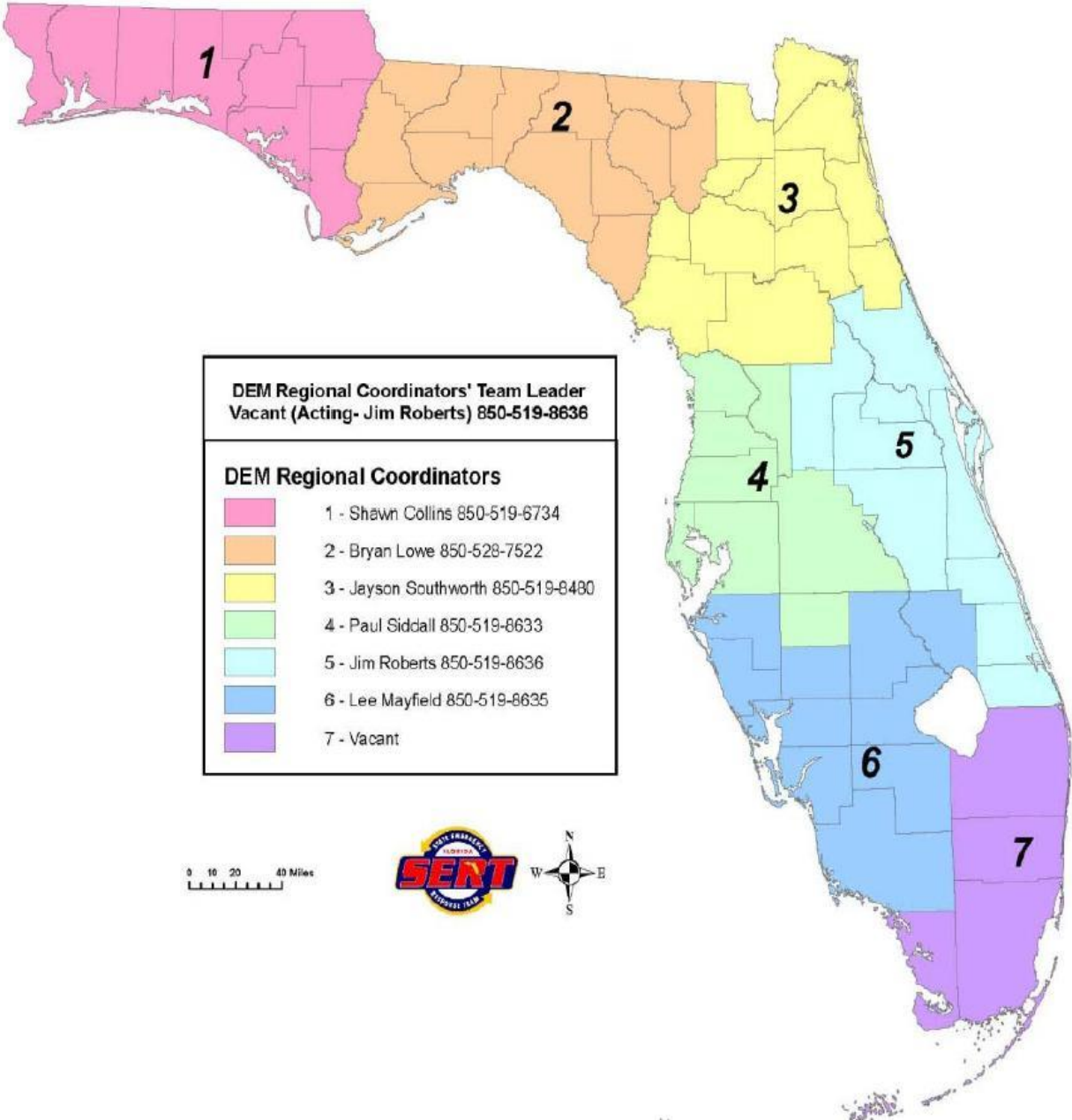
U.S. Department of the Treasury

Bureau of Alcohol, Tobacco and Firearms (ATF).....XXX-XXX-XXXX

CustomsXXX-XXX-XXXX

Weather BureauXXX-XXX-XXXX

ATTACHMENT B – FLORIDA DEPARTMENT OF EMERGENCY MANAGEMENT REGIONS



ATTACHMENT C – BOMB THREAT CALL PROCEDURES & CHECKLIST

BOMB THREAT CALL PROCEDURES

Most bomb threats are received by phone. Bomb threats are serious until proven otherwise. Act quickly, but remain calm and obtain information with the checklist on the reverse of this card.

If a bomb threat is received by phone:

1. Remain calm. Keep the caller on the line for as long as possible. DO NOT HANG UP, even if the caller does.
2. Listen carefully. Be polite and show interest.
3. Try to keep the caller talking to learn more information.
4. If possible, write a note to a colleague to call the authorities or, as soon as the caller hangs up, immediately notify them yourself.
5. If your phone has a display, copy the number and/or letters on the window display.
6. Complete the Bomb Threat Checklist (reverse side) immediately. Write down as much detail as you can remember. Try to get exact words.
7. Immediately upon termination of the call, do not hang up, but from a different phone, contact FPS immediately with information and await instructions.

If a bomb threat is received by handwritten note:

- Call _____
- Handle note as minimally as possible.

If a bomb threat is received by e-mail:

- Call _____
- Do not delete the message.

Signs of a suspicious package:

- No return address
- Excessive postage
- Stains
- Strange odor
- Strange sounds
- Unexpected Delivery
- Poorly handwritten
- Misspelled Words
- Incorrect Titles
- Foreign Postage
- Restrictive Notes

DO NOT:

- Use two-way radios or cellular phone; radio signals have the potential to detonate a bomb.
- Evacuate the building until police arrive and evaluate the threat.
- Activate the fire alarm.
- Touch or move a suspicious package.

WHO TO CONTACT (select one)

- Follow your local guidelines
- Federal Protective Service (FPS) Police
1-877-4-FPS-411 (14377-437-7411)
- 911

BOMB THREAT CHECKLIST

Date: Time:

Time Caller Hung Up: Phone Number where Call Received:

Ask Caller

Where is the bomb located?
(Building, Floor, Room, etc.) _____

When will it go off? _____

What does it look like? _____

What kind of bomb is it? _____

What will make it explode? _____

Did you place the bomb? Yes No _____

Why? _____

What is your name? _____

Exact Words of Threat:

Information About Caller:

Where is the caller located? (Background and level of noise) _____

Estimated age: _____

Is voice familiar? If so, who does it sound like? _____

Other points: _____

Callers Voice	Background Sounds:	Threat Language:
<input type="checkbox"/> Accent	<input type="checkbox"/> Animal Noises	<input type="checkbox"/> Incoherent
<input type="checkbox"/> Angry	<input type="checkbox"/> House Noises	<input type="checkbox"/> Message read
<input type="checkbox"/> Calm	<input type="checkbox"/> Kitchen Noises	<input type="checkbox"/> Taped
<input type="checkbox"/> Clearing throat	<input type="checkbox"/> Street Noises	<input type="checkbox"/> Irrational
<input type="checkbox"/> Coughing	<input type="checkbox"/> Booth	<input type="checkbox"/> Profane
<input type="checkbox"/> Cracking voice	<input type="checkbox"/> PA system	<input type="checkbox"/> Well-spoken
<input type="checkbox"/> Crying	<input type="checkbox"/> Conversation	
<input type="checkbox"/> Deep	<input type="checkbox"/> Music	
<input type="checkbox"/> Deep breathing	<input type="checkbox"/> Motor	
<input type="checkbox"/> Disguised	<input type="checkbox"/> Clear	
<input type="checkbox"/> Distinct	<input type="checkbox"/> Static	
<input type="checkbox"/> Excited	<input type="checkbox"/> Office machinery	
<input type="checkbox"/> Female	<input type="checkbox"/> Factory machinery	
<input type="checkbox"/> Laughter	<input type="checkbox"/> Local	
<input type="checkbox"/> Lisp	<input type="checkbox"/> Long distance	
<input type="checkbox"/> Loud		
<input type="checkbox"/> Male		
<input type="checkbox"/> Nasal		
<input type="checkbox"/> Normal		
<input type="checkbox"/> Ragged		
<input type="checkbox"/> Rapid		
<input type="checkbox"/> Raspy		
<input type="checkbox"/> Slow		
<input type="checkbox"/> Slurred		
<input type="checkbox"/> Soft		
<input type="checkbox"/> Stutter		

Other Information: _____



Homeland Security

ATTACHMENT D – HAZARDS VULNERABILITY ANALYSIS WORKSHEET

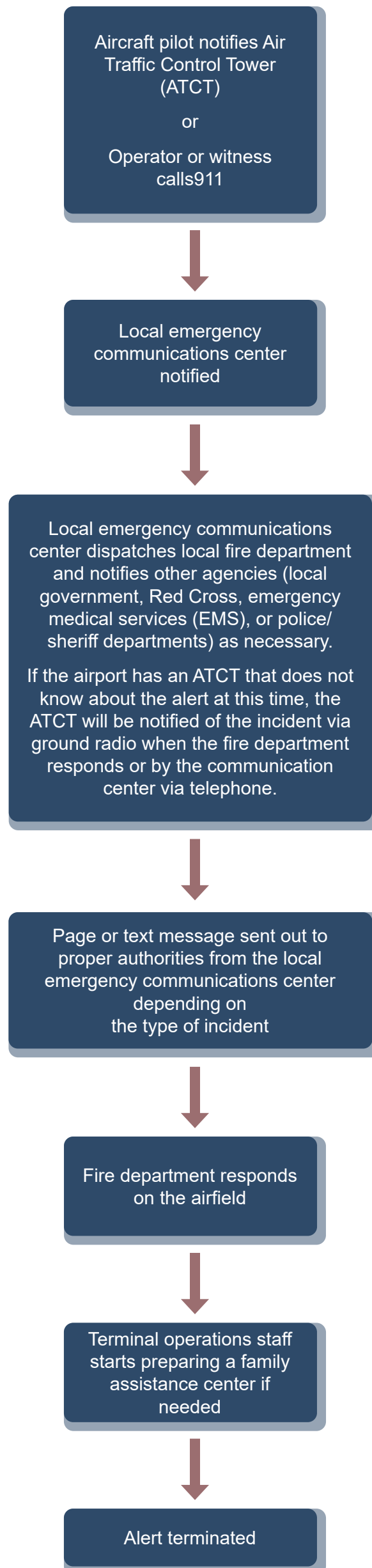
HAZARDS VULNERABILITY ANALYSIS WORK SHEET			
Hazard	Probability	Response Difficulty	Vulnerability Factor
Aircraft accident - off airport			
Aircraft accident - on airport			
Aircraft accident - rough terrain			
Aircraft accident - water			
Boating accident			
Bomb threat/found			
Bridge collapse			
Building collapse			
Civil disturbance			
Communications system failure			
Computer system failure			
Dam/levee failure			
Drought			
Earthquake			
Epidemic, disease			
Fire - major structure			
Fire - brush, forest, prairie			
Flood			
Food poisoning - extensive			
Fuel shortage			
Hazardous materials incident			
Hostage situation (non-terrorist)			
Hurricane			
Labor problems - serious			
Landslide			
Lost person(s)			

HAZARDS VULNERABILITY ANALYSIS WORK SHEET			
Hazard	Probability	Response Difficulty	Vulnerability Factor
Mass casualty incident			
Natural gas outage			
Nuclear attack			
Nuclear facility incident			
Pollution - air			
Pollution - water			
Power failure			
Radiological incident			
Rapid transit accident			
Sandstorm/Dust storm			
Sewer explosion			
Sewer system failure			
Ship incident - harbor			
Terrorist			
Tornado			
Train accident - freight			
Train accident - passenger			
Tsunami (tidal wave)			
Vehicular accident - major			
Volcano eruption			
Water supply failure			
Winds - damaging			
Winter storm - severe			

ATTACHMENT E – GENERATED EMERGENCY RESPONSE FLOWCHARTS

Alert on the Ground

ALERT ON THE GROUND REFERS TO WHEN THE AIRCRAFT IS LOCATED ON THE GROUND ON AIRPORT PROPERTY

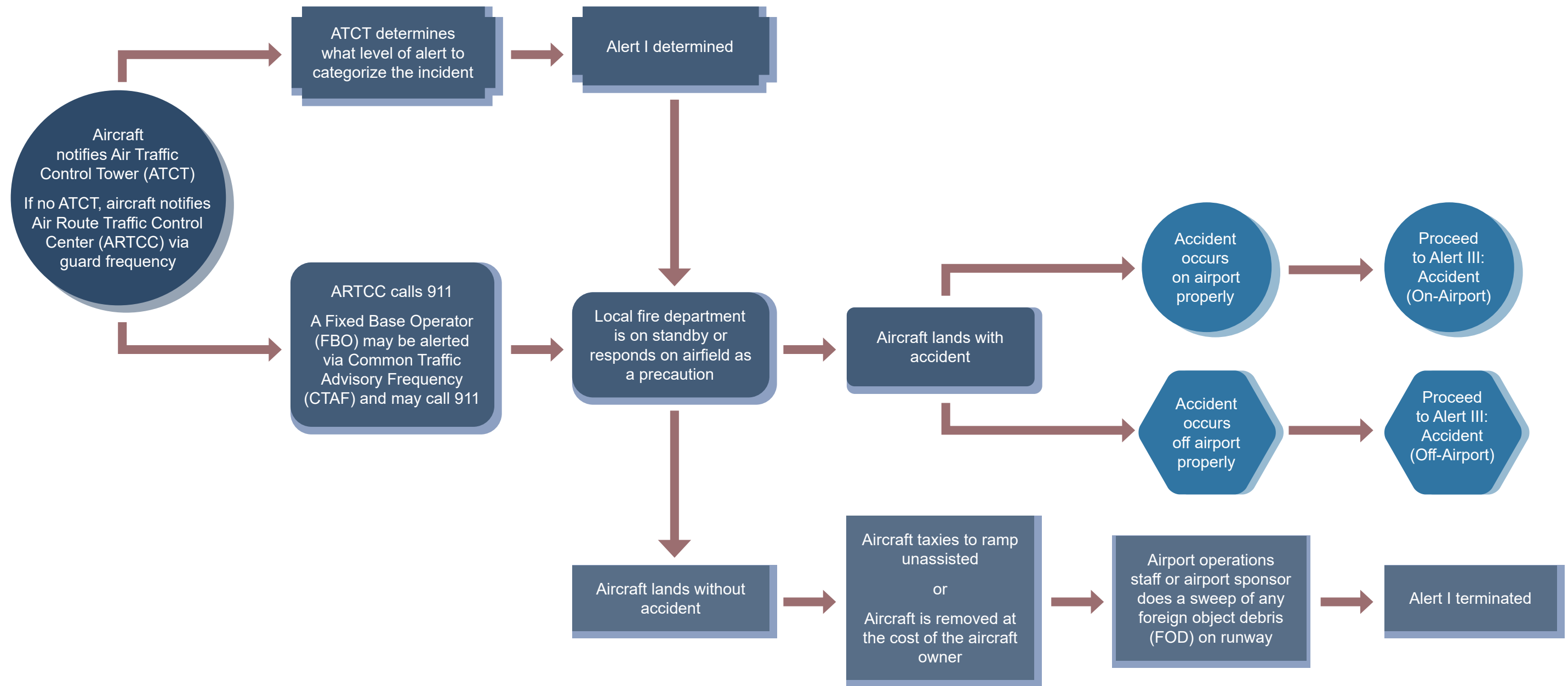


Alert I — Minor Problem

INCLUDES:

- FUEL OR OIL LEAK
- ONE ENGINE OUT ON A THREE OR FOUR ENGINE AIRCRAFT
- ONE ENGINE OUT ON A TWIN ENGINE GENERAL AVIATION AIRCRAFT WEIGHING < 12,500 LBS.

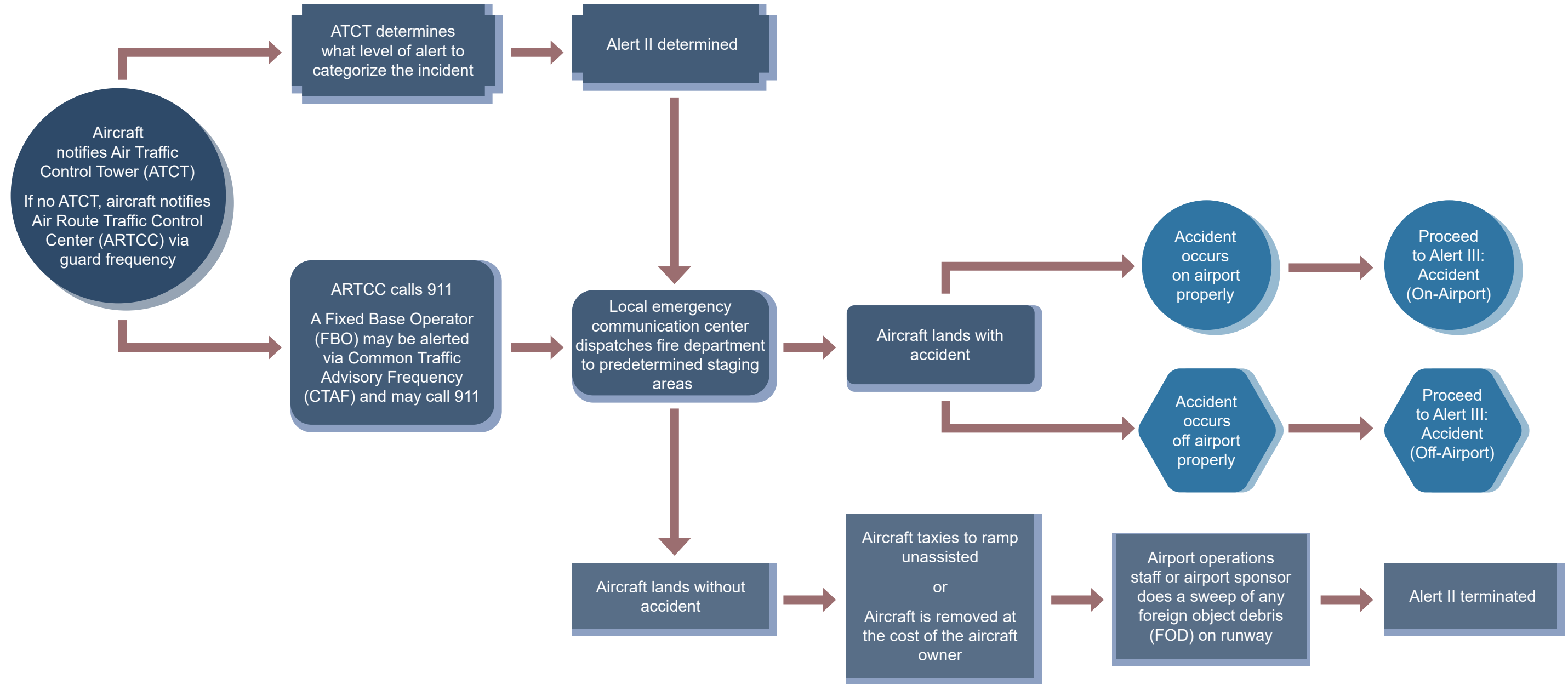
Note: Operations Personnel may Categorize an Alert I as an Alert II as a Precautionary Effort



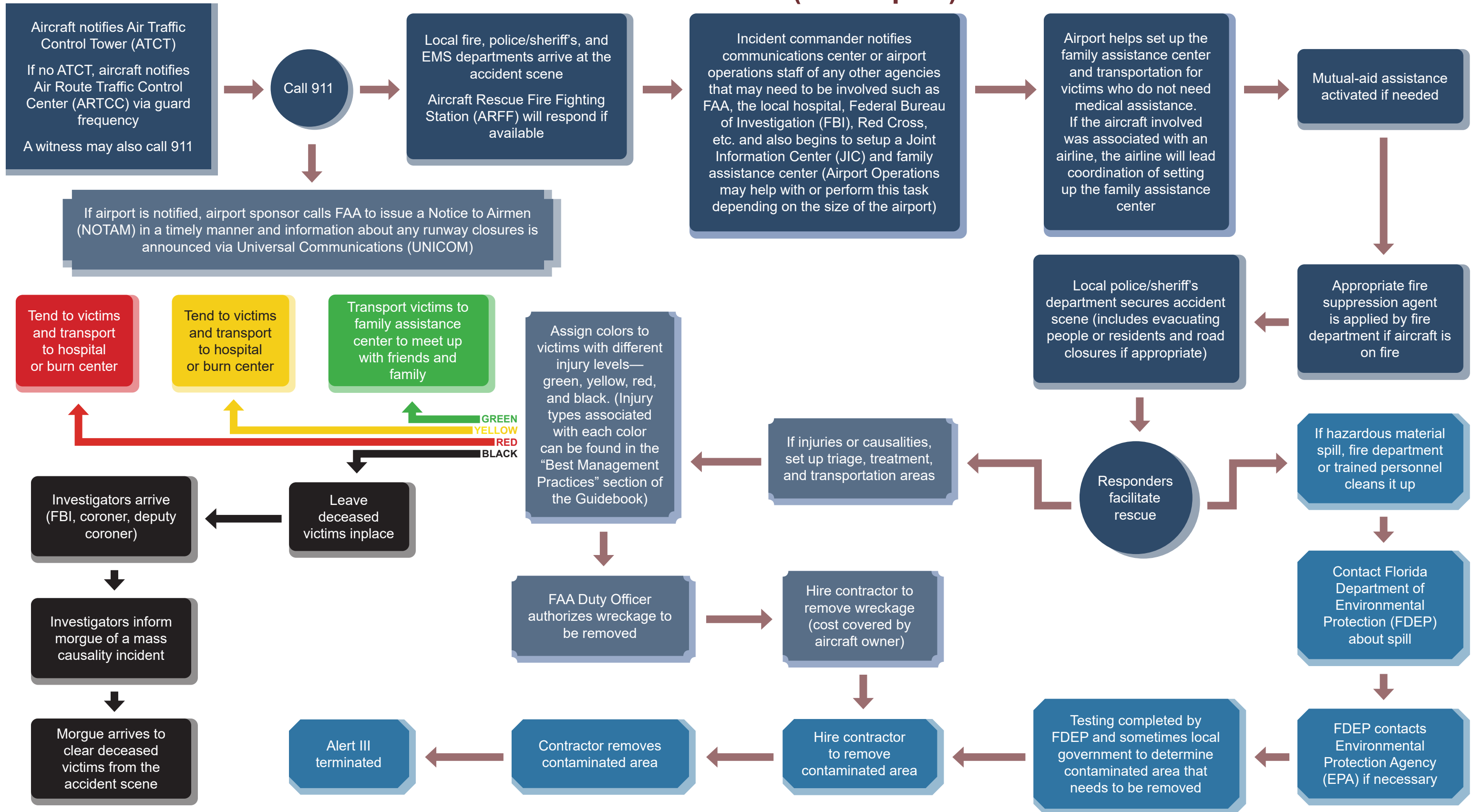
Alert II — Major Difficulty

INCLUDES:

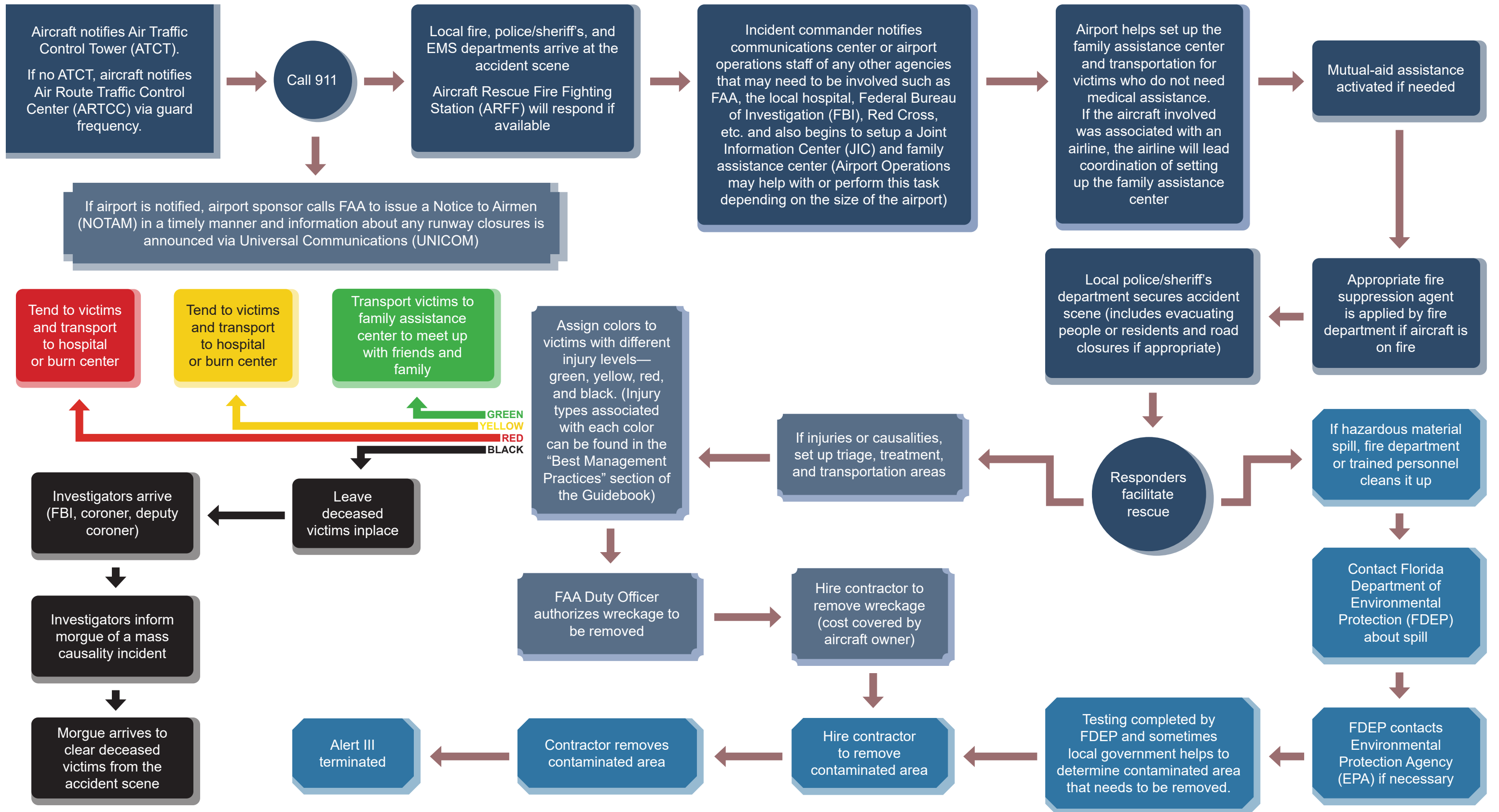
- SMOKE IN THE CABIN
- ENGINE ON FIRE
- FAULTY LANDING GEAR
- LOSS OF HYDRAULIC PRESSURE
- ONE ENGINE OUT ON A TWIN ENGINE WEIGHING < 12,500 LBS.



Alert III — Accident (Off Airport)



Alert III — Accident (On Airport)



ATTACHMENT F – FUEL FARM QUALITIES AND MATERIAL SAFETY DATA SHEETS (MSDS)

Fuel Farms					
Location	Size - Gallons	Quantity	Type	Permanent/Mobile	Above/Below Ground
WarBird	xxx	1	AVGAS	Mobile	-
Euroflight	xxx	1	AVGAS	Mobile	-
Ranger/Atlantic	Xx,xxx	1	JETA	Permanent	Above
Ranger/Atlantic	Xx,xxx	1	AVGAS	Permanent	Above
OFT	Xxx,xxx	2	AVGAS/JETA	Permanent	Above
Marathon	xxx	2	AVGAS/JETA	Permanent	Below
Signature (Future)	xxx	1	JETA	Permanent	Above
Signature (Future)	xxx	1	AVGAS	Permanent	Above
Signature South	-	-	-	Decommissioned	Below
	xxx	2	AVGAS/JETA	Permanent	Below

Appendix D2

Airport Emergency Plan Guide for Airports Certified in Accordance with Title 14 Code of Federal Regulations, Part 139



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PART 1 – INTRODUCTION

OVERVIEW

Airports differ in complexity, but each has unique features. Some are small, uncomplicated facilities serving a more rural environment, while others represent a good-sized community complete with residential, industrial, and commercial installations serving major metropolitan areas. Airports are operated by the local government, such as a city or county; or by an authority representing multiple local governments; and some are operated by the State. However, one thing they all have in common is that they are all subject to emergencies and incidents.¹

Notes provided in the right margin of the page provide important information and useful resources to further assist in the development of your facility's plan.

This Airport Emergency Plan Guide provides information to staff at Florida airports on the processes and procedures involved with responding to an emergency, and can be revised to meet the specific needs of individual airports.

A. PURPOSE OF AN AIRPORT EMERGENCY PLAN (AEP)

The purpose of an Airport Emergency Plan (AEP) is to provide guidance to the local government, the Airport Authority, and the State in assuring prompt response to airport emergencies and other unusual conditions, minimizing the possibilities and extent of personal injury and property damage on the airport. The AEP is intended to facilitate the timely and appropriate responses performed by the emergency response agencies having responsibilities for responding to emergencies occurring on or in the immediate vicinity of the airport. The following is a sample list of agencies and facilities that should be provided with a copy of the completed AEP.

- Local airport authorities
- Local Emergency Operations Center
- Local American Red Cross On-site airport maintenance shop
- Local/regional health facilities
- Florida Highway Patrol
- Transportation Security Administration
- Local Police department
- Local Military Support Facilities
- Local fire department

As defined in AC 150-5200-31C, "An airport emergency is any occasion or instance, natural or man-made that warrants action to save lives and protect property and public health."

All persons/agencies involved with the creation of the AEP should have a copy of the plan and their emergency contact information should be posted.

¹ Introduction in the U.S. Department of Transportation, FAA, AC 150-5200-31C.

- Local sheriff department
- Florida Division of Emergency Management

It is recognized that not all emergencies can be anticipated and, if an emergency situation arises that is not covered by this plan, the Executive Director, Operations Manager, or the Aircraft Rescue and Fire Fighting personnel have the authority to modify the plan to manage the emergency.

B. PURPOSE OF THE EXAMPLE AIRPORT EMERGENCY PLAN GUIDE

The purpose of the Airport Emergency Plan Guide is to provide information to staff at Florida airports on the processes and procedures to be included when preparing an Airport Emergency Plan (AEP) for their facility. The Airport Emergency Plan Guide is to be used as a basic template that can be revised to meet the specific needs of each airport and their community. While every emergency situation cannot be anticipated and prepared for, a strong emergency preparedness program can assist in limiting the negative impacts of these events, including liability and other post-emergency issues.

To be effective, all entities involved in emergency response should be familiar with the contents of the plan and involved in regular trainings and exercises.

The recommendations and guidelines provided in the U.S. Department of Transportation, Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5200-31C, and the recommendations in 14 Code of Federal Regulations (CFR), Part 139 are outlined within this document. These recommendations and guidelines are included for certificated airports, which are required to develop and implement an AEP. The general guidelines prescribed by Homeland Security Presidential Directive-5 (HSPD-5), Management of Domestic Incidents and Homeland Security Presidential Directive-8 (HSPD-8), National Preparedness should be incorporated into an airport's AEP as well. The FAA also recommends that all airports (certificated and non-certificated) use, as guidance, certain provisions in the National Fire Protection Agency (NFPA) Standards [i.e. 424, 1500, 1561, and 1600 (latest editions)].

The Airport Emergency Plan Guide is not all-inclusive, but rather, is intended to serve as a tool to facilitate the process of developing an AEP. This template is intended to be used by Title 14 CFR, Part 139 certificated airports in the development or update of their own emergency response plan specific for their facility. The template provides an outline and checklist of processes and procedures to be tailored to each region, mission, and operational location. The practices and procedures outlined in this plan provide support to the Florida Department of Transportation (FDOT) by assisting Federal, State, tribal, and local governmental entities, voluntary organizations, nongovernmental organizations, and the private sector in the management of aviation facilities during domestic threats or in response to emergencies. The Airport Emergency Plan Guide carries out the FDOT's statutory responsibilities, including regulation of transportation, management of the State's airspace, and ensuring the safety and security of the State transportation system.

C. HOW TO USE THIS GUIDE: PLAN DEVELOPMENT AND MAINTENANCE

Personnel preparing this plan should be familiar with existing emergency response procedures prepared and practiced by the local airport, as well as with any regional and state emergency response policies and procedures in place. Training that covers changes to these policies and procedures should be provided to ensure that all personnel are familiar with the most current information.

The sections listed below are described in detail throughout the Airport Emergency Plan Guide, including questions and examples to assist each airport in gathering information, guidance for deciding what issues to be included in the plan, and suggestions on how they can be incorporated to best support the facility. Not all sections or scenarios in the Airport Emergency Plan Guide will be applicable for every airport facility; in addition, some airports may require additional sections to be included to address areas or events specific to that facility. Those sections will need to be addressed on a case-by-case basis.

Outline of sections to be included in an AEP:

- Introduction
- Functional Sections
- Hazard Specific Sections
- Appendices

THINGS TO THINK ABOUT:

The “Things to Think About” sections placed throughout the Airport Emergency Plan Guide are recommended additional information that can be included in each section. Though these suggestions are optional and not required, consideration should be given to including them in the plan.

PART 2 – AIRPORT EMERGENCY PLAN TEMPLATE

INTRODUCTION

This section should provide a brief introduction to the Airport Emergency Plan (AEP), including an overview of what information will be presented, and how it should be implemented before, during, and following an emergency. Sample language has been provided below that can be used to create the introduction section of the AEP.

A. SAMPLE INTRODUCTION

The Airport Emergency Plan (AEP) is a comprehensive set of policies and procedures to be followed by all agencies involved in and responsible for public protection in an emergency or disaster situation involving the *(insert name of airport facility)*. The AEP has been created in coordination with *(list those agencies and organizations involved in the creation of this plan)*, and a copy of the completed plan has been provided to the following:

- *(List those agencies that received a copy of the completed plan)*

In the following pages the Functional Sections of an AEP will be outlined. Each Functional Section should include the following parts: Introduction, Purpose, Situation and Assumptions, Operations, Organization and Assignment of Responsibilities, Administration and Logistics, Development and Maintenance, and Authorities and References. Below is the standard outline of the sections that should be included and addressed in each Functional Section.

BASIC PLAN²

The introduction should provide an overview of the airport's approach to emergency operations. It also should define related policies, describe the response organization, and assign tasks. The primary purpose of the Basic Plan portion of the AEP is to meet the informational needs of the airport's executive body and other agency heads. An AEP should also provide the following documents to enhance credibility: promulgation documents, signature pages, and a record of changes and distribution.

A. PURPOSE

The Basic Plan should contain a general statement of the intent of the AEP. The general statement of intent should be supported by a brief synopsis of the Basic Plan, the Functional Annexes, and the Hazard-Specific Sections.

It is strongly encouraged that stakeholder agencies and organizations involved in the creation of the AEP continue to be involved when updates to the plan are needed. The other agencies listed as receiving a copy of the plan will need to be notified upon the completion of each update and provided with an updated version or with a narrative of the changes to the plan.

² Language for the Basic Plan was taken from AC 150/5200-31C, Chapter 5

B. SITUATION AND ASSUMPTIONS

This section narrows the scope of the AEP by outlining what hazards the AEP addresses (as drawn from the Hazards Analysis included in **Attachment D**); what characteristics of the airport may affect response activities; and how and what information used in preparing the AEP must be treated as assumption, rather than fact. Policies can be included as a part of the situation or in a separate section, if desired. It is valid to include even “obvious” assumptions: that identified hazards will occur, that individuals and organizations are familiar with the AEP and will execute their assigned responsibilities, that assistance may be needed, and that assistance will be available, if applicable.

C. OPERATIONS

This section should cover an airport’s overall scope to an emergency situation. Key facts that should be included are:

- What should happen during different phases of an emergency situation
- When should they happen
- At whose direction should such steps be put in place

Note: This section should include potential inter-jurisdictional responsibilities.

D. SAMPLE OF POSSIBLE PARTICIPATING AGENCIES AND ORGANIZATIONS

This section of the Basic Plan establishes the emergency organization that will be relied on to respond to an emergency situation. It includes a listing by position and organization responsibilities, along with related tasks to be performed. It provides a “snapshot” view of who does what without the procedural details that are found in the Functional Sections. When two or more organizations perform the same kind of task, one should be given primary responsibility with the others given a supporting role.

The following are examples of individuals/organizations that should be considered for inclusion in the AEP:

Facility Operations and Departments

- Director of Aviation
- Airport Administrative and Operations Coordinator
- Airport maintenance personnel
- Airport Traffic Control Tower (ATCT)
- Fixed Base Operators (FBOs) and airport tenants

State and Federal Agencies

- Florida Highway Patrol (FHP)
- Federal Bureau of Investigation (FBI)

This sample list of agencies is not all-inclusive as some airport facilities may have additional points of contact or resources not listed to the left. Please add any additional agencies or organizations involved or in the immediate vicinity of the airport.

- U.S. Department of the Treasury -Bureau of Alcohol, Tobacco, and Firearms (ATF)
- U.S. Secret Service
- U.S. Postal Service (USPS)
- U.S. Air Force Explosive Ordinance Disposal (EOD)
- Florida Division of Emergency Management

Local Agencies

- Fire and Police departments
- Sheriff’s office
- Health department
- Public Works department
- Local/amateur radio club
- Salvation Army
- Funeral director(s)
- Public Information Officer (PIO)
- Local Emergency Manager

THINGS TO THINK ABOUT:

It may be beneficial to include a brief description of your airport facility in the Introduction section describing its location, size and the general type of aviation activities that take place at the facility on a daily or annual basis. This will help those agencies/organizations not local to the airport become more familiar with the facility and its surrounding areas.

E. ADMINISTRATION AND LOGISTICS

This section of the AEP covers general support considerations, including:

- Availability of services and support for all types of emergencies
- General policies for managing resources
- A reference of mutual aid agreements
- Authorities and policies on augmenting staff by reassignment of public employees and soliciting volunteers, along with general liability provisions
- Policies for financial recordkeeping, reporting, and tracking resources

F. DEVELOPMENT AND MAINTENANCE

The Development and Maintenance section of the Basic Plan should cover the following sections:

- General
- Schedule of Review
- Training, Drills, and Exercises

It is recommended that the review schedule be set to take place at least annually.

Examples of how to complete these sections are included below.

General

These policies and procedures are not effective unless properly implemented. With implementation comes the responsibility of updating the information and materials as new rules and regulations are passed and new emergency response procedures are created.

This section of the plan should discuss the schedule in which a review of the AEP will take place, describing also the process of how revisions or updates will be performed and executed.

Schedule of Review

The airport shall conduct a review of the AEP once every 12 months, or more frequently, as needed, when new regulations and policies are adopted. An ongoing assessment and open dialogue will take place with off-airport facilities that may affect the airport's emergency response efforts, such as road construction, road closures, and major utility work. All agencies that have responsibilities under the AEP will be invited and encouraged to participate in the review process. Suggested changes and additions should be submitted in writing to the Director of Aviation (or other appropriate contact person), (*insert airport name, facility address, and phone number*). At a minimum, the following items will be reviewed and updated upon each annual review.

- Telephone numbers - assigned to specific agencies or individuals listed in the plan, specifically those listed as direct points of contact in the case of an emergency (a typical emergency telephone directory can be found in **Attachment A**)
- Emergency resources [e.g. local fire, police and emergency medical services (EMS)]
- Mutual Aid compacts - should be reviewed and renewed, as needed, to avoid expiration or loss of assistance

Note: Following the annual review, all responsible parties must sign a signature page to acknowledge the review.

THINGS TO THINK ABOUT:

The best way to update phone numbers and contacts is to call the individuals/organizations listed. This will provide an opportunity for both the airport and the agency to discuss any changes that have taken place in the past year, or any concerns that either agency or individual may have.

Training, Drills, and Exercises

An important part of the plan, maintenance and validation, comes from the overall training, drill, and exercise program. As training, drills and exercises are conducted, it is important that a functional critique/feedback program be in place. The training section of the plan should discuss the types of programs available to assist other agencies and organizations on how to best implement the emergency response procedures. All entities included in the AEP are responsible for the training and familiarization of each of their employees on the procedures contained within the plan.

Training and Review

This section should outline the training and review times necessary to ensure personnel remain current with the latest version of the AEP and to ensure the AEP is kept up-to-date. A table top, or review of the plan, is required at least once over 12 consecutive calendar months for all classes of airports; this will ensure that all agencies with responsibilities in the plan are familiar with their roles.

**AIRPORT NAME
ARFF TRAINING
200X REPORT**

NAME: TITLE: ID. #													
Subject	Jan.	Feb.	Mar.	Apr.	May	Hours Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
AIRPORT FAMILIARIZATION													0
AIRCRAFT FAMILIARIZATION													0
ARFF PERSONNEL SAFETY													0
EMERGENCY COMMUNICATIONS													0
USE OF HOSES, NOZZLES, TURRETS													0
APPLICATION OF EXTINGUISHING AGENTS													0
EMERGENCY AIRCRAFT EVACUATION													0
FIREFIGHTING OPERATIONS													0
ADAPTING STRUCTURAL EQUIPMENT TO ARFF													0
AIRCRAFT CARGO HAZARDS													0
FAMILIARIZATION WITH FIREFIGHTER DUTIES IN AEP													0
LIVE FIRE TRAINING													0
TOTAL HOURS TRAINING		0	0	0	0	0	0	0	0	0	0	0	0

Note: This form must be revised if personnel perform extra functions such as self-inspection, fuel fire safety inspections, etc.

For Aircraft Rescue and Fire Fighting personnel, there are training requirements in at least 11 additional subject areas plus a live fire training requirement. All of these subject areas require personnel to be trained and have documentation prior to the initial performance of such duties at least once every 12 consecutive calendar months (Part 139.319(i)(2)).³

Training Exercise Types

The FAA Office of Airport Safety and Standards has developed a new training DVD entitled “Aircraft Rescue and Fire Fighting – Aircraft Forcible Entry, Fire Fighting with the HRET, Cargo Aircraft Fire Fighting” to supplement initial and recurrent ARFF curriculum.

THINGS TO THINK ABOUT:

This DVD was scheduled to be sent out to all Part 139 certificated airports and safety inspectors. Non-certificated airports may obtain a copy by contacting the FAA Southern Region, Airport Division at (404) 305-6700.

The following types of exercises should be included in the AEP:⁴

Table Tops

A table top exercise is a brainstorming and problem solving session among all agencies involved in airport emergency response. It can be used to create an action plan that can be implemented in the event of an emergency. This session is usually held in a group setting, with very little structure, and is stress-free. It is recommended that a table top exercise be held at an emergency operations center, because it provides the most realistic setting where maps and plans for the airport are readily available.

In order to be most effective, table top exercises should at least be held quarterly.

Night training is a best management practice that allows airports to simulate an emergency and execute a plan if the incident occurs outside of normal daylight hours.

Functional Exercises

Functional exercises simulate an emergency in the most realistic manner possible, short of moving real people and equipment to an actual site. As the name suggests, the goal of a functional exercise is to test or evaluate the capability of one or more functions in the context of an emergency event.

Periodic follow-up training is suggested in order to make sure knowledge from the training is maintained.

THINGS TO THINK ABOUT:

It is important not to confuse “functional exercises” with emergency “functions.” All exercises (tabletop, functional, and full-scale) test and evaluate functions contained in the AEP. In Emergency Planning, “functions” refers to actions or operations required in emergency response.

³ Information taken from the CertAlert Number SO-10-04, issued September 23, 2010 by DOT/Federal Aviation Administration, Southern Region Airport Division, Airport Certification Safety Team (ASO-620).

⁴ Information obtained from the Independent Study IS-139 Exercise Design manual created by FEMA March 2003.

Full Scale Exercises

Full-scale exercises are as close to simulating real events as possible. They are lengthy exercises which take place on location, using, to the extent possible, equipment and personnel that would be called upon in a real event. Full-scale exercises combine the interactivity of functional exercises with a field element. They differ from drills in that a drill focuses on a single operation and exercises only one organization. A Full Scale Exercise is required at least once every 36 consecutive calendar months for Class I airports.

More information regarding any of these exercise types can be found at <http://training.fema.gov/e-miweb/is/is1391st.asp>

THINGS TO THINK ABOUT:

Eventually, every emergency response organization must hold a full-scale exercise because of the necessity to test capabilities in an environment as near to the real one as possible.

Authorities and References

The Basic Plan should indicate the legal basis for emergency operations. Laws, statutes, ordinances, regulations, and formal agreements relevant to emergencies should be listed, along with any authority that has been delegated.

Note: For more detailed information on what to include in the Basic Plan, please refer to AC 150/5200-31C, Chapter 5.

FUNCTIONAL SECTIONS⁵

Ten functional sections address critical services necessary to manage, communicate, respond, and mitigate airport-related emergency situations. They are broad functional responsibilities and may be applied to all emergencies. However, each is a critical component of an AEP because these functions enable an airport to cope with and respond to unforeseen emergencies. These ten functional sections include:

- Command and Control
- Communications
- Alert Notifications and Warning
- Emergency Public Information
- Protective Actions
- Law Enforcement and Security
- Firefighting and Rescue
- Health and Medical

⁵ Language in the Functional Sections was taken from AC 150/5200-31C, Chapter 6 Sections 1-10

- Resource Management
- Airport Operations and Management

In general, the organization of this chapter's sections parallels that of the Basic Plan Section. Specific sections can be developed to expand upon information contained in the Basic Plan. Plan development and content are outlined in 14 CFR §139.325, Airport Emergency Plan.

To ensure uniformity in plan development, the functional sections should follow the same general format as the Basic Plan:

- Purpose
- Situation and Assumptions
- Operations
- Organization and Assignment of Responsibilities
- Administration and Logistics
- Plan Development and Maintenance
- Reference and Authorities

These functional sections provide AEP functionality and direction for AEP development. In general, and as a baseline for development, each section should:

- Focus on specific operations, i.e., what the function is and who or what agency has responsibility for execution of the function
- Emphasize specific responsibilities, tasks, and operational actions that pertain to the function being performed
- Cover, in general terms, the activities to be performed by anyone with a responsibility under the function
- Identify actions that ensure effective response and aid in preparing for emergencies and disasters
- Clearly define and describe the policies, processes, roles and responsibilities inherent to the various functions before (mitigation/preparedness), during (response), and after (recovery) an emergency period
- Identify clear lines of authority, incident command structure and communications

Note: In the following pages an introduction will be included for each functional section. The remainder of the information must be provided by individual airports to include all information mandated by AC 150/5200-31C, Chapter 6. Not all of the functional sections are needed for every airport.

A. COMMAND AND CONTROL

Command and Control is the most critical element of the emergency management functions. Effective central control is essential to manage an incident, provide for up/down communications, lateral functional support, and the central control of resources. Emergency response organizations (ARFF, law enforcement, EMS, public works, etc.) normally execute their respective services as a joint effort during emergencies. However, difficulties often arise in the overall management of an emergency when other agencies, disciplines, or organizations not accustomed to working together merge to provide collateral support. This is particularly true for aircraft emergencies where there may be a significant number of entities arriving at the scene. Many of these responders do not normally work together, especially under emergency conditions, yet they all have defined responsibilities. It is, therefore, essential that all responders have an understanding of who is responsible for what tasks during each type of emergency.

The Incident Command System (ICS)⁶ is a management system designed to enable effective and efficient domestic incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure. ICS establishes common terminology, standards, and procedures that enable diverse organizations to work together effectively. These include:

- A standard set of predesignated organizational elements and functions
- Common names for resources used to support incident operations
- Common “typing” for resources to reflect specific capabilities
- Common identifiers for facilities and operational locations used to support incident operations.

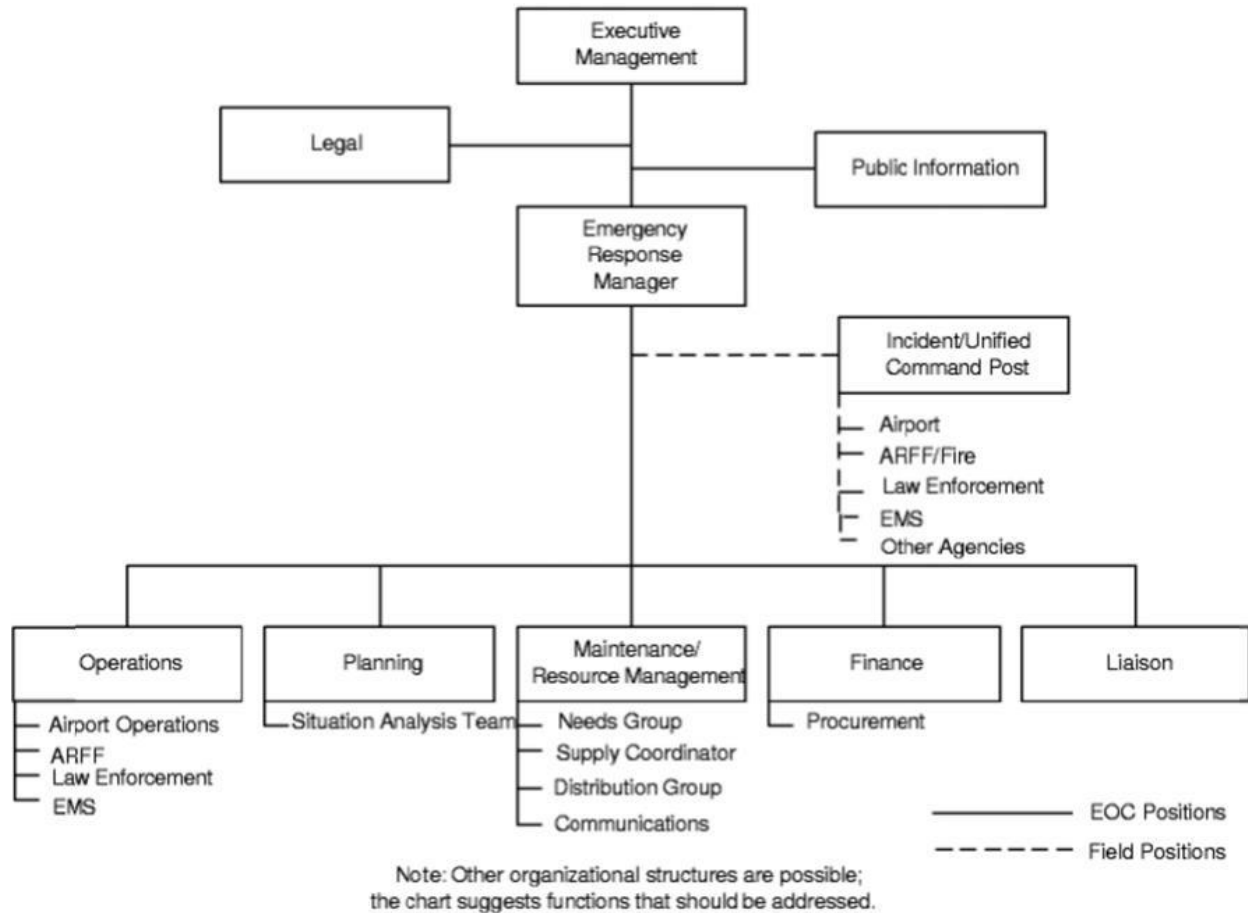
The Information developed for this section should address centralized command and control operational activities for all types of emergencies. It may be also used as the baseline upon which detailed centralized command and control information is developed for each hazard-specific section.

Airport emergencies can vary in type, intensity, severity and duration. Because of this, the direction and control functions can change dramatically, even during the course of a single emergency (e.g., it can change as it progresses from response activities to recovery activities). To be effective, an incident management system must be functional regardless of the type of incident or agencies involved. Business management techniques should be applied to emergency incident management. The tasks that business managers perform are very similar to those performed by an Incident Commander (IC), (e.g., planning, organizing, directing, coordinating, controlling, communicating, delegating, and evaluating).

However, while these similarities do exist and some similar management principles can be applied, there is one factor which makes emergency incident management more difficult - the elements of inherent danger, property damage, and jeopardy to life. Decisions that are made can make the difference between life or death.

⁶ The Incident Command System is an element of the FEMA National Incident Management System (NIMS).

An organizational structure chart is required to visually describe the chain of command. The following is a sample organizational chart:



Consideration should be given to the following organizations for inclusion in the AEP:

Airlines and Airport Tenants

Air Carrier(s)/Aircraft Operator(s)

- Provide full details of aircraft information, as appropriate, to include number of persons, fuel and dangerous goods on board
- Coordinate transportation, accommodations, and other arrangements for unharmed passengers
- Coordinate utilization of their personnel and other supplies and equipment for all types of emergencies occurring at the airport

Airport Authority/Management

- Establish, maintain and implement the AEP
- Coordinate the closing of the airport, when necessary, and assume responsibility for response and recovery operations

Air Traffic Control (ATC)

- Contact Aircraft Rescue Fire Fighting (ARFF) service regarding aircraft incidents/accidents and provide them with information relevant to the emergency
- Coordinate the movement of support aircraft to and from the emergency scene, and the movement of non-support aircraft away from the emergency scene

Airport Tenants

- Coordinate with the airport tenants to make use of their available equipment, supplies, and personnel during emergency situations

THINGS TO THINK ABOUT:

Not all tenants located at an airport are aviation-related. Some airports include local shops and services inside the airport provided for passenger convenience. In this section, specific notification procedures need to be established to address communication obstacles that may arise in the event of an emergency related to communicating with these services and stores.

Federal Agencies

FAA-Air Traffic Control (FAA-ATC)

- Notify a member of the local airport when FAA-ATC personnel are aware that a potential or actual emergency exists, as categorized below:
 - Aircraft emergency
 - Structural fires
 - Bomb threats, civil disturbances and other types of emergencies

If time permits, the Air Traffic Control Tower shall notify the aircraft owner/operator, if known. During the hours of operation of the ATCT, the ATCT shall control air and ground traffic so as to facilitate the handling of the emergency by those responding to it.

Federal Aviation Administration (FAA)

- Ensure that practices and procedures of the aviation industry are followed
- Potentially provide investigative services after the emergency

Note: For review or approval of emergency plans contact:

FAA Southern Region – Airports Division – ASO 620

P.O. Box 20636
Atlanta, GA 30320
Phone: (404) 305-6700.

Airports in Florida are covered by the Orlando Airports District Office, under the Southern Region Airport Division of FAA.

http://www.faa.gov/airports/southern/about/airports/airports_district_offices

Contact information can be obtained from the website above to be included in the plan.

Federal Bureau of Investigation (FBI)

- Assume command in the event of certain criminal and hijacking situations
- Investigate activities involving federal criminal offenders

THINGS TO THINK ABOUT:

The FBI has 56 field offices (also called divisions) centrally located in major metropolitan areas across the U.S. and Puerto Rico. In Florida, the field offices are located in Jacksonville, Tampa, and North Miami Beach. Each field office is overseen by a special agent in charge. Within these field offices are a total of about 400 resident agencies located in smaller cities and towns. Resident agencies are managed by supervisory special agent. Coordination should be arranged with the local office, and their contact information should be included in the plan.

National Transportation Safety Board (NTSB)

- Conduct and control all accident investigations involving civil aircraft, or civil and military aircraft, within the United States, its territories, and possessions.
- Reports of accidents or incidents should be made to the Regional Office at the location listed below.

The U.S. Department of Transportation publishes the Emergency Response Guide (ERG) as a primary guide for first responders involved in hazardous materials incidents.

Eastern Region – Doral, Florida – Regional Office

Phone: (305) 597-4600 or (305) 597-4610
8240 NW 52nd Terrace, Suite 418
Doral, Florida 33166

Military

- Where a military facility is located in the vicinity of an airport, coordination between the airport and the military facility should be sought in the development of the AEP.

State Agencies

Florida Highway Patrol (FHP)

- Provide traffic control operations and emergency assistance if the emergency affects a State-maintained highway.
- Including a map of Florida's State Highway System as an appendix to the AEP may be helpful for identifying Florida Highway Patrol jurisdictions.

Florida Department of Transportation – Aviation Office

- Serve as an informational resource and provide technical assistance related to aviation emergencies and AEPs.

Florida Department of Environmental Protection (FDEP)

- Provide support for hazardous material or other environmental emergencies.

A map of the FDEP Districts and their contact information is provided in the appendices. Additional information can be found here:
<http://www.dep.state.fl.us/secretary/dist/>

Florida Division of Emergency Management (FDEM)

- Provide assistance with emergencies that are beyond the capabilities of the local agencies.
- The Florida Division of Emergency Management (FDEM) should be considered for inclusion in the AEP and to coordinate with any Comprehensive Emergency Management Plan (CEMP).
- A map depicting the seven FDEM regions, along with a list of the Region Coordinators, is included in this document as **Attachment B**.

U.S. Coast Guard/Harbor Patrol

For airports located near large bodies of water, consideration should be given for inclusion of the U.S. Coast Guard/Harbor Patrol in the AEP.

- The U.S. Coast Guard/Harbor Patrol can aid in search and rescue for an aircraft accident that occurs over water.

Contact information specific for each region of Florida and division of the U.S. Coast Guard can be found at, <http://www.uscg.mil/d7> The District 7 command center phone number is 305-415-6800.

THINGS TO THINK ABOUT:

The U.S. Coast Guard has several districts which are then split into smaller units. It is recommended under this heading that the specific unit that would be closest to your facility be identified and their contact information included.

National Guard

- Where a National Guard facility is located in the vicinity of an airport, coordination between the airport and the National Guard facility should be considered in the development of the AEP.

Local Agencies

Aircraft Rescue and Firefighting

- Manage and direct firefighting and rescue operations until life, property, and safety threats have been eliminated.

Animal Care/Control

- Agencies such as the Humane Society or other non-profit organizations can provide professional assistance for handling animal cargo during emergencies.
- Consideration should be given for the inclusion of animal care/control in the AEP.

Clergy and Therapists (Grief Counselors)

- Provide comfort to survivors and the relatives of the victims during an emergency. Coordination of duties should be outlined to avoid duplication of effort between other health and human service agencies that may play a similar role.

Communications Providers

- Provide additional personnel, equipment, and facilities during an emergency to augment the airport's communications.

- Identify and coordinate repairs to the communication system in the event it is damaged during an emergency.

Coroner

- Identification of bodies and other investigative activities, including determining the cause and time of death, if needed.

Explosive Ordnance Disposal (EOD)

- Provide assistance to the airport with explosive ordnance disposal during the event of a bomb threat.
- Contact information and procedures for addressing bomb threats should be included in the plan. A sample of Bomb Threat Call Procedure and a Bomb Threat Checklist is included as Attachment C.

Governmental Authorities

- Some circumstances, such as bomb threats, bombings, and post-accident investigations, may fall under the jurisdiction of authorities other than the Airport Authority.
- The AEP should outline the controls and limitations placed on the Airport Authority by these other governmental authorities.

Hazardous Materials Response Team

- Provide response and recovery support for hazardous material emergencies in accordance with 29 CFR, Part 1910; 40 CFR, Part 311; Chapters 376 and 403, Florida Statutes; and Rules 62-700.160, 62-770.200, 62-770.250, and 62-770.300, Florida Administrative Code.

Local Police and Fire Department

- Depending on the size and resources of the airport, the local police and fire departments may be responsible for responding to airport emergencies. Coordination between the airport and these agencies during the development of the AEP should take place, and the roles and responsibilities of each agency should be outlined.

Public Works and Engineering

- Coordination with the local public works and engineering departments during the development of the AEP can be beneficial, because they can manage public works resources, direct public works operations, and coordinate the shutdown of power and gas with private utility companies during an emergency.

Red Cross

- Coordinate and provide support services to victims, their families, and to emergency responders.

Search and Rescue

- Identify appropriate entities, such as the civil air patrol, to coordinate and provide search and rescue services as needed, usually for off-airport aircraft emergencies.

Medical Providers

Emergency Medical Services

- Provide emergency assistance and coordination with local hospitals, the American Red Cross, and the airport during airport emergencies.

Hospital(s)

- Provide medical treatment to victims of an emergency.
- Local hospitals should be included in the AEP, and hospital disaster plans should be considered when developing the AEP.

Mental Health Agencies

- Provide a program for addressing possible long-term effects to individuals involved in an emergency. These would include, but are not limited to, survivors, relatives and emergency response personnel.

Public Information Officers

National Weather Service

- Provide assistance with alerts and warnings during weather-related emergencies.
- Coordination should be sought with the National Weather Service in the development of the AEP.

Public Information/Media

- During an emergency, transmit factual information efficiently to the public.

B. COMMUNICATIONS

The communications function addresses the processes used to reliably and efficiently transfer, delineate, and disseminate information from one point to another during emergency situations. The entire communication system and process should be discussed in detail. Information should be provided for the establishment, maintenance, and use of the communication system needed during an emergency response situation. It should also outline all tasked organizations and individuals, along with their responsibilities for maintaining their equipment and ensuring redundancy in their system. Identification of alternate radio frequencies for use in the event that the primary communications system fails should be included, as well as specific communications responsibilities assigned to specific entities such as the airport manager and the communications coordinator.

This section should include a schedule of regular, daily, or weekly, tests of the emergency notification system

THINGS TO THINK ABOUT:

It is important for the Public Information Officer (PIO) to be clear about the times when information will be released. The PIO should say something similar to, “We will provide an update on (the accident) from (location) starting at (time) and then every (set interval) thereafter.” The PIO should also provide a phone number for family members to call, if available.

C. ALERT NOTIFICATION AND WARNING

The alert notification and warning function outlines the procedures for notifying the airport tenants and other users of the airport of the emergency situation, as warranted, as well as procedures for facilitating a response to an emergency. In the event that either a portion of or the entire airport has to be closed, a plan

should be set up to notify and evacuate tenants. The following precautionary measures should take place to avoid further incidents with civilians or tenants:

- Respond to the initial notification of crowd gatherings or unsecured areas and contact the police department
- Ensure that passenger perimeter gates are locked, and check as often as necessary to prevent unauthorized entrance to passenger loading ramps
- Evacuate any necessary areas
- Advise Fixed Based Operations (FBO) and airline tenants to be prepared to hanger aircraft or move aircraft to a remote area
- Secure all fuel tanks, discontinue any fuel deliveries, and move all fuel trucks to a remote area

Activation/Notification

During operational hours, the control tower shall use the emergency phone to notify airport operations, fire and rescue, and the local police department of the emergency. During the hours that the control tower is not operating, a method of notification should be outlined. This may include using other local ATCT, the local 911 dispatch center, or emergency communication centers. Once it has been determined that an airport/aircraft emergency exists, the following agencies and individuals should be notified. For convenience, these numbers should appear in an appendix that can be easily updated and replaced as personnel change.

It is suggested that a laminated wallet sized card of entities to be contacted during an emergency be made available for immediate access to pertinent information.

Sample Agency List	
Local Fire/Police Department	Emergency: 911 Day Time: XXX-XXX-XXXX After Hours: XXX-XXX-XXXX
Florida Highway Patrol	Emergency: *FHP (*347) Day Time: XXX-XXX-XXXX After Hours: XXX-XXX-XXXX
Airport Operations Manager City/County Manager/Mayor	Day Time: XXX-XXX-XXXX After Hours: XXX-XXX-XXXX Day Time: XXX-XXX-XXXX After Hours: XXX-XXX-XXXX
FAA Operations Center	Day Time: XXX-XXX-XXXX After Hours: XXX-XXX-XXXX
Other Staff <i>(If Operations can't be reached)</i>	Day Time: XXX-XXX-XXXX After Hours: XXX-XXX-XXXX
Public Works	Day Time: XXX-XXX-XXXX After Hours: XXX-XXX-XXXX

D. EMERGENCY PUBLIC INFORMATION

The Emergency Public Information function addresses the activities associated with providing timely, accurate, and useful information and instructions to the public throughout the emergency period. For most emergencies, the Emergency Public Information (EPI) organization will initially focus on the dissemination of information to the public at risk on the airport property. However, the EPI organization must also deal with the wider public's interest and desire to help or seek information about friends, family, employees, or co-workers. Quality and timely information can assist in preventing an overload of an airport's communications network, its transportation infrastructure, and its staff.

An ineffective, unorganized, and inaccurate public information program during an emergency can result in very serious problems. Ineffectiveness can raise the anxiety level in the community-at-large, disorganization can feed inaccurate impressions of the situation, and inaccuracy can significantly exaggerate the potential for harm.

For the airport EPI organization to develop and execute an effective information program, it must develop a mutual working partnership and relationship with all local media outlets. These include television, radio, newspapers, and web-based media outlets. These relations can carry over from strictly emergency response matters (when the airport has something to say and needs the media to relay it) into news coverage (when the media have to relay their stories and need the airport to say or show something). For most airports, media relations become a natural extension of the emergency public information function—all part of a Public Information Officer's (PIO) job. FEMA offers training resources for public information systems. Refer to the National Incident Management System (NIMS) – Public Information Systems.

Local media, like the EPI organization, remain after the emergency. They share concern for the airport and surrounding communities' welfare, and they answer to the communities for the service they provide. Local media, being sensitive to the communities' needs, can work with the PIO to focus on strict EPI concerns and deal with the news aspects as time and circumstance permit. Media relations can become a challenge during major emergency events when the demand for news information overwhelms the EPI organization's ability to perform its basic mission: to provide timely, accurate, and useful information to the public. It is beneficial during such times to have pre-established strong professional relations with the local media, especially with the potential convergence of national media and local media from outside the immediate area. If the locals know they will get their information based on their previous experiences with the EPI organization, they may be less inclined to be a hindrance during the height of the event. A sample of the media control element is included below.

Sample: Media Control

News media representatives will be asked to report to the (insert room or facility name and address) for all news briefings. All available information and updates pertaining to an emergency will be disseminated at the regularly scheduled intervals by a designated Public Information Office from this location only. All escorted camera trips to the scene of the emergency will be coordinated from this location.

Provide the name of the room or facility where media personnel and equipment will be staged.

Mobile Network Satellite Trucks and similar equipment will be grouped and located (provide a designated area for this equipment to be located).⁷

E. PROTECTIVE ACTIONS

The purpose the Protective Actions functional section is to outline emergency measures intended to eliminate and/or reduce exposure to the consequences of an emergency or disaster by either evacuation or shelter-in-place. When designing this section, special consideration should be employed by identifying situations that may require some type of protective action, as well as addressing factors such as characteristics of the hazard, magnitude, intensity, speed of onset, duration, and impact on the airport.

F. LAW ENFORCEMENT AND SECURITY

The Law Enforcement and Security functional section should provide information that identifies the methods used to mobilize and manage law enforcement services in response to emergencies. A summary of all the personnel and equipment, where they are located, general notification procedures, and overall statement of capabilities should be included.

In addition, this functional section should provide general information on the process by which law enforcement and related security services are to be provided at the airport and how these efforts will be coordinated with off-airport response organizations during times of emergency.

G. FIREFIGHTING AND RESCUE

The Firefighting and Rescue functional section addresses emergency services available to the airport and any other emergency responses that may affect life, property, and safety mitigation. For the purposes of this section, fire and rescue includes response capabilities for: Aircraft Rescue and Fire Fighting (ARFF), structural fire, rescue situations, and hazardous materials incidents.

H. HEALTH AND MEDICAL

The Health and Medical functional section addresses the activities associated with the provision of emergency health and medical services at the airport. For the purposes of this section, health and medical includes emergency medical service (EMS), public health, environmental health, mental health, and mortuary services. Related activities include:

- Treatment, transport, and evacuation of the injured
- Removal of the dead, and disease control activities related to sanitation
- Prevention of contamination of water and food supplies during response operations during and after an emergency
- Depending on the needs and resources of a particular airport, consideration may be given to the preparation of separate sections for these functions

⁷ Language taken from the Salina Municipal Airport Emergency Plan

I. RESOURCE MANAGEMENT

Because an emergency requires many diverse resources, a section of the AEP is needed to describe the processes by which an airport will identify requirements, and expeditiously locate, acquire, allocate, and distribute those resources to satisfy needs that are generated by the emergency. All emergencies, regardless of their severity, will require the dispatch of well qualified and trained personnel with unique specialties, equipment, supplies, and facilities. The Resource Management function is necessary to ensure that:

- A comprehensive list of resources required to support potential emergencies to which the airport is vulnerable (reference the Airport's Hazards Analysis) is developed
- A complete picture of these resources and their availability is known to decision-makers
- All resources are used appropriately, and arrive where and when they are most needed
- Additional resources can be obtained for responders as their own resources are expended or damaged
- Accountability is maintained for the airport's use of resources

J. AIRPORT OPERATION AND MANAGEMENT

The Airport Operation and Management functional section addresses operations and maintenance at the airport. It includes a summary of personnel and equipment, where they are located, general notification procedures, and an overall statement of capabilities. For the purposes of this section, Operations and Maintenance will be presented as a single entity. The day-to-day roles of an Operations and Maintenance function are different, as they are often separate within the airport's organizational structure.

AIRCRAFT EMERGENCY RESPONSE PROCEDURES

This section focuses on special planning procedures and needs pertaining to typical hazards that airports may encounter. Airports certificated in accordance with 14 CFR, Part 139 must ensure that their AEP contains procedures and instructions for responding to the following potential hazards:

- Aircraft incidents and accidents
- Bomb incidents, including bomb incidents in designated parking areas
- Structural fires
- Fuel farm fire or fuel storage areas
- Natural disasters
- Hazardous materials and dangerous goods incidents
- Sabotage, hijack and other unlawful interference with operations
- Failure of power for movement area lighting
- Water rescue situations, as appropriate

The following sections within this chapter provide guidance for assessing the airport’s vulnerability to hazards, provide standard language related to emergency response procedures, and provide an explanation of the different emergency classifications.

A. HAZARDS VULNERABILITY ASSESSMENT⁸

A hazard vulnerability assessment is a recommended technique for airports to use in prioritizing hazards with a higher probability of occurring in their area. The vulnerability assessment can be used to:

- Develop planning priorities
- Develop hazard maps
- Educate emergency response personnel, elected officials and other decision-makers, as well as the general public
- Develop realistic plans and resources management strategies
- Prepare mitigation programs

A broad-based team approach should be used for the hazard vulnerability assessment. In addition to airport employees, have stakeholders from agencies outside the airport participate in the emergency planning, mitigation, response or recovery activities. More diversity in the people and the organizations involved will achieve better results.

Attachment D is a sample *Hazards Vulnerability Analysis Worksheet* that can be used as a guide to rate the probability of hazards most likely to occur in your area. Probability is the number of chances per year that an incident of specific or greater size will occur. This can be based on historical factors, experience, and to some degree, scientific reasoning. The following scoring system can be used to rate the probability of the hazards.

0 Points - Not possible in our community (e.g. volcanic eruption in Florida)

1 Point - It is possible, but probably will not happen

2 Points - It will probably happen, but not very often

3 Points - It is possible and is likely to happen

THINGS TO THINK ABOUT:

The hazards list is not all inclusive. There is always a potential for new and unexpected hazards, and hazards may not be independent of one another (e.g. an aircraft crash might also initiate a major structure fire.) family members to call, if available.

Once the probability of the hazards occurrence has been assessed, the response management difficulty needs to be reviewed. This step is mainly concerned with the magnitude and duration of the emergency, the

⁸ AC 150/5200-31C – Appendix 1 General Procedures for Hazard Analysis

airport/community's capabilities to direct and control responses activities, and the effects of time on those activities. Having the local community involved to assess resource utilization as part of the planning process is important. The scoring system for this step is as follows:

0 Points - Absolutely no problem, routine

1 Point - Can be managed with local resources

2 Points - Would require assistance from local communities

3 Points - Would require considerable support from state and federal agencies

To complete the hazards vulnerability assessment, record the vulnerability factor which is determined by adding the points across the row of categories for each hazard. Once completed, a list should be developed ranking the hazards from highest to lowest vulnerability. It is recommended that the analysis be reassessed regularly to accommodate changing situations and technologies.

THINGS TO THINK ABOUT:

This is only one suggested method for assessing hazards in your area. You may find that a more detailed analysis is necessary to assess your current response procedures or to account for other factors.

General

An aircraft emergency is defined as any crash, accident, fire or other casualty involving aircraft or any potential mishap for which emergency response equipment is required.

An aircraft emergency will normally be declared by:

- The pilot in command
- Local flight services station
- Local air traffic control
- Local Army National Guard
- Aircraft owner
- Local or State level government
- Airport authority management

This section outlines the initial actions that should be taken during an emergency and the controlling authority. In accordance with NTSB 8-30, the first authority on the scene shall assume command until the authority appropriate to the situation arrives.

THINGS TO THINK ABOUT:

Where generic titles or agencies are listed as guides, it is beneficial to include the actual division office or agency department specific to the region in which the airport is located.

B. EMERGENCY CLASSIFICATION

The Emergency Classification section should set standards for outlining the emergency type classifications. Standards should be set up to facilitate a quick assessment of the emergency. Flowcharts that show a typical sequence of events during each type of emergency classification are provided in the Summary of Agencies Involved section of the Aviation Emergency Response Guidebook and also as Figures 12 through 15 in **Attachment E** of this document. These flowcharts should be adopted and utilized as part of the Plan. The following Alerts demonstrate the emergency type examples as defined by AC 150/5200-31C, 7-1-4.⁹

Sample Emergency Type Classifications

Alert I (Local Standby Alert)

The typical sequence of events that occurs during an Alert I is illustrated as Figure 12 in **Attachment E**. This type of alert is warranted when an aircraft is known or suspected to have an operational defect that should not normally cause serious difficulty in achieving a safe landing. This is notification only and no response is required, but precautionary efforts may sometimes be taken. The emergency response outlined for Alert I should be followed, and emergency equipment and responders should be placed on standby.

Additional examples are provided in International Civil Aviation Organization (ICAO) Airport Services Manual, Part 7: Airport Emergency Planning, and NFPA 424: Guide for Airport Community Planning.

Alert II (Full Emergency Alert)

The typical sequence of events that occurs during an Alert II is illustrated as Figure 13 in **Attachment E**. This type of alert is warranted when an approaching aircraft has a known or suspected operational defect that affects normal flight operations to the extent that there is danger of an accident. Emergency responders should proceed to predetermined standby locations and alert the ATCT before proceeding onto any taxiways or runways. If the airport does not have an ATCT, or the ATCT is non-operational, the emergency responders should broadcast their intentions onto a previously defined frequency before moving onto taxiways or runways.

Alert III (Aircraft Accident Alert)

The typical sequence of events that occurs during an Alert III is illustrated as Figures 14 and 15 in **Attachment E**. This type of alert is warranted when an accident has occurred on airport property or is imminent on or in the vicinity of an airport. Emergency equipment and responders should be notified immediately and should proceed to the scene of the accident, following the standard notifications for entering the taxiway and runway. The emergency response to an Alert III is different depending on if the accident occurs on or off of airport property.

⁹ AC 150/5200-31C, 7-1-4

*Note: There is also an emergency type called Alert on the Ground. For more information on this alert as well as Alerts I–III see **Attachment E***

Classification Response Procedures

This section outlines the procedures for notifying the airport tenants and other users of the airport of the emergency situation, as warranted. In the event that a portion of or the entire airport has to be closed, a plan should be set up to notify and evacuate tenants. This section should also outline the response procedures for notifying the first responders. For airports certificated under 14 CFR Part 139, Certification of Airports, 14 CFR 139.325, Airport Emergency Plan, 139.325(e) requires that procedures be in place:

An aircraft having hydraulic or wheel problems that manages to land safely will have mechanical down locks installed, emergency equipment should escort aircraft to the parking ramp.

“...for notifying the facilities, agencies, and personnel who have responsibilities under the plan of the location of an aircraft accident, the number of persons involved in that accident, or any other information necessary to carry out their responsibilities, as soon as that information is available.”

The typical sequence of events that occurs during an “Alert on the Ground” is illustrated as Figure 11 in **Attachment E**.

Alert I (Local Standby Alert)

Notification

In the event that an aircraft is having a minor emergency such as an oil leak, engine shutdown or other minor flight problem that could lead to a major emergency, the pilot will notify the ATCT or entity responsible for notifications in the absence of an ATCT.

Response

The ATCT or notifying agency should provide the following information to emergency responders in the event of an emergency:

- Nature of emergency
- Flight number
- Type of aircraft
- Location of emergency
- Estimated time of arrival (ETA)
- Number of people involved
- Amount of and type of fuel (if known)
- Other Information deemed to be important

An aircraft with an uncontrolled fire (e.g. engine, fuselage) will evacuate passengers and crew without delay as emergency units initiate firefighting and rescue operations.

Airport fire fighters and other rescue personnel should understand the basic need for, and the techniques and procedures used, in aircraft accident investigation. Emergency first responders should adhere to the criteria contained in AC 150/5200-12, Fire Department Responsibility in Protecting Evidence at the Scene of an Aircraft Accident.

Additional response procedures for the control tower, the local fire department, and first responder personnel should be established in this section.

If the emergency is upgraded to Alert II, responders should go to standby positions. After the aircraft lands, they should follow the aircraft to the parking ramp and stand by until the aircraft engine shuts down.

Alert II (Full Emergency Alert)

Notification

An aircraft with faulty landing gear, engine fire, loss of hydraulic pressure or any other problem that could likely result in a crash is classified as Alert II. Once the ATCT is notified of the problem by the pilot, Alert II response procedures should be initiated.

Response

1. ATCT personnel should be provided with the same information as in an Alert I scenario, plus any additional details that will allow preparation for likely contingencies. The fire/police dispatcher should advise airport staff of the applicable fire department radio talk group or provide a radio patch to facilitate efficient response coordination. A full response should be made with the emergency equipment manned and positioned with the response vehicle engines running. All emergency lights should be in operation so that rapid response to the emergency site can be accomplished.
2. Standby locations on the airfield should be accessed through the terminal apron gates, and responding units should position themselves to have a clear view of the runway and taxiways.
3. Airport staff should communicate with the aircraft on the guard frequency (121.5 MHz) and pass information on to the fire/police department. This provides a safety factor for rollout and, should an emergency vehicle be required, it could be moved to the aircraft stopping point from the upwind direction.

THINGS TO THINK ABOUT:

The person in charge of response equipment, such as the fire department, should anticipate the aircraft's rollout and station emergency response vehicles some distance upwind from the rollout area.

At the termination of the Alert II emergency, the fire officer in charge will dispatch the emergency equipment for return to the station.

Alert III (Aircraft Accident Alert)

- Full ATCT procedures should be put into effect. All pertinent updated information should be relayed by the airport staff or dispatching agency to responding emergency units, and should include the location of the accident.
- When complete aircraft-related information is not available, the ARFF personnel should anticipate the worst-case situation and prepare accordingly.
- Notify the FAA Operations Center of conditions at the site, particularly if such conditions could interfere with flight operations. Airport staff should issue applicable Notice to Airmen (NOTAM) to ensure that appropriate Common Traffic Advisory Frequency (CTAF) advisories are communicated.

Contact information for entities, such as the FAA Operations Center should be readily accessible in the plan.

Whenever possible, wreckage should remain undisturbed until the arrival of the first National Transportation Safety Board (NTSB) accident investigator. Prior to the time the NTSB or its authorized representatives take custody of aircraft wreckage, mail or cargo, such material may not be disturbed or moved except to the extent necessary for emergency response including:

- To remove persons injured or trapped
- To protect the wreckage from further damage
- To protect the public from injury¹⁰

THINGS TO THINK ABOUT:

When it is necessary to move aircraft wreckage including mail or cargo, sketches, descriptive notes and photographs will be made, if possible. Otherwise, original position and condition of the wreckage and any significant impact marks will be recorded. (Refer to 49 CFR, Part 831, Accident/Incident Investigation Procedures).

HAZARD SPECIFIC SECTION¹¹

The Hazard-Specific Section provides additional detailed information applicable to the performance of a particular function in support of a specific hazard. Per CFR, Part 139.325, Airport Emergency Plan, the airport operator must develop plans and procedures in response to the following emergencies.

- Aircraft incidents and accidents
- Bomb incidents, including bomb incidents in designated parking areas
- Structural fires
- Fuel farm fire or fuel storage areas
- Natural disasters
- Hazardous materials dangerous goods incidents
- Sabotage, hijack, and other unlawful interference with operations
- Failure of power for movement area lighting
- Water rescue situations, as appropriate

The responsibility for making the decision on what to include in the hazard-specific section is vested with the airport's planning team.

Through the Hazards Analysis Program, guidance has been provided to assist in the identification of hazards and disasters specific to an airport that warrant planning attention. The following sections within this chapter provide a basic description of the hazards listed above to assist in the development of functional

¹⁰ AC 150/5200-31C, 7-1-4(h)

¹¹ Language was taken from AC150/5200-31C, Chapter 7 sections 1-9

hazard-specific plans and procedures. Below is the standard outline, from the Basic Plan, of the sections that should be included and addressed in response to each hazard.

A. HAZARD SPECIFIC APPENDIX OUTLINE

Introduction

This section describes the specific hazards, discusses the areas at risk, and breaks down the risk assessment measures that should be taken to prepare the response plan.

Situation and Assumption

Within this section information should be included that discusses the airport's susceptibility to the specific hazard. Assumptions are advance judgments concerning what might happen in the event of the specific hazard. The situation includes major findings from the:

- Hazard analysis and risk assessment
- Identified facilities that may be impacted
- Included maps and descriptions of geographic features
- Sensitive environmental areas
- Transportation routes
- Pertinent climates and weather factors, as well as any other critical variables which may impact the emergency response

Operations

This section explains the airport's overall approach to the emergency situation, and discusses what action should take place and the person/agency that should be in command. Topics should include:

- Division of airport and local responsibilities to include roles and relationships of emergency response organizations
- A list of mutual aid agreements relative to specific emergency
- Criteria for activation of the Emergency Operations Center (EOC)
- A description of the sequence of actions before, during, and after the emergency situation

As with other emergencies and emergency-specific Standard Operating procedures (SOPs), a checklist should be prepared. Associated training programs should be developed and implemented.

Organization and Assignment of Responsibilities

- Airport Traffic Control Tower (ATCT)
- Aircraft Rescue and Fire Fighting (ARFF)

- Law enforcement
- Emergency Medical Services (EMS)
- Airport operator
- Communications

Administration and Logistics

This section of the document should cover those general support requirements specific to the hazard.

Plan Development

This section should identify who is responsible for coordinating revisions to each hazard-specific appendix, keeping its attachments current, and ensuring that SOPs and checklists are developed and maintained.

Authorities and References

This section should identify any hazard-specific statutes, regulations, etc. that address related authority, (e.g. Building Codes). Any documents used as guidance or for information should be included as an appendix.

Unique Planning Considerations

This section should contain a listing of the functional sections that would typically be required in the preparation of a hazard-specific appendix. It also identifies the unique and/or regulatory planning considerations that should be used by the airport AEP planning team.

Standard Operating Procedures (SOP) and Checklists

This section should outline the Standard Operating Procedures to be performed and checklists to be followed before, during, and after an emergency.

B. AIRCRAFT INCIDENTS AND ACCIDENTS

An aircraft accident is any occurrence associated with the operations 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 suffers serious injury as a result of the occurrence; or in which the aircraft, including cargo aircraft, receives substantial damage.¹² An incident is an occurrence that an accident affects or could affect the safety of operations.

*(See 49 CFR, Part 830.)
Refer to 'Reporting an
Accident to the NTSB'*

THINGS TO THINK ABOUT:

The degree of involvement from the NTSB may vary from situation to situation. (See Responding to An Airport Accident – How to Support the NTSB A Guide for Police and Public Safety Personnel) at www.nts.gov.

¹² AC 150/5200-31C

This section should include an emergency preparedness plan for an aircraft incident or accident, including cargo aircraft, under a number of circumstances:

- On the airport premises
- Off the airport on adjacent property, but within an area for which the airport has the authority and responsibility to respond

C. TERRORISM: BOMB INCIDENTS

The history of terrorism incidents is such that no report or rumor, however vague, can be ignored. Each case must be thoroughly investigated in a manner that will safeguard the public and minimize damage if the bomb is actually present.

The information contained in this section is intended to supplement the Basic Plan and Functional Section of the Airport Emergency Plan. It should define responsibilities and describe actions that should be taken in the event of a bomb threat or an actual incident occurrence at the airport.

The FBI is the agency responsible for investigating bomb threats. In the event that a bomb threat is made or an explosive device is located, the recipient should contact the Airport Authority and begin the predetermined notification procedures.

This section should be divided into two parts, one for bomb threats involving aircraft, and one for bomb threats involving buildings. Outline the procedures for both scenarios. A bomb threat call procedure brochure is included in **Attachment C**.

D. STRUCTURAL FIRES, FUEL FARM, AND FUEL STORAGE AREA FIRES

This section should address practical procedures to address structural fires occurring at or in airport properties, structures, facilities, buildings, equipment and/or infrastructure support systems.

A risk assessment should be prepared by the AEP planning team which identifies the facilities, properties, or equipment that may be vulnerable to structural or fuel fire. The assessment provides the team with the essential data it needs to determine the type of equipment and other resources necessary to effectively respond to fires at the various types of structures or fuel facilities. The assessment should identify those facilities which may present special response concerns, such as the terminal, cargo buildings or fuel storage areas. Once identified, each section should be addressed. A typical Fuel Farm Quality and Material Safety Data Sheet (MSDS) is included as **Attachment F**.

Specific information regarding terrorism incidents is considered Sensitive Security Information (SSI). Specific information is contained in the appropriate sections in the Airport Security Program. As SSI the information is published and distributed on a need-to-know basis only.

Significant information is available concerning hazardous materials through the FDOT Pipeline and Hazardous Materials Safety Administration website at www.phmsa.dot.gov

Hazardous Material Emergency Preparedness Training that addresses response, planning and prevention is available from the U.S. Fire Administration (www.usfa.dhs.gov).

Additionally, OSHA provides online hazardous materials training.

E. NATURAL DISASTERS

Natural disasters are events that all airports face, and nothing can be done to avert these weather-caused emergencies. There are actions that can be taken to minimize impact and damages to the airport and to aid in restoration of services. Mitigation actions for each type of natural disaster facing the airport should be outlined and addressed in this section. The primary natural disasters that Florida airports face are:

- Hurricanes
- Tornados
- Flooding
- Lightning strikes

F. HAZARDOUS MATERIALS INCIDENTS

Hazardous materials are defined as any substance or material that, when involved in an accident or released in sufficient quantities, poses a risk to people's health, safety, and/or property. These substances and material include explosives, radioactive materials, flammable liquids or solids, combustible liquids or solids, poisons, oxidizers, toxins and corrosive materials.¹³ The severity of these hazards depends on the types and quantities of the hazardous material produced, processed, used, or stored near or on airport property. A hazardous material spill or release can pose a risk to life, health, or property. An incident can result in the evacuation of a few people, part of a building, or a whole neighborhood.

G. SABOTAGE, HIJACKING, AND OTHER UNLAWFUL INTERFERENCE WITH OPERATIONS

This section should outline the notification procedures in the event that the airport is the destination of sabotage, hijack, or other unlawful interference with normal operations. Provide a brief description of the ATCT responsibilities when notifying airport personnel and FAA. A more detailed description of responsibilities should be given for each party involved.

THINGS TO THINK ABOUT:

Airports regulated under 49 CFR, Part 1542, Airport Security, have established response procedures for sabotage, hijack and other criminal interference of Civil Aviation as specified in their Airport Security Program (ASP).

H. FAILURE OF POWER FOR MOVEMENT AREA LIGHTING

This section should provide guidance to the airport operator for any situation, which involves the failure of power for movement area lighting that may potentially impact that airport.

Airfield lighting criteria are contained in the Advisory Circular 150-5345.

¹³ AC 150/5210-13C, Hazardous Materials Incidents

THINGS TO THINK ABOUT:

Alternative lighting resources should be identified and described within this section, along with procedures to expedite repowering the original lighting source. If no alternative lighting is available, steps should be made to address this potential hazard prior to an actual emergency.

I. WATER RESCUE SITUATIONS

This section should prescribe procedures for responding to water rescue situations, including those in Certification of Airports, 14 CFR §139.325(f), Airport Emergency Plan (www.access.gpo.gov) which states that:

“The plan required by this section shall contain provisions, to the extent practicable, for the rescue of aircraft accident victims from significant bodies of water or marsh lands adjacent to the airport that are crossed by the approach and departure flight paths of air carriers. A body of water or marsh land is significant if the area exceeds one-quarter square mile and cannot be traversed by conventional land rescue vehicles. To the extent practicable, the plan should provide for rescue vehicles with a combined capacity for handling the maximum number of persons that can be carried on board the largest air carrier aircraft that the airport can reasonably be expected to serve”¹⁴

Advisory Circular 150/5210-13, Water Rescue Plans, Facilities, and Equipment, provides requirements for airports located near water bodies.

THINGS TO THINK ABOUT:

Significant bodies of water, as defined above, located within two miles of the end of an airport runway should be included in the emergency plan area of response. As additional information, a map should be created and included in this plan illustrating the locations of all water bodies and boat ramps/public accesses near the airport.

¹⁴ AC 150/5200-31A, 7-8-1 Water Rescue Situations

ATTACHMENTS

Attachment A – Emergency Telephone Directory

Attachment B – Florida Department of Emergency Management Regions

Attachment C – Bomb Threat Call Procedures and Checklist

Attachment D – Hazards Vulnerability Analysis Worksheet

Attachment E – Generated Emergency Response Flowchart

Attachment F – Fuel Farm Qualities and Material Safety Data Sheets (MSDS)

ATTACHMENT A – EMERGENCY TELEPHONE DIRECTORY

AGENCY **TELEPHONE NUMBER**

FLORIDA, STATE OF

Highway Patrol XXX-XXX-XXXX

XXXX, COUNTY OF

Civil Defense XXX-XXX-XXXX

Emergency Medical Services (EMS) XXX-XXX-XXXX

Sheriff (Emergency 911)..... XXX-XXX-XXXX

HOSPITAL AND AMBULANCE

AMT Ambulance (Emergency 911 XXX-XXX-XXXX

(Local) Medical Center XXX-XXX-XXXX

XXXX, CITY OF

Police Department (Emergency 911)..... XXX-XXX-XXXX

Fire Department (Emergency 911) XXX-XXX-XXXX

Fire Department Station #X XXX-XXX-XXXX

(Local) Utilities Commission..... XXX-XXX-XXXX

General Aviation Department

Director of Aviation..... XXX-XXX-XXXX

Airport Operations XXX-XXX-XXXX

Airport Maintenance..... XXX-XXX-XXXX

UNITED STATES GOVERNMENT

Federal Aviation Administration

Control Tower XXX-XXX-XXXX

Air Force Base (AFB) Explosive Ordnance Disposal (EOD)..... XXX-XXX-XXXX

Federal Bureau of Investigation (FBI) XXX-XXX-XXXX

Postal Service..... XXX-XXX-XXXX

Secret Service XXX-XXX-XXXX

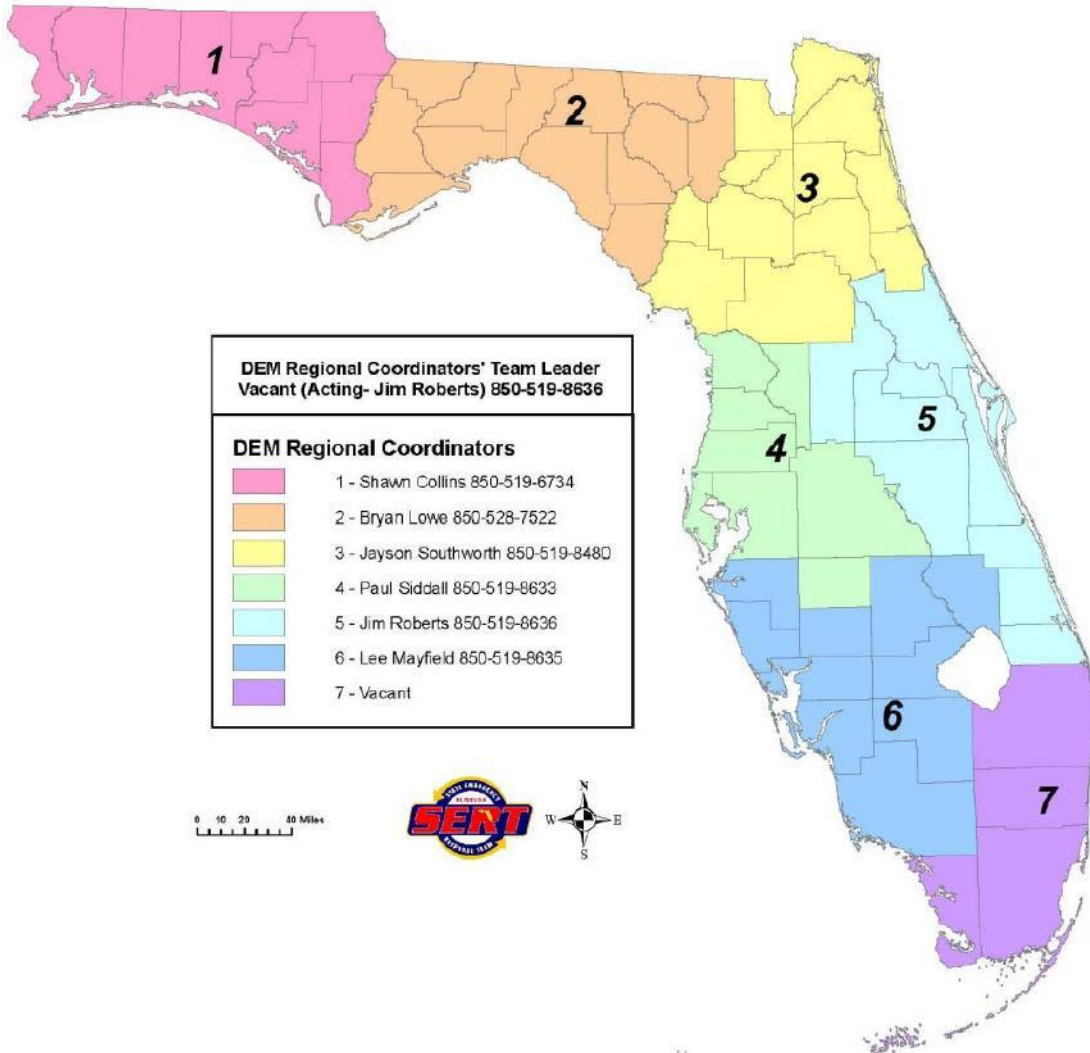
U.S. Department of the Treasury

Bureau of Alcohol, Tobacco and Firearms (ATF) XXX-XXX-XXXX

Customs XXX-XXX-XXXX

Weather Bureau XXX-XXX-XXXX

ATTACHMENT B – FLORIDA DEPARTMENT OF EMERGENCY MANAGEMENT REGIONS



ATTACHMENT C – BOMB THREAT CALL PROCEDURES & CHECKLIST

BOMB THREAT CALL PROCEDURES

Most bomb threats are received by phone. Bomb threats are serious until proven otherwise. Act quickly, but remain calm and obtain information with the checklist on the reverse of this card.

If a bomb threat is received by phone:

1. Remain calm. Keep the caller on the line for as long as possible. DO NOT HANG UP, even if the caller does.
2. Listen carefully. Be polite and show interest.
3. Try to keep the caller talking to learn more information.
4. If possible, write a note to a colleague to call the authorities or, as soon as the caller hangs up, immediately notify them yourself.
5. If your phone has a display, copy the number and/or letters on the window display.
6. Complete the Bomb Threat Checklist (reverse side) immediately. Write down as much detail as you can remember. Try to get exact words.
7. Immediately upon termination of the call, do not hang up, but from a different phone, contact FPS immediately with information and await instructions.

If a bomb threat is received by handwritten note:

- Call _____
- Handle note as minimally as possible.

If a bomb threat is received by e-mail:

- Call _____
- Do not delete the message.

Signs of a suspicious package:

- No return address
- Excessive postage
- Stains
- Strange odor
- Strange sounds
- Unexpected Delivery
- Poorly handwritten
- Misspelled Words
- Incorrect Titles
- Foreign Postage
- Restrictive Notes

DO NOT:

- Use two-way radios or cellular phone; radio signals have the potential to detonate a bomb.
- Evacuate the building until police arrive and evaluate the threat.
- Activate the fire alarm.
- Touch or move a suspicious package.

WHO TO CONTACT (select one)

- Follow your local guidelines
- Federal Protective Service (FPS) Police
1-877-4-FPS-411 (14377-437-7411)
- 911

BOMB THREAT CHECKLIST

Date: Time:

Time Caller Hung Up: Phone Number where Call Received:

Ask Caller

Where is the bomb located?
(Building, Floor, Room, etc.) _____

When will it go off? _____

What does it look like? _____

What kind of bomb is it? _____

What will make it explode? _____

Did you place the bomb? Yes No _____

Why? _____

What is your name? _____

Exact Words of Threat:

Information About Caller:

Where is the caller located? (Background and level of noise) _____

Estimated age: _____

Is voice familiar? If so, who does it sound like? _____

Other points: _____

Callers Voice	Background Sounds:	Threat Language:
<input type="checkbox"/> Accent	<input type="checkbox"/> Animal Noises	<input type="checkbox"/> Incoherent
<input type="checkbox"/> Angry	<input type="checkbox"/> House Noises	<input type="checkbox"/> Message read
<input type="checkbox"/> Calm	<input type="checkbox"/> Kitchen Noises	<input type="checkbox"/> Taped
<input type="checkbox"/> Clearing throat	<input type="checkbox"/> Street Noises	<input type="checkbox"/> Irrational
<input type="checkbox"/> Coughing	<input type="checkbox"/> Booth	<input type="checkbox"/> Profane
<input type="checkbox"/> Cracking voice	<input type="checkbox"/> PA system	<input type="checkbox"/> Well-spoken
<input type="checkbox"/> Crying	<input type="checkbox"/> Conversation	
<input type="checkbox"/> Deep	<input type="checkbox"/> Music	
<input type="checkbox"/> Deep breathing	<input type="checkbox"/> Motor	
<input type="checkbox"/> Disguised	<input type="checkbox"/> Clear	
<input type="checkbox"/> Distinct	<input type="checkbox"/> Static	
<input type="checkbox"/> Excited	<input type="checkbox"/> Office machinery	
<input type="checkbox"/> Female	<input type="checkbox"/> Factory machinery	
<input type="checkbox"/> Laughter	<input type="checkbox"/> Local	
<input type="checkbox"/> Lisp	<input type="checkbox"/> Long distance	
<input type="checkbox"/> Loud		
<input type="checkbox"/> Male		
<input type="checkbox"/> Nasal		
<input type="checkbox"/> Normal		
<input type="checkbox"/> Ragged		
<input type="checkbox"/> Rapid		
<input type="checkbox"/> Raspy		
<input type="checkbox"/> Slow		
<input type="checkbox"/> Slurred		
<input type="checkbox"/> Soft		
<input type="checkbox"/> Stutter		

Other Information: _____



ATTACHMENT D – HAZARDS VULNERABILITY ANALYSIS WORKSHEET

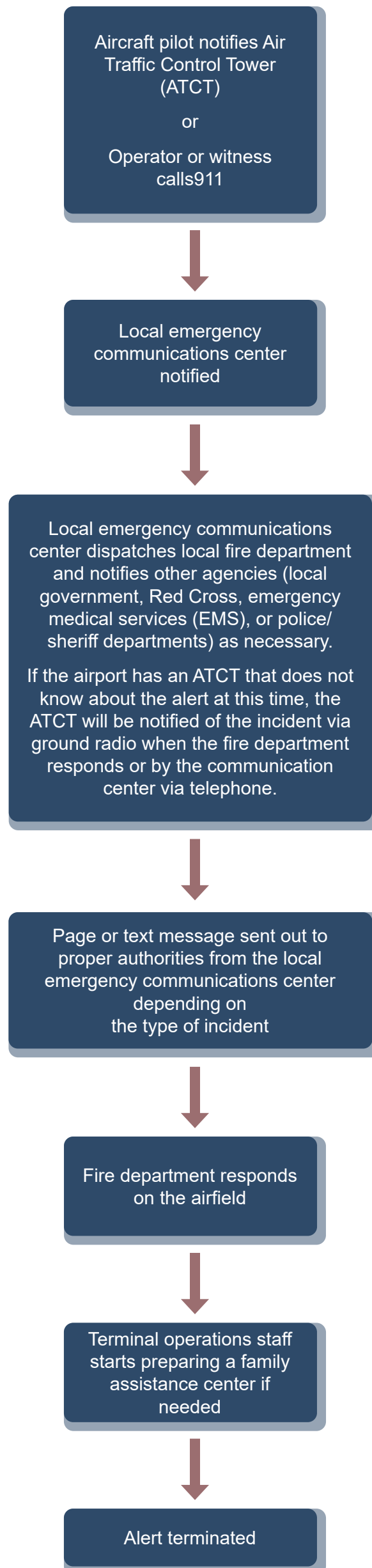
HAZARDS VULNERABILITY ANALYSIS WORK SHEET			
Hazard	Probability	Response Difficulty	Vulnerability Factor
Aircraft accident - off airport			
Aircraft accident - on airport			
Aircraft accident - rough terrain			
Aircraft accident - water			
Boating accident			
Bomb threat/found			
Bridge collapse			
Building collapse			
Civil disturbance			
Communications system failure			
Computer system failure			
Dam/levee failure			
Drought			
Earthquake			
Epidemic, disease			
Fire - major structure			
Fire - brush, forest, prairie			
Flood			
Food poisoning - extensive			
Fuel shortage			
Hazardous materials incident			
Hostage situation (non-terrorist)			
Hurricane			
Labor problems - serious			
Landslide			
Lost person(s)			

HAZARDS VULNERABILITY ANALYSIS WORK SHEET			
Hazard	Probability	Response Difficulty	Vulnerability Factor
Mass casualty incident			
Natural gas outage			
Nuclear attack			
Nuclear facility incident			
Pollution - air			
Pollution - water			
Power failure			
Radiological incident			
Rapid transit accident			
Sandstorm/Dust storm			
Sewer explosion			
Sewer system failure			
Ship incident - harbor			
Terrorist			
Tornado			
Train accident - freight			
Train accident - passenger			
Tsunami (tidal wave)			
Vehicular accident - major			
Volcano eruption			
Water supply failure			
Winds - damaging			
Winter storm - severe			

ATTACHMENT E – GENERATED EMERGENCY RESPONSE FLOWCHARTS

Alert on the Ground

ALERT ON THE GROUND REFERS TO WHEN THE AIRCRAFT IS LOCATED ON THE GROUND ON AIRPORT PROPERTY

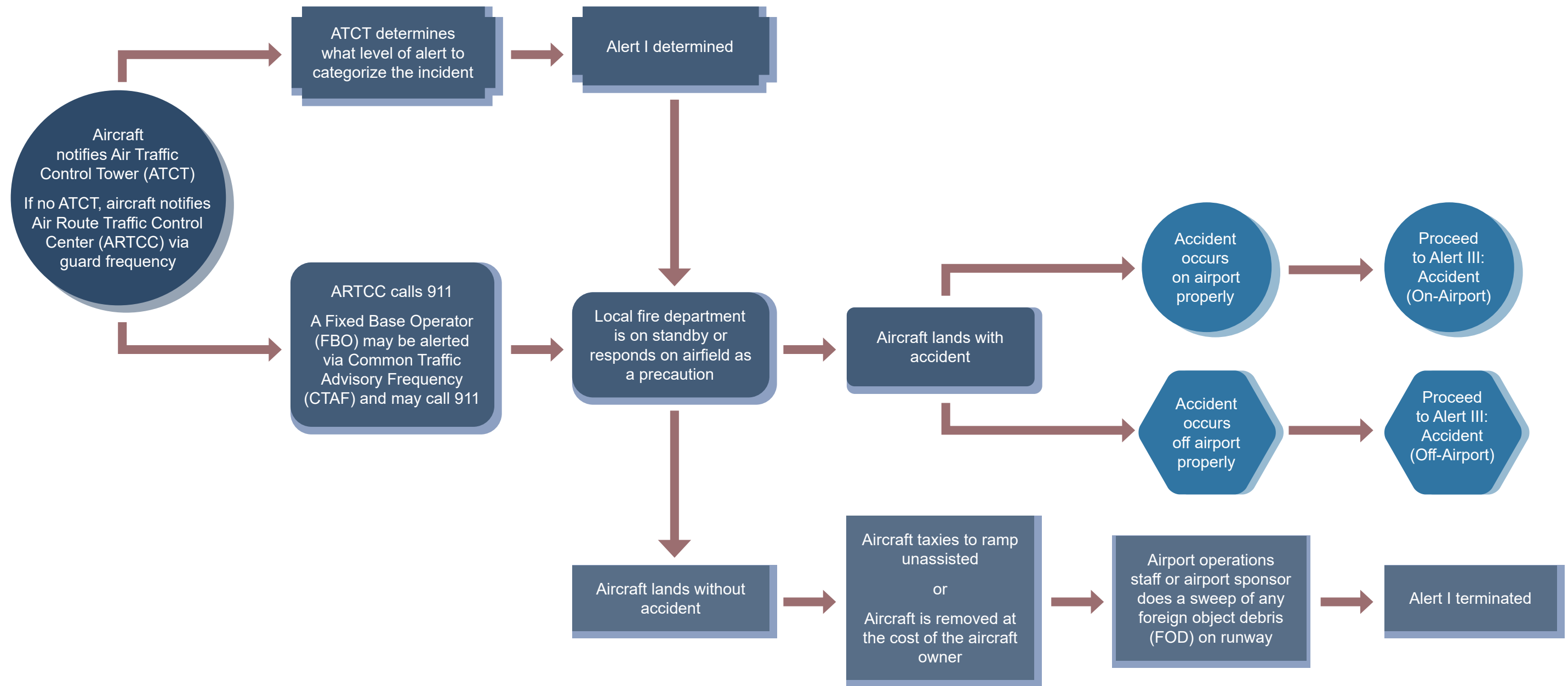


Alert I — Minor Problem

INCLUDES:

- FUEL OR OIL LEAK
- ONE ENGINE OUT ON A THREE OR FOUR ENGINE AIRCRAFT
- ONE ENGINE OUT ON A TWIN ENGINE GENERAL AVIATION AIRCRAFT WEIGHING < 12,500 LBS.

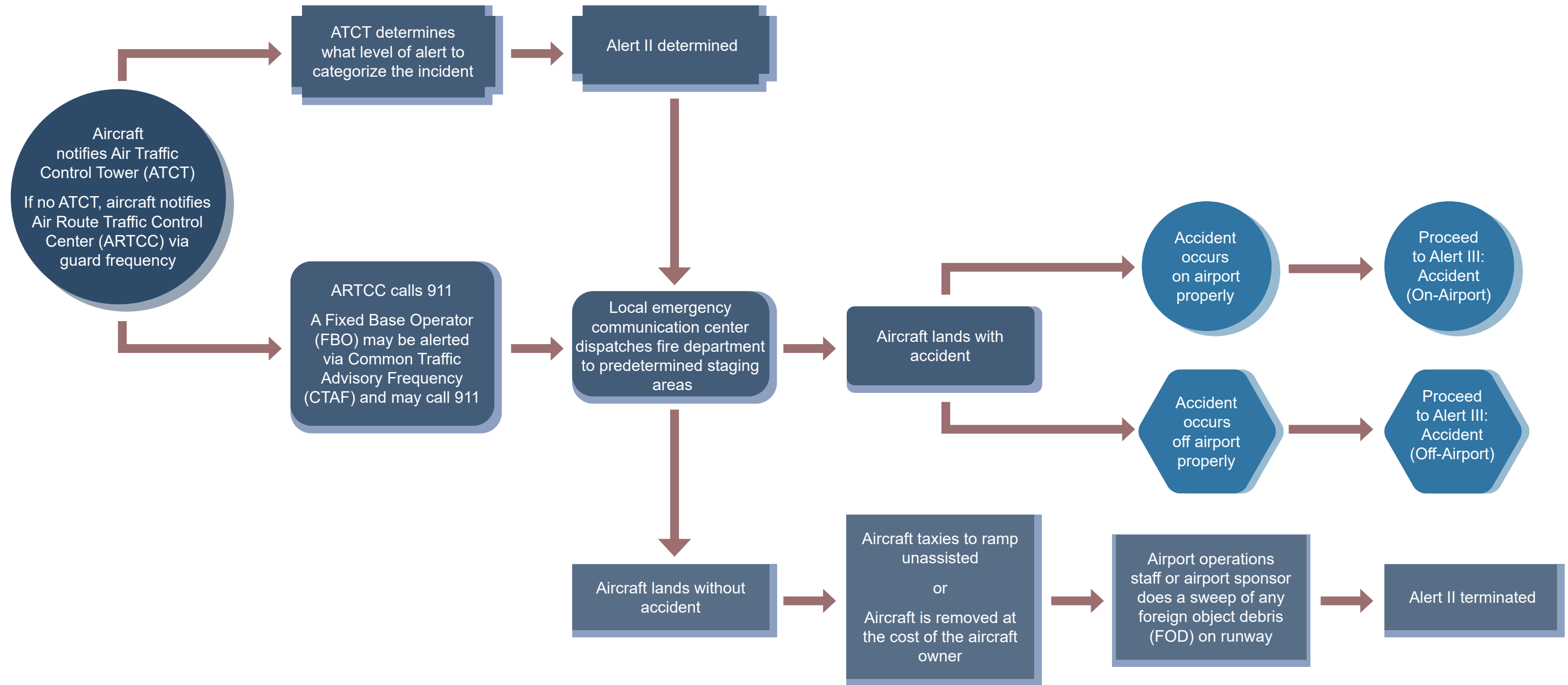
Note: Operations Personnel may Categorize an Alert I as an Alert II as a Precautionary Effort



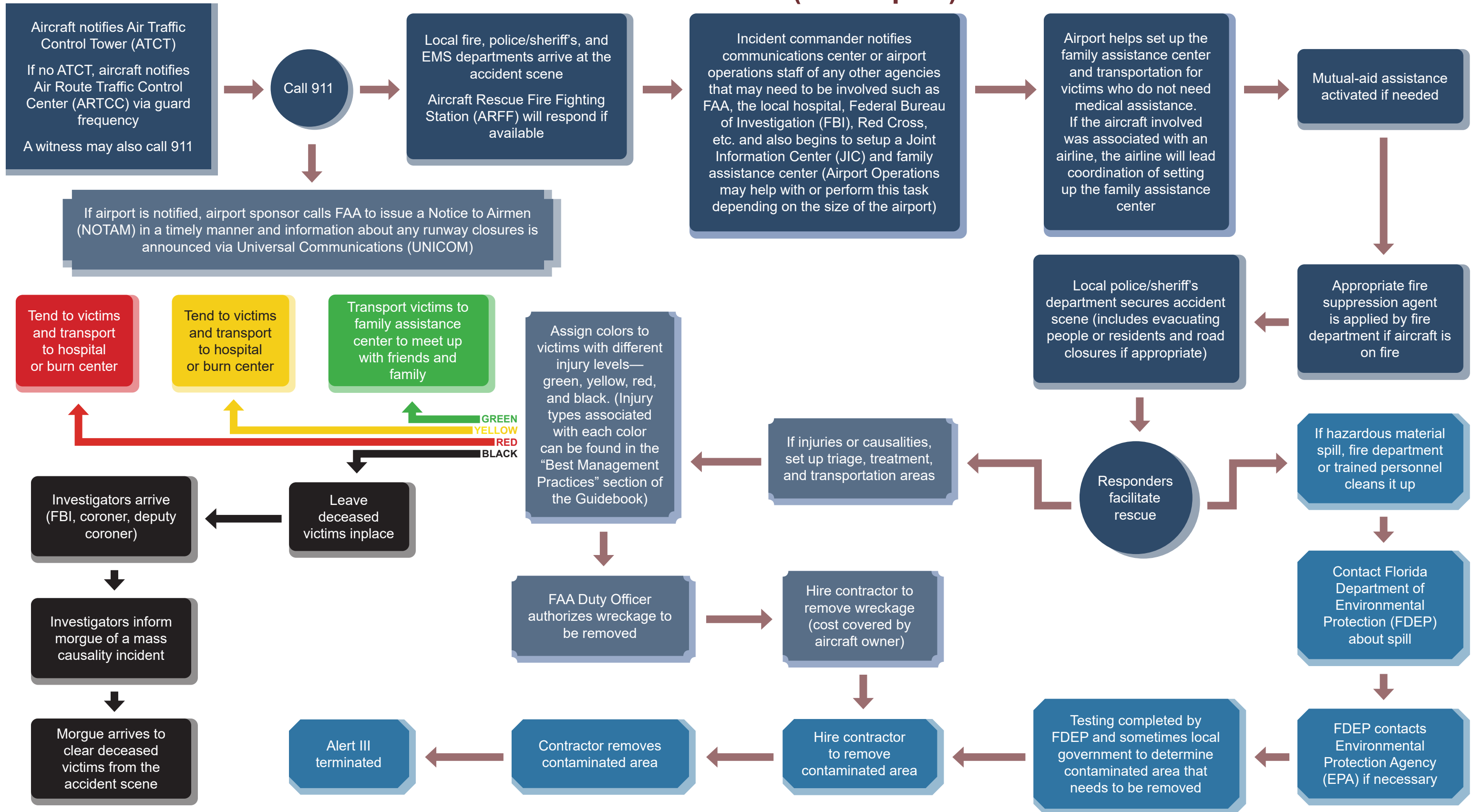
Alert II — Major Difficulty

INCLUDES:

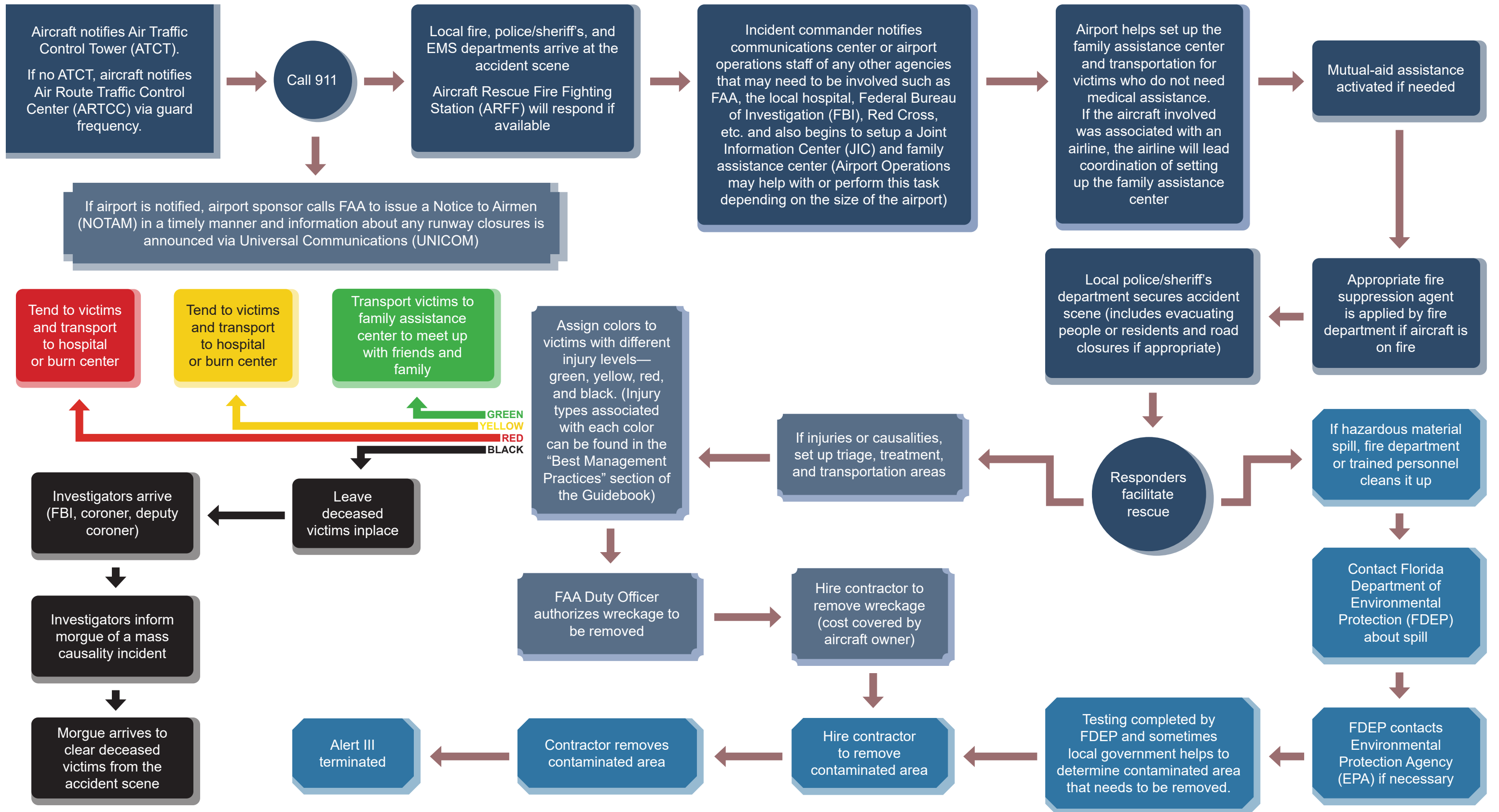
- SMOKE IN THE CABIN
- ENGINE ON FIRE
- FAULTY LANDING GEAR
- LOSS OF HYDRAULIC PRESSURE
- ONE ENGINE OUT ON A TWIN ENGINE WEIGHING < 12,500 LBS.



Alert III — Accident (Off Airport)



Alert III — Accident (On Airport)



ATTACHMENT F – FUEL FARM QUALITIES AND MATERIAL SAFETY DATA SHEETS (MSDS)

Fuel Farms					
Location	Size - Gallons	Quantity	Type	Permanent/ Mobile	Above/Below Ground
WarBird	xxx	1	AVGAS	Mobile	-
Euroflight	xxx	1	AVGAS	Mobile	-
Ranger/Atlantic	Xx,xxx	1	JETA	Permanent	Above
Ranger/Atlantic	Xx,xxx	1	AVGAS	Permanent	Above
OFT	Xxx,xxx	2	AVGAS/JETA	Permanent	Above
Marathon	xxx	2	AVGAS/JETA	Permanent	Below
Signature (Future)	xxx	1	JETA	Permanent	Above
Signature (Future)	xxx	1	AVGAS	Permanent	Above
Signature South	-	-	-	Decommissioned	Below
	xxx	2	AVGAS/JETA	Permanent	Below

Appendix E

NTSB Accident Reporting

Appendix E1
Regulatory Guidelines for Accident Reporting

49 CFR PART 830

Regulations under Title 49 Code of Federal Regulations (CFR) Part 830, Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage, Mail, Cargo, and Records, are split into four subparts that provide applicability and definitions (Subpart A), regulate the notification of aircraft accidents (Subpart B), the preservation of aircraft wreckage (Subpart C), and the reporting of aircraft accidents (Subpart D). If an accident occurs on-airport property, it is important for airport staff to follow the regulations described herein to ensure compliance with 49 CFR Part 830. An overview of the regulations under Subparts A, B, C, and D (as of November 16, 2020) are provided below. For more information or the most recent version, please visit <https://www.ecfr.gov/>.

SUBPART A - GENERAL

APPLICABILITY

This part contains rules pertaining to:

- Initial notification and later reporting of aircraft accidents and incidents and certain other occurrences in the operation of aircraft, wherever they occur, when they involve civil aircraft of the United States; when they involve certain public aircraft, as specified in this part, wherever they occur; and when they involve foreign civil aircraft where the events occur in the United States, its territories, or its possessions.
- Preservation of aircraft wreckage, mail, cargo, and records involving all civil and certain public aircraft accidents, as specified in this part, in the United States and its territories or possessions.

DEFINITIONS

As used in this part the following words or phrases are defined as follows:

- **Aircraft accident** means an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage. For purposes of this part, the definition of “aircraft accident” includes “unmanned aircraft accident,” as defined herein.
- **Civil aircraft** means any aircraft other than a public aircraft.
- **Fatal injury** means any injury which results in death within 30 days of the accident.
- **Incident** means an occurrence, other than an accident, associated with the operation of an aircraft, which affects or could affect the safety of operations.
- **Operator** means any person who causes or authorizes the operation of an aircraft, such as the owner, lessee, or bailee of an aircraft.
- **Public aircraft** means an aircraft used only for the United States Government, or an aircraft owned and operated (except for commercial purposes) or exclusively leased for at least 90 continuous days by

a government other than the United States Government, including a State, the District of Columbia, a territory or possession of the United States, or a political subdivision of that government. “Public aircraft” does not include a government-owned aircraft transporting property for commercial purposes and does not include a government-owned aircraft transporting passengers other than: transporting (for other than commercial purposes) crewmembers or other persons aboard the aircraft whose presence is required to perform, or is associated with the performance of, a governmental function such as firefighting, search and rescue, law enforcement, aeronautical research, or biological or geological resource management; or transporting (for other than commercial purposes) persons aboard the aircraft if the aircraft is operated by the Armed Forces or an intelligence agency of the United States. Notwithstanding any limitation relating to use of the aircraft for commercial purposes, an aircraft shall be considered to be a public aircraft without regard to whether it is operated by a unit of government on behalf of another unit of government pursuant to a cost reimbursement agreement, if the unit of government on whose behalf the operation is conducted certifies to the Administrator of the Federal Aviation Administration that the operation was necessary to respond to a significant and imminent threat to life or property (including natural resources) and that no service by a private operator was reasonably available to meet the threat.

- **Serious injury** means any injury which: (1) Requires hospitalization for more than 48 hours, commencing within 7 days from the date of the injury was received; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) causes severe hemorrhages, nerve, muscle, or tendon damage; (4) involves any internal organ; or (5) involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.
- **Substantial damage** means damage or failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component. Engine failure or damage limited to an engine if only one engine fails or is damaged, bent fairings or cowling, dented skin, small punctured holes in the skin or fabric, ground damage to rotor or propeller blades, and damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wingtips are not considered “substantial damage” for the purpose of this part.
- **Unmanned aircraft accident** means an occurrence associated with the operation of any public or civil unmanned aircraft system that takes place between the time that the system is activated with the purpose of flight and the time that the system is deactivated at the conclusion of its mission, in which:
 - Any person suffers death or serious injury; or
 - The aircraft has a maximum gross takeoff weight of 300 pounds or greater and sustains substantial damage.

SUBPART B - INITIAL NOTIFICATION OF AIRCRAFT ACCIDENTS, INCIDENTS, AND OVERDUE AIRCRAFT

IMMEDIATE NOTIFICATION

The operator of any civil aircraft, or any public aircraft not operated by the Armed Forces or an intelligence agency of the United States, or any foreign aircraft shall immediately, and by the most expeditious means available, notify the nearest National Transportation Safety Board (NTSB) office when an aircraft accident or any of the following listed serious incidents occur:

- Flight control system malfunction or failure;

- Inability of any required flight crewmember to perform normal flight duties as a result of injury or illness;
- Failure of any internal turbine engine component that results in the escape of debris other than out the exhaust path;
- In-flight fire;
- Aircraft collision in flight;
- Damage to property, other than the aircraft, estimated to exceed \$25,000 for repair (including materials and labor) or fair market value in the event of total loss, whichever is less.
- For large multiengine aircraft (more than 12,500 pounds maximum certificated takeoff weight):
 - In-flight failure of electrical systems which requires the sustained use of an emergency bus powered by a back-up source such as a battery, auxiliary power unit, or air-driven generator to retain flight control or essential instruments;
 - In-flight failure of hydraulic systems that results in sustained reliance on the sole remaining hydraulic or mechanical system for movement of flight control surfaces;
 - Sustained loss of the power or thrust produced by two or more engines; and
 - An evacuation of an aircraft in which an emergency egress system is utilized.
- Release of all or a portion of a propeller blade from an aircraft, excluding release caused solely by ground contact;
- A complete loss of information, excluding flickering, from more than 50 percent of an aircraft's cockpit displays known as:
 - Electronic Flight Instrument System (EFIS) displays;
 - Engine Indication and Crew Alerting System (EICAS) displays;
 - Electronic Centralized Aircraft Monitor (ECAM) displays; or
 - Other displays of this type, which generally include a primary flight display (PFD), primary navigation display (PND), and other integrated displays;
- Airborne Collision and Avoidance System (ACAS) resolution advisories issued when an aircraft is being operated on an instrument flight rules flight plan and compliance with the advisory is necessary to avert a substantial risk of collision between two or more aircraft.
- Damage to helicopter tail or main rotor blades, including ground damage, that requires major repair or replacement of the blade(s);
- Any event in which an operator, when operating an airplane as an air carrier at a public-use airport on land:
 - Lands or departs on a taxiway, incorrect runway, or other area not designed as a runway; or

- Experiences a runway incursion that requires the operator or the crew of another aircraft or vehicle to take immediate corrective action to avoid a collision.
 - An aircraft is overdue and is believed to have been involved in an accident.

NTSB headquarters is located at 490 L'Enfant Plaza SW., Washington, DC 20594. Contact information for the NTSB's regional offices is available at <http://www.nts.gov>. To report an accident or incident, you may call the NTSB Response Operations Center, at 844-373-9922 or 202-314-6290.

INFORMATION TO BE GIVEN IN NOTIFICATION

The notification required in §830.5 of 49 CFR Part 830 shall contain the following information, if available:

- Type, nationality, and registration marks of the aircraft;
- Name of owner, and operator of the aircraft;
- Name of the pilot-in-command;
- Date and time of the accident;
- Last point of departure and point of intended landing of the aircraft;
- Position of the aircraft with reference to some easily defined geographical point;
- Number of persons aboard, number killed, and number seriously injured;
- Nature of the accident, the weather and the extent of damage to the aircraft, so far as is known; and
- A description of any explosives, radioactive materials, or other dangerous articles carried.

SUBPART C - PRESERVATION OF AIRCRAFT WRECKAGE, MAIL, CARGO, AND RECORDS

PRESERVATION OF AIRCRAFT WRECKAGE, MAIL, CARGO, AND RECORDS

- The operator of an aircraft involved in an accident or incident for which notification must be given is responsible for preserving to the extent possible any aircraft wreckage, cargo, and mail aboard the aircraft, and all records, including all recording mediums of flight, maintenance, and voice recorders, pertaining to the operation and maintenance of the aircraft and to the airmen until the NTSB takes custody thereof or a release is granted pursuant to §831.12(b) of this chapter.
- Prior to the time the NTSB or its authorized representative takes custody of aircraft wreckage, mail, or cargo, such wreckage, mail, or cargo may not be disturbed or moved except to the extent necessary:
 - To remove persons injured or trapped;
 - To protect the wreckage from further damage; or
 - To protect the public from injury.

- Where it is necessary to move aircraft wreckage, mail or cargo, sketches, descriptive notes, and photographs shall be made, if possible, of the original positions and condition of the wreckage and any significant impact marks.
- The operator of an aircraft involved in an accident or incident shall retain all records, reports, internal documents, and memoranda dealing with the accident or incident, until authorized by the NTSB to the contrary.

SUBPART D - REPORTING OF AIRCRAFT ACCIDENTS, INCIDENTS, AND OVERDUE AIRCRAFT

REPORTS AND STATEMENTS TO BE FILED

- **Reports.** The operator of a civil, public (as specified in §830.5), or foreign aircraft shall file a report on NTSB Form 6120. 1/2 (OMB No. 3147-0001) within 10 days after an accident, or after 7 days if an overdue aircraft is still missing. A report on an incident for which immediate notification is required by §830.5(a) shall be filed only as requested by an authorized representative of the NTSB.
- **Crewmember statement.** Each crewmember, if physically able at the time the report is submitted, shall attach a statement setting forth the facts, conditions, and circumstances relating to the accident or incident as they appear to him. If the crewmember is incapacitated, he shall submit the statement as soon as he is physically able.
- **Where to file the reports.** The operator of an aircraft shall file any report with the field office of the NTSB nearest the accident or incident.

Forms are available from the NTSB field offices, from NTSB headquarters in Washington, DC, and from the Federal Aviation Administration Flight Standards District Offices.

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Appendix E2
NTSB Accident Form and
Responding to a Transportation
Accident

NATIONAL TRANSPORTATION SAFETY BOARD
NTSB Form 6120.1
PILOT/OPERATOR AIRCRAFT ACCIDENT/INCIDENT REPORT

Email the pilot/operator aircraft accident/incident report to the investigator-in-charge of your accident/incident. If email is not available, mail the report per the instructions below.

If your accident/incident occurred in Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, Delaware, Virginia, West Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Mississippi, Alabama, Georgia, Florida, the District of Columbia, Puerto Rico, or the US Virgin Islands, send the form to: NTSB, ERA, 45065 Riverside Parkway, Ashburn, VA 20147.

If your accident/incident occurred in Ohio, Michigan, Indiana, Wisconsin, Illinois, Minnesota, Iowa, Missouri, Arkansas, Louisiana, North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Texas, Colorado, or New Mexico, send the form to: NTSB, CEN, 4760 Oakland Street, Suite 500, Denver, CO 80239.

If your accident/incident occurred in Montana, Wyoming, Idaho, Utah, Arizona, Nevada, Washington, Oregon, California, Hawaii, or the territories of Guam or American Samoa, send the form to: NTSB, WPR, 505 South 336th Street, Suite 540, Federal Way, WA 98003.

If your accident/incident occurred in Alaska, send the form to: NTSB, ANC, 222 West 7th Avenue, Room 216, Box 11, Anchorage, AK 99513.

Rules pertaining to notification of aircraft accidents and incidents, as well as overdue aircraft are found in 49 *Code of Federal Regulations* (CFR) Part 830 http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&tpl=/ecfrbrowse/Title49/49cfr830_main_02.tpl. These rules state the authority of the NTSB, define accidents, incidents, injuries, and other terms, and provide procedures for initial and immediate notification of accidents and incidents by aircraft pilots/operators.

A. APPLICABILITY

The pilot/operator of an aircraft shall send a report to the office listed above, based on accident/incident location; immediate notification is required by 49 CFR 830.5(a). **The report shall be filed within 10 days after an accident for which notification is required by Section 830.5, or after 7 days if an overdue aircraft is still missing.**

An aircraft accident, as defined in 49 CFR 830.2, is determined as an occurrence that involves a fatality or serious injury, or substantial damage to the aircraft. For occurrences that do not involve a fatality, the determination that the occurrence is an accident can be appealed by writing to the Director, Office of Aviation Safety, NTSB, 490 L'Enfant Plaza, S.W., Washington, D.C. 20594.

INSTRUCTIONS TO PILOTS/OPERATORS FOR COMPLETING THIS FORM

It is necessary that ALL questions on this report be answered completely and accurately.

If more space is needed, continue on a blank sheet of paper.

Nearest City/Place: Use the name of the nearest community in the state where the accident/incident occurred.

Date/Time: Indicate the date and local time of the event. Be sure to indicate the time zone.

Phase of Operation: Indicate the phase of operation during which the accident/incident occurred.

Aircraft Information: Enter aircraft make and model information as indicated on the aircraft registration certificate, including series. If the involved aircraft is certified as "amateur-built," include the name of the producer of the kit or plans, unless an NTSB employee instructs otherwise.

Maximum Gross Weight: Enter the certificated maximum gross weight for the aircraft involved in the occurrence. This should be the same as the maximum gross weight indicated on the aircraft weight and balance documents.

Engine: Enter engine make and model information as indicated on the engine data plate.

The NTSB uses this form for aircraft accident prevention activities and for statistical purposes. NTSB regulations (49 CFR Part 830) require that **ALL** questions be answered completely and accurately. Completion of this form will take approximately 60 minutes. The NTSB does not guarantee the privacy of any information provided in this form. You need not complete this form unless it displays a valid OMB control number, in accordance with 5 C.F.R. § 1320.5(b), which applies to this collection of information.

B. DEFINITIONS

1. "Aircraft Accident" means an occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death, or serious injury, or in which the aircraft receives substantial damage. For purposes of this form, the definition of "aircraft accident" includes "unmanned aircraft accident," as defined at 49 CFR 830.2.

2. "Substantial Damage" means damage or failure that adversely affects the structural strength, performance or flight characteristics of the aircraft, and that would normally require major repair or replacement of the affected component. NOTE: Engine failure or damage limited to an engine if only one engine fails or is damaged, bent fairing or cowl, dented skin, small puncture holes in the skin or fabric, ground damage to rotor or propeller blades, and damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wing tips are not considered "substantial damage" for purposes of this report.

3. "Operator" means any person who causes or authorizes the operation of an aircraft, such as the owner, lessee, or bailee of an aircraft.

4. "Fatal Injury" means any injury that results in death within thirty (30) days of the accident.

5. "Serious Injury" means any injury that (1) requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; (2) results in a fracture of any bone (except simple fracture of fingers, toes, or nose); (3) causes severe hemorrhages, nerve, muscle, or tendon damage; (4) involves injury to any internal organ; or (5) involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.

Type of Fire Extinguishing System: If a fire extinguishing system was used to fight an aircraft fire, specify the type(s) of extinguishing system(s) used. Examples include handheld extinguisher, engine fire bottle, cargo/baggage compartment fire suppression system, or airport emergency ground equipment.

Owner/Operator Information: Enter the owner information as shown on the registration certificate. Commercial operators, enter the operator information, including "doing business as" when applicable, as shown on the operator certificate.

Revenue Sightseeing Flight: Indicate whether the accident aircraft was conducting **revenue** sightseeing operations under 14 CFR Part 91 at the time of the accident.

Air Medical Flight: Indicate whether the accident flight was being conducted for the purpose of carrying medical personnel, patient(s), or organs.

Public Aircraft: Federal, state or local government flight operations such as official travel, law-enforcement, low-level observation, aerial application, firefighting, search and rescue, biological or geological resource management, or aeronautical research. Indicate whether the flight was conducted by the armed forces, federal, state, or local government.

Purpose of Flight: 14 CFR Parts 91, 103, 133, 136, and 137: Indicate the type of operation that was being conducted at the time of the occurrence using the following definitions:

AERIAL APPLICATION--Operations using an aircraft to perform aerial application or dispersion of any substance. Examples include agricultural, health, forestry, cloud seeding, firefighting, insect control, etc.

AERIAL OBSERVATION--These flights include aerial mapping/photography, patrol, search and rescue, hunting, highway traffic advisory, ranching, surveillance, oil and mineral exploration, criminal pursuit, fish spotting, etc.

AIR DROP--Aerial operations, other than aerial application, that are intended to release items in flight.

AIR RACE/SHOW--Includes any flight operations conducted as part of an organized air race or public demonstration.

BUSINESS--includes all personal flying without a paid professional crew for reasons associated with furthering a business, including transportation to and from business meetings or work. This does not include corporate/executive operations, air taxi, or commuter operations.

EXECUTIVE/CORPORATE--Company flying with a paid, professional crew.

FERRY--Non-revenue flight under a special flight or "ferry" permit. Refer to 14 CFR 21.197 for details of special flight permit issuance.

FLIGHT TEST--Flight for the purpose of investigating the flight characteristics of an aircraft/aircraft component or evaluating an applicant for a pilot certificate or rating.

INSTRUCTIONAL--Flying while under the supervision of a flight instructor or receiving air carrier training. Personal proficiency flight operations and personal flight reviews, as required by federal air regulations, are excluded.

OTHER WORK USE--Miscellaneous flight operations conducted for compensation or hire such as construction work (not 14 CFR Part 135 operation), parachuting, aerial advertising, towing gliders, etc.

PERSONAL--Flying for personal reasons (excludes business transportation) including pleasure or personal transportation. This also includes practice or proficiency flights performed under flight instructor supervision and not part of an approved flight training program.

POSITIONING--Non-revenue flight conducted for the primary purpose of relocating the aircraft. Examples include moving the aircraft to a maintenance facility or to load passengers or cargo etc.

UNKNOWN--Use only if the primary purpose of flight is not known.

Other Aircraft--Collision: For all accidents involving a collision with another aircraft, including parked aircraft, check "Collision with other aircraft" under Basic Information and complete this section indicating details about the OTHER aircraft involved in the collision.

Airport Information: Complete this section if the accident/incident occurred on approach, landing, takeoff, departure, or within 3 statute miles of an airport. Please refer to the FAA Airport/Facility Directory or other official source for airport information.

Airport Identifier: Provide the official 3 or 4 character airport identifier number.

Runway: Indicate the number of the runway used, including L, R, or C if applicable.

Runway/Landing Surface: Indicate the type of intended runway/landing surface (do not indicate surface conditions). If the surface type was mixed, check all that apply.

Condition of Runway/Landing Surface: Indicate the condition of the intended runway/landing surface. If multiple conditions existed at the time of the accident, check all that apply.

Weather Information at the Accident/Incident Site: Indicate the weather conditions reported at the accident/incident site at the time of occurrence. If no weather reporting was available for the accident/incident site, indicate the reported conditions at the nearest reporting site. Specify the weather reporting site identifier, the observation time, and distance from the accident/incident.

Sky/Lowest Cloud Condition: Indicate the height above ground level of the lowest cloud condition present at the time of the accident/incident and whether coverage was reported as few, scattered, broken or overcast. Also indicate the height above ground level and coverage of the lowest cloud ceiling present at the time of the accident/incident (reported as broken or overcast).

NOTAMS (D and FDC), AIRMETs, SIGMETs, PIREPs: Describe all NOTAMS (distant (D) or Flight Data Center (FDC), if known), AIRMETs, SIGMETs, and PIREPs in effect near the accident/incident.

Flight Crewmember Information: Indicate the category that best describes the capacity served by this flight crewmember at the time of the accident. The designators "Flight Crewmember 1" and "Flight Crewmember 2" do not refer to a specific pilot position or responsibility. If more than one pilot is aboard, they may be entered in any order and their capacity entered as appropriate.

Degree of Injury: See Definitions on the top half of Page 1 of the instructions. Minor injury is not defined. If an injury does not meet the criteria for another injury category, select Minor.

Date of Last Flight Review or Equivalent: Enter the date of the most recent flight review, or equivalent, completed by this pilot. Refer to 14 CFR 61.56 for accepted equivalents.

Type Ratings: List all type ratings on the pilot certificate. If the pilot holds no type ratings indicate "none." If the pilot holds a pilot certificate other than student and was flying an aircraft requiring an endorsement, enter the type and date of any logbook endorsement(s) for that aircraft. See 14 CFR 61 for examples of required endorsements.

Student Endorsements: If the pilot holds a student pilot certificate, enter all solo endorsements and dates on the student pilot certificate.

Flight Time: Complete the flight time matrix. Solo flight time should be included as "Pilot-in-Command (PIC)" and all dual flight instruction given should be included as "Time as Instructor."

Additional Flight Crewmembers: Complete this section if there were more than two required flight crewmembers on the aircraft. This also includes a check airman performing official duties but does not include cabin crew. State the capacity served by each included crewmember at the time of the accident.

Passenger(s)/Other Personnel: Enter identification and injury severity information for all passengers, cabin crew, and other personnel involved in the accident. See Page 1 of the instructions for the official definition of injury levels.

Several questions throughout the form allow for multiple responses; when appropriate, choose all responses that apply.

These instructions only pertain to major issue areas covered by NTSB Form 6120.1 Pilot/Operator Aircraft Accident/Incident Report. For additional definitions of questions and responses, please refer to www.nts.gov.

OWNER/OPERATOR INFORMATION

Registered Aircraft Owner
 Name: _____ City: _____
 State: _____ ZIP: _____
 Fractional Ownership Aircraft: Yes No Country: _____

Operator of Aircraft *Same As Registered Owner* *Same Address as Registered Owner*
 Name: _____ City: _____
 Doing Business As: _____ State: _____ ZIP: _____
 Air Carrier/Operator Designator (4 Character Code): _____ Country: _____

Operating Certificates Held <i>(Check all that apply)</i> None Flag Carrier Operating Certificate (FAR 121) Supplemental Air Cargo Foreign Air Carriers (FAR 129) Rotorcraft External Load (FAR 133) Commuter Air Carrier (FAR 135) On-Demand Air Taxi (FAR 135) Commercial Air Tour (FAR 136) Agricultural Aircraft (FAR 137) Pilot School (FAR 141) Certificate of Authorization or Waiver (COA) Commercial Space Transportation Experimental Permit Commercial Space Transportation License Other Operator of Large Aircraft	Regulation Flight Conducted Under FAR 91 FAR 129 FAR 415 FAR 103 FAR 133 FAR 431 FAR 121 FAR 135 FAR 435 FAR 125 FAR 137 FAR 437 FAR 91 Special Flight Non-US, Commercial Non-US, Non-commercial Public Aircraft <i>(Select one)</i> Armed Forces Federal State Local Unknown	Revenue Operation for FAR 121, 125, 129, 135 <i>(Select one for each group)</i> Scheduled or Commuter Domestic Non-Scheduled or Air Taxi International Passenger Cargo Mail Contract Only
	Purpose of Flight for FAR 91, 103, 133, 137 <i>(Select one)</i> Aerial Application Firefighting Unknown Aerial Observation Flight Test Air Drop Glider Tow Air Race/Show Instructional Banner Tow Other Work Use Business Personal Executive/Corporate Positioning External Load Skydiving Ferry	
Revenue Sightseeing Flight Yes No	Air Medical Flight Yes No	

AIRPORT INFORMATION (Fill in if accident/incident occurred on approach, landing, takeoff, departure, or within 3 miles of an airport)

Airport Name: _____ **Distance From Airport Center:** _____ sm
Airport Identifier: _____ **Direction From Airport:** _____ degrees true
Proximity to Airport: Off Airport/Airstrip On Airport/Airstrip N/A **Airport Elevation:** _____ ft. msl

Runway Information Runway ID: _____ (L/R/C) Length: _____ ft Width: _____ ft	Condition of Runway/Landing Surface <i>(Check all that apply)</i> Dry Snow-Compacted Water-Calm Holes Snow-Crusted Water-Choppy Ice Covered Snow-Dry Water-Glassy Rough Snow-Wet Wet Rubber Deposits Soft Slush-Covered Vegetation Unknown
Runway/Landing Surface <i>(Check all that apply)</i> Asphalt Grass/Turf Macadam Water Concrete Gravel Metal/Wood Dirt Ice Snow Unknown	

Approach/Departure Segment *(Select one)*

Taxi	VFR Departure	On Instrument Approach	Downwind	Low Approach
Takeoff	IFR Departure Procedure/Clearance	Landing	Base	Go Around
Initial Climb			Final	Aborted Landing (after touchdown)
			Crosswind	Unknown

IFR Approach <i>(Check all that apply)</i> None ADF/NDB PAR MLS Practice SDF Sidestep LDA GPS VOR/TVOR ILS ASR VOR/DME Localizer Only Visual TACAN LOC-back course Contact RNAV Circling Unknown	VFR Approach <i>(Check all that apply)</i> None Traffic Pattern Stop and Go Straight-In Touch and Go Valley/Terrain Following Simulated Forced Landing Go Around Forced Landing Full Stop Precautionary Landing Unknown
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“FLIGHT CREWMEMBER 1” INFORMATION

“Flight Crewmember 1” Responsibilities at the Time of Accident/Incident

Pilot Co-Pilot Student Pilot Flight Instructor Check Pilot Flight Engineer Other Flight Crew

“Flight Crewmember 1” was pilot flying Yes No

“Flight Crewmember 1” Identification

First Name: _____ City of Residence: _____
 Middle Initial: _____ State: _____ ZIP: _____
 Last Name: _____ Country: _____
 Age at time of Accident/Incident: _____ Date of Birth: _____ mm/dd/yyyy
 Certificate Number: _____

Degree of Injury None Fatal Minor Unknown Serious		Seat Occupied Left Front Unknown Right Rear Center Single			Restraint Type Available Used None None Lap only Lap only 3-point 3-point 4-point 4-point 5-point 5-point Unknown Unknown		Inflatable Restraints Not Installed Installed Not Deployed Deployed Unknown
Pilot Certificate(s) <i>(Check all that apply)</i> None Flight Instructor Commercial US Military Private Recreational Airline Transport Foreign Student Sport Flight Engineer							

Principal Occupation Pilot Other Unknown	Medical Certificate None Class 3 Class 1 Driver’s License (Sport Pilot only) Class 2 Unknown	Medical Certificate Validity Without limitations/waivers Unknown With limitations/waivers N/A Special Issuance	Date of Last Medical _____ mm/dd/yyyy
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Medical Certificate Limitations

Medical Certificate Special Issuance

Date of Last Flight Review or Equivalent, Including FAR 121/135 Checks: _____ mm/dd/yyyy	Flight Review Aircraft Make: _____ Model: _____
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Airplane Rating(s) <i>(Check all that apply)</i> None Single-Engine Land Single-Engine Sea Multiengine Land Multiengine Sea	Other Aircraft Rating(s) <i>(Check all that apply)</i> None Airship Balloon Glider Gyroplane Helicopter Powered Lift	Instrument Rating(s) <i>(Check all that apply)</i> None Airplane Helicopter Powered Lift	Instructor Rating(s) <i>(Check all that apply)</i> None Airplane Single-Engine Airplane Multi-Engine Gyroplane Powered Lift	Instrument Airplane Instrument Helicopter Helicopter Glider Sport
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Type Ratings	Student Endorsements <i>(Include dates)</i>

Flight Time <i>(Enter appropriate number of hours in each box)</i>	All Aircraft	This Make & Model	Airplane Single Engine	Airplane Multiengine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time										
Pilot in Command (PIC)										
Time as Instructor										
This Make/Model										
Last 90 Days										
Last 30 Days										
Last 24 Hours										

“FLIGHT CREWMEMBER 2” INFORMATION

“Flight Crewmember 2” Responsibilities at the Time of Accident/Incident

Pilot Co-Pilot Student Pilot Flight Instructor Check Pilot Flight Engineer Other Flight Crew

“Flight Crewmember 2” was pilot flying Yes No

“Flight Crewmember 2” Identification

First Name: _____ City of Residence: _____
 Middle Initial: _____ State: _____ ZIP: _____
 Last Name: _____ Country: _____
 Age at time of Accident/Incident: _____ Date of Birth: _____ mm/dd/yyyy
 Certificate Number: _____

Degree of Injury None Fatal Minor Unknown Serious		Seat Occupied Left Front Unknown Right Rear Center Single			Restraint Type Available Used None None Lap only Lap only 3-point 3-point 4-point 4-point 5-point 5-point Unknown Unknown		Inflatable Restraints Not Installed Installed Not Deployed Deployed Unknown
Pilot Certificate(s) (Check all that apply) None Flight Instructor Commercial US Military Private Recreational Airline Transport Foreign Student Sport Flight Engineer							

Principal Occupation Pilot Other Unknown	Medical Certificate None Class 3 Class 1 Driver’s License (Sport Pilot only) Class 2 Unknown	Medical Certificate Validity Without limitations/waivers Unknown With limitations/waivers N/A Special Issuance	Date of Last Medical _____ mm/dd/yyyy
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Medical Certificate Limitations

Medical Certificate Special Issuance

Date of Last Flight Review or Equivalent, Including FAR 121/135 Checks: _____ mm/dd/yyyy	Flight Review Aircraft Make: _____ Model: _____
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Airplane Rating(s) (Check all that apply) None Single-Engine Land Single-Engine Sea Multiengine Land Multiengine Sea	Other Aircraft Rating(s) (Check all that apply) None Airship Balloon Glider Gyroplane Helicopter Powered Lift	Instrument Rating(s) (Check all that apply) None Airplane Helicopter Powered Lift	Instructor Rating(s) (Check all that apply) None Airplane Single-Engine Airplane Multi-Engine Gyroplane Powered Lift	Instrument Airplane Instrument Helicopter Helicopter Glider Sport
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Type Ratings	Student Endorsements (Include dates)
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Flight Time (Enter appropriate number of hours in each box)	All Aircraft	This Make & Model	Airplane Single Engine	Airplane Multiengine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time										
Pilot in Command (PIC)										
Time as Instructor										
This Make/Model										
Last 90 Days										
Last 30 Days										
Last 24 Hours										

ADDITIONAL FLIGHT CREWMEMBERS (Exclusive of cabin crew, complete the following information)

Crew Name and Address				Seat Occupied		Injury
First Name: _____	City of Residence: _____			Left	Front	None
Middle Initial: _____	State: _____	ZIP: _____		Center	Rear	Minor
Last Name: _____	Country: _____			Right	Single	Serious
					Unknown	Fatal
						Unknown
Pilot Certificate(s) (Check all that apply)				Restraint Type:		Inflatable Restraints
None	Flight Instructor	Commercial	US Military	Available	Used	
Private	Recreational	Airline Transport	Foreign	None	None	Not Installed
Student	Sport	Flight Engineer		Lap Only	Lap Only	Installed
				3-point	3-point	Not Deployed
				4-point	4-point	Deployed
				5-point	5-point	Unknown
				Unknown	Unknown	
Type Rating/Endorsement for Accident/Incident Aircraft?			Total Flight Time at the Time of this Accident/Incident: _____ hrs			
Yes	No					

Crew Name and Address				Seat Occupied		Injury
First Name: _____	City of Residence: _____			Left	Front	None
Middle Initial: _____	State: _____	ZIP: _____		Center	Rear	Minor
Last Name: _____	Country: _____			Right	Single	Serious
					Unknown	Fatal
						Unknown
Pilot Certificate(s) (Check all that apply)				Restraint Type:		Inflatable Restraints
None	Flight Instructor	Commercial	US Military	Available	Used	
Private	Recreational	Airline Transport	Foreign	None	None	Not Installed
Student	Sport	Flight Engineer		Lap Only	Lap Only	Installed
				3-point	3-point	Not Deployed
				4-point	4-point	Deployed
				5-point	5-point	Unknown
				Unknown	Unknown	
Type Rating/Endorsement for Accident/Incident Aircraft?			Total Flight Time at the Time of this Accident/Incident: _____ hrs			
Yes	No					

PASSENGER(S) / OTHER PERSONNEL (Include cabin crew; continue on separate sheet if necessary)

Name and Address			Seat	Injury	Restraint Type		Inflatable Restraints	Age
First Name: _____	City : _____		Left Center Right Unknown Row: ____	None Minor Serious Fatal Unknown	Available	Used	Not Installed Installed Not Deployed Deployed Unknown	Under 5 years <i>If Under 5,</i> Child Restraint Lap-Held Unknown
Middle Initial: _____	State: _____	ZIP: _____			None	None		
Last Name: _____	Country: _____				Lap Only	Lap Only		
					3-point	3-point		
					4-point	4-point		
			5-point	5-point				
			Unknown	Unknown				
Crew	Passenger	Other						
First Name: _____	City : _____		Left Center Right Unknown Row: ____	None Minor Serious Fatal Unknown	Available	Used	Not Installed Installed Not Deployed Deployed Unknown	Under 5 years <i>If Under 5,</i> Child Restraint Lap-Held Unknown
Middle Initial: _____	State: _____	ZIP: _____			None	None		
Last Name: _____	Country: _____				Lap Only	Lap Only		
					3-point	3-point		
					4-point	4-point		
			5-point	5-point				
			Unknown	Unknown				
Crew	Passenger	Other						
First Name: _____	City : _____		Left Center Right Unknown Row: ____	None Minor Serious Fatal Unknown	Available	Used	Not Installed Installed Not Deployed Deployed Unknown	Under 5 years <i>If Under 5,</i> Child Restraint Lap-Held Unknown
Middle Initial: _____	State: _____	ZIP: _____			None	None		
Last Name: _____	Country: _____				Lap Only	Lap Only		
					3-point	3-point		
					4-point	4-point		
			5-point	5-point				
			Unknown	Unknown				
Crew	Passenger	Other						
First Name: _____	City : _____		Left Center Right Unknown Row: ____	None Minor Serious Fatal Unknown	Available	Used	Not Installed Installed Not Deployed Deployed Unknown	Under 5 years <i>If Under 5,</i> Child Restraint Lap-Held Unknown
Middle Initial: _____	State: _____	ZIP: _____			None	None		
Last Name: _____	Country: _____				Lap Only	Lap Only		
					3-point	3-point		
					4-point	4-point		
			5-point	5-point				
			Unknown	Unknown				
Crew	Passenger	Other						

FLIGHT ITINERARY INFORMATION

Last Departure Point Airport ID: _____ City: _____ State: _____ Country: _____	Time of Departure Time: _____ Time Zone: _____	Destination Airport ID: _____ City: _____ State: _____ Country: _____	Type Flight Plan Filed None VFR/IFR Company VFR IFR Military VFR Unknown VFR Activated? Yes No Unknown
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Type of ATC Clearance/Service *(Check all that apply)*

None VFR	Special VFR IFR	Special IFR VFR On Top	VFR Flight Following Traffic Advisory	Cruise Unknown / NA
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Airspace where the accident/incident occurred *(Check all that apply)*

Class A	Class G	Military Operations Area (MOA)	Special	Altitude of In-Flight Occurrence: _____ ft msl
Class B	Demo Area	Airport Advisory Area	Air Traffic Control Area	
Class C	Warning Area	Jet Training Area	Unknown	
Class D	Prohibited Area	TRSA		
Class E	Restricted Area	FAR 93		

WEATHER INFORMATION AT THE ACCIDENT/INCIDENT SITE

Source of Pilot Weather Information <i>(Check all that apply)</i> National Weather Service Flight Service Station TV/Radio Automated Report Commercial Weather Service (DUATS) On-Board Weather Company Military Internet None Unknown	Weather Observation Facility Facility ID: _____ Observation Time: _____ Time Zone: _____ Distance from Accident Site: _____ nm Direction from Accident Site: _____ degrees true
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Basic Conditions VMC IMC Unknown	Light Condition Dawn Dusk Day Night Dark Night Bright Night Unknown
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Sky/Lowest Cloud Condition Clear Few Partial Obscuration Scattered Thin Broken Thin Overcast Unknown Lowest Cloud Condition Height _____ ft agl	Ceiling None (Clear) Broken Overcast Obscured Indefinite Unknown Ceiling Height _____ ft agl	Temperature: _____ (C) or _____ (F) Dew Point: _____ (C) or _____ (F) Altimeter Setting: _____ in. Hg or _____ MB
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Wind Direction Variable -or- Direction: _____ degrees true	Wind Speed Calm Light and Variable -or- Speed: _____ kts	Wind Gusts Not Gusting -or- Speed: _____ kts	Visibility _____ miles RVR: _____ feet RVV: _____ miles Density Altitude: _____ ft
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Intensity of Precipitation Light Moderate Heavy N/A Unknown	Type of Precipitation <i>(Check all that apply)</i> None Rain Snow Hail Rain Showers Drizzle Ice Pellets Snow Pellets Snow Grains Ice Crystals Freezing Rain Snow Shower Ice Pellets Shower Freezing Drizzle	Restriction to Visibility <i>(Check all that apply)</i> None Blowing Dust Blowing Sand Blowing Snow Blowing Spray Dust Fog Ground Fog Haze Ice Fog Smoke Unknown
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Icing Forecast <table style="width: 100%;"> <tr> <th>Amount</th> <th>Type</th> </tr> <tr> <td>None</td> <td>N/A</td> </tr> <tr> <td>Trace</td> <td>Rime</td> </tr> <tr> <td>Light</td> <td>Clear</td> </tr> <tr> <td>Moderate</td> <td>Mixed</td> </tr> <tr> <td>Severe</td> <td>Unknown</td> </tr> <tr> <td>Unknown</td> <td></td> </tr> </table>	Amount	Type	None	N/A	Trace	Rime	Light	Clear	Moderate	Mixed	Severe	Unknown	Unknown		Icing Actual <table style="width: 100%;"> <tr> <th>Amount</th> <th>Type</th> </tr> <tr> <td>None</td> <td>N/A</td> </tr> <tr> <td>Trace</td> <td>Rime</td> </tr> <tr> <td>Light</td> <td>Clear</td> </tr> <tr> <td>Moderate</td> <td>Mixed</td> </tr> <tr> <td>Severe</td> <td>Unknown</td> </tr> <tr> <td>Unknown</td> <td></td> </tr> </table>	Amount	Type	None	N/A	Trace	Rime	Light	Clear	Moderate	Mixed	Severe	Unknown	Unknown		Turbulence <table style="width: 100%;"> <tr> <th>Type</th> <th>Severity</th> </tr> <tr> <td>None</td> <td>Light</td> </tr> <tr> <td>Clear Air</td> <td>Moderate</td> </tr> <tr> <td>Terrain-Induced</td> <td>Severe</td> </tr> <tr> <td>Convective Turbulence</td> <td>Extreme</td> </tr> </table>	Type	Severity	None	Light	Clear Air	Moderate	Terrain-Induced	Severe	Convective Turbulence	Extreme
Amount	Type																																							
None	N/A																																							
Trace	Rime																																							
Light	Clear																																							
Moderate	Mixed																																							
Severe	Unknown																																							
Unknown																																								
Amount	Type																																							
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Light	Clear																																							
Moderate	Mixed																																							
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Type	Severity																																							
None	Light																																							
Clear Air	Moderate																																							
Terrain-Induced	Severe																																							
Convective Turbulence	Extreme																																							

NOTAMs (D and FDC), AIRMETs, SIGMETs, PIREPs in effect at the time of the accident/incident:

DAMAGE TO AIRCRAFT AND OTHER PROPERTY

Aircraft Damage

None Substantial
Minor Destroyed
 Unknown

Aircraft Fire

None Both Ground and In-Flight
In-Flight Fire at Unknown Time
On-Ground Unknown

Aircraft Explosion

None Both Ground and In-Flight
In-Flight Explosion at Unknown Time
On-Ground Unknown

Description of Damage to Aircraft and Other Property *(Use additional sheet if necessary)*

NARRATIVE HISTORY OF FLIGHT *(Please type or print in ink)*

Describe what occurred in chronological order, including circumstances leading to and nature of accident/incident. Describe terrain and include wreckage distribution sketch if pertinent. Attach extra sheets if needed. State departure time and and location, services obtained, and intended destination. Provide as much detail as possible.

RECOMMENDATION (How could this accident/incident have been prevented?)

Operator/Owner Safety Recommendation

MECHANICAL MALFUNCTION/FAILURE (If more space is needed, continue on separate sheet)

Was there Mechanical Malfunction/Failure? Yes No
 (If yes, list the name of the part, manufacturer, part no., serial no., and describe the failure.)

Total Time/Cycles On Part

_____ Hours

_____ Cycles

Time Since This Part Inspected/Overhauled

_____ Hours

FUEL & SERVICES INFORMATION**Fuel on Board at Last Takeoff**

(Convert from pounds, as necessary)

_____ Gallons

Fuel Type

80/87

115/145

Jet B

Other, specify _____

100 Low Lead

Jet A

JP8

100/130

Jet A-1

Automotive

Other Services, if Any, Prior to Departure**EVACUATION OF AIRCRAFT**

Was an emergency evacuation of the aircraft performed? Yes No

Method of Exit – Describe how the occupants exited and how many occupants evacuated each location**OTHER AIRCRAFT – COLLISION (If air or ground collision occurred, complete this section for other aircraft)****Aircraft Registration Number**

Manufacturer: _____**Model:** _____**Damage to Other Aircraft**

Destroyed

Minor

Substantial

None

Registered Owner of Other Aircraft

Name: _____

City: _____

State: _____ ZIP: _____

Country: _____

Pilot of Other Aircraft

Name: _____

City: _____

State: _____ ZIP: _____

Country: _____

ADDITIONAL INFORMATION (Please type or print in ink)

Use this space if additional space is needed for any answers.

I HEREBY CERTIFY THAT THE ABOVE INFORMATION IS COMPLETE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Date of this Report _____ <i>mm/dd/yyyy</i>	Name of Pilot/Operator: _____ Signature: _____ <i>-- or --</i> Check here to electronically sign this document
--	--

If a Person Other than Pilot/Operator is Filing Report

Name: _____ **Title:** _____

Signature: _____

-- or -- Check here to electronically sign this document

FOR NTSB USE ONLY			
NTSB Accident/Incident No.	Reviewed by NTSB Regional Office	Name of Investigator	Date Report Received

Responding to a Transportation Accident

A GUIDE FOR POLICE AND PUBLIC SAFETY PERSONNEL

NTSB investigators employ procedures similar to those utilized by law enforcement. NTSB safety investigations, while concurrent, are also independent of police investigations. The NTSB will attempt to not interfere with any concurrent criminal investigation or preparation for prosecution.

For aviation accidents, 49 CFR 830.5 requires air carrier operators to notify the NTSB. The carrier will coordinate directly with NTSB investigators.

To report an incident/accident, please call 844-373-9922 to speak to a Watch Officer at the NTSB Response Operations Center (ROC) in Washington, DC.



UPON COMPLETION OF FIRST RESPONDER AND LIFE SAFETY ACTIVITIES

1. Secure scene and preserve evidence
2. Contact the NTSB at 844-373-9922

PROTECT LIFE, PROPERTY AND EVIDENCE

- Establish a security perimeter around the accident scene.
- Allow Public Safety Personnel access to preserve life, recover the fatally injured and stabilize hazardous materials.
- Prevent disturbance of the accident scene and the wreckage.
- Protect and preserve ground scars and marks made by the aircraft, vehicle, train, vessel, pipeline, and other physical evidence related to the accident.
- Document and photograph pavement evidence prior to re-opening of roadway. Mark possible evidence for analysis by the NTSB investigators upon arrival.
- Remove highway vehicles to a secure location and ensure that recovery operations do not alter critical pre-crash adjustments such as airbrake settings.
- Maintain a record of personnel who enter the accident scene.

How to Support the NTSB

PRIOR TO NTSB ARRIVAL, RESTRICT SCENE ACCESS TO AUTHORIZED PERSONNEL

- Police/Fire/EMS
- Medical Examiner/Coroner
- State and Federal OSHA
- Other Emergency Services Agencies

Aviation Accidents

- Federal Aviation Administration (FAA)
- Air Carrier/Operators investigative teams must call the NTSB at 844-373-9922 prior to scene entry

Rail/Transit Accidents

- Federal Railroad Administration (FRA)
- Federal Transit Administration (FTA)

Marine Accidents

- United States Coast Guard
- State or local waterway or harbor police

Pipeline and Hazardous Materials Accidents

- Pipeline and Hazards Materials Safety Agency (PHMSA)
- State pipeline regulator

Upon arrival of the NTSB, scene access should be coordinated with the NTSB and local law enforcement.

POTENTIAL HAZARDS AT AN ACCIDENT SCENE

Potentially dangerous materials that may be present include but are not limited to: toxic chemicals, pressurized objects (oxygen systems, hydraulic systems, accumulators, tires, airbag systems, evacuation chutes), chemical / fluids (fuel, oil, hydraulic fluids, battery acid and other oxidizers), fire bottles / extinguishers, flares, ballistic recovery systems (i.e. airframe parachutes), radioactive materials, explosives, railroad high voltage 3rd rails, railroad overhead wires.



WRECKAGE DOCUMENTATION

- Obtain the aircraft registration number (N number), name of marine vessel, truck, or bus operator, pipeline operator, railroad company, and any other unique identifying information.
- Photograph or video overall accident scene starting at the initial point of impact (if possible). Include equipment such as locomotives, cockpit or operators controls.
- Photograph or video ground scars or marks made by the aircraft, vehicle, train, pipeline or vessel.
- Secure any unsecured electronic data or video recorders that may have been dislodged in the accident.

INJURED/FATALITIES

- Gather patient transport information from EMS to account for all injured victims.
- Coordinate with the NTSB prior to documenting and recovering fatally injured victims. If the NTSB is not available, document the following prior to recovery of victims: original position of the remains, use/condition of restraint systems, use/condition of lifesaving equipment, and intentional or accidental manipulation of the wreckage, vessel control panels, machinery during the recovery process.
- Collect names and contact information for all persons injured and uninjured in the accident.

WITNESS DOCUMENTATION

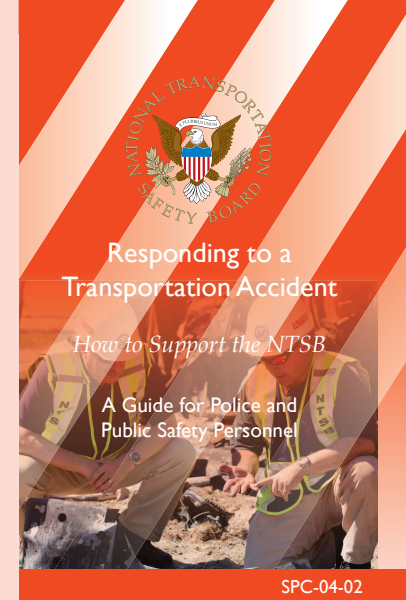
- Obtain name, address, email address and phone numbers.
- Determine location of witness relative to the accident site.
- Capture description of what they observed or heard.
- Identify the name of the person reporting accident (from 911 recordings).
- Obtain video or still photo images witness has of the accident scene.
- Identify and secure any video from security cameras.
- Secure cell phones, or other recording devices in the accident scene.

MEDIA RELATIONS

- Only the NTSB may release factual information on the investigation; do not speculate on the cause of the accident.
- Coordinate media releases and press conferences with the NTSB public affairs officer.
- The NTSB will not release names of crew members, passengers, or other victims associated with the accident.

CONTACT US

To report an incident/accident or if you are a public safety agency, please call 1-844-373-9922 to speak to a Watch Officer at the NTSB Response Operations Center (ROC) in Washington, DC.



Appendix F

Additional Resources and References

FAA ADVISORY CIRCULARS

Advisory circulars (AC) are offered by the Federal Aviation Administration (FAA) to provide guidance for compliance with aviation-related regulations, operations standards, emergency response, environmental requirements, and training standards. Included below are ACs that relate to emergency response and to aviation-related incidents. For more information and to access these and other ACs, please visit: http://www.faa.gov/airports/resources/advisory_circulars/.

- AC 90-42F/AC 90-66, *Traffic Advisory Practices at Airports without Operating Control Towers*
- AC 150/5200-12C, *Fire Department Responsibility in Protecting Evidence at the Scene of an Aircraft Accident*
- AC 150/5200-18C, *Airport Safety Self-Inspection*
- AC 150/5200-31C, *Airport Emergency Plan*
- AC 150/5200-32B, *Reporting Wildlife Aircraft Strikes*
- AC 150/5210-6D, *Aircraft Fire Extinguishing Agents*
- AC 150/5210-7D, *Aircraft Rescue and Firefighting Communications*
- AC 150/5210-13C, *Airport Water Rescue Plans and Equipment*
- AC 150/5210-14B, *Aircraft Rescue Fire Fighting Equipment, Tools and Clothing*
- AC 150/5210-15A, *Aircraft Rescue and Firefighting Station Building Design*
- AC 150/5210-17C, *Programs for Training of Aircraft Rescue and Firefighting Personnel*
- AC 150/5210-24, *Airport Foreign Object Debris Management*
- AC 150/5220-4B, *Water Supply Systems for Aircraft Fire and Rescue Protection*
- AC 150/5220-17B, *Aircraft Rescue and Firefighting Training Facility*
- AC 150/5230-4B, *Aircraft Fuel Storage, Handling, and Dispensing on Airports*
- AC 150/5320-15A, *Management of Airport Industrial Waste*

REFERENCES AND RESOURCES

AIRCRAFT OWNERS AND PILOTS ASSOCIATION AIRPORT WATCH PROGRAM

The Aircraft Owners and Pilots Association (AOPA) has partnered with the Transportation Security Administration (TSA) to develop a nationwide Airport Watch program. Call this national, toll-free, hotline number to report suspicious activity at your local general aviation airport to help ensure the security of general aviation aircraft and airport operations: **1-866-GA-SECURE**. The hotline is staffed 24 hours per day, 7 days per week.

AIRPORT COOPERATIVE RESEARCH PROGRAM

The Airport Cooperative Research Program (ACRP) was authorized in federal aviation legislation and began in 2006 as an industry-driven applied research program that develops near-term, practical solutions to problems faced by airport operators. ACRP is sponsored by the FAA and research topics are selected by an independent governing board appointed by the U.S. Secretary of Transportation that includes individuals from airports, universities, FAA, and the aviation industry. Every ACRP research project culminates in a research product, which may be a publication (e.g., report) or digital (e.g., web-based tool) product. All ACRP research publications are available at the National Academies Press and may be downloaded free of charge at: <https://www.nap.edu/author/ACRP/transportation-research-board/airport-cooperative-research-program>. Provided below is a list of ACRP resources that relate to emergency response planning.

- ACRP Impacts on Practice, *Improving Emergency Response at Airports*
- ACRP Impacts on Practice, *Standardizing Airport Incident Management Practices*
- ACRP Report 31 (Web-Only), *Improving Stakeholder Engagement in Aircraft Accident Response Planning*
- ACRP Report 73, *Airport-to-Airport Mutual Aid Programs*
- ACRP Report 171, *Establishing a Coordinated Local Family Assistance Program for Airports*
- ACRP Report 04-19, *Airport Emergency Planning Template: NIMS – Incident Command System Compliance*
- ACRP Synthesis Report 23, *Bird Harassment, Repellent, and Deterrent Techniques for Use On and Near Airports*
- ACRP Synthesis Report 32, *Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports*
- ACRP Synthesis Report 45, *Model Mutual Aid Agreements for Airports*

- ACRP Synthesis Report 50, *Effective Cooperation Among Airports and Local and Regional Emergency Management Agencies for Disaster Preparedness and Response*
- ACRP Synthesis Report 60, *Airport Emergency Post-Event Recovery Practices*
- ACRP Synthesis Report 72, *Tabletop and Full-Scale Emergency Exercises for General Aviation, Non-Hub, and Small Hub Airports*
- ACRP Synthesis Report 73, *Emergency Communications Planning for Airports*
- ACRP Synthesis Report 83, *Preparing Airports for Communicable Diseases on Arriving Flights*
- ACRP Synthesis Report 99, *Emergency Working Groups at Airports*
- ACRP Synthesis Report 115, *Practices in Airport Emergency Plans*
- ACRP Web Resource, Issue 8, *Integrating Social Media with Emergency Management at Airports*
- ACRP Web Resource, Issue 9, *Airport Emergency Plan Development Tool*

CIVIL AIR PATROL

The Civil Air Patrol (CAP) is a civilian corporation consisting of volunteers who pay dues and serve the United States as the auxiliary to the United States Air Force. The Florida Wing of the CAP is located in Lakeland, Florida.

Florida Wing CAP Headquarters

4040 Crossfield Way, Suite 6

Lakeland, FL 33811

Phone Number: (863) 644-0172

Alternate Phone Number: (863) 644-6307

Fax Number: (863) 644-0180

CODE OF FEDERAL REGULATIONS

The Code of Federal Regulations (CFR) details the federal regulations governing public-use airports in the United States (U.S.). Provided below are the primary regulations governing U.S. airports. For more information, please visit: www.ecfr.gov/.

- 14 CFR Part 139, *Airport Certification*
- 14 CFR Part 139.325, *Airport Emergency Plan*
- 14 CFR Part 139.319, *Aircraft Rescue and Firefighting: Operational Requirements*
- 29 CFR Part 1910, *Occupational Safety and Health Standards*
- 49 CFR Part 830, *Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage, Mail, Cargo, and Records*

- 49 CFR Part 831, *Accident/Incident Investigation Procedures*
- 49 CFR Part 1542, *Airport Security*

FEDERAL AVIATION ADMINISTRATION

The FAA's Accident/Incident Data System (AIDS) contains reports from 1978 to the present. To access the FAA's AIDS please visit: <https://www.asias.faa.gov/>. Once on the AIDS page, click on the "Data & Information" Tab and then on the "FAA Accident and Incident Data System" link.

FLIGHT STANDARDS DISTRICT OFFICES

The Flight Standards District Offices (FSDO) are part of the FAA. The nearest FSDO should be contacted about information regarding:

- Low-flying aircraft
- Accident reporting
- Air carrier certification and operations
- Aircraft maintenance
- Aircraft operational issues
- Aircraft permits
- Airmen certification (licensing) for pilots, mechanics, repairmen, dispatchers, and parachute riggers
- Certification and modification issues
- Enforcement of airmen and aircraft regulation

FSDO CONTACTS

Alabama & Northwest Florida FSDO

Serves the following Florida Counties: Bay, Calhoun, Escambia, Gulf, Holmes, Jackson, Okaloosa, Santa Rosa, Walton, and Washington; and all counties in Alabama.

1500 Urban Center Drive, Suite 250

Vestavia Hills, AL 35242

Phone: 205-876-1300

Fax: 205-876-1358

Website: http://www.faa.gov/about/office_org/field_offices/fsdo/anf/

8:00 a.m. to 4:30 p.m.

Monday – Friday

(Office visits by Appointment only)

Orlando FSDO

Services Alachua, Baker, Bradford, Brevard, Clay, Columbia, Duval, Flagler, Highlands, Indian River, Lake, Marion, Nassau, Okeechobee, Orange, Osceola, Polk, Putnam, Seminole, St. Johns, St. Lucie, Sumter, Union, Volusia, and Wakulla counties.

ATTN: FSDO-15,

8427 Southpark Circle, Suite 500,

Orlando, FL 32819-9060

Phone: 407-487-7000

Website: http://www.faa.gov/about/office_org/field_offices/fsdo/orl/

8:00 a.m. to 4:00 p.m.

Monday – Friday

(Office visits permitted on Tuesday and Thursday by appointment only)

North Florida FSDO (Tampa)

Services Charlotte, DeSoto, Dixie, Franklin, Gadsden, Gilchrist, Hamilton, Hardee, Hernando, Hillsborough, Jefferson, Lafayette, Lee, Leon, Levy, Liberty, Madison, Manatee, Pasco, Pinellas, Sarasota, Suwannee, Taylor, and Wakulla counties.

5601 Mariner Street, Suite 310

Tampa, FL 33609-3416

Phone: 813-287-4900

Fax: 813-287-4940

Website: http://www.faa.gov/about/office_org/field_offices/fsdo/tpa/

7:30 a.m. to 4:00 p.m.

Monday – Friday

(Office visits by appointment only)

South Florida FSDO (Miramar)

Services Glades, Hendry, Collier, Monroe, Miami-Dade, Broward, Palm Beach, and Martin counties.

2895 SW 145 Ave., Suite 120

Miramar, FL 33027

Phone: 954-641-6000

Fax: 954-641-6040

Website: http://www.faa.gov/about/office_org/field_offices/fsdo/mia/

8:00 a.m. to 4:30 p.m.

Monday – Friday

(Office visits by appointment only)

FEDERAL BUREAU OF INVESTIGATION

The Federal Bureau of Investigation (FBI) should be notified if you see something highly dangerous (weapons or explosives being loaded onto an aircraft) or if you believe that a crime or terrorist attack is going to occur. The FBI should also be notified if you believe an accident or incident is the result of a terrorist attack.

FLORIDA FBI CONTACTS

Jacksonville Field Office

Serves North and Central Florida
6061 Gate Parkway
Jacksonville, FL 32256
Phone: 904-248-7000

Website: <https://www.fbi.gov/contact-us/field-offices/jacksonville>

Tampa Field Office

Serves Central Florida
5525 West Gray Street
Tampa, FL 33609
Phone: 813-253-1000

Website: <https://www.fbi.gov/contact-us/field-offices/tampa>

Miami Field Office

Serves South Florida
2030 SW 145th Avenue
Miramar, FL 33027
Phone: (754) 703-2000

Website: <https://www.fbi.gov/contact-us/field-offices/miami>

FLORIDA DIVISION OF EMERGENCY MANAGEMENT

The Florida Division of Emergency Management (FDEM) plans and responds to both natural and man-made disasters, ranging from hurricanes to nuclear power incidents to hazardous material releases. During an emergency that extends beyond capabilities of local government, the FDEM Emergency Operations Center may be activated. To contact FDEM online, please visit: <https://www.floridadisaster.org/contact-us/>.

Florida Division of Emergency Management

2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100
Phone: 850-815-4000
For Hearing Impaired: 800-226-4329 (TDD/TTY)
State Watch Office: 850-815-4001

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Florida Department of Environmental Protection (FDEP) is the state's lead agency for environmental management and enforcement of environmental laws and regulations. FDEP consists of multiple regulatory divisions, including waste management, water resources, emergency response, air resources, and ecosystem restoration. In the event of an emergency, such as a spill of oil or hazardous materials, the Office of Emergency Response should be contacted to effectively respond to environmental pollution. Contact information for Emergency Response Offices is included in the table below. For more information on your district, please visit: www.dep.state.fl.us/secretary/dist.

FDEP EMERGENCY RESPONSE OFFICES	
Location	Phone Number
Tallahassee	850-245-2010
Pensacola (Central Time)	850-595-8300
Jacksonville	904-256-1700
Orlando	407-897-4100
Tampa	813-470-5954
Fort Myers	239-344-5600
West Palm Beach	561-681-6767

FLORIDA DIVISION OF FORESTRY

The Florida Division of Forestry offers technical information on current wildfire conditions and prescribed burning within the state. The Division of Forestry operates out of 15 local offices that can be contacted for authorization to perform a prescribed burn and to obtain information on how communities can protect themselves from the threats of wildfires. For more information on forest management in your region, please visit: <https://www.fdacs.gov/Divisions-Offices/Florida-Forest-Service/Our-Forests/Field-Operations>.

FLORIDA DEPARTMENT OF LAW ENFORCEMENT

The following numbers of the Florida Department of Law Enforcement should be called if you see something highly dangerous (weapons or explosives being loaded onto an aircraft) or if you believe that a crime or terrorist attack is going to occur. The table below includes contact information for the Regional Domestic Security Task Force (RDSTF). For more information on the RDSTF, please visit: <http://www.fdle.state.fl.us/Domestic-Security/Contact-Us.aspx>.

REGIONAL DOMESTIC SECURITY TASK FORCE CONTACT INFORMATION			
Region	Regional Area	Toll Free Call	Local Call
Pensacola	Northwest Florida	1-800-226-8574	850-595-2100
Tallahassee	North Florida	1-800-342-0820	850-410-7640
Jacksonville	Northeast Florida	1-800-226-6481	904-360-7100
Orlando	Central Florida	1-800-226-8521	407-245-0888
Miami	Southeast Florida	1-800-226-3023	305-470-5500
Ft. Myers	Southwest Florida	1-800-407-4880	239-278-7170
Tampa Bay	Tampa Bay	1-800-226-1140	813-878-7300

FLORIDA DEPARTMENT OF TRANSPORTATION AVIATION CONTACTS

The Florida Department of Transportation (FDOT) Aviation Office develops the Florida Aviation System Plan, promotes the development and improvement of Florida's airports, regulates airports, and protects airport approaches. A full list of FDOT Aviation contacts is included in the table below.

FDOT AVIATION OFFICE CONTACT LIST		
Title	Name	Phone
State Aviation		
State Aviation Manager	Aaron N. Smith	850-414-4514
Aviation Development		
Administrator	Andy Keith	850-414-4516
Aviation System Manager	Mike McClure	850-414-4506
Airport Planning Manager	Nick Harwell	850-414-4510
Airport Engineering Manager	Abdul Hatim, Ph.D.	850-414-4504
Aviation Operations		
Administrator	David Roberts	850-414-4507
Airport Inspection & Safety Manager	David Smith	850-414-4515
Aviation Communications Manager	Michael McDougall	850-414-4512
Private Airport and Finance Manager	Alice Lammert	850-414-4503
Airspace and Land Use Manager	Greg Jones	850-414-4502

FDOT AVIATION OFFICE CONTACT LIST		
Title	Name	Phone
District Contacts		
District 1 – Bartow	Wendy Sands	863-519-2520
	Kristi Smith	863-519-2265
District 2 - Lake City	Kyle Coffman	904-360-5686
	Donna Whitney	386-961-7377
District 3 - Chipley	Quinton Williams	850-330-1545
	Vanessa Strickland	850-330-1534
District 4 - Ft. Lauderdale	Lauren Rand	954-777-4490
	Laurie McDermott	954-777-4497
District 5 - Orlando	Allison McCuddy	386-943-5041
	Joe Jerkins	386-943-5040
District 6 - Miami	Dionne Richardson	305-470-5292
	Brittany Williams-Sanders	305-470-5541
District 7 - Tampa	Raymond Clark	813-975-6235
	Michael Brown	813-975-6643

FEDERAL EMERGENCY MANAGEMENT AGENCY

Federal Emergency Management Agency (FEMA) is the lead agency coordinating the federal government's prevention, response, mitigation, and recovery from domestic disasters, including man-made and natural disasters in the U.S. In the event of disaster, the FEMA helpline can be used for assistance during or after emergency events.

FEMA Helpline: 1-800-621-FEMA (3362)

TTY/TDD: 1-800-462-7585

Fax: 1-800-827-8112

Contact Us Webpage: <https://www.fema.gov/about/contact>

Information regarding Emergency Management Institute courses offered both online and on-campus can be found at the following website: <http://www.training.fema.gov/EMICourses>.

NATIONAL RESPONSE FRAMEWORK

National Response Framework is a guide to how the nation responds to all types of disasters and emergencies. It is structured to help jurisdictions, citizens, nongovernmental organizations, and businesses develop and integrate community plans for disasters and emergencies. For more information, please visit: <http://www.fema.gov/emergency/nrf>.

FLORIDA STATUTES AND FLORIDA ADMINISTRATIVE CODES (FAC)

The Florida Statutes and Florida Administrative Codes (FAC) detail regulations governing public-use airports in Florida. For more information, please visit: <https://www.flrules.org/>.

- Florida Statutes Chapter 376, *Pollutant Discharge Prevention and Removal*
- Florida Statutes Chapter 330, *Regulation of Aircraft, Pilots, and Airports*
- Florida Statutes Chapter 403, *Environmental Control*
- FAC 62-770.160, *Applicability*
- FAC 62-770.200, *Acronyms and Definitions*
- FAC 62-770.250, *Contamination Reporting*
- FAC 62-770.300, *Interim Source Removal*

HOMELAND SECURITY PRESIDENTIAL DIRECTIVE

The Department of Homeland Security (DHS) is a federal executive department responsible for public security. DHS has listed a number of Homeland Security Presidential Directives (HSPDs) that are applicable to U.S. airports. For more information on these HSPDs, please visit: <https://www.dhs.gov/presidential-directives>.

- HSPD-5: *Management of Domestic Incidents*
- HSPD-8: *National Preparedness*
- HSPD-11: *Comprehensive Terrorist-Related Screening Procedures*
- HSPD 16: *Aviation Security Policy*

ENVIRONMENTAL PROTECTION AGENCY

The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for protecting human health and the environment. They direct state environmental agencies to uphold and enforce federal regulations and standards that protect water, air, and land resources across the U.S. The EPA is also the lead federal response agency for oil spills occurring in inland waters.

EPA REGION 4 (SOUTHEAST)

United States Environmental Protection Agency
Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303-8960
Main: (404) 562-9900
Toll Free: 1-800-241-1754
Fax: (404) 562-8174

NATIONAL CONTINGENCY PLAN

The EPA should be notified in the event of an oil spill. As a part of Subpart J of the *National Oil and Hazardous Substances Pollution Contingency Plan*, the EPA prepares a schedule of dispersants, other chemicals, and oil spill mitigating devices and substances that may be used to remove or control oil discharges. For more information, please visit: <https://www.epa.gov/emergency-response/national-contingency-plan-subpart-j>.

NATIONAL RESPONSE CENTER

The National Response Center (NRC) is a part of the federally established National Response System and staffed 24 hours a day by the U.S. Coast Guard. The NRC is the federal point of contact for reporting all oil, chemical, radiological, and biological discharges into the environment of the U.S. and its territories. In the event of a chemical or oil spill at an airport facility, please call 800-424-8802. For more information on the NRC, please visit: <https://www.epa.gov/emergency-response/forms/contact-us-about-emergency-response>.

NATIONAL TRANSPORTATION SAFETY BOARD

Federal regulations require operators to notify the National Transportation Safety Board (NTSB) whenever an aviation accident or incident occurs. A phone call to the nearest regional office is initially sufficient, but a written follow-up is required. Furthermore, the standard NTSB form in **Appendix E** must be complete when an aviation emergency or incident occurs. The standard form must be submitted by either fax or mail to the NTSB office that was initially contacted. The contact information for the closest NTSB offices is listed below. If mailed, the Business Reply Mail cover should be used. For detailed information and a link to the Business Reply Mail cover and blank standard form, please visit: <https://www.nts.gov/Pages/Report.aspx>. To access the NTSB Accident Database & Synopses please visit: https://www.nts.gov/_layouts/nts.aviation/index.aspx.

EASTERN REGIONAL OFFICE

45065 Bles Park Drive
Ashburn, Virginia 20147
8:00 a.m. – 4:30 p.m. (ET)
Phone: 571-223-3930
Fax: 202-688-2591

DIVISION OF STATE FIRE MARSHALL

The Division of State Fire Marshal is the lead agency for emergency support functions at the State Emergency Operations Center during a disaster or state emergency. This agency should be contacted to make requests for resources and information from the local government where the accident or incident has occurred. For more information or to send an e-mail, please visit: <https://www.myfloridacfo.com/division/sfm/>.

TRANSPORTATION SECURITY ADMINISTRATION

The Transportation Security Administration (TSA) is a federal agency under the Department of Homeland Security (DHS) charged with protecting the nation's transportation systems. To submit a complaint, request information, or report a security issue, please visit the following link: <https://www.tsa.gov/contact/contact-forms>.

WEBSITES AND OTHER RESOURCES

The following websites and resources are provided to serve as a reference for more materials relating to aviation related incidents or accidents:

- Florida Department of Highway Safety and Motor Vehicles - www.flhsmv.gov/offices
- United States Coast Guard- District 7 - www.news.uscg.mil/District-7/
- U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration - www.phmsa.dot.gov
- U.S. Fire Administration - www.usfa.dhs.gov
- U.S. Government Publishing Office - www.gpo.gov/
- FEMA Emergency Management Institute - <http://Training.fema.gov/emiweb/is/is139lst.asp>
<http://www.training.fema.gov/EMICourses>
- CertAlert SO-10-04, Sept. 2010: Clarification of Training Frequency - https://www.faa.gov/airports/southern/airport_safety/part139_cert/certalerts/
- Independent Study (IS-139), FEMA, March 2003: Course Overview for Emergency Plan Preparedness - <https://training.fema.gov/is/crslist.aspx>
- FAA Wildlife Strike Database - <https://wildlife.faa.gov/home>
- The Office of Accident Investigation and Prevention - http://www.faa.gov/about/office_org/headquarters_offices/avs/offices/avp/
- ACRP AEP Development Tool - <https://crp.trb.org/acrp0419/> or <https://www.aepdevelopment.com/>