BY ORDER OF THE
SECRETARY OF THE AIR FORCE

AIR FORCE TACTICS, TECHNIQUES, AND PROCEDURES 3-4.13V1

1 March 2019

AIR MOBILITY LIAISON OFFICER

THIS PAGE INTENTIONALLY LEFT BLANK

BY ORDER OF THE SECRETARY OF THE AIR FORCE

AIR FORCE TACTICS, TECHNIQUES, AND PROCEDURES 3-4.13V1

1 March 2019

Tactical Doctrine

AIR MOBILITY LIAISON OFFICER

OPR: 423 MTS

Certified by: USAF EOS

Supersedes: N/A

(Col Mona E. Alexander)

Pages: 148

PURPOSE: The purpose of the is publication is to provide tactics, techniques, and procedures (TTP) to effectively employ air mobility liaison officers in support of joint air mobility operations.

SCOPE: This publication:

- Provides considerations for AMLO mission planning, preparation, and execution in support of aligned units.
- Provides TTP for AMLO support to joint forcible entry, landing zone, drop zone, defense support to civil authorities, and evacuation operations.
- Pertains to all certified AMLO personnel and personnel serving in air mobility liaison roles in both garrison and deployed environments.

APPLICATION: This publication applies to the operating forces of the regular Air Force, Air Force Reserve, and Air National Guard. TTP publications are not directive. Air Force Instruction (AFI) 33-360, *Publications and Forms Management* states, "Complying with publications in this category is expected, but not mandatory." The tactics, techniques, and procedures in this document are still authoritative; deviations require sound judgment and careful consideration. The applicable AFI will take precedence in cases where this publication and AFIs conflict. In accordance with *DOD Dictionary of Military and Associated Terms,* the following joint publication definitions apply:

Tactics—The employment and ordered arrangement of forces in relation to each other.

Techniques—Non-prescriptive ways or methods used to perform missions, functions, or tasks.

Procedures—Standard, detailed steps that prescribe how to perform specific tasks.

To contact 423 MTS directly: 423 MTS/TTP
5656 Texas Avenue
Joint Base McGuire-Dix-Lakehurst, NJ 08640
DSN: 650-7229
E-mail: Organization In-box - 423mts.ttp@us.af.mil

RECORDS MANAGEMENT: Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule located in the Air Force Records Information Management System. Refer recommended changes and questions about this publication to the office of primary responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate functional chain of command. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

JOHN R. GORDY II, Maj Gen, USAF
Commander
USAF Expeditionary Center (AMC)
Joint Base McGuire-Dix-Lakehurst, NJ

Paragraph Page

TABLE OF CONTENTS

Paragraph Page

Paragraph Page

Paragraph Page

Paragraph Page

Paragraph Page

Paragraph Page

Paragraph Page

Paragraph Page

Paragraph Page

Paragraph Page

THIS PAGE INTENTIONALLY LEFT BLANK

Figure Page

LIST OF FIGURES

THIS PAGE INTENTIONALLY LEFT BLANK

Table Page

LIST OF TABLES

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 1
OVERVIEW

1.1 Introduction. The United States (US) Air Force's ability to provide and project rapid global mobility supporting the full spectrum of military operations is a vital instrument of national power. This Air Force tactics, techniques, and procedures (AFTTP) provides the foundation for air mobility liaison officer (AMLO) operations directly supporting the US Air Force, Air Mobility Command (AMC), and all joint/coalition users of the air mobility system. The AMLO operates as a high demand, low-density asset supporting the six basic warfighting functions: command and control, intelligence, fires, movement and maneuver, protection, and sustainment. Refer to Joint Publication (JP) 3-0, *Joint Operations*.

1.2 Doctrine. The foundational doctrine associated with the AMLO mission is based in full spectrum air mobility employment. The AMLO typically operates alone or in a small team under mission command-type orders. Mission command is defined in Army Doctrine Publication (ADP) 6-0, *Mission Command* as the exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander's intent to empower agile and adaptive leaders. The definition of mission command from an Army doctrine publication is indicative of the joint environment the AMLO operates in, and requires awareness of all applicable joint/Service doctrine to remain relevant during performance of duties.

1.3 Organizations. The AMLO force aligns with organizations containing a wide range of missions and command relationships. This construct is evident through examination of in-garrison versus deployed operations. The AMLO force will exercise direct liaison authorized (DIRLAUTH) with all entities in the air mobility system to ensure mission accomplishment. This includes but is not limited to: US Transportation Command (USTRANSCOM); Air Force Transportation Component (AFTRANS), also referred to as AMC; all numbered Air Forces, air operations centers, and associated internal divisions globally; air mobility operation wings, air ground operation wings, and contingency response forces (CRF); theater deployment distribution operations centers; air mobility wing operation centers (WOC); mobility tactics offices worldwide. See **Chapter 2**, In-Garrison Responsibilities and **Chapter 3**, Deployed Responsibilities for more information.

1.4 Mission. The AMLO mission spans strategic, operational, and tactical levels of war as determined by ground force commander (GFC) intent and level of alignment (corps/division or below). This mission set is designed to cover the full spectrum of military operations while meeting the mission essential tasks of the AMLO force: user education, air mobility coordination, and landing/drop zone operations.

1.4.1 Strategic. The strategic level responsibilities of the AMLO primarily relate to the plans directorates (e.g., G-5, J-5, A-5) of both garrison and deployed staffs. The AMLO battle rhythm should include regular touch-points with their parent transregional combatant commander (USTRANSCOM) in order to stay abreast of policies and procedures that impact air mobility users. The AMLO facilitates the coordination of the AMC/A3 and supported unit's air transportation plan (ATP). When signed, the ATP formulates key facts and assumptions for operation plan (OPLAN) and crisis action planning (CAP) event execution for all combatant commands. ATPs list transported elements, required transportation methods, discuss feasibility of operations, and establish hierarchies of support required for full

mobilization. See **Chapter 4**, Strategic Operations and **Chapter 5**, Operational Planning for more information.

1.4.2 Operational. Operational level responsibilities flow from strategic plans into more detailed operational analysis. This is normally accomplished in the CAP process employing joint planning process (JPP), military decision-making process (MDMP), or Marine Corps planning process (MCPP). Here the AMLO actively integrates to ensure air mobility holistically supports the GFC's intent. The resultant course of action (COA) should meet desired criteria of suitable, feasible, and distinguishable—being fully supportable by air mobility. Successful accomplishment means a clear visualization of phase zero through five operations coming to fruition in the resultant time-phased force and deployment list (TPFDL).

1.4.3 Tactical. Tactical level responsibilities include guiding the aligned unit through the forward deployment process, assisting where necessary to enable follow on air mobility intratheater requirements in the deployed area of operations (AO), and posturing at an operational seam to maintain awareness of possible issues throughout the forward area. The AMLO is uniquely trained to support drop zone (DZ) and landing zone (LZ) operations, either directly or as a force multiplier by training others in accordance with Air Force Instruction (AFI) 13-217, *Drop Zone and Landing Zone Operations.*

CHAPTER 2

IN-GARRISON RESPONSIBILITIES

2.1 Overview. This chapter describes an AMLO's mission essential tasks while in-garrison. AMLOs integrate with command and control, advise on air mobility capabilities and limitations, and perform and enable landing and drop zone operations. AMLOs serve as an embedded focal point for airlift mission planning, capable of understanding both AMC and aligned unit mobility requirements. Being an active part of staff meetings, operation syncs, planning conferences, and exercises help an AMLO successfully integrate with the supported unit.

2.2 Operating Location. The operating location (OL) chief AMLO is responsible for the daily operations. Responsibilities include both administrative and operational coordination with higher headquarters (HHQ). In garrison and deployed, AMC/A3 retains operational control (OPCON) of all AMC assigned AMLOs. AMLOs are granted DIRLAUTH with functional and geographic air operations centers, joint deployment, and distribution operations center (JDDOC), commanders and other agencies, to facilitate information flow and support their assigned OL.

2.3 Integration. To integrate with the supported unit command and control, AMLOs should network, attend meetings, and establish working space within the appropriate organizations.

2.3.1 Work Location. AMLOs should physically collocate with the G-3, G-4, and if possible the chief of staff. An OL with multiple AMLOs can assign one to each office and with the remaining AMLOs rotating between the G-3 and G-4 sections of division/corps staff.

2.3.2 Networking. An AMLO should develop a face-to-face battle rhythm in order to understand the sustainment and air mobility issues affecting their aligned unit. In order to effectively support the aligned unit, AMLOs require a clear understanding of the operational or exercise scheme of maneuver; thus, regular interaction with the G-3/S-3 is crucial. AMLOs should coordinate with many different offices and be physically available to the staff (i.e., walk-abouts). AMLOs should integrate with the following offices as applicable:

2.3.2.1 US Army. Division and corps level staffs are referred to as "G staffs" (e.g., G-3, G-4) while the brigade and below staffs utilize "S" (e.g., S-3, S-4). AMLOs should focus efforts at higher echelons but also understand lower echelon needs during major exercises and deployments. Below are recommended interactions and should be tailored to the needs and manning of the OL.

2.3.2.1.1 Commanders. Army division and corps commanders are commanding general (CG), deputy CG of maneuver (DCGM), and deputy CG of sustainment (DCGS). An AMLO should meet with the commander(s) regularly to understand and confirm commander's intent. Command level engagements can guide overall training event requests by the unit for the next one to two years.

2.3.2.1.2 Chief of Staff (COS). AMLOs may work with the COS on a regular basis in order to further the CG's goals/intent.

2.3.2.1.3 G-3 (Operations). The G-3 integrates the entire staff toward operational objectives. AMLOs coordinate closely with the G-3 in order to support local training, deployments, and exercises.

2.3.2.1.4 G-3 (Air). The division air shop often handles current air movement logistics, especially during initial deployment. It is the primary focal point for army rotary wing aviation support. Some locations noted this office as their closest contact.

2.3.2.1.5 G-3 Emergency Deployment Readiness Exercise (EDRE). Units may have a specific EDRE point of contact who coordinates local exercises.

2.3.2.1.6 G-4 (Logistics). Tie in with the corps transportation officer (CTO), division transportation officer (DTO), and mobility warrant to understand supported unit's sustainment requirements.

2.3.2.1.7 G-4 DTO. The DTO is a staff officer normally assigned in the G-4 sustainment cell of the division headquarters (HQ) responsible for the movement of units and maneuver elements in coordination with the division G-3. Additionally, the DTO is a staff planner that advises the commander and coordinates transportation support with the division G-3 and G-4. Refer to Army Techniques Publication (ATP) 4-16, *Movement Control*.

2.3.2.1.8 G-4 Mobility Warrant. The mobility warrant works for the DTO and is an expert in Joint Operation Planning and Execution System (JOPES), time-phased force and deployment data (TPFDD), and Integrated Computerized Deployment System (ICODES). Battalions and companies have unit movement officers (UMO) who coordinate movements at lower echelons. Coordination with the mobility warrant provides a valuable connection and point of entry into other related offices.

2.3.2.1.9 G-5 (Plans). The future plans office provides the AMLO the ability to understand and integrate with future requirements and notify USTRANSCOM and AMC/A3 of large movements or exercises.

2.3.2.1.10 G-6 (Communications). Computer network, email, and radio support are required to integrate into the OL. AMC coordinates sister Service support agreements to ensure AMLOs obtain basic communication support from the aligned unit to include access to unclassified and classified networks and secure cryptological keys.

2.3.2.1.11 Most OLs may have a primary port (e.g., installation transportation office, aerial port, arrival/departure airfield control group [A/DACG]) to handle the majority of unit air movement. AMLOs should establish and maintain a close working relationship with airfield personnel to assist with smooth movement of assigned OL units.

2.3.2.1.12 Sustainment Brigade. The sustainment brigade (BDE) plans movements, loads aircraft, and provide in-transit visibility (ITV) of movements. Sustainment BDE might want to be involved with local exercises. AMLOs may coordinate with the BDE commander, XO, S-3, S-4, movement control team (MCT), or movement control battalion (MCB). Refer to ATP 4-93, *Sustainment Brigade* for more information.

2.3.2.1.13 Range Control. At most OLs, range control functions as the primary point of contact (POC) for landing and drop zone operations. Many require range specific certifications and have unique scheduling requirements. It is essential for the AMLO to understand range control's specific processes and interface between range, fire response, squadron tacticians, and aircrews.

2.3.2.1.14 Fire Department. Contact range control or the local fire department to understand the local coordination and reimbursement for the airfields in your area.

2.3.2.1.15 Airfield Manager. If assigned, coordinate with the airfield manager for parking, fuel, loading, security, and other logistics as needed.

2.3.2.2 US Marine Corps. AMLOs are assigned at the Marine expeditionary force (MEF) and United States Marine Corps Forces, Special Operations Command (MARSOC) level. Differences from Army organizations include:

2.3.2.2.1 II MEF operates an organic aerial port of embarkation (APOE) and conducts joint inspection (JI) on their equipment.

2.3.2.2.2 I MEF and III MEF have Air Force APOEs that serve as their primary APOE.

2.3.2.2.3 G-3 Air at the MEF level normally works Marine Air Wing training and deployments. AMLO support may include tanker support to Coronets.

2.3.2.2.4 G-3 EDRE does not exist.

2.3.2.2.5 G-4 DTO does not exist.

2.3.2.2.6 G-4 Strategic Mobility Office (SMO). The SMO is where most Marine Corps AMLOs have their desk. The SMO manages deployment and redeployment for real-world tasking and exercises. The ATP staffing will normally originate out of the G-4 SMO office. If a MEF stands up a MEF deployment and distribution operations center (DDOC), it is formed out of the G-4 SMO with augmentation.

2.3.2.2.7 G-4 SMO Air. Office in charge of strategic air and all air not handled by the distribution officer. Typically led by chief warrant officer.

2.3.2.2.8 G-4 Distribution. The Marine Corps differentiates embark and distribution. Embark handles deployment and redeployment. Distribution handles sustainment requirements. Distribution normally handles channel air requirements to include the personnel channels used for small numbers of deployers out of Norfolk, Virginia; Baltimore, Maryland; or Seattle, Washington.

2.3.2.3 Air Operations Center (AOC). Below are the 618 AOC directorates. See **Figure 2.1**, 618 AOC Directorates. Offices for AMLO coordination are **bolded** below, but not in ***bold italics*** (i.e., XOOO, XOPC, XOPF, XOGX, XOBC, XOCM, XOCG, XOCR).

2.3.2.3.1 Strategy Division (SRD). SRD is the future operations cell for 618 AOC and coordinates with USTRANSCOM future operations. SRD monitors requirements for future exercises and operations (sand charts).

2.3.2.3.2 Current Operations (XOO). Plans and monitors organic airlift, commercial airlift, and air refueling missions. XOO is the focal point for tanker/airlift special access required programs.

- XOOK (Air Refueling Operations Division)—single source in coordinating all air refueling requirements.

• XOOL (Special Activities Division)—plans, execute billing for missions supporting special access programs (Department of State [DOS] and other government agencies).

• **XOOO** (Special Assignment Airlift Mission Division)—plans/schedules special assignment airlift missions (SAAM). SAAMs are funded by the user and cannot be supported by channel missions due to the unusual nature, sensitivity, or urgency of the cargo.

• XOOS (Special Missions Division)—missions supporting special operations forces.

• XOOI (Information Ops Division).

2.3.2.3.3 XOP (Global Readiness)—plans aeromedical evacuation (AE), contingency response, standard deployment moves, and anything that is not a channel, SAAM, or other special move.

• XOPA (Aeromedical Evacuation Division)—focal point for all AE events

• **XOPC** (Airlift Plans Division)—focal point for all contingency planning. Provides transportation feasibility analysis to USTRANSCOM. Plans all airlift for TPFDD requirements. The four-planning branches include:

1. Enduring Operations.
2. Emerging Operations.
3. Passenger Movement.
4. **XOPF** (Fusion Center)—USTRANSCOM office conducting long range planning.

2.3.2.3.4 XOG (Global Channel Operations)—plans channel missions, develops route structures and provides oversight on channel system performance.

• XOGA/XOGB (CONUS Operations Division)—plan, schedule, direct daily organic channels within their area of responsibility (AOR).

• XOGC (Commercial Channels and Offshore Operations)—plan, schedule, task, execute commercial channels worldwide.

• XOGD (Analysis and Developmental Division)—tracks performance/efficiency of channels.

• **XOGX** (Air Transportation Operations Division)—known as the Aerial Port Control Center (APCC)—single point of contact for aerial porters.

2.3.2.3.5 XOB (Mobility Management) *The Barrel*—XOB tasks units, wings, crews, and tails with missions. *The Barrel* also manages the joint airborne, air transportability training (JA/ATT), and air refueling (AR) process (i.e., the “horseblanket”).

• XOBA (Airlift Allocation Division) *Airlift Barrel*—tasks units for strategic and theater airlift (C-17/C-5).

• **XOBC** (Combat Delivery Division) *JAATT Barrel*—C-130 allocation and manages JA/ATT program.

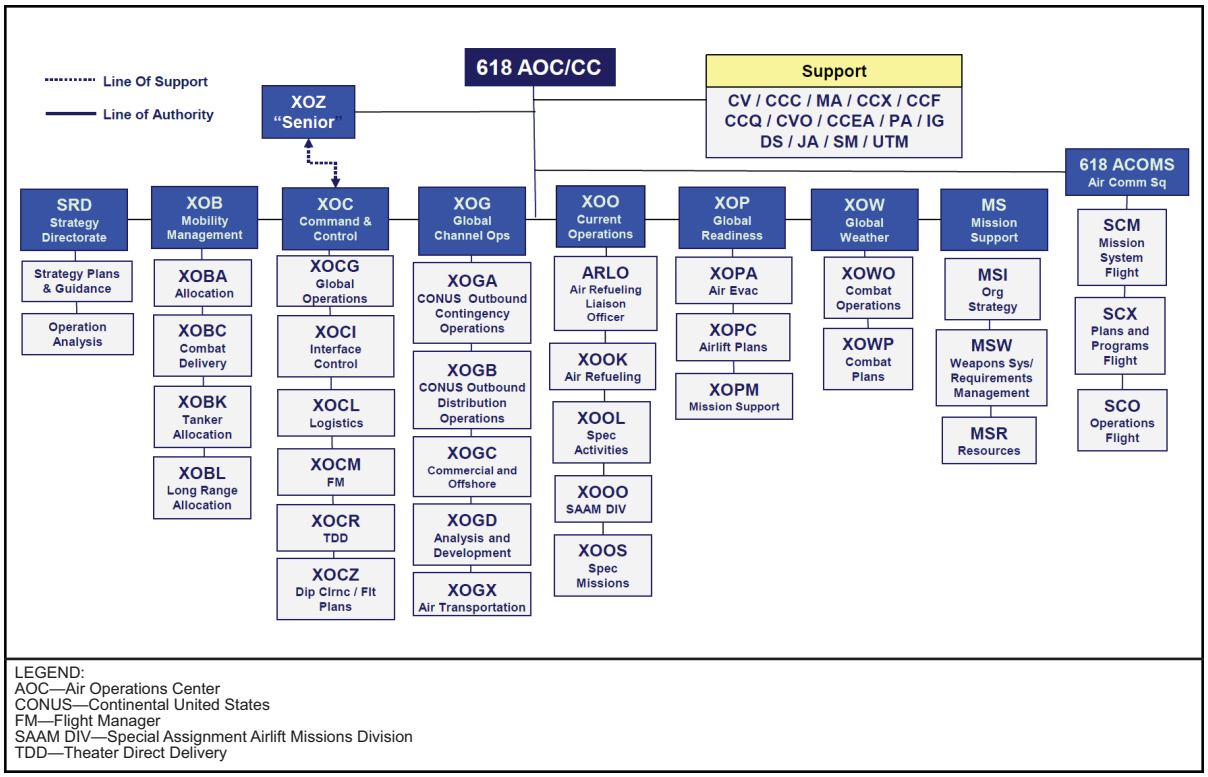
- XOBK (Tanker Allocation Division) *Tanker Barrel*—tasks tanker units and air refueling schedule, commonly referred to as the "horseblanket.".
- XOBL (Long Range Allocation Division).

2.3.2.3.6 XOC (Command and Control) *The Floor*—is controlled by *The Senior* (XOZ).

- **XOCM** (Integrated Flight Management Division)—flight managers (FM) who build the dispatch package and is the main POC for aircrew during sortie.
- **XOCG** (Global Operations Division)—controls missions using three execution cells:
  1. SAAMs, Channels, and AE.
  2. Contingency missions.
  3. Air refueling missions.
- XOCZ (International Clearance and Flight Plans Division)—diplomatic aircraft clearance focal point.
- XOCL (Logistics Control)—coordinates maintenance support.
- **XOCR** (Theater Direct Delivery Division)—plans/executes AMC owned aircraft (a/c) supporting intratheater airlift.
- XOCT (Training Division)—develops and implements training for members of XOC.
- XON (Mission Support Directorate).
- XOND—mission data collection, quality assessment and analysis.
- XONR—manages 618 AOC resources (e.g., manpower, security, training, finance, facility).
- XONT—manages computer programs/network used by 618 AOC members.

2.3.2.3.7 XOW (Global Weather)—provides weather products, services, and briefings for mission planning and execution.

Figure 2.1 618 AOC Directorates



2.4 Advising. AMLOs may need to educate and advise Service counterparts on air mobility capabilities and limitations, air mobility agencies, deployment operations, sustainment operations, mission-tracking systems, and theater command and control (C2) and air documents (e.g., air tasking order [ATO], airspace control order [ACO]). See **Table 2.1**, Example Meetings.

Table 2.1 Example Meetings

• Sync meeting.
• G-3 training meeting.
• Quarterly training review board.
• Quarterly/monthly emergency deployment readiness exercise (EDRE) meeting.
• Arrival/departure airfield control group (A/DACG)/installation transportation officer (ITO).
• Ops and Intel (O&I).
• Higher headquarters (HHQ) integration.
• AMC/A3 standard battle rhythm (e.g., worldwide update).
• United States Transportation Command (USTRANSCOM).

2.5 Landing Zone (LZ) Operations. AMLOs in-garrison perform and instruct LZ operations. See **Table 2.2**, Landing Zone Operations In-Garrison.

Table 2.2 Landing Zone Operations In-Garrison

• Coordinate for landing zone (LZ) surveys and input into zone availability report (ZAR)/Talon Point.
• Identify suitable LZ locations.
• Conduct LZ feasibility analysis.
• Coordinate LZ surface repair and control procedures.
• Coordinate airspace management procedures.
• Coordinate and/or establish LZ support (e.g., security; crash, fire, and rescue [CFR]; materials handling equipment [MHE]/transportation).
• Perform landing zone safety officer (LZSO) functions.
• Train others to perform LZSO functions.

2.6 Drop Zone (DZ) Operations. AMLOs in-garrison perform and instruct DZ operations. See Table 2.3, Drop Zone Operations In-Garrison.

Table 2.3 Drop Zone Operations In-Garrison

• Identify suitable drop zone (DZ) locations.
• Conduct DZ survey.
• Set up DZ.
• Perform drop zone control officer (DZCO) functions.
• Train others to perform DZCO functions.
• Maintain secure-capable radio/visual connectivity with aircraft.
• Maintain secure-capable connectivity with command and control (C2) agencies.

2.7 Mission Study. AMLOs should be well versed in the missions and operations of the supported units.

2.7.1 Operation Plan. AMLOs should be familiar with OPLANs of the supported unit and how the plans pertain to airlift. In the case of contingency, the OL AMLO may be the critical link between the supported unit, AMC/A3, and theater airlift assets. Additionally, AMLOs may be able to provide critical feedback before an emergency. Check with the intelligence or plans directorate (i.e., G-2/S-2, G-5/S-5) to get read in on these plans.

2.7.2 Air Transportation Plan. ATPs are established at the AMC/A5, Army Corps, and MEF level. These ATPs establish the framework for AMC/A3 to support a contingency deployment of the supported units. The AMLO should liaise between AMC/A3, supported unit, and agency staffs.

2.8 AMLO Support. AMLOs should coordinate with the aligned unit for deployable gear to ensure uniformity. It is possible to get an initial issue of Army training equipment through the central issue facility (CIF). If deployment orders are received promptly, it is possible to receive Army deployment issue from request for information (RFI). US Air Force specific gear is distributed by the supporting administrative control unit.

2.8.1 USAF Expeditionary Center (EC). For most AMC assigned AMLOs, administrative control (ADCON) is assigned to the USAF EC. The EC is responsible to resource and provide ready, trained AMC AMLOs through the 621st Mobility Support Operations Squadron (MSOS), residing under the 621st Contingency Response Wing (CRW) and the 621st Air Mobility Advisory Group (AMAG).

2.8.2 Air Support Operations Group/Air Support Operations Squadron. For USAFE and Pacific Air Forces (PACAF) assigned AMLOs, ADCON is assigned to the air support operations group (ASOG)/air support operations squadron (ASOS), and operational support squadron (OSS) to which the AMLO is assigned. The ASOG, ASOS, and OSS is responsible to organize, train, and equip USAFE and PACAF AMLOs. Many AMC OLs have a collocated ASOS available to provide training, logistical, or administrative support.

2.8.3 Air Force Weather Detachment. Many OLs have collocated Air Force weather squadrons available to provide AMLO training, logistical, and administrative support.

2.8.4 Host Installation. The servicing base is usually the nearest (or most convenient) Air Force base that provides standard Air Force finance, medical, training, and equipment support.

2.8.5 18th Air Force (AF). For AMC assigned AMLOs not assigned to the EC, ADCON is assigned to the 18 AF. The 18 AF is then responsible to resource and provide ready, trained AMC AMLOs through the 34th Combat Training Squadron (CTS) residing under the 19th Airlift Wing (AW) and the 19th Operations Group (OG).

2.8.6 AMC/A3. AMC/A3 is assigned lead MAJCOM functional area manager responsibilities for AMLOs. AMC/A3 is responsible to provide oversight, doctrine, policy, and guidance; and to organize, train, and equip AMLOs, validate requirements; and task AMLOs.

2.9 Combat Mission Readiness. AMLOs should reference the applicable local training plan and combat mission readiness requirements in order to understand the operating environment and identify the OL POCs for coordination.

CHAPTER 3

DEPLOYED RESPONSIBILITIES

3.1 Overview. Deployed AMLO mission essential tasks remain the same as in garrison. Deployed operations lend themselves to unique command and control structures and additional responsibilities.

3.2 Integration. AMLOs may deploy in support of their aligned unit or simply on behalf of AMC/A3 in response to a tasking for general AMLO support. In either case, USTRANSCOM and AMC retain operational control of deployed AMLOs in almost all circumstances. AMLOs continue to integrate and network with staffs while exercising DIRLAUTH.

3.2.1 Work Location. Integration with supported units is dependent on the mission and C2 structure of the particular AOR. Collocation with a ground forces element is standard. If the AMLO is not collocated with decision making organizations under the joint/coalition forces land component commander (CFLCC), it may be difficult to affect future operational planning. AMLOs should work to identify the leadership in charge of air logistical operations. Once identified, the AMLO can add value by injecting air operational knowledge into operational level planning.

3.2.2 Networking. AMLOs should integrate with the following organizations:

3.2.2.1 Service Component Staffs. The Army forces (ARFOR) is the Army component and senior Army headquarters of all Army forces assigned or attached to a combatant command, subordinate joint force command, joint functional command, or multinational command. The ARFOR G-4 works to implement and prioritize most of the logistics requests from deployed combat units and understands overall CFLCC intent. The G-4 is where many potential prioritization and logistics problems can be identified and fixed at a macro level. Refer to Field Manual (FM) 3-94, *Theater Army, Corps, and Division Operations*.

3.2.2.2 AMC/A3. AMC/A3 is charged with executing the commander, Air Mobility Command warfighting mission and lead MAJCOM responsibilities for AMLOs, both in garrison and while deployed. AMC/A3 provides general officer level guidance for AMLO operations in garrison and when forward deployed. AMC/A3 staff performs organize, train, and equip responsibilities; provides operational and tactical level guidance on AMLO roles and responsibilities; serves as the primary touch point for most joint operational planning and coordination issues outside of current execution; tasking authority for operational and tactical AMLO missions.

3.2.2.3 Functional Component Staffs (J-3/J-4/J-5). AMLOs should interact with these offices daily to develop relationships and share information.

3.2.2.4 Joint Task Force (JTF) Staff. AMLOs integrate with all JTF staff echelons. It is important to introduce AMLO capabilities. For example, JTF staffs are often unaware of AMLOs DIRLAUTH with USTRANSCOM, director of mobility forces (DIRMOBFOR), and AMC/A3. Refer to JP 4-0, *Joint Logistics* and JP 4-09, *Distribution Operations*.

3.2.2.4.1 J-3. Engage with the J-3 and be the face to air mobility during current operations.

3.2.2.4.2 J-4. Work with the J-4 and assist with planning, logistics, and air mobility within the respective AOR.

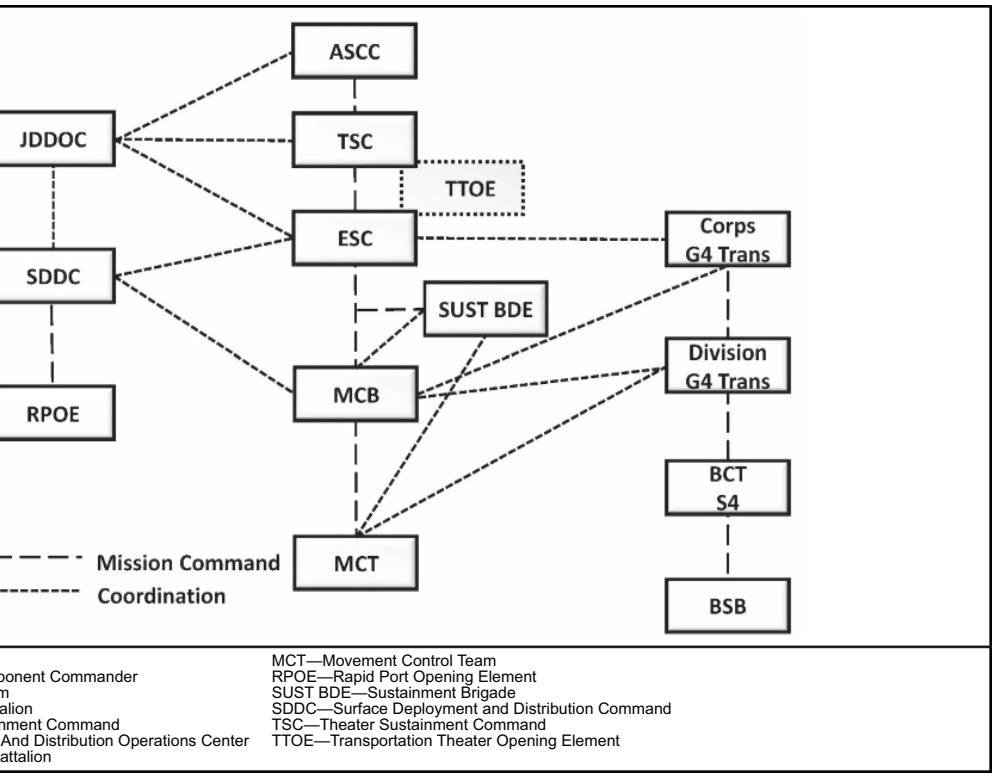
3.2.2.4.3 Division or Corps Transportation Officer (DTO/CTO). The DTO performs similar roles as in garrison. See **paragraph 2.3.2.1.7**. The deployed DTO will plug into the theater sustainment entities.

3.2.2.4.4 J-5. Plan with the J-5 for future operations and the capabilities of air mobility assets including airfield openings, closings, and expansion along with the threat assessments that will occur during these changes. Refer to JP 4-0 and JP 4-09.

3.2.2.4.5 Theater Sustainment Command (TSC). The TSC is focused on strategic and operational sustainment management for a specific theater. The TSC and its subordinate units are assigned to an Army Service component command (ASCC) supporting a geographic combatant commander (GCC). The TSC is a fixed headquarters organization comprised of a command group, staff, and special troops battalion. It can deploy an expeditionary sustainment command (ESC) when the TSC determines that a forward command is required. Refer to ATP 4-94, *Theater Sustainment Command* for more information.

3.2.2.4.6 Expeditionary Sustainment Command (ESC). The ESC is one level below the TSC and is placed closer to the fight. The role of the ESC is to deploy to an AO and provide mission command capabilities when multiple sustainment brigades are employed or when the TSC determines that a forward command is required. The ESC may be employed directly under the mission command of the corps, ARFOR, or JTF as designated by an appropriate order. The forward deployment of the ESC facilitates agile and responsive support by placing the ESC in relative proximity of the supported force and its operational environment. Refer to ATP 4-94 for more information. See **Figure 3.1**, Movement Control Relationships in the Theater Distribution Network.

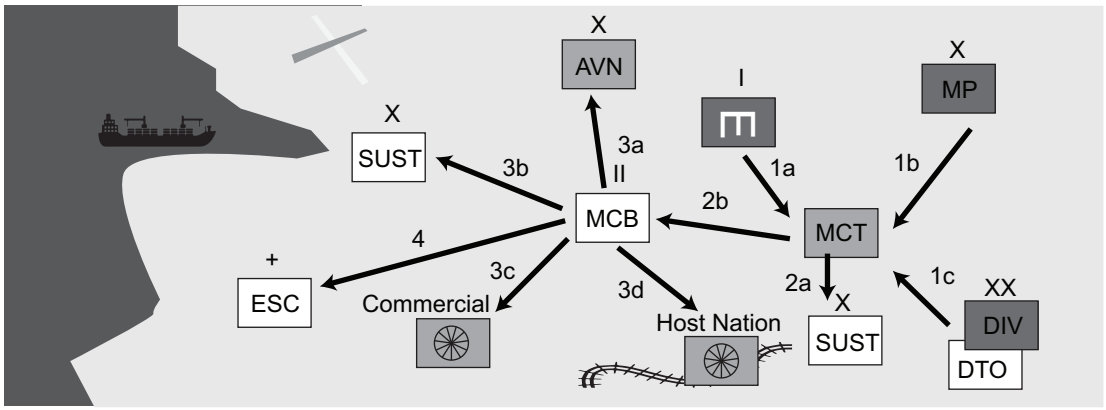
Figure 3.1 Movement Control Relationships in the Theater Distribution Network



3.2.2.5 Sustainment Brigade. The sustainment brigade is a flexible, tailorable organization. All sustainment brigade headquarters are identical in organizational structure and capabilities. The core competency of the sustainment brigade is mission command of logistics operations, providing command and staff supervision of life support activities, and distribution management to include movement control as an integral component of the theater distribution network. The sustainment brigade will not normally provide mission command for a MCB. The operational environment may dictate this command relationship if, for example, the sustainment brigade is the senior Army sustainment headquarters for that operational area (OA) as was the case in the early stages of Operation ENDURING FREEDOM. Sustainment brigades will not normally provide mission command for MCTs, but as mentioned previously with the MCB, the operational environment will determine the command relationships. A sustainment brigade, with an attached transportation theater opening element, could provide mission command of MCTs during early entry operations until an MCB arrives or if the number of MCTs (fewer than 4) for the operation does not require an MCB. Refer to ATP 4-16 and ATP 4-93.

3.2.2.6 Movement Control Battalions (MCB). The TSC/ESC manages intratheater movements through its subordinate MCBs. There may be multiple regional MCBs under each TSC/ESC. See **Figure 3.2**, Movement Control Battalions in the Movement Request Process. Refer to JP 4-09 and ATP 4-16 for more information.

Figure 3.2 Movement Control Battalions in the Movement Request Process

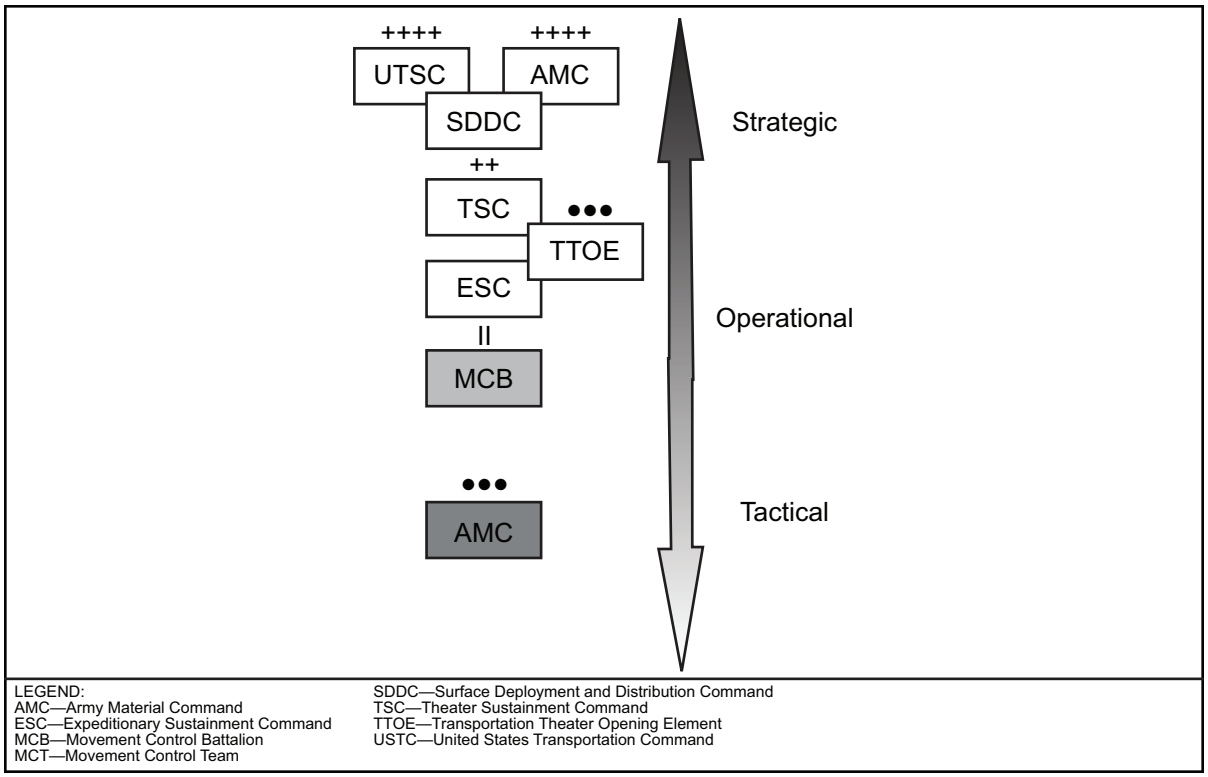


1a. Unit submits movement request (MR) to their supporting movement control team (MCT).
1b. Unit submits MR to their supporting MCT.
1c. Unit submits MR to their supporting MCT.
2a. MCT commits mode operator for available common user transportation (CUT) assets, based on established priority of support, to fill a MR.
3. Movement control battalions (MCB) validates CUT to MCT submitting the MR. Once validated, the MCB will determine the best common user mode/conveyance to fill the MR and commit the appropriate mode operator.
a. The MCB may have the ability to directly arrange Army or Air Force fixed/rotary-wing transportation.
b. The MCB can commit other sustainment brigades for their common user transportation assets.
c. The MCB may have the ability to directly arrange commercial surface or air transportation.
d. The MCB may have the ability to directly arrange host nation surface or air transportation.
4. If the military host nation (HN) or commercial CUT assets are not available, the MCB will forward the MR to its higher headquarters (HQ).

LEGEND:
AVN—Aviation
DIV—Division
DTO—Division Transportation Officer
ESC—Expeditionary Sustainment Command
MP—Military Police
SUST—Sustainment

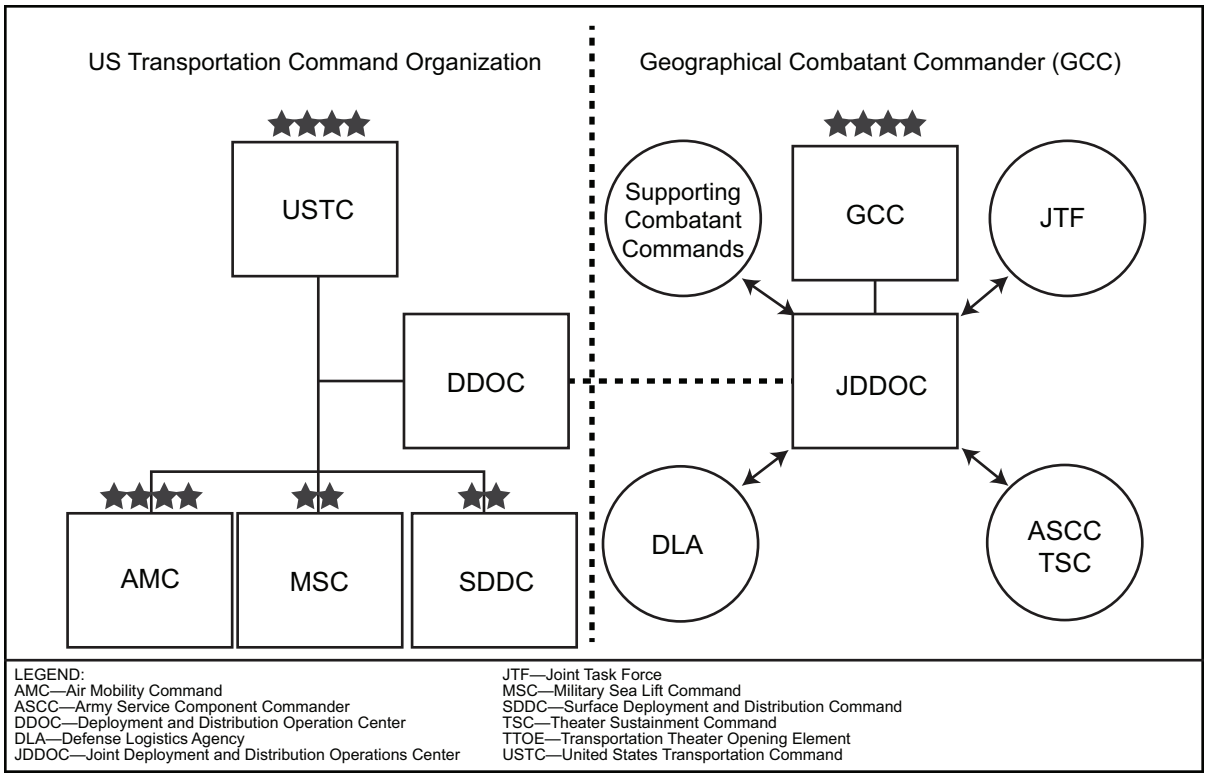
3.2.2.7 Movement Control Teams (MCT). MCTs facilitate the synchronized flow of units, supplies, equipment, and materiel along main and alternate supply routes. The MCB, through its subordinate movement control teams, performs movement control functions at aerial ports of debarkation (APOD), seaports of debarkation (SPOD), distribution hubs, and other critical nodes, to expedite port clearance and provide for the uninterrupted flow of resources and capabilities, in support of Army force requirements. See **Figure 3.3**, Logistics Chain. Refer to JP 4-09 and ATP 4-16 for more information.

Figure 3.3 Logistics Chain



3.2.2.8 Deployment and Distribution Operations Center (DDOC). GCCs can create a DDOC (e.g., CDDOC = Central Command DDOC) and incorporate its capabilities into their staff functions. The theater DDOC develops deployment and distribution plans; integrates multinational and/or interagency deployment and distribution; and coordinates and synchronizes supply, transportation, and related distribution activities. The DDOC synchronizes the strategic to operational movement of forces and sustainment into theater by providing advance notice to GCC air and surface theater movement control elements. In concert with GCC priorities, and on behalf of the GCC, the DDOC coordinates common-user and theater distribution operations above the tactical level. See **Figure 3.4**, DDOC and JDDOC. USTRANSCOM houses the trans-regional, global DDOC at Scott Air Force Base and it is commonly referred to as simply “DDOC.” Refer to JP 4-09.

Figure 3.4 DDOC and JDDOC



3.2.2.9 Director of Mobility Forces (DIRMOBFOR). The DIRMOBFOR functions as coordinating authority for air mobility with all commands and agencies, both internal and external to the JTF. The DIRMOBFOR exercises coordinating authority among theater AOC (or theater joint air operations center [JAOC], if established), 618 AOC, and the JMC/DDOC, for air mobility issues. An essential role for the DIRMOBFOR is serving as the principal interface between the JAOC, the theater's logistics directorate of a joint staff (J-4), and the JMC/DDOC to ensure appropriate prioritization of air mobility tasks. Refer to JP 3-17, *Air Mobility Operations*.

3.2.2.10 Joint Air Operations Center (JAOC). The JAOC is the air planning and execution focal point for the JTF (or other subordinate command).

3.2.2.11 Air Mobility Division (AMD). Centralized planning, direction, and coordination of air mobility operations occur in the air mobility division of the AOC. AMLOs may work with multiple AOCs in one theater. Refer to JP 3-17.

3.2.2.12 United States Transportation Command (USTRANSCOM). The fusion cell/floor is the primary location for AMLOs to integrate into USTRANSCOM. The 618 AOC/XOPC/verifications office is located on the USTRANSCOM floor. The verification shop receives initial load plans from the units, check them for correctness, and verifies the load plans match JOPES and TPFDD. If there is a consistent problem with load plans from a single unit, the unit AMLO can help solve the problem through face to face contact or synchronization with AMC contingency load planning teams.

3.2.3 Intratheater Travel. The ability to quickly move throughout the AOR enables the AMLO to see various components of the air mobility deployed structure and in turn build credibility during the planning process. An AMLO can provide ground truth to planners. Traveling to different airfields enhances scope of understanding for the air mobility processes and in-turn can provide problem solving options to each unit supported.

3.2.3.1 Air Force Fixed-Wing. AMLOs should obtain a mission essential personnel (MEP) letter from each AOC or air expeditionary group (AEG) prior to arriving in the AOR. This MEP letter ensures access to US Air Force flights without having to be manifested as a passenger. Currently, the AMLO functional area manager (FAM) will arrange this MEP through AMC (at Scott AFB) and the DIRMOBFOR in theater. All MEP personnel are considered part of the aircrew and will not be removed unless the aircraft commander deems it necessary. Consider the following when using the MEP process:

- Immature theaters may only have unpredictable contingency flight options.
- Mature theaters will allow for channel mission MEP flights.
- Ensure Single Mobility System (SMS) and Global Decision Support System II (GDSS2) account are current.

3.2.3.2 Marine Corps Fixed-Wing. Most Marine Corps flights are shown on SMS/GDSS2 because they are on the ATO. Flights fly to limited locations due the small amount of aircraft available.

3.2.3.3 US Army Rotary. The Army uses air mission requests (AMR) to request rotary wing lift. Travel is arranged through the supported G-3/S-3. This is the best option for austere locations or short distance travel (e.g., FOBs) due to most Marine Corps air is in direct support of Marine Corps forces and not a theater asset. When traveling via Army rotary, request travel at least 72 hours prior with an AMR. In most cases, AMLOs are considered space available (Space-A) inside of 72 hours. AMLOs should know the processes and personnel responsible for the AMR process because they can secure flights quicker if the roles and capabilities of an AMLO are understood.

3.2.3.4 DOS/Civilian Flights. In many cases, flying via non-military means is the only way to get to a destination. The DOS might have a flight system established to move between forward operating bases (FOB) and outlying airfields. These flights likely require a funding source from the headquarters supported. Commercial flights may need to be booked for the same reasons and may require Defense Transportation System (DTS) authorizations.

3.2.4 Ground. Some locations may only be accessible via convoy. Ground movements are typically scheduled through either the S-4, or more likely, the local sustainment brigade/command. Before traveling via convoy, notify leadership of travel objectives, intentions, and what size force (e.g., squad, platoon) is providing security for the convoy. Additional considerations are presence of a route clearance team, close air support (CAS), expected timelines of visited locations, and a means of providing updates throughout the operation.

3.3 Advise on Air Mobility Capabilities and Limitations. Deployed staff battle rhythms include working groups and boards. Attending meetings throughout the logistics chain will

expand your situational awareness. The J-4 uses a series of boards, offices, and centers to prioritize and accomplish tasks. The primary organizations involved in the distribution management functions are the DDOC, joint logistics operations center (JLOC), theater-joint transportation board (T-JTB), joint transportation board (JTB), and other management boards, as required. Other beneficial meetings to participate in are G-3/S-3 synchronization and G-4/DTO meetings. If participating in G-3 meetings, the AMLO will have the added benefit of being better aligned with the CFLCC, aligned unit chief of staff, and/or the deputy commanding generals of both sustainment and maneuver.

3.3.1 Senior Airfield Authority (SAA). In order to facilitate C2 at a joint use airfield, the joint force commander (JFC) designates a SAA for safe airfield operations. The SAA controls the airfield access and coordinates for airfield security with the base commander, base cluster commander, or the joint security coordinator for the area, if a base commander has not been designated. Refer to JP 3-17.

3.3.2 Tower Operations. Air traffic control via a tower will vary between each airfield. In many contingency operations, there may not be a tower and all air operations will be controlled with a vehicle or on a high spot near the airfield. As an AMLO, it is important to visit each tower and understand the workload. Towers may be manned by host nation (HN) personnel, military operators, or contractors. Each towered airfield will operate differently and can provide a unique challenge to aircrew.

3.3.3 Airfield Lighting. Not every airfield will be built with airfield lighting that meets International Civil Aviation Organization (ICAO) standards. Many contingency airfields are LZs utilizing a variation of AFI 13-217 airfield marking patterns (AMP). Fixed lighting with dedicated power is difficult and costly to install. Other options include solar airfield lighting or portable overt/covert lights. Solar lighting tends to be slightly dimmer than direct powered lighting, but it can be placed anywhere on airfield. These solar lights can be set to automatically turn on at night or via a radio frequency (RF) signal.

3.3.4 AMC Airfield Assessment Teams. Air Force forces (AFFOR) A-4 has designated teams to visit airfields and provide assessments on longevity of suitability of runway.

3.3.4.1 AMC Form 174. The AMC Form 174, *Airfield Survey* is a detailed assessment report of the airfield. It usually contains pictures and engineering diagrams with detailed measurements of all surfaces (e.g., runways, taxiways, ramps). Results of these assessments are documented in the Giant Report.

3.3.5 Terminal En-Route Procedures Specialist (TERPS). AMLOs may need to coordinate with HN and/or AMC TERPS offices in order to solve issues.

3.4 Landing Zone and Drop Zone Operations. Security forces may be required in contingency environments. If in mountainous terrain, AMLOs may need AMC/A3X/AFFOR TERPS assistance. AMLOs should review the ACO for specific airspace information. See **Chapter 9**, Landing Zone Operations and **Chapter 10**, Drop Zone Operations.

CHAPTER 4

STRATEGIC OPERATIONS

4.1 Overview. The strategic level of warfare typically centers on the nation's highest level of civilian and military leaders (e.g., President of the United States [POTUS], Secretary of Defense [SecDef], combatant commander [CCDR]). The majority of AMLOs operate at the periphery of strategic operations. AMLOs retain relationships with combatant commands through DIRLAUTH and leveraging USTRANSCOM LNOs. For example, AMLOs assigned at a corps, MEF, or division level may be required to assist with the development and coordination of OPLANs, Joint Chiefs of Staff directed exercises, and AMC/A5 ATP supporting the strategic mobility enterprise. AMLOs permanently reside at the component command level or its equivalent and in deployed environments align with the JTF headquarters in some capacity. AMLOs can have strategic level impact by evaluating, identifying, and communicating any risks to the nation's global air mobility system.

4.2 Air Transportation Plan. The ATP is equivalent to a Department of Defense (DOD) Adaptive Planning and Execution (APEX) System, Level-2 type Base Plan. This enables the smooth and timely execution of a sister-Service unit's deployment from garrison locations. Essentially, the ATP establishes a framework for how AMC will execute a large-scale force movement from a specific APOE. Signed by the AMC commander and supported Service commander, the ATP and respective annexes assists AFTRANS personnel by setting expectations, minimizing surprises, and reducing operational risks and deployment timelines during a dynamic situation. Although the supported commander additionally signs the ATP to validate key assumptions, planning factors, and limitations, the ATP is not contractual or directive but rather serves solely as an AMC planning tool.

4.2.1 Organization and Structure. The ATP consists of two parts: (1) base plan, (2) individual annexes. Base plans align with the corps and MEF levels (e.g., XVIII Airborne Corps, III MEF). Each plan includes an annex for each subordinate unit. For example, XVIII Airborne Corps' base plan includes one annex for Fort Bragg, North Carolina and another one for Fort Campbell, Kentucky. Each base plan contains information applicable to all subordinate units while each annex contains information peculiar to a specific APOE (e.g., tailored airlift and augmentation matrices). To facilitate joint understanding, both the base plans and annexes are structured using the five-paragraph joint operation plan format: situation, mission, execution, administration and logistics, and command and control.

4.2.2 AMLO Responsibilities. The primary point of contact for all ATPs resides in the AMC staff and development is a staff-to-staff function between AMC and the supported unit. The AMLO role in ATP development is to facilitate the overall coordination and provide any missing information as required during the process. AMC/A5F is the office of primary responsibility for ATP development, coordination, and review.

4.3 AMLO Support to Component Commands. AMLOs currently support the following component command level organizations: Eighth Army, joint special operations command (JSOC), MARSOC, US Army Africa (USARAF), US Army Europe (USAREUR), and US Army North (ARNORTH). At this level AMLOs focus on the nexus between strategy and operational art shaped by each theater's operational environment. AMLOs navigate multiple higher headquarter, and non-military staffs to provide innovative solutions for the given requirements. For example:

- Eighth Army AMLO provides support in the context of a seemingly tenuous armistice.
- ARNORTH AMLO provides support while integrating in the defense support of civil authorities (DSCA) process.
- USARAF AMLO provides assistance for a 53-country AOR, facing the ***tyranny of distance*** with an underdeveloped logistical system, and an overabundance of political rivalries and violent extremist organizations.

4.4 Global Air Mobility System Assessments. It is incumbent for every AMLO to continuously evaluate the global air mobility system's operations, specifically looking for and communicating to leadership as soon as possible any unknown risks that may have unintended consequences. JP 3-0 observes that tactical actions can cause both intended and unintended strategic consequences, particularly in today's environment of pervasive and immediate global communications and networked threats. An AMLO can better detect and evaluate these risks by seeking to understand the current strategic environment and the national strategic direction.

4.5 Resources. The following abbreviated list of documents provide a brief synopsis of the nation's current strategic direction and guidance as well as USTRANSCOM plans to meet GCC theater campaign plan requirements. Comprehension of these strategic documents provides an AMLO with a better understanding of where the supported unit fits into the national context and enables the AMLO to identify small friction points in the global mobility system that may have a larger strategic impact.

- National Security Strategy.
- National Defense Strategy.
- National Military Strategy.
- Joint Strategic Intelligence Assessment.
- USTRANSCOM Campaign Plan for Global Distribution.
- Applicable GCC Theater Campaign Plan.
- Applicable GCC Theater Distribution Plan.

4.6 Points of Contact.

4.6.1 Applicable Theater USTRANSCOM LNO. USTRANSCOM maintains a network of civilian and military liaisons aligned with theater combatant commands. These individuals represent another layer of networking available to every AMLO.

4.6.2 A-5 and Strategy Directorates. The plans and strategy directorates create rapid global mobility support plans for major contingencies, identifying required airlift, air refueling, aeromedical evacuation, and global air mobility support system (GAMSS) forces required to support OPLANs, CONPLANs, and contingency plans.

4.6.3 618 AOC Strategy Directorate. The SRD enables the 618 AOC effective and timely situational awareness and understanding of supported commander's intents, objectives, and desired effects to inform the planning, tasking, execution, and assessment of the AFTRANS delivery of air mobility requirements.

CHAPTER 5

OPERATIONAL PLANNING

5.1 Overview. The operational level of warfare links the tactical employment of forces to national strategic objectives. The focus at this level is on the planning and execution of operations using operational art: the cognitive approach by commanders and staffs—supported by their skill, knowledge, and experience—to plan and execute (when required) strategies, campaigns, and operations to organize and employ military capabilities by integrating ends, ways, and available means. JFCs and component commanders use operational art to determine how, when, where, and for what purpose military forces will be employed, to influence the adversary's disposition before combat, to deter adversaries from supporting enemy activities, and to assure our partner nations achieve operational and strategic objectives. Many factors affect relationships among leaders at these levels. Service and functional component commanders of a joint force do not plan the actions of their forces in a vacuum; they and their staffs collaborate with the operational-level JFC to plan the joint operation. This collaboration facilitates the components' planning and execution. Likewise, the operational-level JFC and staff typically collaborate with the CCDR to frame theater strategic objectives, as well as tasks the CCDR will eventually assign to the subordinate joint force. Refer to JP 3-0 for more information.

5.2 AMLO Responsibilities. Operational planning is an AMLO core task. AMLOs serve as the Air Force bridge to Army and Marine Corps staffs, to provide detailed advice for all air mobility logistics efforts. AMLO knowledge and command relationships are critical to enabling unified actions at the operational level of warfare. These relationships are vital to ensure efficiencies and proactively solve problems. An AMLO should be engaged in operational planning teams (OPT) as early as possible. See **Chapter 2**, In-Garrison Responsibilities and **Chapter 3**, Deployed Responsibilities for potential coordinating organizations.

5.3 Mission Planning Methodologies. The DOD contains multiple planning methods that exist at the joint force level as well as within each individual Service. An AMLO needs to have a basic awareness of the following processes to be an effective partner: the JPP, the Army MDMP, the USMC MCPP, and the USAF mission, environment, enemy, effects, capabilities - plan, phasing, contracts, and contingencies (ME3C-$[PC]^2$) process. See **Figure 5.1**, Joint Planning Example and **Table 5.1**, Planning Example.

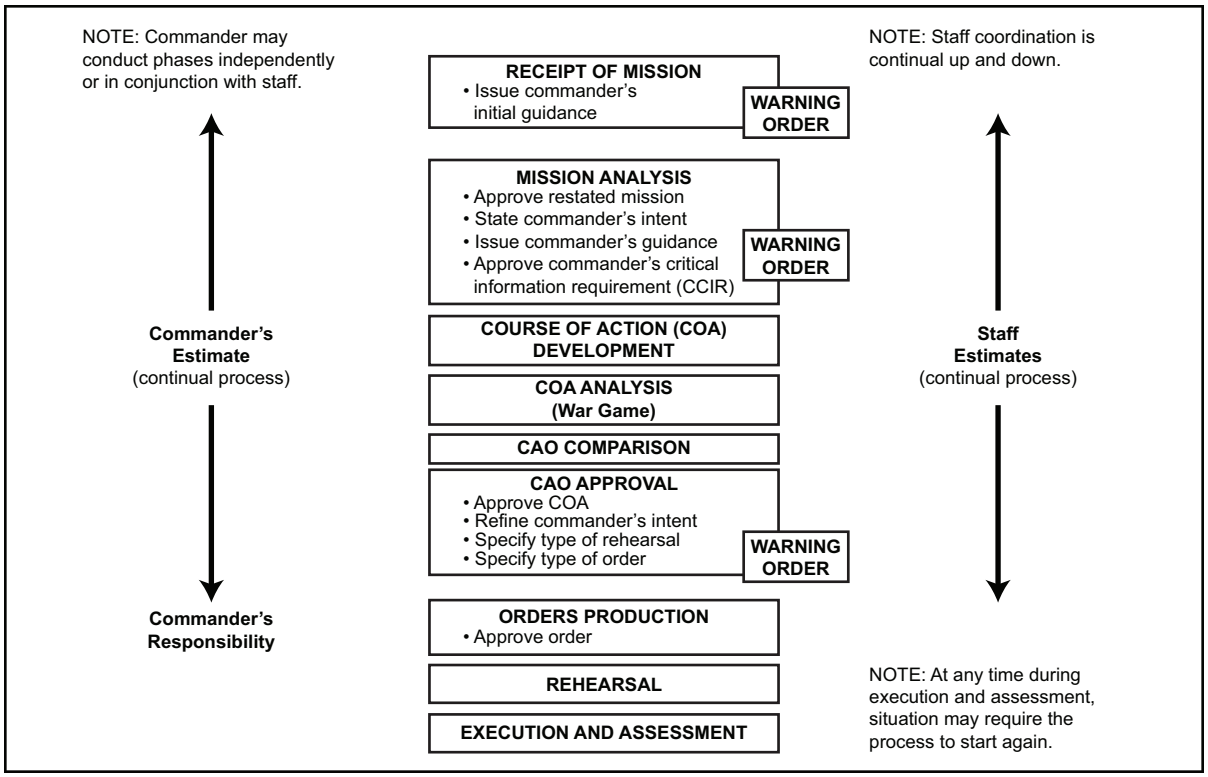
5.3.1 Joint Planning Process (JPP). Joint planning is conducted through a disciplined process by policies and procedures established in the JOPES and the JPP displayed in **Figure 5.1**. In addition to facilitating contingency planning, these processes have additional procedures for crisis action planning and for time-sensitive development of operation orders when a forcible entry operation requirement occurs with little or no warning. Refer to JP 5-0, *Joint Planning* for more information.

Figure 5.1 Joint Planning Example

5.3.2 Army Design Methodology. The Army design methodology applies critical and creative thinking to understand, visualize, and describe unfamiliar problems and approaches to solving them. Army design methodology is an iterative process of understanding and problem framing utilizing elements of operational art to conceive and construct an operational approach to solve identified problems. Commanders and their staffs use Army design methodology to assist them with the conceptual aspects of planning. It results in an improved understanding of the operational environment, a problem statement, an initial commander's intent, and an operational approach that serves as the link between conceptual and detailed planning. Based on its outcome, commanders issue planning guidance, to include an operational approach, to guide more detailed planning using the MDMP. Refer to ADP 5-0, *Operations Process* for more information.

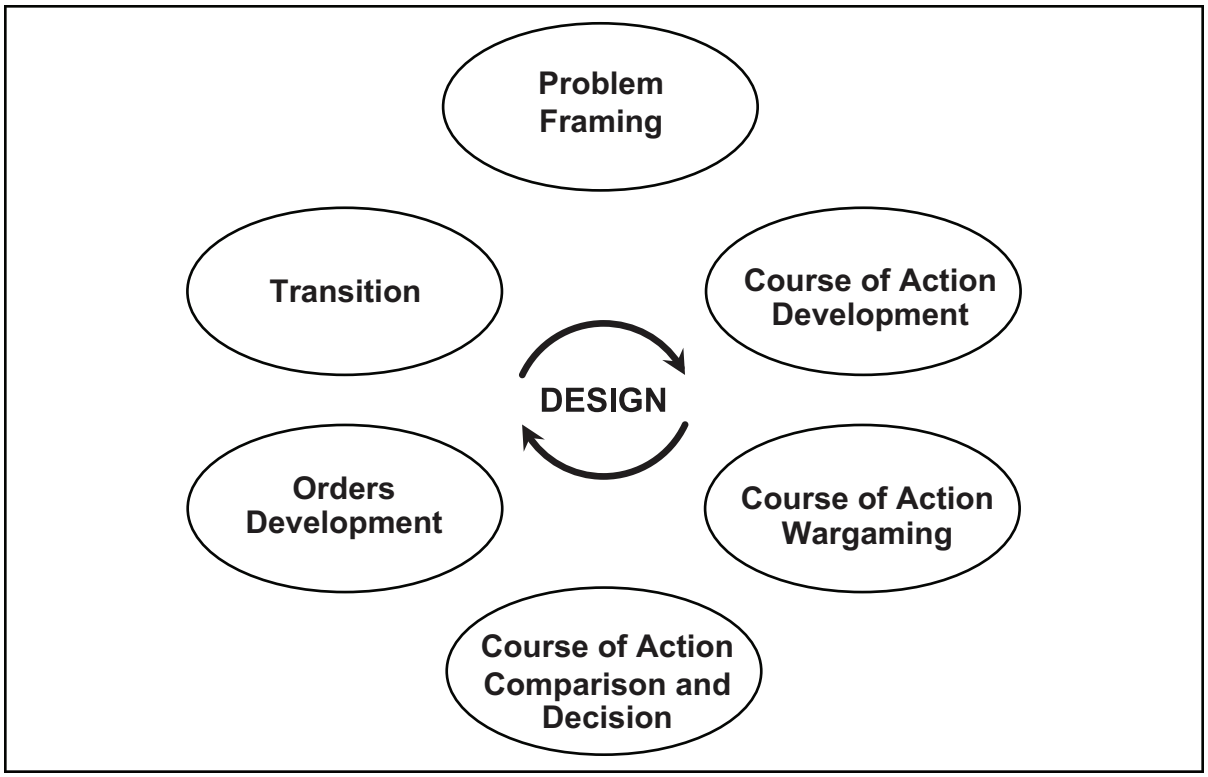
5.3.3 Military Decision Making Process (MDMP). MDMP is a single, established, and proven analytical process that relies on doctrine, especially the terms and symbols found in Army Doctrine Publication (ADP) 1-02, *Terms and Military Symbols*. The MDMP helps the commander and his or her staff examine a battlefield situation and reach logical decisions. The full MDMP is a detailed, deliberate, sequential, and time-consuming process used when adequate planning time and sufficient staff support are available. This methodology is not used at the company level (or equivalent) and below since they are not afforded a large enough staff. **Figure 5.2**, Military Decision Making Process outlines the 7-steps of MDMP. AMLOs should be familiar with each step when working at the battalion level and above. Refer to ADP 5-0 for more detail.

Figure 5.2 Military Decision Making Process



5.3.4 Marine Corps Planning Process (MCPP). The Marine Corps planning process is a six-step process comprised of problem framing, COA development, COA war gaming, COA comparison and decision, orders development, and transition. The Marine Corps often operates in a joint environment, where the MCPP is the vehicle through which commanders and their staffs (in the operation forces) provide input to the joint planning process. Refer to Marine Corps Warfighting Publication (MCWP) 5-10, *Marine Corps Planning Process*. See **Figure 5.3**, Marine Corps Planning Process.

Figure 5.3 Marine Corps Planning Process



5.3.4.1 ME3C-(PC)2. This is a methodology developed for air-centric mission planning cells (MPC) and incorporates theater AOC planning processes. The goal is to create a successful MPC through the effective employment of airpower in support of commander's intent. MPCs should use this process to determine and communicate mission objectives to fully support this intent. Commander's intent in can be found in the air operations directive (AOD), ATO, or other JFACC directives, like fragmentary orders (FRAGORD). AMLOs should become familiar with the ME3C-(PC)2 process found in AFTTP 3-1, *General Planning*, Chapter 3.2 and the AOC air mobility structure and planning processes found in AFTTP 3-3, *AOC*, Chapter 7.

Table 5.1 Planning Example

Evaluation of Potential Effects: Bagram Airfield
Situation: In 2017, United States Forces Afghanistan (USFOR-A) was expanding its footprint to include additional forward operating bases (FOB). As part of this expansion, there was a need to move persistent threat detection systems (PTDS) to an austere landing zone. The air mobility liaison officer (AMLO) was able to get involved in the operational planning team (OPT) early and liaised with USFOR-A J-4 staff, joint engineers, contracting, load planners, mobility team, air mobility division (AMD), United States Central Command (USCENTCOM) Deployment Distribution Operations Center (CDDOC), theatre direct delivery (TDD), and the 816th Expeditionary Airlift Squadron (EAS).
Action: In the planning phase, the AMLO worked to minimize airlift sorties required and use ground transportation to the highest extent possible. There were certain sensitive items unable to travel by ground that were requested to move by C-17s. The AMLO discovered certain loads could fit on C-130s which reduced the sortie count for C-17s and reduced overall mission time. The AMLO also assessed the LZ capability and passed that information to the 816 EAS tactics, AMD, and AMC/A3. During execution, the AMLO tracked mission allocation from CDDOC, mission schedule from GDSS, and then met aircrews on the ramp during upload to complete the communication loop between all parties.
Reported Outcome: AMLOs worked an issue in the planning phase, spanning the operational level down to the tactical level. Early and widespread involvement led to success in the commanding general's number one movement priority.

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 6

TACTICAL CONSIDERATIONS

6.1 Introduction. This chapter provides tactical planning considerations to match supported unit needs with mobility air forces (MAF) capabilities. For details on LZ/DZ planning and execution, see **Chapter 9**, Landing Zone Operations and **Chapter 10**, Drop Zone Operations. See **Table 6.1**, AMLOs Adapt to Tactical Situation.

Table 6.1 AMLOs Adapt to Tactical Situation

Situation: In 2016-2017, Combined Joint Task Force-Operation INHERENT RESOLVE (CJTF-OIR) featured a small US force supporting a very large local partner force. The complex web of dynamic geopolitical constraints impacted airlift, and AMLOs were key to success. By understanding the user's requirements and the limitations of both ground transportation and airlift, AMLOs continually communicated limiting factors that impacted airlift at both the operational and tactical level. Logistical support, primarily through airlift, was instrumental to sustaining operations simultaneously in Iraq and Syria.
Action: In one instance, Class V storage capabilities at multiple locations in the area of responsibility (AOR) restricted movement of ammunition. The ammunition storage problem varied across the theater with some restrictions being political as some countries would not allow Class V, and some being physical at locations where the ammunition supply point (ASP) could not meet net explosive weight (NEW) safety restrictions. AMLOs had to learn the basics of the ammunition storage problem set, apply those restrictions to airlift, and find ways to mitigate the problem.
Reported Outcome: The solution ranged from assessing airfields in more politically viable countries, and working with the 1st Theater Sustainment Command (TSC) to determine suitability for ammunition storage, to working with aligned units to prioritize ammunition for airlift.

6.2 Tactical Transportation. There are four primary tactical sources of transportation: ground convoy, rotary-wing lift, airdrop, and fixed-wing airland. The tactical situation, geographic considerations, and the mode's capacity are the leading factors driving the transportation source selection.

6.2.1 Ground Convoy. Ground convoy is the land component's preferred mode of tactical transportation.

6.2.1.1 Advantages of ground convoy:

1. Land component can directly task to meet their needs.
2. Ability to directly deliver personnel and supplies to the final destination.
3. Aggregate lift capacity typically greater than the available airlift capability (e.g., one load handling system [LHS] truck and trailer can move a C-130H equivalent of bulk cargo and a heavy expandable mobility tactical truck [HEMTT] and a C-17 both move only one M1 series tank at a time).

4. Bad weather does not affect ground movement as drastically as it can affect air movement.

6.2.1.2 Disadvantages of ground convoy:

1. Tactical threat along the ground line of communication (GLOC) (e.g., road networks/terrain dictate the GLOC go through urban or channelized areas that are vulnerable to attack).

2. Increased use of improvised explosive devices (IED).

3. GLOC can be severed by man-made obstacles like mine fields, or natural obstacles like rivers or mountain ranges.

4. Distance—long GLOCs are not only hard to secure but take a great deal of time to transit.

5. Routes severed by destroying a bridge or collapsing a mountain pass or tunnel. It is important to help the ground unit devise air contingency plans to deliver needed supplies in case the GLOC is severed.

6.2.1.3 GLOCs provide the aligned unit a less expensive and easy to source organic solution to move requirements. AMLOs should understand the capabilities and limiting factors associated with the GLOC and how those factors drive airlift requirements.

6.2.2 Rotary-Wing. Rotary-wing is typically the land component's second choice for tactical mobility. Often the land component owns or has rotary-wing assets available in direct support. The rotary option is easier to request than fixed-wing assets, and provides a means of direct delivery in most situations. Rotary-wing, like fixed-wing also mitigates many of the threats faced by ground transportation.

6.2.2.1 Rotary-wing limitations:

1. Less lift and all-weather capability, speed, and range than fixed-wing air.

2. More susceptible to small arms and man-portable air defense system (MANPADS) than fixed-wing; but due to its ability to fly much lower than fixed-wing, it can use terrain masking/map of the earth to defeat many radar threats.

3. When flying at very low threat avoidance altitudes sling loading is not possible and lift capability reduced.

6.2.3 Airdrop. The purpose of airdrop is to deploy personnel or equipment in support of combat operations while minimizing exposure time in a hostile environment. Airdrop can deliver supplies, equipment, and personnel directly to the user's location and may present an all-weather option when airland is not feasible.

6.2.3.1 Efficiency. When the threat permits, airland operations are more efficient and normally preferable to airdrop operations. Airdrop operations require complex planning and cargo preparation, reduces the total amount of cargo delivered, and increases the risk of cargo being damaged. Proper employment depends on accurate DZ and point of impact (PI) location (high precision coordinates), weather, and intelligence data to include

imagery, threat system capabilities, command, control, and communications (C3), and target predictions.

6.2.3.2 Planning Considerations. Refer to AFI 13-217, *Drop Zone and Landing Zone Operations* for DZ size, selection, marking, and delivery parameters. See **Chapter 10** for more detailed information about airdrop planning and execution. Aligned user considerations:

- Approved DZ survey.
- Once airdrop is approved, user DIRLAUTH with planners is initiated.
- Communications.
- Recovery of cargo.
- Threat assessment and mitigation.

6.2.4 Airland. Airland is the preferred method of air transportation and provides more capacity in both quantity and capability of loads. See **Chapter 9** for more detailed information about airland planning and execution. Refer to AFI 13-217 and Engineering Technical Letter (ETL) 09-6,*C-130 and C-17 Contingency and Training Airfield Dimensional Criteria*.

6.2.4.1 Airland Advantages.

- Ensure unit integrity (troops and equipment remain together).
- Maximize cargo capacity (cubic and tonnage).
- Enable a back-haul capability including AE.
- Increase load survivability.
- Less potential for injury to personnel.
- Does not require additional aerial delivery resources (e.g., chutes).
- Employment preparation time line may be reduced as airdrop rigging is not required.

6.2.4.2 Airland Disadvantages.

- Suitable landing surface must be available and surveyed.
- Requires a secure LZ able to handle air flow.
- Crash, fire, and rescue (CFR) assets may be required.
- Require more time to achieve initial mass at the objective area. Often increases closure of objective area and exposure of airlift assets.
- May require materials handling equipment (MHE).
- High operations tempo and recurring operations require air traffic control (ATC) for traffic deconfliction and airspace coordination.
- Exposes aircraft to ground threats.

6.2.4.3 Airland Aligned User Considerations. For additional considerations, refer to AFTTP 3-3.C-130J, *Combat Aircraft Fundamentals—C-130J,* paragraph 6.2.2, Airfield Analysis and AFTTP 3-3.C-17, *Combat Aircraft Fundamentals—C-17*, paragraph 3.3, Ground Operations Planning Factors.

- Airfield opening requirements.

- Air Transportation Test Loading Activity (ATTLA) certification.
- Hazardous cargo diplomatic clearance.

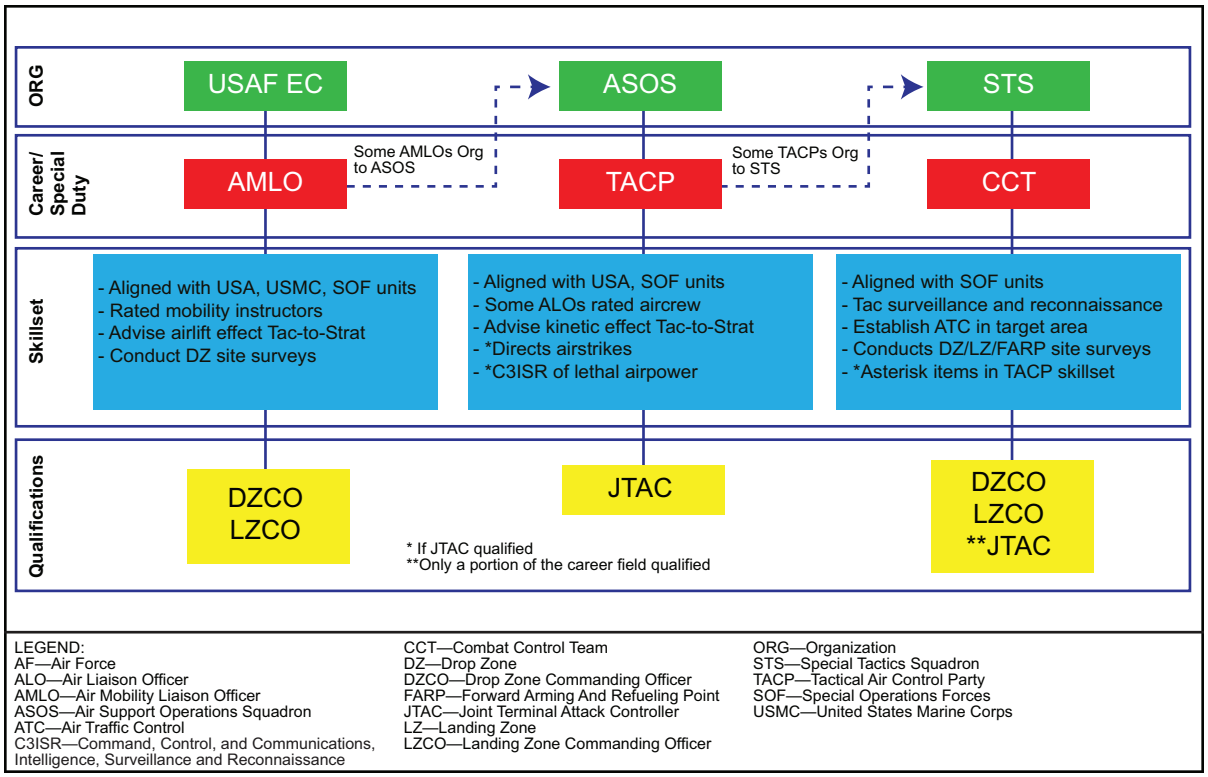
6.3 Airspace Planning. It is important to understand the existing airspace structure to include routes and restricted operating zones (ROZ) and deconflict impact to airlift operations. It is important to parallel plan with theater fires cells, G-3/S-3 Air, joint air-ground integration center (JAGIC), and theater airspace cells to ensure airlift routing and DZ/LZ ROZs are safe and do not hamper combat operations. Although the combined air operations center (CAOC) and airlift tactics cells do most of this planning, they are not with the user and need AMLO network information to ensure the airlift mission and ground combat mission are synchronized and coordinated. In near peer, force on force situations, the situation can be dynamic and complex requiring deconfliction and coordination to be delegated down to lower levels. The AMLO is the best available expert to deconflict airlift airspace needs making it critical for the AMLO to meet and integrate with the local airspace manager.

6.4 User Coordination. The AMLO is a critical link between the supported ground force and supporting air forces. User coordination is not confined to tactical execution checklists but should also include obtaining a shared understanding of the operational factors.

6.4.1 5-Ws. In addition to LZ/DZ coordination and airflow for tactical execution, AMLOs should consider the use of the 5-W (who, what, when, where, why) framework. While mission, enemy, terrain and weather, troops and support available-time available and civil considerations (METT-TC) can frame the operational environment, the use of 5-Ws with the *how* can promote a recap of the mission and tactical user coordination. Sister Services typically use this format to frame the operational considerations.

6.4.2 Fires. User coordination should also include an understanding of operational fires and airspace planning. User coordination challenges include deciphering an organization versus a capability. AMLO fires coordination should be conducted with joint terminal attack controller (JTAC) qualified personnel for the area where kinetic and non-kinetic effects occur and airspace coordination is required. On-call airdrop is the most notable example where the AMLO should be familiar with how the ground force commander's effects will be impacted by fires deconfliction. See **Figure 6.1**, Ground Party Capabilities.

Figure 6.1 Ground Party Capabilities



THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 7

MISSION PLANNING

7.1 Introduction. This chapter provides planning guidance and considerations from initial mission tasking to after-action reporting.

Mission Readiness
In September 2017, 18th Air Force (AF) [now Air Mobility Command (AMC)/A3] gave vocal orders (VOCO) to the 621st Contingency Response Wing (CRW) via AMC/A3CM, directing the tasking of four AMLOs in support of Hurricane Maria. The task required all four AMLOs to depart four separate locations in continental United States (CONUS) within 12 hours in support of the 601st Air Mobility Division (AMD) and 618 AOC. The AMLOs departed commercial airports without clear guidance on specified and implied tasks due to the uncertainty of post-hurricane logistical network. The AMLOs departed with the capability to perform landing zone (LZ) and drop zone (DZ) operations, should the need arise, even though formal tasking did not occur until days later (via fragmentary order [FRAGORD]). This scenario highlights the need for AMLOs to plan for the worst case scenario and be able to fulfill all three-primary mission essential tasks at a moment's notice.

7.2 Application. Mission preparation requires an intelligent application of sound planning concepts obtained from doctrine, lessons learned, operational evaluations, joint training exercises, and threat analysis. AMLOs should integrate with mission MPCs, OPTs, aligned unit staffs, and JTF headquarters when planning a mission. Involve all required functional leads from the outset, including supported unit, contingency response forces, supported combatant command planners, and the AFFOR staff. Sharing critical information will help clarify specified and implied tasks, assess mission risks, and COA development. The AMLO should articulate their roles and responsibilities to all commanders and staffs.

7.3 Mission Variables. After receipt of a tasking, AMLOs should narrow focus to six mission analysis variables of METT-TC. Mission variables are those aspects of the operational environment that directly affect a mission and may be used for mission analysis. By using METT-TC, AMLOs can combine operational information with tactical expertise to generate a comprehensive analysis of the prescribed mission.

7.3.1 Mission. A tasking will be assigned by higher headquarters in any of the mission-type order format. Understand the 5-Ws.

7.3.2 Enemy. Relevant information regarding the enemy may include composition, size, type, enemy tactics, techniques, and procedures (TTP), and previous order of battle. Consider the worst-case and most-likely threats. Coordinate with applicable threat working groups (TWG) who should assess current threats using intelligence preparation of the operational environment (IPOE) methodology. Identify those risk factors that may affect operations and design risk mitigation strategies to limit the negative impact on planned operations. Integration with attached staff can enhance situational awareness in the operational environment through update briefs and other G-2 or command and control messages.

7.3.3 Troops and Support Available. Know enemy and friendly unit strengths and weakness. Check the status of equipment. Request available theater assets to support the unit,

to include HN or coalition (if available). Understand mobility friction points for resupply and sustainment for the AOR and determine appropriate and reasonable COAs to mitigate threats and risks.

7.3.4 Terrain and Weather. Terrain and weather are natural conditions that profoundly influence operations; ***home field*** advantage is a huge benefit. These factors can pose a particular risk to aviation and air mobility assets. The airspace in the AOR must also be carefully understood in how it relates to the terrain as well as potential weather scenarios so that mitigating COAs can be developed.

7.3.5 Time Available. Typically, time available for detailed analysis and assessment is shorter at the tactical level during contingency scenarios. Have key equipment checked and ready for immediate action, and understand local procedures and transportation to preclude any delays.

7.3.6 Civil Considerations. Civil considerations are the influence of man-made infrastructure, civilian institutions, politics, and attitudes and activities of the civilian leaders, populations, and organizations within an area of operations on the conduct of military operations.

7.4 Mission. An AMLO are tasked from multiple sources via multiple methods. Thorough understanding of who is initiating the mission, priority, and the expected requirements, tasks, and end state are paramount to the success of the operation. Prioritization is critical to effective employment of the AMLO.

7.4.1 Mission Orders. Planners should clearly understand the command authority as identified in the planning directives such as a WARNORD or standing execute order (EXORD). See **Table 7.1**, Mission Orders.

Table 7.1 Mission Orders

Order Type	Acronym	Intended Action
Warning Order	WARNORD	Initiates development and evaluation of courses of action by supported commander.
Planning Order	PLANORD	Begins execution planning of anticipated selected course of action. Directs preparation of OPORDs.
Deployment/Redeployment Order	DEPORD	Deploy/redeploy forces. Increase deployability.
Execute Order	EXORD	Implement the decision directing execution of a course of action or OPORD.
Operation Order	OPORD	Effect coordinated execution of an operation.
Fragmentary Order	FRAGORD	Issued as needed after an OPORD to change or modify the execution strategy.

7.4.2 Mission Tasking. Mission taskings are typically formalized with FRAGORDs to the standing OPORD. However, due to the expeditionary nature of the AMLO, expect VOCO taskings when time is limited. For a specific contingency, a deployment order or operation order provides specific guidance, typically including a description of the situation, commander's intent, purpose of military operations, objectives, anticipated mission or tasks, pertinent constraints and restraints, and forces available to the commander for planning and strategic lift allocations.

7.4.3 Mission Analysis.

7.4.3.1 Desired End State. Planners can compare the current conditions of the operational environment with the desired end state to help visualize an approach to solving the problem. Start by identifying necessary end state conditions and termination criteria early in planning to help the mission planning cell devise an operational approach with lines of effort. See **Chapter 5**, Operational Planning.

7.4.3.2 Desired Effects. AMLOs should focus on how air mobility will help achieve the desired effects in support of objectives. Ensure commanders understand indirect effects, or unplanned results, because they can often be unintended and undesired. Examples include: use of airdrop versus airland; balancing effectiveness versus efficiency of the airlift system; TPFDD plan versus actual MOG capabilities.

7.4.3.3 Tasks. Confirm with HHQ staff the essential, specified, and implied tasks early in the mission analysis process to eliminate extraneous planning when developing initial mission planning products.

- Essential tasks are executed by the AMLO and/or mobility forces to achieve the desired end state.
- Specified tasks are assigned to a subordinate via WARNORD, OPORD, or other planning directive. These are tasks the AMLO should accomplish during execution of the operation. One or more specified tasks often become essential tasks as the mission progresses.
- Implied tasks are additional tasks that the AMLO should complete to accomplish the specified and essential tasks. Thorough knowledge of the mission will make it easier for the AMLO to identify implied tasks.

7.4.3.4 Capabilities. The AMLO baseline capability set can be summarized by their mission essential task:

- Integrate with Command and Control—Facilitate timely flow of critical information between the air mobility C2 network and the AMLO's aligned unit under austere and hostile environments anywhere on the globe at any time.
- Optimize Aligned Unit Use of the Air Mobility System—Enhance the aligned unit's operation from planning through execution by advising and educating the unit on how to optimize air mobility to achieve unit objectives.
- Conduct Landing and Drop Operations—Train drop zone controllers, accomplish drop zone surveys, control airdrops, provide landing zone safety officer (LZSO) services, train LZSOs, and perform airfield operations assessments under austere and hostile environments anywhere on the globe at any time.

7.4.3.5 Operational Limitations. Consider the following AMLO limitations:

- Single Individual or Small Team Concept—Due to the small number of AMLOs worldwide, a single AMLO will usually have a large area of responsibility. This can lead to support challenges depending on the operational situation. A broad mission-set across the high-demand air mobility domain, coupled with the limited availability of AMLOs, may require a triage prioritization of mission demands and requirements in order to maximize effects.
- Limited Force Protection—While an AMLO is trained to provide personal defense for themselves, they are unable to provide airfield/drop zone security by themselves. Organic force protection must be provided to secure an airfield/drop zone.
- Sustained Operations—AMLOs are not typically equipped to be self-sufficient for long periods of time and will require aligned unit support. External resupply of equipment/supplies will become necessary if sustained operations are expected.

7.5 Enemy. Unit intelligence should use IPOE methodology to analyze the threat throughout mission analysis.

7.5.1 Intelligence. Integrate with host unit intelligence sections to stay abreast of the threat environment in the AOR. Important factors to consider for any operation include the enemy's

most dangerous (EMDCOA) and most likely course of action (EMLCOA). The AMC/TWG is a foundational resource for operations involving missions commanded and controlled by the 618 AOC. AMC assets assigned to or controlled through the theater air operations center, also referred to as "chopped", operate under separate theater guidance. As the eyes and ears of the AMC/A3, AMLOs provide pertinent and unfiltered information to AMC, the DIRMOBFOR, AMD tactics division, and anywhere the information can be leveraged.

7.5.2 Risk. Risk should be thoroughly analyzed and approved at the appropriate level. The fundamental goal of risk management is to enhance mission effectiveness at all levels while preserving assets and safeguarding the health and welfare of all personnel. Beyond reducing loss, risk management also provides a logical process to identify/exploit opportunities that provide the greatest return on investment of time, dollars, and personnel.

7.5.2.1 Acceptable Level of Risk (ALR). ALR includes ground ALR for AMLO employment as well as ALR for supporting mobility forces. The decision to accept risk will be determined by a combination of higher headquarters, the supporting/supported unit, and the user directly assuming the risk. When determining the ALR, all pertinent factors should be considered to include: currency, proficiency, experience, physical conditioning, available equipment, operation complexity, weather, terrain, and hostile force strength.

7.5.2.2 ALR for Mobility Operations. Contact AMC/A3D for questions regarding risk acceptance guidance for missions under 618 AOC control to include AMLO employment in contingency operations. The theater DIRMOBFOR will assist with setting ALR for theater mobility forces chopped to the AOR to be included in the theater special instructions (SPINS). The AMC enduring SPINS include detailed descriptions of threat levels and mitigating factors required to manage risk to MAF. Ground ALR for AMLO and contingency response forces will require AMC inputs as well. AMLOs should articulate mobility ALR to supported ground force commanders. If ALR for mobility forces does not enable support to the ground force commander's scheme of maneuver, the AMLO should inject immediately to set expectations.

7.5.2.3 Risk Management (RM). RM is a decision-making process to systematically evaluate possible COA, identify risks and benefits, and determine the best COA for any given situation. RM enables commanders, functional managers, supervisors, and individuals to maximize capabilities while limiting risks through application of a simple, systematic process appropriate for all personnel and functions in both on- and off-duty situations. Appropriate use of RM increases an organization's and individual's ability to safely and effectively accomplish their mission/activity while preserving lives and precious resources. AMLOs should use appropriate RM prior to engaging in activities or operations tasked by HHQs or unit. Refer to AFI 90-802, *Risk Management*.

7.6 Troops and Support. Perhaps the most important aspect of mission analysis is determining the combat potential of the force. Leaders know the status of unit morale, experience and training, and the strengths and weaknesses of subordinate leaders. A self-assessment includes knowing the strength and status of their equipment.

7.6.1 Unit Type Code (UTC). Current AMLO UTCs enable the individual to tailor their equipment required directly to the mission tasked. This allows the AMLO to limit the potential

for extraneous equipment that would otherwise make inter/intratheater travel difficult. The separate UTC system is provides flexibility to AMLOs operating alone or in a very small group. UTCs include:

- 7E1AL—Consists of an AMLO and equipment to communicate in austere and field environments.
- 7E1TC—Consists of equipment to extend the ground-air communications capabilities.
- 7E1DL—Consists of equipment required to operate a landing zone and drop zone.
- 7E1LC—Consists of equipment for over the horizon voice/data communication.

7.6.2 Force Protection. Security may be provided by local police forces, security forces, sister-Service/coalition forces, HN forces, or CRF personnel. Reference the AMC airfield threat matrix to determine if the mission requires help from augmenting units.

7.7 Time. AMLOs should be prepared for global contingencies at any time. For this reason, AMLOs should maintain the highest level of currency/ proficiency per OPCON authority standing guidance. From an operational planning perspective, the planning timeline will invariably influence air mobility options for the supported unit. Understand theater air planning processes as well as intertheater options (618 AOC) and timelines as it pertains to the joint operation.

7.8 Terrain and Weather. Each operating location presents its own unique challenges and requires detailed planning. Keep in mind operations can be executed from semi-prepared runway operations to a large international commercial air hub.

7.8.1 Existing Airfield Survey or Landing Zone (LZ). A review of the airfield suitability and restrictions report (ASRR) or the landing zone survey is essential. The ASRR and Giant Reports are available on the GDSS2. The ASRR contains basic information on runway size, weight bearing capacity (WBC), and restrictions. In some instances, the ASRR information may not be available or the information may be outdated. In this case, the information must be obtained from 618 AOC or another valid source. If valid WBC data is not available, load classification number (LCN), pavement classification number (PCN) or California bearing ratio (CBR) may be used to calculate suitability and maximum gross weight allowable. Airfield managers may waive WBC. Remember, the same considerations need to be applied to all taxiways and parking ramps that the aircraft intends to use during ground operations. Existing landing zone surveys can be found on the zone availability report (ZAR) at https://cs2.eis.af.mil/sites/10358/default.aspx. AMC is transitioning to TalonPoint, a web-based portal that will provide a way to not only store all types of surveys but also complete and sign surveys. AMLOs should have access to this database.

NOTE: AFI 13-217 governs landing and drop zone operations.

NOTE: One suitability item often overlooked is the availability of aircraft rescue equipment and personnel. For ARFF requirements, refer to Air Mobility Command Instruction (AMCI) 11-208, *Mobility Air Forces Management* and Air Force Pamphlet (AFPAM) 32-2004, *Aircraft Fire Protection for Exercises and Contingency Response Operations*.

7.8.2 Existing Drop Zone Survey (DZ). Existing drop zone surveys can be found on the ZAR, TalonPoint portal, or regional tactics office databases (e.g., United States Air Forces in

Europe [USAFE] ZAR). Theater drop zones may only exist with entities such as AMD Tactics.

7.8.3 No Survey. If no survey exists, a survey should be completed by a combat controller, air mobility liaison officer, or other trained personnel on an AF Form 3823, V2, *Drop Zone Survey*. Completed surveys can be forwarded to HQ AMC/A3DT (DSN 779-3148/1765) for inclusion in the ZAR or other database.

7.8.4 Charts, Maps, and Imagery. Chart selection should provide the best possible detail and accuracy to meet requirements. It is highly recommended to print charts during mission planning for quick reference en route and during initial setup when data connectivity bandwidth may be limited.

7.8.5 Weather Analysis. A detailed weather analysis is critical to mission planning. All available resources should be used to best determine the weather conditions expected during mission execution. Set an appropriate battle rhythm to manage heat/cold-related fatigue and stress. When using non-DOD sources, keep operations security (OPSEC) in mind. Other meteorological information may be obtained from HN capability study. If the MPC does not have dedicated weather support, the list below shows weather agency-provided services and products available for mission analysis.

7.8.5.1 Observations and Terminal Aerodrome Forecasts (TAF). A TAF request includes the ICAO identifier, pilot reports, surface observations and TAFs are reported in alphanumeric format. The website www.aviationweather.gov is the National Oceanic and Atmospheric Administration (NOAA) site for domestic aviation weather.

7.8.5.2 Weather Agencies. If a weather forecaster is not available at the operating location, the Air Force weather agencies' geographic area of responsibility can be found in Section C of the *Flight Information Handbook* can provide operational weather squadron (OWS) products and services. Additionally, the Air Force Weather Agency provides an interactive grid analysis and display system.

7.8.5.3 Space Weather. Space weather is observed and forecast solar activity impacting high frequency (HF) and ultrahigh frequency (UHF) communications and applications.

7.9 Civil Considerations and HN Relations. Based on information from higher headquarters and known planning factors, the MPC should identify civil considerations that affect their mission. Most of the time, deployed AMLOs are surrounded by noncombatants. These noncombatants may include United States Government (USG) officials, residents of the AO, local officials, international governmental organizations (IGO), and nongovernmental organizations (NGO). Dependent upon the mission, AMLOs may be working hand-in-hand with HN counterparts. Even if AMLOs are not working directly with HN representatives, a poor HN perception of US military abroad could create unnecessary obstacles toward mission accomplishment. Depending upon the tasked mission and operating environment (e.g., permissive, uncertain, hostile), HN considerations require continuous attention from the MPC during mission analysis.

7.10 After-Action Reports/Review (AAR). A review of previous after action reports should be included in mission analysis to complete a thorough performance review of past events. After mission execution, an after action review is an excellent tool for enabling Airmen to discover what happened, why it happened, how to sustain strengths, and how to improve on weaknesses.

AMLOs are required by AFI 13-106, *Air Mobility Liaison Officers (AMLO)* to provide after action reports to OPCON authority and AMC. Supported unit AARs should be reviewed and analyzed for strengths and weaknesses as well, in order to find opportunities for the AMLO mission to be advanced. The Joint Lessons Learned Information System (JLLIS) database is the DOD system of record for lessons learned and is a robust resource for after action reports. As a technique, mission analysis is a good time to begin gathering after-action reporting inputs to capture lessons learned.

7.11 RFIs to Tasking Authority. Submitting an RFI is the normal procedure for filling information gaps not available through the use of organic intelligence and planning assets. If available, AMLO mission planners should identify an RFI recorder to consolidate all RFIs required for thorough mission analysis. The RFI process can greatly enhance situational awareness of the AO by tapping into all staffs through the AMLO's expressed DIRLAUTH on behalf of the OPCON authority. Units may have an RFI collection database, depending on their capability. RFIs should be submitted in a timely manner to enable thorough mission analysis.

7.12 Mission Analysis Brief. The purpose of this brief is to provide the commander, director of operations, or OL chief, depending on delegation of authority, with the results of the MPC analysis of the mission, offer a forum to present identified issues, and provide an opportunity for the approving authority to synthesize mission analysis with the initial visualization of the mission. The commander (or as appropriate) approves or disapproves the MPC's recommended COA and provides additional guidance if required. The mission analysis briefing may be the only time leadership is available and the only opportunity to ensure that all members have a common reference point for the mission. Refer to JP 5-0.

7.13 Rehearsal of Concept (ROC) Drill. A successful transition from planning to execution requires those charged with executing the order to fully understand the plan. An excellent method for accomplishing this is to conduct a ROC drill. A rehearsal is a session in which the planning staff or unit practices expected actions to improve performance during execution. Rehearsals allow leaders to practice synchronizing operations at times and places critical to mission accomplishment. During a rehearsal, all participants rehearse their roles in the operation to ensure they understand how their actions support the overall operation and note any additional coordination required. After a rehearsal, all participants should have a clear understanding of the mission and know their responsibilities and priorities during execution. Refer to ADP 5-0.

7.13.1 Conducting Rehearsals. The extent of rehearsals depends on available time. In cases of short-notice requirements, rehearsals may not be possible during mission analysis. If this is the case, leadership should strive to conduct a ROC drill at the deployed location prior to the beginning of operations. Rehearsals can be robust and include all members of a unit and/or supported unit (time permitting), or they can be table-topped with leadership and functional group representatives. After the ROC drill, the commander or designated representative should lead a hot wash. The intent of the meeting is to review lessons learned and make any required modifications to the existing plan. Refer to ADP 5-0.

CHAPTER 8

FORCIBLE ENTRY OPERATIONS

8.1 Introduction. Forcible entry operations (FEO) are designed to create a logistical foothold in denied or hostile environments and will continue to increase in importance as the military pursues a more agile combat force structure. FEO options may take place in the air, land, or sea domains. AMLOs play a critical role in airborne operations but should be familiar with their aligned units' FEO responsibilities in all domains and be prepared to assist in planning and execution of forcible entry operations. The inherently joint nature of FEOs drives a robust requirement for air mobility assets and capabilities.

8.2 Defined. Joint forcible entry operations seize and hold lodgments against armed opposition. A lodgment is a designated area in a hostile or potentially hostile operational area (e.g., an airhead, a beachhead, or combination thereof) that affords continuous landing of troops and materiel while providing maneuver space for subsequent operations. The lodgment and the means to seize a lodgment will depend upon the objectives of the operation or campaign. In most operations, forcible entry secures the lodgment as a base for subsequent operations. It often has facilities and infrastructure that may be used to receive large follow-on forces and logistics. In some operations, seizure of the lodgment may be the primary objective, and its retention lasts only until the mission is complete, at which time the assaulting forces withdraw. Forcible entry operations are inherently risky and always joint. Forcible entry demands careful planning and thorough preparation; synchronized, violent, and rapid execution; and leader initiative at every level to deal with friction, chance, and opportunity. Refer to JP 3-18, *Joint Forcible Entry Operations*.

8.3 Units. AMLOs are aligned with airborne, special operations, and Marine Corps units with FEO missions. While virtually all aligned Marine Corps and Army maneuver units have air assault capabilities, airborne units are the most likely to engage in FEOs. Airborne FEOs may be accomplished via direct delivery from home station or launched from an intermediate staging base (ISB) and are always conditions-based.

8.4 Planning. During FEO planning, AMLOs are considered air mobility experts and should be familiar with mode-specific contingency air operations and their aligned unit's mission requirements to include priority of support and schemes of sustainment. AMLOs should be familiar with any applicable OPLANs, CONPLANs, orders, and mission-related materials. If there are any knowledge gaps or deficiencies AMLOs should work to mitigate them through coordination with subject matter experts (SME), self-study, and augmentation. The most important aspect of FEO planning is to provide timely, accurate, and useful information to joint partners.

8.4.1 Air Mobility Representation. AMLOs are often the only air mobility representatives in joint forcible entry (JFE) planning events. Due to the nature of joint planning it is incumbent on the AMLO to identify and integrate with other air planners such as air liaison officers (ALO), tactical air control party (TACP), combat air force (CAF) planners, special operations forces (SOF) air planners, intel, sister-Service air planners, contingency response (CR) personnel, and mobility weapons officers (WO). Integrating mobility expertise with other air-centric specialties allows presentation of a cohesive, holistic air picture and directly drives deconfliction capability during execution. AMLOs should be involved in planning at the

strategic, operational, and tactical levels to ensure proper support of air mobility assets to the FEO.

8.4.2 Planning Considerations. While impossible to anticipate all possible planning challenges, AMLOs are authorized and encouraged to reach out to relevant SMEs to provide information and guidance in execution of their duties.

8.4.2.1 Threat to the Force. During airborne JFE planning, AMLOs should consider the threat to aircraft. Information pertaining to air threats can be found in JP 3-01, *Countering Air and Missile Threats* and the airframe specific AFTTP 3-1 series manuals. AMLOs should be familiar with the concept of ALR. In order to provide accurate planning assumptions for FEO, AMLOs should consider all available threat data and provide feasibility assessments in terms of ALR. If possible AMLOs should coordinate with the JFACC or USTRANSCOM to determine the theater ALR for mobility aircraft. The primary Air Force SMEs for ALR are MWS weapons officers.

- 29th Weapons Squadron, C-130, Little Rock AFB, AR.
- 57th Weapons Squadron, C-17, Joint Base Lewis-McChord, WA.
- 509th Weapons Squadron, KC-135, Fairchild AFB, WA.

8.4.2.2 Aircraft Requirements. AFPAM 10-1403, *Air Mobility Planning Factors* provides adequate information on mobility aircraft capabilities to estimate total number of aircraft required for a FEO. AMLOs should develop an in-depth understanding of their aligned users' airdrop and/or strategic lift requirements via strategic and operational level plan study. Engaging with the DTO in the Army or G-4/SMO for a MEF is crucial to ensuring proper aircraft allocation. Outsized vehicles and equipment (e.g., artillery pieces) are common JFE items that may require C-17 support to airdrop.

8.4.2.3 Fixed Installation Satellite Antenna (FISA). FISA is a hardware modification to an aircraft that enables airborne use of Army en route mission command. FISA capabilities allow ground force commanders to maintain real-time communications and battlefield awareness while airborne. FISA is an aircraft modification that is currently unique to the C-17. FISA requirements should be identified to AMC/A3 and the supporting AOC as early as possible to ensure that FISA modified tails are assigned to the mission. FISA hardware is fixed and can't be transferred between aircraft.

8.4.2.4 Infrastructure Requirements. ISB operations add an additional layer of complexity to FEOs. ISB locations may be dictated by air or ground force requirements. In the event ISB operations are planned, AMLOs need to ensure all critical requirements for mission accomplishment can be met. If possible AMLOs should be included in all predeployment site surveys (PDSS), logistics meetings, and OPT meetings involving the ISB. AMLOs should inspect ISB locations physically to confirm the accuracy of reference and planning materials. See **Table 8.1**, Common ISB Requirements.

Table 8.1 Common ISB Requirements

Air Force	Ground Force
Fuel (capacity/trucks/single point refueling [SPR]) HAZMAT capabilities/limitations Deicing Equipment Crash/Fire/Rescue Aircraft Parking/Flow Capacity	Dunnage Troop Holding Areas Bivouac Areas HAZMAT Requirements Airdrop/Personnel Rigging Facilities Transportation (on airfield for personnel) Security
Material Handling Equipment (MHE)	
Forklifts/K Loaders/Aircraft Tugs Cranes	Highline Docks Flatbed Trucks

8.5 Execution. FEOs are dynamic, chaotic, and high-stress events. The needs of the aligned user should be the priority when determining physical placement of the AMLO during the execution phase. AMLOs may be integrated at any and all levels of support during execution (i.e., insertion with an airborne command post [ACP] or being embedded at the theater air AOC as a communications node to the ground force). AMLOs should be provided discretion to reposition as necessary when a change in conditions dictate.

8.5.1 Airborne Insertions. AMLOs assigned to designated airborne units may carry a "J" code and be qualified to conduct airborne operations. These AMLOs may be expected to perform airborne operations with their aligned units. In the event of an airborne FEO, the AMLO would normally jump with the command element of the airborne force independent of force echelon.

8.5.2 Communications. AMLOs embedded at strategic or operational command locations during execution of FEOs should focus on facilitating communication between Air Force and joint units. When possible, AMLOs should ensure access to critical communication systems utilized by their aligned unit. Access to systems from field locations such as TRANSVERSE, command post of the future (CPOF), and messenger Internet Relay Chat (MiRC), employed by an AOC, have proven invaluable in the past. In addition accurate, current contact information for key personnel in the aligned unit are indispensable in ensuring rapid coordination between air and ground command elements.

8.6 Expanding the Lodgment. This phase of FEO is the most fluid for the AMLO. Expanding the lodgment normally encompasses a simultaneous building of logistics capabilities at the lodgment and expanding a security zone around the lodgment in accordance with mission requirements. AMLO requirements will vary depending on location, threat, user force makeup, and mission objectives.

8.6.1 Lodgment Operations. AMLOs embedded at the tactical level should be prepared to conduct follow-on tactical operations. Surveying austere DZ, controlling DZs, augmenting LZ operations, and instructing ground users on DZ operations fall within the scope of mission essential tasks. The other primary task of AMLOs located at the lodgment is assisting in preparation for reception of follow-on forces. Coordination with CR forces, AFFOR staff,

theater AOC, and aligned users' joint operations center (JOC) are critical to ensuring an expedient, organized flow of personnel and supplies into the lodgment.

8.6.2 Other Operational Locations. AMLOs not embedded at the lodgment should determine the best location to assist their aligned user following the FEO. There are advantages and disadvantages to posturing at an ISB, AOC, JOC, or other locations. Priority should be given to the request of the aligned user but it is incumbent on the AMLO to provide a recommendation based on their own experience and knowledge. Access to communication systems and command elements is paramount and should not be sacrificed for the sake of convenience. AMLOs should be in the best location to gather information, inform, and coordinate at all times.

8.7 Transition. The final phase of FEOs is the transition or termination phase. AMLOs should be focused on assisting in the transition of airfield control to CR or follow-on forces during this phase. Refer to AFTTP 3-2.68, *Multi-service Tactics, Techniques, and Procedures for Airfield Opening* and AFTTP 3-4.4, *Contingency Airfield Operations* for guidance on opening and transferring airfield control.

CHAPTER 9

LANDING ZONE OPERATIONS

9.1 Introduction. This chapter outlines how to: (1) plan and prepare for an LZ operation; (2) assess and setup an LZ; and (3) provides considerations for operating an LZ.

9.2 Coordination. Pre-mission coordination and communication is essential to prevent mission failure and minimize changes prior to opening the LZ. The AMLO coordinates with the user to confirm the communication plan, training/operation to be conducted, number of aircraft, equipment and passengers being on/offloaded, and potential contingencies during the operation. AMLOs should obtain a copy of the LZ survey and begin coordination with the agency/SAA that owns the LZ to determine procedures for gaining access, conducting an LZ assessment, opening the LZ, conducting operations and closing the LZ. If operating an LZ for training purposes, contact with range control may be needed to obtain a communication method which complies with local requirements. In a combat environment, AMLOs should understand all theater air control system (TACS) and Army air-ground system (AAGS) players to include ground and air-based command and control nodes (e.g., control and reporting center [CRC], airborne warning and control system [AWACS], ROZ owners).

9.2.1 Zone Availability Report (ZAR) or Talon Point. The ZAR is a comprehensive listing of drop zones and landing zones available for use by the DOD. The information in the ZAR does not replace the need for a completed survey prior to conducting LZ operations. Completed DZ/LZ surveys will be forwarded to AMC/A3DT (DSN 779-3148/1765) for inclusion in the ZAR. Completed surveys are available for military (.mil) users on the ZAR. All USAFE and many SOF fields are on Talon Point or SIPRNET Talon Point. The links for these can be found on the ZAR website at: https://cs2.eis.af.mil/sites/10358/default.aspx.

NOTE: Major commands (MAJCOM) and contingency AOCs may maintain their own ZAR database (if desired). This does not alleviate them from the responsibility to provide these surveys to AMC/A3DT for inclusion in the worldwide ZAR database, unless classification requirements dictate otherwise.

9.2.2 Airlift Mission Commander Responsibilities. The airlift mission commander selects the air tactics and designs the flow of air movement to comply with the delivery requirements. AMLOs should coordinate closely with the airlift mission commander (referred to as the AMC), ground force commander, and the personnel responsible for controlling the LZ (e.g., combat control teams [CCT], AMLO, LZSO, CRF).

9.2.3 Mission Planning. Pre-mission planning is a critical component of operating a landing zone (LZ). See **Table 9.1**, LZ Pre-Mission Checklist and **Table 9.2**, LZ Pre-Mission Checklist-Coordination.

Table 9.1 LZ Pre-Mission Checklist (Sheet 1 of 2)

1. Point of contact (POC)/phone numbers/frequencies/operating hours/call sign/location on field.
2. Services available (fuel/maintenance/weather/intelligence/food/lodging/fleet/phones).
   - Power carts, air carts.
3. Security (Ravens/Fly-Away Security Team [FAST] required/crew arming/air mobility division [AMD] threat matrix).
   - Force protection posture.
   - Base security.
4. Times (slot time, load time, time of arrival [TOA]).
5. Airfield layout.
   - Maps, imagery, landing zone (LZ) survey, Global Decision Support System (GDSS), zone availability report (ZAR)/Talon Point, local tac cards.
   - Recent weather which affects usability/weather in the near future.
   - Ramp size and dimensions (compare with survey for any changes).
   - Composition/pavement classification number (PCN)/California bearing ratio (CBR)/load classification number (LCN) (dirt, concrete) dust condition?
   - Maximum on ground (MOG): working/parking.
   - Materials handling equipment (MHE) (number and type forklifts, k-loaders, hand offload or combat offload).
   - Aircraft rescue and firefighting (ARFF)/crash, fire, and rescue (CFR) support/location.
   - Existing parking plans and markings (e.g., paint, sandbags, chem sticks).
   - Parking obstructions not on survey (e.g., light poles, equipment, ditches, trees).
   - Email desired parking plans if different from planned (how it will be marked); ensure Tanker Airlift Control Center/mission planning cells (MPC) receives planning limitations.
   - Ramp lighting, markings for parking and taxi (overt/covert).
6. Taxi/parking plan.
   - Arrival and departure sequence.
   - Out of sequence landings/parking (cargo loading order by chock or first available).
   - Broke aircraft parking location/escape route taxi plan.
   - Holding points (air traffic control [ATC], maintenance, combat offload).
7. Cargo.
   - What is being uploaded/down loaded?
     - Rolling stock.
     - Get loaded vehicle weight (watch for unidentified weight).
     - Where will the cargo and drivers be waiting?
     - Drive on or back on cargo (time and threat dependent).
     - Are drivers available to download rolling stock (they may be flying with it).
   - Manifests/load plans: weights and numbers for DD Form 365-4, *Weight and Balance Clearance Form - F* check for hazardous cargo, bump plan for cargo.

Table 9.1 LZ Pre-Mission Checklist (Sheet 2 of 2)

8. Ground/load team.
   - Marshalers required?
   - Load team: number, training, and experience.
   - Engine running on/offloads (ERO) Yes/No? Any limits? Down speed engines/shut down outboards (load times or temps).
   - Reverse taxi authorized? (dust goggles for ground handlers).
   - Required communications with loading party/ramp ops/LZ (inbound/outbound calls)/taxi clearance.
9. Night vision goggle (NVG) operations.
   - Aircraft lighting external/cargo compartment (overt/covert) NVG operations?
   - MHE/prime mover/rolling stock drivers NVG capable?
   - NVG operations: mark vehicles/cargo with infrared (IR) chemsticks on corners.
10. No radio/emission control (NORDO/EMCON) plan.
   - Airfield attack plan.
     - Bunker locations/launch to survive? (signals for an attack).
     - Signals to ground crew for attack, cleared to load, ready for taxi (flashlights).

Table 9.2 LZ Pre-Mission Checklist—Coordination

• Usable runway/taxiway length and width if different from survey (any new damage, obstacles, or restrictions).
• Landing zone (LZ) markings and lighting (overt, covert, panel locations airfield marking patterns [AMP] 1, 2, 3).
• Additional markings: consider poor visibility/additional markings that may help crews (e.g., midfield lights to mark LZ shoulders). Ensure you coordinate with crews if markings are non-standard.
• Landing/take off obstructions/limitations (e.g., one way airfield).
• Ingress/egress altitude and direction (approach types: beam, straight-in, steep).
• Approach procedures (visual flight rules [VFR], instrument flight rules [IFR], go-around missed approach, navigational aids [NAVAIDS]).
• Time of arrival (TOA), expected time on ground.
• Landing intervals (formation/minimum closure).
• Offload/onload plan.
• Airspace limits (airspace control order [ACO] vs. actual/required), altitudes, and dimensions.
• Holding locations airborne and on ground.
• No-fly areas not on survey or in ACO.
• Call sign frequencies: ultrahigh frequency (UHF), very high frequency (VHF), frequency modulation (FM), satellite communications (SATCOM) (expected range for contact).
• Required communication, type of control, and separation/emission control (EMCON)/no radio (NORDO) plan.
• Take off/landing clearance or ***at your own risk*** operations.
• Taxi plan (ramp closure, broke aircraft, airfield attack).
• If dirt LZ, average time for dust cloud to dissipate with various winds (landing interval).
• Other traffic: type, volume, and impact to operations (helicopter, unmanned aerial vehicle [UAV], vehicles on LZ).

9.3 LZSO Responsibilities. LZSOs ensure the safety of the aircraft, crew, and other personnel conducting operations at the LZ. See **Table 9.3**, LZSO Responsibilities.

Table 9.3 LZSO Responsibilities

1. Landing zone safety officer (LZSO) serves as the officer in charge (OIC) and is responsible for certifying the airfield meets the safety standards for aircraft operations per the LZSO inspection checklist. Coordinates with the security element to ensure security is established and maintained.
2. LZSO should inspect the landing zone (LZ) when workload allows but should be done after 4 passes. This inspection should be completed with semi-prepared airfield condition index (SPACI) criteria. In the event the strip is determined unsafe for landing, the LZSO notifies the ground user's tactical operations center (TOC) and if able passes the information to the inbound aircraft.
3. All landing zones / airfield operations will have a minimum of one LZSO present at all times. Recommend two-man policy to ease workload and allow for increased vigilance during critical operations.
4. Prior to departing the forward operating base (FOB) staging area, ensure the security element is briefed on the mission, timeline, security measures, and airfield clearing procedures.
5. While not responsible for the airspace nor certified to grant landing and takeoff clearance, advisory calls, workload permitting, are highly encouraged.

9.4 Equipment. The AMLO is a rapidly deployable, flexible, and agile asset. AMLOs deploy with a light, lean equipment footprint in order to preserve mobility options (e.g., rotary wing/ground transport to LZ). Certain items are required for LZ operations and others will prove invaluable to ensuring safe and efficient operations. The following is a list of equipment most often required for LZ operations and can be tailored to individual missions. See **Table 9.4**, LZ Recommended Equipment List.

Table 9.4 LZ Recommended Equipment List

Landing Zone (LZ) EQUIPMENT LIST			
DZ	LZ	7E1DL unit type code (UTC) (DZ/LZ kit)	Quantity
A/R	A/R	Pelican® 1660F case	1
X	X	Assault zone landing (AZL)-15 marker light (P2603-A)	12
X	X	AZL-15 Light controller (P2606-T)	1
X	X	AZL-15 marker light stakes	24
X		Raised angle marker	1
A/R	X	K visual assault zone marker panel (KVAMP)	10
A/R	A/R	Amber rotating beacon	1
X	X	Kestrel rotating vane mount	1
X	X	Tripod	1
X	X	Pocket laser range finder 25C	1

X	X	Steiner® 8x30 military binoculars	1
	X	Light-emitting diode (LED) aviation signal light gun w/internal battery and charger unit, stand, carry case	1
A/R	A/R	Thermal imager; enhanced clip on thermal imager (E-COTI), navigation pack, battery	1
A/R	A/R	Hilti® TE30-A36 cordless hammer drill w/(2) 36V/6.0A Li-ion batteries and charger	1
A/R	A/R	Hilti® hammer TE-CX drill bit, 1” x 27”	2
	X	Folding carpenter’s ruler	1
	X	12” metal ruler	1
	X	100’ nylon tape measure	1
	X	6” nails/spikes for AZL	48
X	X	Duct tape	1
X	X	3-pound sledge hammer	1
X	X	Asphalt stakes	24
X	X	Measuring wheel	1
X	X	Tent stakes 12” (4 pack)	30
X	X	AA lithium battery	120
X	X	CR123 lithium battery	12
X	X	KESTREL® 5500	1
X	X	Tape measure	1
	X	K-100MD Military Deluxe Dynamic Cone Penetrometer (DCP) Kit	1
A/R	A/R	Tag advanced tactical	1
X	X	3-day rucksack	1
X	X	Special instructions (SPINS)/drop and control frequencies	1
X	X	Range radio	1

9.5 Setting up the LZ. Expedient airfields are those surfaced with dirt, membrane, landing mat, or any combination of these. The criteria in Technical Manual (TM) 3-34.48-2, *Theater of Operations: Roads, Airfields, and Heliports - Airfield and Heliport Design* outlines construction criteria of airfields for aircraft operating under normal conditions and procedures. Combat control personnel are trained to perform tactical LZ surveys or assessments in support of airlift operations. They determine LZ suitability by using general criteria in AFJPAM 32-8013, VII and the specific tactical LZ criteria contained in MAJCOM supplements to this publication. **Table 9.5**, Minimum Runway Dimensions for Common Aircraft shows the general peacetime minimum sizes for various US Air Force fixed-wing LZs; however, these minimum values do not reflect practical use

of an LZ for cargo throughput. While takeoff and landing data is contingent on many factors, the minimum LZ size for significant C-17 infiltration/exfiltration operations is closer to 4000-5000 feet of usable surface. See **Table 9.5** for common aircraft. Refer to AFI 13-217.

Table 9.5 Minimum Runway Dimensions for Common Aircraft

		Width (feet) (NOTE 1)		
Type aircraft (AC)	**Length (feet) (NOTE 1)**	**No Turn Required**	**180 Degree Turn (Normal)**	**180 Degree Turn (3 Point)**
U-28A	2,000	30	30	30
C-130	3,000	60	60	50 (NOTE 2)
MC-130	3,000	60	60	50
HC-130	3,000 (NOTE 4)	60	60	50
C-130J-30	3,000	60	85	75 (NOTE 2)
C-17	3,500 (NOTE 4)	90	143	80 (NOTE 2)
C-5	6,000 (NOTE 3)	150	150	

NOTES:

1. Minimum operational criteria without a waiver during peacetime operations.
2. Does not include any safety margin. Increase by 10 feet for routine operations.
3. Waiverable to 5,000 feet by major command (MAJCOM)/A-3 or director of mobility forces (DIRMOBFOR).
4. Waiverable to computed ground roll plus (+) 500 feet by the MAJCOM/A-3 or DIRMOBFOR.

9.5.1 LZ Areas. Potential LZ areas fall into two basic categories: prepared, and semi-prepared (unpaved). Prepared areas may include existing airfields, roads, highways, or other paved surfaces. Semi-prepared surfaces are natural areas such as deserts, dry lakebeds, and flat valley floors. These surfaces offer the ability to construct short airstrips for a limited use and may or may not have an aggregate surface.

9.5.1.1 Contingency response airfield assessment teams include personnel qualified to conduct surveys of prepared and semi-prepared LZs.

9.5.1.2 Combat control personnel are trained and equipped with a full suite of surveying equipment to satisfactorily assess obstructions, penetrations, and approach zone clearances. They are trained and have equipment used to check weight-bearing capability of LZs for both semi-prepared and prepared surfaces.

9.5.1.3 AMLOs do not have the training to survey a new airfield. AMLOs can and should advise commanders on the feasibility and best location for an LZ in order to most effectively use mobility assets.

9.5.2 LZ Marking Equipment. LZs are normally marked with marker panels (KVAMPs, VS-17, VS-18) secured to upright supports for day operations and omni-directional visible

lighting systems with a minimum output rating of 15 candela, and strobe lights if required, for night operations. Virtually any type overt or covert lighting or marking system is acceptable, if all participating units are briefed, and concur with its use. Special tactics units may also use specialized lighting systems.

9.6 Assessment. The purpose of the LZ assessment is to ensure the safety of the aircrews and to verify the AF Form 3822, Version 1, *Landing Zone Survey* or tactical survey obtained from the ZAR database or regional AOC. The physical assessment primarily addresses distress types and severity throughout the LZ. The method for rating the condition of semi-prepared airfields has four steps:

1. Divide the airfield into features and sections.
2. Inspect the airfield and identify the distresses.
3. Calculate the rating for each section.
4. Use the ratings to determine if the airfield is safe (see **Table 9.6**, SPACI Conditions).

9.6.1 Semi-Prepared Airfield Condition Index (SPACI). SPACI is a process to objectively calculate the overall condition of the LZ using the distresses found on the LZ. By identifying the severity of each distressed condition and inputting the values into the SPACI index, an overall LZ condition can be determined. The calculation is scale that ranges from 0 to 100. Refer to the *AMLO Playbook* or the ETL 97-9, *Criteria and Guidance for C-17Contingency and Training Operations on Semi-Prepared Airfields* for specifics on how to conduct. See **Table 9.6**.

Table 9.6 SPACI Conditions

Red	Dangerous and must be repaired; high-risk operations.
Amber	Needs monitoring and should be repaired if possible; medium-risk operations.
Green	Operational for low-risk operations.

9.6.2 Distress Types. It is imperative to evaluate multiple different airfield distress types prior to and during airfield use. There are seven possible problems or distresses. In each 250-foot section, there may be no distresses or as many as seven distresses. If there is trouble identifying the type of distress make a reasonable guess. The system is flexible enough to give an accurate rating. While crews generally are concerned with maximum allowable gross load (AGL) and rolling friction factor (RFF), the distress factors should be continually assessed to determine overall airfield condition (RED, AMBER, or GREEN). Multiple passes and 180-degree turns on the runway will likely cause damage or rutting of the runway surface. The seven distresses are:

- Potholes (major).
- Loose aggregate coverage and size.
- Ruts (major).
- Dust.

- Rolling resistant material (major).
- Jet blast erosion.
- Stabilized layer failure.

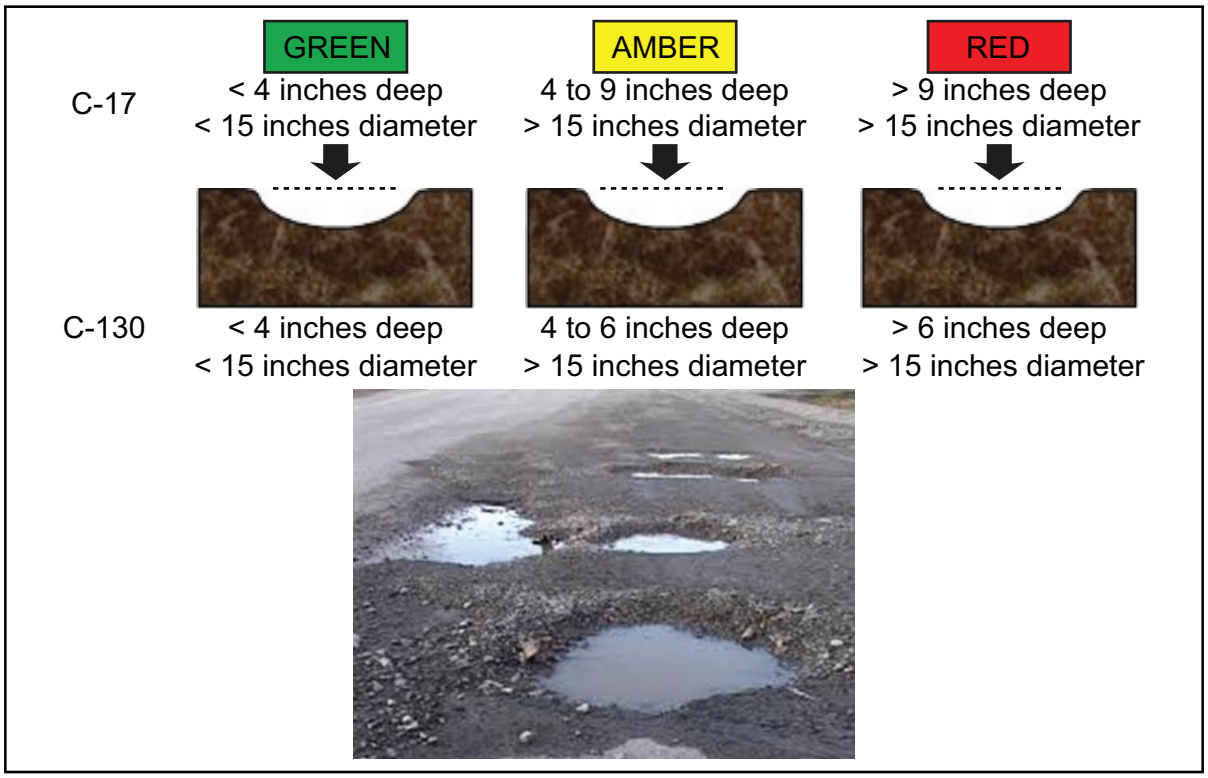
NOTE: Unless otherwise stated, the distress severity measurements for contingency and training operations are the same.

NOTE: Potholes, ruts, and rolling resistant material are considered major distresses. Depending upon actual distress location, any of these distress types categorized as RED may cause overall airfield condition to be RED. Training sites must meet green criteria, contingency sites must meet amber criteria.

9.6.2.1 Potholes. Potholes are bowl-shaped depressions in the airfield surface. Once potholes have begun to form, the runway will continue to disintegrate because of loosening surface material or weak spots in the underlying soils. If potholes have hard, abrupt, vertical sides, refer to stabilized layer failure criteria. Measure the depth of the biggest potholes and determine their severity level. In areas of high pothole density, observe aircraft reaction. The location and number of potholes can be critical to aircraft performance. See **Figure 9.1**, Potholes.

NOTE: An abrupt vertical change of more than 2 inches could cause the nose gear to collapse and should be repaired before the airfield can be used.

Figure 9.1 Potholes



9.6.2.2 Loose Aggregate. Loose aggregate consists of small stones 1/4 inch or larger that have separated from the soil binder. In large enough quantities and sizes, it becomes

dangerous. Rocks over 4 inches in diameter must be removed from the airfield before any operations. If material crushes underfoot, it is not considered loose aggregate. Rocks 3/4 inch to 1 inch in size create engine FOD potential, as well as probable damage to undercarriage antennae. Larger aggregate provides tire cutting potential as well as greater potential for undercarriage FOD damage. Recommend surface coarse gradation with maximum 1/2 inch aggregate size be used on LZs. AMC operations on gravel LZs have been discontinued except in emergencies. Use **Table 9.7**, Aggregate Coverage Guide to estimate the area of the section that is covered by loose aggregate and check the appropriate box in the severity table. Use **Table 9.8**, Aggregate Size Guide to measure average size aggregate with a measuring stick and check the appropriate box in the severity table.

Table 9.7 Aggregate Coverage Guide

Maximum Aggregate Coverage	Operational Code	Operational Code Description
Covers > 1/2 of section	**Red**	Operate aircraft only in emergency situations.
Covers between 1/10 and 1/2 of the section	**Amber**	Operate aircraft for a limited number of operations.
Covers < 1/10 of section	**Green**	Operate aircraft for unlimited mission operations.

Table 9.8 Aggregate Size Guide

Maximum Aggregate Size	Operational Code	Operational Code Description
> 1 inch	**Red**	Operate aircraft only in emergency situations.
3/4 to 1 inch	**Amber**	Operate aircraft for a limited number of operations.
< 3/4 inch	**Green**	Operate aircraft for unlimited mission operations.

9.6.2.3 Ruts. Ruts are surface depressions in the wheel paths that run parallel to the centerline. They result from repeated aircraft passes and become more severe with time. Lay a straightedge across the ruts with both ends resting on the solid runway surface with loose (rolling resistant material) removed. Measure the average depth of the three deepest ruts on each side, from the bottom of the straightedge to the solid ground in the bottom of the rut. Use the higher average (left or right) depth for that location. Rut width does not affect severity. See **Figure 9.2**, Rut Depth, and **Table 9.9**, Rut Severity.

Figure 9.2 Rut Depth

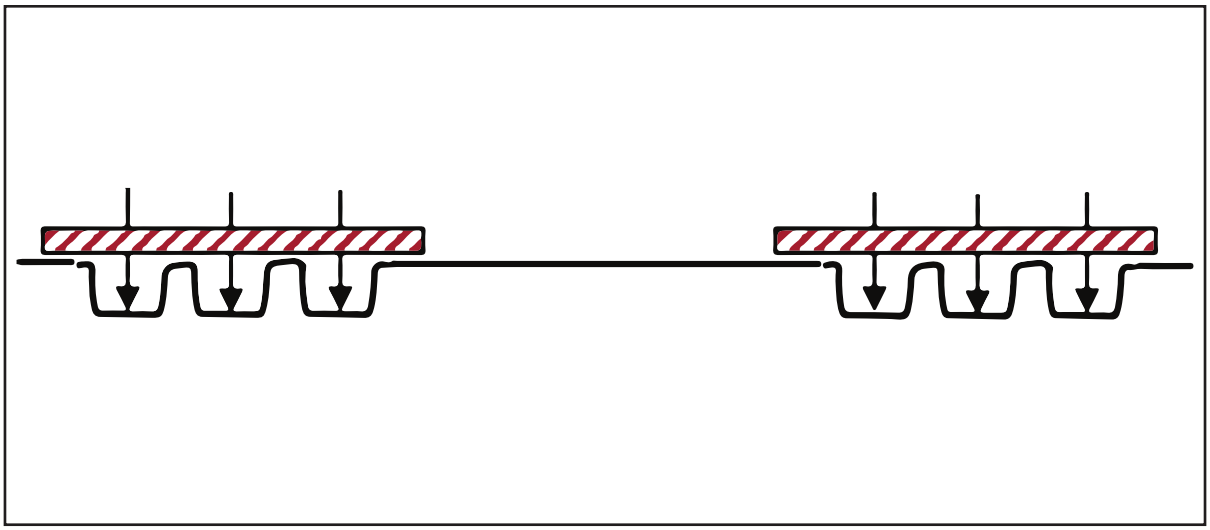


Table 9.9 Rut Severity

Rut	Operational Code	Operational Code Description
> 9 inches (C-17) > 6 inches (C-130)	**Red**	Operate aircraft only in emergency situations.
4 to 9 inches (C-17) 4 to 6 inches (C-130)	**Amber**	Operate aircraft for a limited number of operations.
Exist but, < 4 inches	**Green**	Operate aircraft for unlimited mission operations.

9.6.2.4 Rolling Resistance Material (RRM). RRM is any type of loose or unbound material that separates from the solid base and lies on top of the surface and in the ruts. In sufficient quantities, it increases the rolling resistance, and therefore increases the amount of runway required for C-17 takeoffs. It is more prevalent in dry soils and is a byproduct of severe rutting.

9.6.2.4.1 Stick a ruler into the RRM until you hit solid ground and read the number on the ruler at the top of the RRM to the nearest 1/4 inch.

9.6.2.4.2 Take a minimum of seven measurements in each gear path and average those measurements. Determine average RRM depth by averaging the measurements in the touchdown area, in the primary braking area, at the point of rotation, and the last 500 feet of runway. Use **Table 9.10**, Rolling Resistance Material, below to determine rolling resistance material.

Table 9.10 Rolling Resistance Material Depth

Rolling Resistant Material Depth	Operational Code	Operational Code Description
7.75 inches (C-17) > 3 inches (C-130)	**Red**	Operate aircraft only in emergency situations.
3.5 to 7.75 inches (C-17) 1 to 3 inches (C-130)	**Amber**	Operate aircraft for a limited number of operations.
Exist but, < 3.5 inches (C-17) Exist but, < 1 inch (C-130)	**Green**	Operate aircraft for unlimited mission operations.

9.6.2.5 Dust. The natural material on unsurfaced airfields and the multiple passes of the aircraft cause fine materials to separate from the soil binder, become airborne and become a significant problem for personnel, trailing aircraft, and the environment. Have a vehicle drive at 60 miles per hour down the runway. Watch the dust cloud and check the appropriate box on the table. For example, if you cannot see the vehicle, check Red. Use **Table 9.11**, Dust Cloud Severity, below.

Table 9.11 Dust Cloud Severity

Red	There is a thick cloud that obstructs visibility.
Amber	There is a moderately thick cloud that partially obstructs visibility.
Green	There is a thin dust cloud that does not obstruct visibility.

9.6.2.6 Jet Blast Erosion. Jet blast erosion occurs when the top layer of soil is blown or stripped away as aircraft fire up to taxi or take off. Jet blast erosion outside trafficked areas can be ignored. Jet blast erosion is characterized by no evidence of loose aggregate. Measure the depth of the erosion and check the appropriate box on the inspection sheet. See **Table 9.12**, Jet Blast Erosion and **Figure 9.3**, Jet Blast Erosion.

Table 9.12 Jet Blast Erosion

Red	Jet blast erosion is greater than 3 inches deep (2 inches for training).
Amber	Jet blast erosion is 1 to 3 inches deep (1 to 2 inches for training).
Green	Jet blast erosion exists but is less than 1 inch deep.

Figure 9.3 Jet Blast Erosion

9.6.2.7 Stabilized Layer Failure. If the runway surface material is mixed with a stabilizing agent, the resulting mix is called a stabilized layer. A failure occurs when areas of that layer begin to crack and delaminate. The cracks get closer together and interconnect until the surface resembles an alligator skin; this is called alligator cracking. Use **Table 9.13**, Stabilized Layer Failure and **Figure 9.4**, Stabilized Layer Failure.

NOTE: An abrupt vertical change of more than 2 inches could cause the nose gear to collapse. The runway surface must be repaired before the airfield can be used. Place a straightedge across the failed area and measure the depth.

Table 9.13 Stabilized Layer Failure

Red	Stabilized layer failure is greater than 2 inches deep, with flying objects or debris (foreign object damage [FOD]) potential and delamination.
Amber	Stabilized layer failure is 1 to 2 inches deep with alligator cracking and possible delamination.
Green	Stabilized layer failure exists but is less than 1 inch deep with minor cracking or degradation.

Figure 9.4 Stabilized Layer Failure

9.6.3 Rolling Friction Factor (RFF). The RFF measurement directly impacts takeoff data for C17 aircraft. The rolling friction factor is important when the unsurfaced airfield is soft enough to produce appreciable loose till. The aircraft must ***plow*** through this loose till and this produces a requirement for slightly longer takeoff distances. Use the same value obtained during the RRM assessment and enter it into the table below. Pass the RFF value to the crew during their mission planning phase but no later than takeoff as they must have this value before they land at the LZ. See **Table 9.14**, Rolling Friction Factor.

Table 9.14 Rolling Friction Factor

Semi-prepared Runway	Dry Till Depth	Rolling Friction Factor
Unstabilized (dry)	0 to 1.5 inches 1.51 to 3.5 inches 3.51 to 5.75 inches 5.76 to 7.75 inches > 7.75 inches	5 10 15 20 Maintenance required
Unstabilized (damp to wet) Cement stabilized	0 to 1.0 inches 0 to 0.5 inches	5 2

9.6.4 Runway Condition Rating (RCR). The runway condition rating is important to the aircrew as a planning tool in determining takeoff and landing distance values. The primary way to acquire this data is to perform the alternate friction prediction procedure outlined in the

ETL 97-9. Also known as a skid test, this procedure directly measures the skid distance of a ground vehicle and correlating that to RCR.

9.6.5 Soil Strength. The strength of the in-place subgrade or ***controlling layer*** will determine allowable number of passes of the design aircraft at the planned AGL. AGL is directly related to the airfield CBR; however, semi prepared fields comprise multiple layers with varying thickness and CBR values. The strength of the subgrade and construction materials can be determined in terms of the CBR by using a dynamic cone penetrometer (DCP) and entering the data obtained in the pavement-transportation computer aided structural engineering (PCASE) software. The DCP is the preferred method of obtaining CBR field data. It will penetrate layers having CBR strengths in excess of 100 and will measure soil strengths less than 1. It is a powerful, relatively compact, sturdy device that produces consistent results. The procedure for conducting site evaluations is provided in ETL 97-9, Appendix C.

9.6.5.1 LZSOs are responsible for verifying the existing CBR does not significantly differ from the LZ survey (within 7-days for C-17 operations; not required for C-130s).

NOTE: The DCP/CBR analysis determines the weakest layer (controlling layer) in order to determine an appropriate AGL/pass count ratio that meets mission requirements. For example, assessing an LZ that is suitable for only 10 passes of a C-17 at 450,000 pounds may not be relevant to the mission if planned gross weights do not approach 450,000 pounds. For this reason, conduct the analysis in conjunction with the user and mobility mission planners to provide a range of AGL/passes to meet commander's intent.

9.6.5.2 For C17 crews this assessment for semi prepared ALZs, other than matted surfaces, are completed by within 1-week of the first landing or following any environmental change (e.g., rain) to the surface. This verifies that the LZ meets C-17 requirements and is comparable to the LZ properties annotated on the approved survey.

9.6.6 Field Layout. Various systems are used during daytime operations to provide visual cues to pilots about the location and dimensions of the LZ runway. The type of marker panels selected depends on the mission requirements and anticipated duration of LZ use. For AMLOs, the primary method of setting up the LZ is by using VS-17 marker panels and/or the light kit, though lights are not required if night operations are not anticipated. Using the Defense Advanced Global Positioning System Receiver (DAGR) or other approved GPS unit, enter the coordinates for the LZ boundaries from the AF Form 3822. From the threshold coordinates, the 500 foot box may be measured using a measuring wheel or by using the GPS.

9.6.7 Installation of Panels and Lights. LZ runways intended for short-term or temporary use should be marked with one of the arrangements of AMP defined in AFI 13-217. AMP-2 and AMP-3 are the two most commonly used configurations. AMP-4 does not require any marker panels or lights and is only used for appropriate special operations. See **Figure 9.5**, AMP-1 Day and Night Markings and **Figure 9.6**, AMP-3 Day and Night Markings.

Figure 9.5 AMP-1 Day Markings

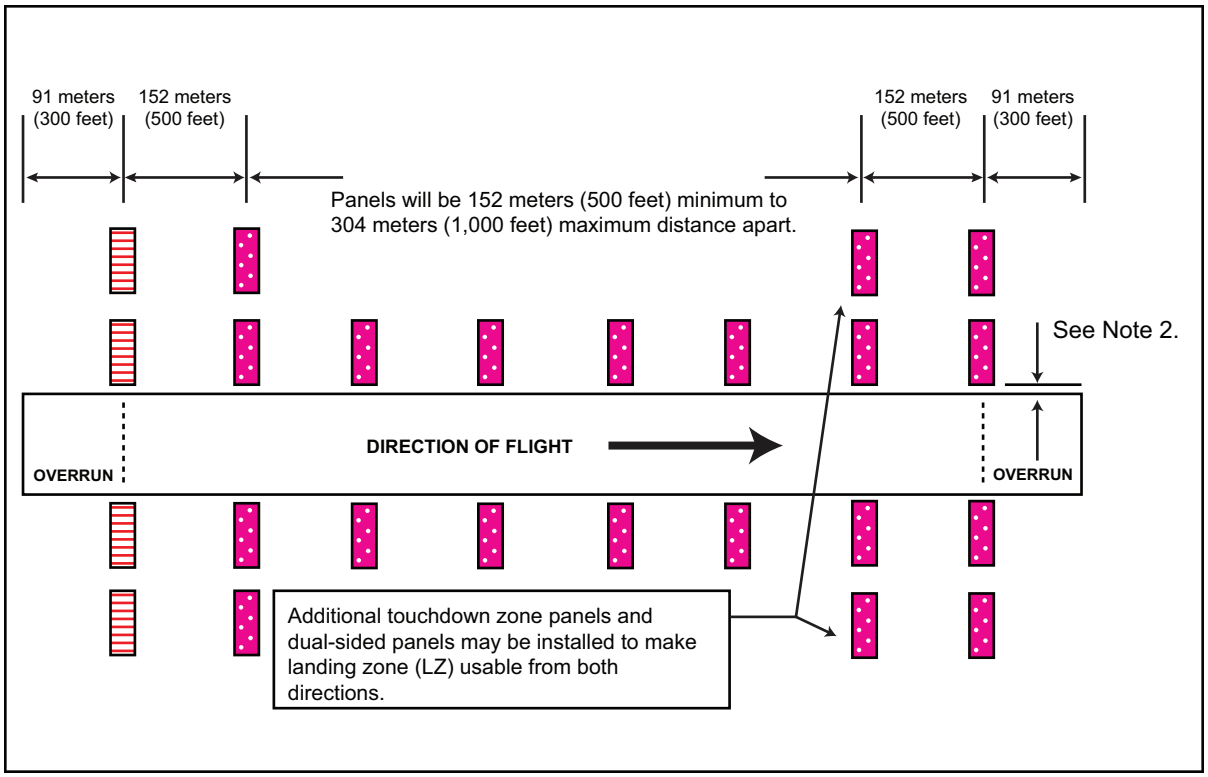


Figure 9.5 AMP-1 Night Markings

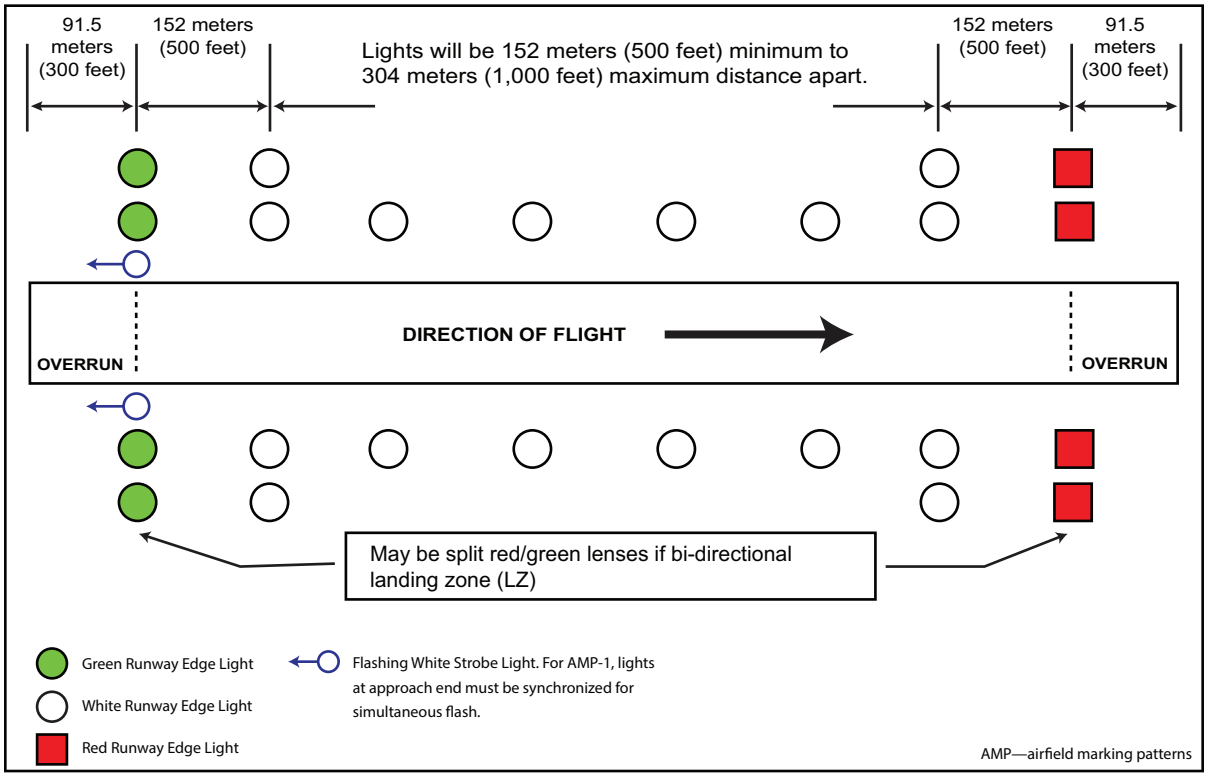
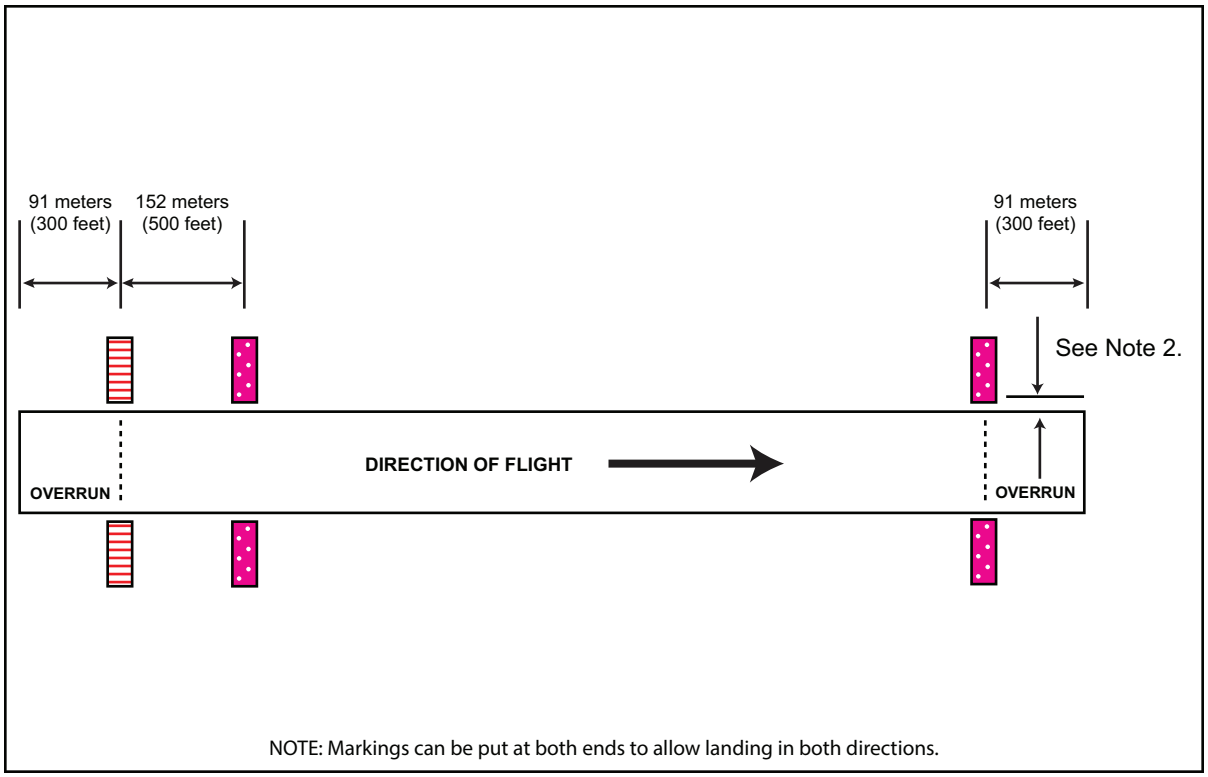
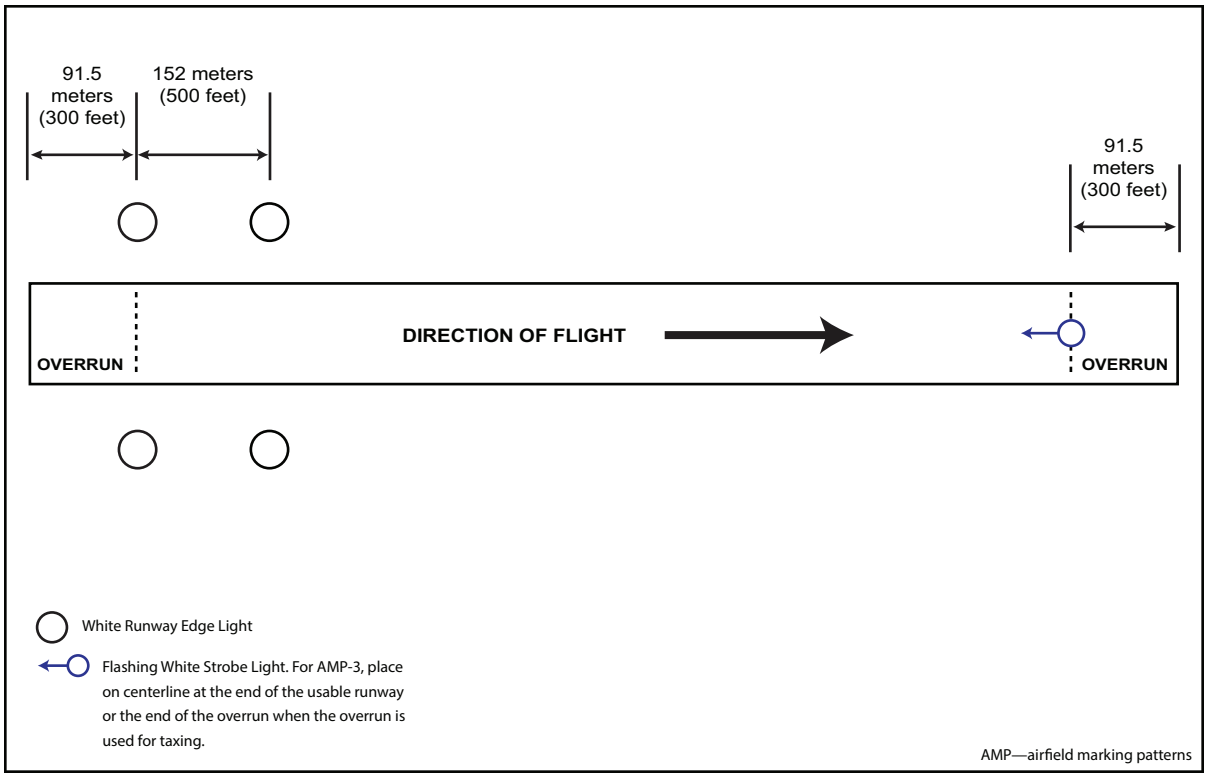


Figure 9.6 AMP-3 Day Markings



NOTE: Markings can be put at both ends to allow landing in both directions.

Figure 9.6 AMP 3 Night Markings



9.7 Range Control. Range control personnel may require specific training and briefings to operate within the range. Coordination with range control should be accomplished prior to the day of operations to identify potential conflicts with communications, gain access to the LZ, conduct runway assessments and DCPs, and open the LZ.

9.7.1 Administration. Each operating location is different, but generally the LZSO will often be required to check in with a range control entity to gain access to the LZ, collect vehicle passes, go over local area information and hazards, and sign out a radio. Ensure that the radio works before departing range control.

9.7.2 Opening the LZ. Prior coordination with range control provides an estimate of the amount of time required to check in, conduct radio checks, travel to the LZ, assess the LZ, setup the LZ markings, establish entry control points, and open the LZ.

9.7.3 Firefighting. Ensure ARFF is coordinated in accordance with AMCI 11-208 and updated as the schedule changes.

9.8 Operational Considerations. Upon arriving at the LZ, conduct an assessment if it was not accomplished previously. Identify locations that provide an optimal vantage point to observe aircraft as they approach, land, conduct ground operations, and depart. The location should provide optimal visibility while remaining clear of potential FOD. Ideally, it should also aid in limiting access to the LZ by unauthorized personnel or vehicles. Coordinate communications with proper TACS-AAGS entities and airspace authorities.

9.8.1 Markings. Setup the LZ using panels in accordance with AFI 13-217 and ensure they are staked down securely. The desired marking pattern should have been precoordinated with the user.

9.8.2 Communications. After the LZ markings have been installed, conduct radio checks, open the LZ with range control, prepare landing logs, and prepare to receive aircraft.

9.8.3 Field Checks. Periodically conduct field checks to ensure the LZ has not deteriorated past the usable level. Any time the aircraft or user will not be using the runway for a brief amount of time (long enough to drive the length of the LZ), it may be necessary to conduct a field check.

9.8.4 Issues. As an LZSO you may have to react to potential issues that create safety conflicts. Monitor aircraft for potential traffic conflicts, landing gear status, and landing conflicts. Monitor the LZ for potential incursions from animals, unauthorized personnel, and vehicles during operations. Do not hesitate to address conflicts or direct a go-around.

9.8.5 Coordinating Airspace. The LZ may be in a restricted area or require activation of special airspace. This may be done by the user, but should be verified with range control and/or theater AOC.

9.9 Checklists. For LZ operation checklists, see Attachment 3, AMLO Field Guide.

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 10

DROP ZONE OPERATIONS

10.1 Introduction. Airland operations are more efficient than, and normally preferable to, airdrop operations; however, airdrop may be the optimal delivery method for a number of reasons to include lack of suitable landing surface, obstructed landing surface, or threat. Airdrop operations require complex planning, increased aircrew training requirements, and increased aircrew workload during execution. Proper employment requires accurate markings via high-precision coordinates, weather, and intelligence data to include imagery, threat system capabilities, and C3. The techniques in this chapter are not all encompassing.

10.2 Airdrop Advantages.

- Maximizes initial mass of personnel and/or equipment at objective area.
- Suitable landing surface not required.
- Allows delivery to remote areas and dynamic locations. May enable an element of surprise.
- Minimizes the size of the objective area.
- Requires minimal, if any, ground support or MHE.
- Often results in minimum closure of objective area and minimum exposure of airlift assets.

10.3 Airdrop Disadvantages.

- Increased monetary cost and time for aerial delivery resources (e.g., chutes, rigging, and airdrop inspections).
- Does not maximize cargo capacity.
- Does not allow back-haul.
- Reduced unit integrity (e.g., troops and equipment may be separated).
- Increased potential for injury to personnel and damage to equipment.
- Sensitive equipment may not survive airdrop.

10.4 Drop Zone Surveys. USAF aircrews require a DZ survey for training airdrop missions involving US personnel and/or equipment. Completing the DZ survey process involves both a physical inspection of the DZ, and documenting the information on AF Form 3823. Surveys may be accomplished by the unit whose equipment or personnel are being airdropped. For exercises and joint training operations, users must ensure the survey is completed and meets the appropriate criteria for operational and safety standards. If requesting special tactics combat controllers to conduct the survey the user should identify this requirement during the initial planning conference but no later than the mid-planning conference. The user must conduct a physical inspection of the DZ prior to use to identify and evaluate potential hazards to airdropped personnel/equipment, man-made or natural structures, and ground personnel. The nearest group tactics office will perform the safety-of-flight review to ensure there are no obstructions prohibiting over-flight. If the survey was conducted using any other method than GPS-derived coordinates, provide the safety-of-flight reviewer with the raw coordinate data and the method of conversion. If a DZ survey is done on an existing surveyed DZ to meet new run-in axis requirements for a particular mission, only a safety-of-flight review is required.

10.4.1 Host Nation DZ Surveys. When dropping HN military jumpers and/or equipment on a HN surveyed DZ, the mission can be performed using only a safety-of-flight review of the HN survey. Users remain responsible for ground operational and safety criteria. However, when US personnel and equipment are airdropped, HN surveys will not be used in lieu of a survey completed by US forces.

10.4.2 Safety-of-Flight Review. A safety-of-flight review is completed by the nearest Air Force wing/group tactics office on all DZ surveys. During contingency operations, the safety of flight review may be accomplished by the tactics office in the AMD/AOC. The purpose of a safety-of-flight review is to ensure an aircraft can safely ingress and egress the DZ. A safety-of-flight review includes an in-depth chart study of the terrain features along the route of flight from the insertion point to a distance beyond the trailing edge as determined by the mission planner. Refer to AFI 13-217 for more guidance.

10.4.3 Zone Assessment Registry (ZAR). When creating a new DZ survey check the ZAR for the most current DZ survey forms and remarks template. Ensure the surveyed zone fits the minimum DZ size for the anticipated airdrop application. As a best practice make the surveyed DZ as large as reasonably possible so that it can be used for future airdrop applications that might require larger DZ sizes. This will also decrease the risk of off-DZ drops during training. DZ surveys become obsolete 5 years after the date of MAJCOM approval (block 4E on AF Form 3822) and must be resurveyed prior to use. Surveys will also be re-accomplished when the user and/or airlift provider determines changes in the ground or air aspects of the DZ data require a new survey.

10.5 Drop Zone Types.

10.5.1 Rectangular. One of the most common DZ used for training. Rectangular DZs are defined by a length and a width and will have a specified run-in heading. It is very common to have multiple PI locations listed on the DZ survey for different drop types.

10.5.2 Circular DZ. The size of the DZ is governed by mission requirements and usable terrain. The PI of a circular DZ is normally at the DZ center to allow for multiple run-in headings. For specific missions, the PI location may be adjusted to allow for sequential heavy equipment (HE) or mass container delivery system (CDS) on circular DZs. However, this limits the run-in heading to only one direction. In all cases, the minimum DZ dimensions for the type and number of loads being dropped must completely fit into the surveyed circular DZ.

10.5.3 Tactical DZ. Tactical DZs are primarily used during exercises or contingencies. They provide the supported forces commander with a means to rapidly respond to user requests through the rapid survey/approval process. Tactical DZs are normally restricted to missions supporting actual resupply and personnel infiltration airdrops (versus proficiency jumps and/or standard airdrop training bundles [SATB]). Tactical DZ surveys are done in an abbreviated manner, but still require a physical survey of the DZ by special tactics (ST) combat controllers, AMLO, or the supported force to ensure DZ suitability. A safety-of-flight review is also required.

10.5.4 Area DZ. An area DZ consists of a start point (point A), an endpoint (point B), and a prearranged flight path (line-of-flight) over a series of acceptable drop sites between these points. The distance between points A and B generally should not exceed 15 nautical miles

and changes in ground elevation within 1/2 nautical mile of centerline should not exceed 300 feet. The reception committee may receive the drop at any location between point A and point B within 1/2 nautical mile of center-line. Once the prebriefed signal or electronic navigational aids (NAVAID) has been identified and located, the drop may be accomplished.

10.5.5 Random Approach DZ. A random approach DZ is a variation of a previously surveyed DZ and of sufficient size to permit multiple run-in headings. Any axis of approach may be used as long as the resulting DZ meets the minimum criteria for the load/personnel being airdropped and remains within the boundaries of the original surveyed DZ. In all cases, perform a safety-of-flight review prior to use.

10.5.6 Special Purpose DZ. Special purpose DZs are only approved for use by Air Force special tactics, combat rescue officers, pararescue, and rescue squadron (RQS) assigned or supporting SERE specialists. Training jumps should closely duplicate conditions that could be encountered during operational missions, to include rough terrain, open sea, and unfamiliar or unimproved areas. Care will be taken to ensure that all conditions, especially safety-related are identified to the jumpmaster (JM) and jumpers.

10.5.6.1 Coordination for Use. The operations group commander, or designated representative, will coordinate with agencies exercising control over sites selected for use and will publish directives describing necessary operating instructions including hazards and restrictions. Guidelines for selection and use are listed below:

10.5.6.1.1 Open Field DZ. Caution will be exercised with respect to terrain and obstacles (e.g., runways, lights, high tension lines, rocky terrain) that could be hazardous to jumpers. Hazards must not be located within 100 meters of the center of the DZ except when conducting runway assault operations and demonstration jumps.

10.5.6.1.2 Tree Jump DZ. The criteria for selecting open field jumps apply as well to tree jump areas; in addition, they will be selected to be relatively free of stumps and dead falls. Certain trees have hazardous features such as excessive height, sloping branches, or no branches, and should be taken into account when selecting the DZ. Complete tree jump equipment will be worn when conducting intentional tree jumps.

10.5.6.1.3 Mission DZs. The operations group commander, or designated representative, will periodically select unimproved and unfamiliar jump areas for the purpose of conducting operational mission training. Areas selected must meet the above criteria however; shrub brush, thickets, small trees, and tundra areas are not considered hazardous to jumpers. Tree stumps that would be considered hazardous will not be located closer than 50 meters from the center of the target. Risk management must be exercised by the JM when conducting operational mission training and an extensive evaluation should be performed prior to deployment.

10.5.6.1.4 Water DZs. Hazardous obstacles such as buoys, channel markers, piers, and shoreline will be at least 400 meters from the center of the target area.

10.5.7 Military Free Fall (MFF) DZ. This includes operations utilizing MC-4, MC-5, SOV 3HH, or approved equivalent parachutes deployed in free fall or by static line. The JM will determine the minimum size DZ based on the number of personnel to be dropped, jumper proficiency, and the prevailing winds.

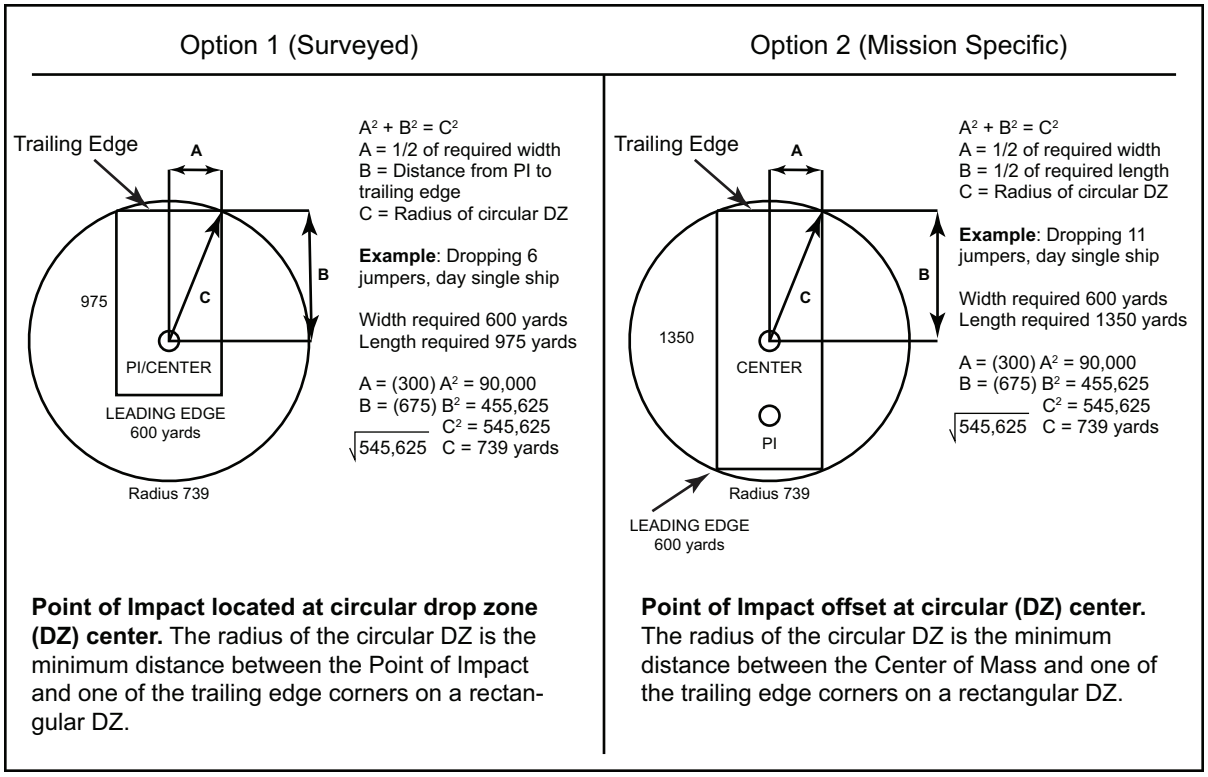
10.6 Minimum DZ Size. In training, use AFI 13-217 to determine minimum DZ size. In contingencies, the supported force determines minimum DZ size, but airdrop damage estimation (ADE) calculations aid decision makers in risk analysis. Confirm all coordinates, elevations, and run-in data during mission planning. DZ survey magnetic axis accuracy degrades as surveys age. Consider deriving magnetic course with portable flight planning software tools (which use true course) and convert variation to magnetic course. When calculating minimum DZ size ensure you are referencing the current AFI 13-217.

10.6.1 Step 1. Determine the required minimum distance from the start (leading edge) of the drop zone to the PI. This is found in AFI 13-217, Chapter 2, Table 2.2, Standard Point of Impact Placement. This distance is dependent on type of drop, aircraft, and day or night. If any of these variables change you must determine if the DZ size is still valid.

10.6.2 Step 2. Use AFI 13-217, Chapter 2, Table 2.1, Standard Drop Zone Size Criteria to determine the minimum length and width required. To determine this you will need to know the drop type, drop aircraft, and drop altitude at a minimum. It is critical to reference the many notes found on this table that add required size to the DZ. For example a DZ might be wide enough for a single ship C-130, but width increases by 100 yards for a day formation. This is because the wingman offsets just outside of lead's wake turbulence during drops increasing their lateral error from the desired computer air release point (CARP).

10.6.3 Step 3. For circular DZs you must use Option 1 or 2 to ensure the calculated minimum rectangular DZ fits within the boundaries of the surveyed circular DZ. See **Figure 10.1**, Circular Drop Zone Computation.

Figure 10.1 Circular Drop Zone Computation



Point of Impact located at circular drop zone (DZ) center. The radius of the circular DZ is the minimum distance between the Point of Impact and one of the trailing edge corners on a rectangular DZ.

Point of Impact offset at circular (DZ) center. The radius of the circular DZ is the minimum distance between the Center of Mass and one of the trailing edge corners on a rectangular DZ.

10.6.4 Actual Size. For actual operations drop zone size will be determined by the supported force's commander and will vary on the level of acceptable risk. Mobility tactics shops can run probability simulations to determine probability ellipses for where the airdrop load will land. These can be overlaid on drop zone imagery to help commanders make an assessment to the level of risk they are willing to assume. If a non-movable asset is in too high a probability ellipse airdrop planners can change drop altitude, run-in heading, chute type, or PI placement to change the probability ellipses.

10.7 Airdrop Damage Estimate (ADE). The ADE methodology steps are designed so that it can be used in a deliberate manner where time is not a factor or in situations where time is critical. The ADE methodology is not an exact science. The supporting technical data and processes are derived from empirical data, probability, and historical observations. All of the sources contain some degree of inherent error and uncertainty. The ADE methodology does not predict actual mission outcome. Environmental factors, parachute reliability, and navigation system accuracy are primary factors for ADE output differing from actual employment. Though the ADE methodology generates estimated values, neither mission planners or commanders should be under the impression these values in any way constitute flawless data or ground truth. ADE methodology is merely an estimate to assist a commander in the decision making process by relying on informed data and sound judgment. For more information reference the *ADE Tactics Bulletin* maintained at AMC/A3D, AFTTP 3-3.*C-17*, and AFTTP 3-3.*C-130*.

10.8 Types of Air Drops.

10.8.1 Container Delivery System (CDS). CDS airdrops are designed to airdrop single or double A-22 type containers. CDS drops are gravity-assisted airdrops used to deliver bundles with a suspended weight up to 2,200 pounds. These loads are cushioned with energy-absorbing material (honeycomb) and may be suspended by a number of different parachutes. Each container can be rigged and airdropped one at a time or in pairs for multiple deliveries or all from both sides on a single pass. Static takeoffs, abrupt turns, fuel purging, evasive maneuvers, and turbulence can cause the honeycomb to compress on one side, possibly causing the bundle to malfunction as it exits. CDS falls into two general categories: low-velocity (LV) and high-velocity (HV). The low and high refers to the rate of fall. Generally, LV parachutes result in less damage to bundles and greater recovery rates than HV. However, LV parachutes are more affected by wind than their HV counterparts. Through 2008, HV recovery rates in Afghanistan were on average 10 percent less than LV. Single A-22 type containers may be rigged for LV or HV airdrops. Double A-22 type containers are normally rigged for low-velocity airdrops only. See **Figure 10.2**, Rigged CDS Containers.

Figure 10.2 Rigged CDS Containers

10.8.1.1 High-velocity Container Delivery System (HVCDS). The 12-, 22-, and 26-foot ring slot and low-cost aerial delivery system-high velocity (LCADS-HV) are the primary parachutes used for HVCDS airdrops. Loads normally consist of indestructible supplies that can withstand the high-velocity impact. These chutes are designed to minimize oscillation of the load and retard the rate of fall which then ensures an acceptable landing shock. High velocity parachutes are generally more accurate than low velocity due to less time of fall and less susceptibility to wind drift.

10.8.1.2 Low-Velocity Container Delivery System. The G-12E, G-13, G-14, and low-cost aerial delivery system-low velocity (LCADS-LV) are the primary parachutes used for low velocity CDS airdrops. Ballistic data is located in AFI 11-231, *Computed Air Release Point Procedures*. Due to their relative low rate of fall, low velocity parachutes are better for load survivability and airdrop of fragile and sensitive items (e.g., ammunition). Because they have a longer time of fall, they are more affected by wind and generally less accurate.

10.8.2 Low-Cost/Low-Altitude (LCLA). Aerial delivery system consisting of low-weight airdrop bundles deployed from the aircraft ramp and door at very low altitudes, enabling circular error (CE) accuracy within 100 meters. This airdrop is appropriate for employment within or near a FOB or close to troops. While similar to CDS, a LCLA airdrop is unique and has the following differences:

- Chute types range from disposable polypropylene parachutes to condemned personnel parachutes.

- The bundles are located on the ramp (either through drift-back or initial position) and manually cut by the LM at GL.
- The flaps remain at 50 percent during the drop.
- Sight angle is currently the preferred method to determine GL.

10.8.2.1 All LCLA parachutes are one-time-use expendable items. MAJCOMs may permit subordinate organizations to reuse 24-foot and 35-foot cargo parachutes for training purposes only. T-10 personnel parachutes that have exceeded their useful life for personnel can be repurposed for LCLA use, further reducing costs. See **Figure 10.3**, LCLA Employed by C-130H during Operation Christmas Drops.

Figure 10.3 LCLA Employed by C-130H during Operation Christmas Drops

10.8.3 Personnel Airdrop. These airdrops consist of jumpers exiting from the paratroop doors or the aft cargo ramp and door (tailgate) using static line procedures. The user and airlift commanders and mission planners coordinate the airdrop altitude and surface wind limitations. Refer to AFI 13-217 and governing regulations for specific drop altitude considerations. Combat drops can be conducted at lower altitudes, as determined jointly by airborne and airlift commanders, to minimize jumper vulnerability (time under canopy).

10.8.3.1 Aircrew Coordination. During personnel airdrop training confirm with the aircrew the number of personnel that left the aircraft after each pass, compare this to the number of chutes seen in the air. This is critical during high altitude low opening (HALO)/high altitude high opening (HAHO) personnel jumps where it is nearly impossible to see individuals leaving the aircraft until their chute deploys. If the number of

chutes observed does not match the number of jumpers dropped immediately pause drop training until personnel are accounted for or discrepancy is resolved.

10.8.4 Heavy Equipment. HE airdrops are low-velocity airdrops designed to deliver ready-to-use equipment and supplies to forces in the field. Loads consist of vehicles, equipment, or supplies rigged for airdrop, normally on Type V platforms. Platforms are extracted singularly or sequentially by extraction parachutes after which the load descends under cargo parachutes. See **Figure 10.4**, C-130H Dropping Heavy Equipment.

Figure 10.4 C-130H Dropping Heavy Equipment

10.8.5 Standard Airdrop Training Bundle (SATB). For training purposes aircrew can drop 15-pound bags of sand attached to a pilot chute to simulate heavy equipment, CDS, personnel, or LCLA. Aircrew will fly the aircraft in accordance with the drop simulated and will either drop on the SATB CARP or for sight angle training drop on the drop type simulated CARP. If not dropping on the SATB CARP, the aircrew will adjust the drop score to the difference between the SATB CARP and the simulated air drop CARP. The aircrew are still required to keep the SATB on the DZ.

10.8.6 Door Bundle Airdrops. Door bundles are A-7A or A-21 containers weighing up to 500-pounds rigged with T-10B or G-14 parachutes. Door bundles can be dropped from the paratroop doors or from the ramp and door, may be dropped separately or in conjunction with personnel and are limited to one bundle per exit door used. When dropped with personnel, the bundle is the first object to exit the aircraft. Door bundles may be dropped at 300 to 400 feet AGL, depending on the type of chute being used or at an altitude consistent with personnel if dropped in combination with troopers.

10.8.7 Combat Rubber Raiding Craft (CRRC). This item is employed in a variety of missions including unconventional warfare, special warfare, and amphibious operations. The CRRC is an inflated Zodiac Mark III rubber raiding craft rigged on a 75 inch by 144 inch (i.e., 75”x144”) combat expendable platform (CEP). The system uses a G-12E cargo parachute deployed by a 15-foot deployment parachute. The boat has an accompanying load capacity of up to 1,170 pounds of equipment (e.g., weapons, scuba gear). On a single pass, 2 CRRCs and up to 18 parachutists or 1 CRRC and up to 19 parachutists may be dropped.

10.8.8 Combination Airdrop. Combination airdrops are those during which parachutists exit from the aircraft ramp after equipment extraction or gravity release (e.g., CDS, CRRC, container ramp bundle).

10.8.8.1 Combination drops are restricted to single-ship or the last aircraft of an equipment formation. When tailgating parachutists, the drop altitude is determined by the item requiring the highest drop altitude per AFI 11-231.

10.8.9 Free-Fall and Parabundle Drop. Free-fall drop is the delivery of certain non-fragile items of supply without parachutes. While not regularly practiced, airdrop of supplies without parachutes is possible. These operations include, but are not limited to, disaster relief, humanitarian aid, and contingency operations where response time is critical and parachute/rigging facilities are not available. Loads are normally rigged with available materials to ensure maximum survivability. Examples of free-fall loads include clothing, hay, food, and medical supplies. Aircrews will normally conduct free-fall drops at low altitude (approximately 300 feet AGL) using CDS procedures. Mission planners must ensure safety of both the aircrews and ground personnel when selecting drop sites. Conduct free-fall drops in an area free of obstacles. Drops in sandy or damp terrain may improve load survivability.

10.8.10 Joint Precision Aerial Delivery System (JPADS). JPAD bundles/platforms are GPS-guided loads that use wind dropsondes before the cargo drop to get a more accurate in-flight CARP. JPADS are usually dropped from high altitudes. JPADS requires additional mission support equipment (MSE) installed on the aircraft to function. The UHF dropsonde receive system (UHF-DRS) connects to the aircraft UHF antenna and communicates dropsonde information to the MPS. The GPS-retransmit subsystem (GPS-RTS) connects to the aircraft GPS system and broadcasts a GPS signal throughout the cargo compartment. Coordinate with maintenance to ensure equipment is installed and operational on applicable aircraft.

10.8.10.1 Improved Container Delivery System (I-CDS). I-CDS is an unguided conventional A-22 or LCADS CDS bundle, which uses MPS software to combine weather-model forecast data and dropsonde data to create an improved CARP. Use requires UHF-DRS, GPS-RTS, MPS, and dropsonde hardware.

10.8.10.2 Dropsondes. Dropsondes do not have a minimum DZ size and are deliberately manually released from the aircraft. During contingency operations, dropsondes may be released anywhere in the vicinity of the objective area and do not have to land on the DZ. If not dropping on a surveyed DZ, the aircrew must coordinate with the air mobility division tactics personnel to ensure the sonde will not cause injury to personnel or damage to facilities. During training operations, dropsonde release should be incorporated into the

collateral damage assessment to ensure that the sonde will land on the DZ or within a restricted area.

10.8.10.3 JPADS/I-CDS Collateral Damage Assessments. Collateral damage assessments (CDA) are required for all JPADS (guided systems) and I-CDS airdrop operations. CDAs are a necessary safety measure to mitigate as much damage risk as possible to aircraft, people, buildings, and equipment on the DZ and surrounding areas. The CDA must be accomplished for areas surrounding the DZ out to the furthest potential failure footprint points created by the precision airdrop system-mission planner (PADS-MP) with a valid Air Force Weather Agency wind file. The CDA must include a review of:

- 63 percent I-CDS success ellipse.
- Load malfunctions (fouled chute, broken guide lines, separated chute) that prevent I-CDS loads from falling according to published ballistic data.
- Loss of GPS link on a guided load (3 to 1 glide ratio from drop altitude).
- Load malfunction (e.g., fouled chute, broken guide lines) that prevents guided loads from navigating to the DZ.

10.8.10.3.1 During contingency operations, the surveying or controlling unit, the user, and the JFC designated agency must accomplish a CDA. The user/supported force ultimately accepts responsibility for all damage to structures, persons, and equipment as a result of the airdrop.

10.9 Surface Wind Limits for Airdrops. See **Table 10.1**, Surface Wind Limits for CDS/Equipment Airdrops and **Table 10.2**, Surface Wind Limits for Personnel Airdrops.

Table 10.1 Surface Wind Limits for CDS/Equipment Airdrops

TYPE CDS/EQUIPMENT DROP	SURFACE WIND LIMITS (KNOTS)
USAF equipment	17
USAF CDS or LV-LCADS using G-12 parachutes	13
USAF CDS using G-13/14 parachutes	20
HAARS, HV CDS, HSLLADS, or HV-LCADS	No Restriction
CDS/equipment using JPADS	Refer to JPADS guidance system technical manuals
USAF training bundles (SATB)	25
RAMZ/ARC/CRRC bundles	25 knots in accordance with FXC® Technical Manual, change 4, dated Jun 2005
Non-USAF equipment	Discretion of supported force DZSO

LEGEND:
ARC—advanced rescue craft
CDS—container delivery system
CRRC—combat rubber raiding craft
DZCO—drop zone safety officer
HAARS—high altitude airdrop resupply system
HSLLADS—high speed low level aerial delivery system
HV—high velocity
JPADS—joint precision airdrop system
LCADS—low cost aerial delivery system
LV—low velocity
RAMZ—rigging alternate method zodiac
SATB—standard airdrop training bundle
USAF—United States Air Force

Table 10.2 Surface Wind Limitations for Personnel Airdrops

TYPE PERSONNEL DROP (See NOTE)	SURFACE WIND LIMITS (KNOTS)
USAF Static Line Land/Intentional Tree	13/17
USAF Static Line Water	25
USAF MFF Land/Intentional Tree	18/22
USAF MFF Water	25
USAF Tandem	18
Non-USAF Personnel	Discretion of unit DZSO
NOTE: During operational missions/contingencies, the airborne commander and/or team leader will coordinate wind restrictions with the air mission commander/aircraft commander based on operational requirements. **LEGEND:** DZCO—drop zone safety officer MFF—military free fall USAF—United States Air Force	

NOTE: See applicable Tactics Bulletin for drop types not listed.

10.10 Parachute Types. 10.10.1 CDS. The 12-, 22-, and 26-foot ring slot and LCADS-HV are the primary parachutes used for HVCDS airdrops. The G-12E, G-13, G-14, and LCADS-LV are the primary parachutes used for low velocity CDS airdrops.

10.10.2 G-12E Parachute. The G-12E is a 64-foot parachute and is the Army's principal parachute for CDS airdrops. Under normal conditions, the chutes are fully deployed 370 feet below the aircraft.

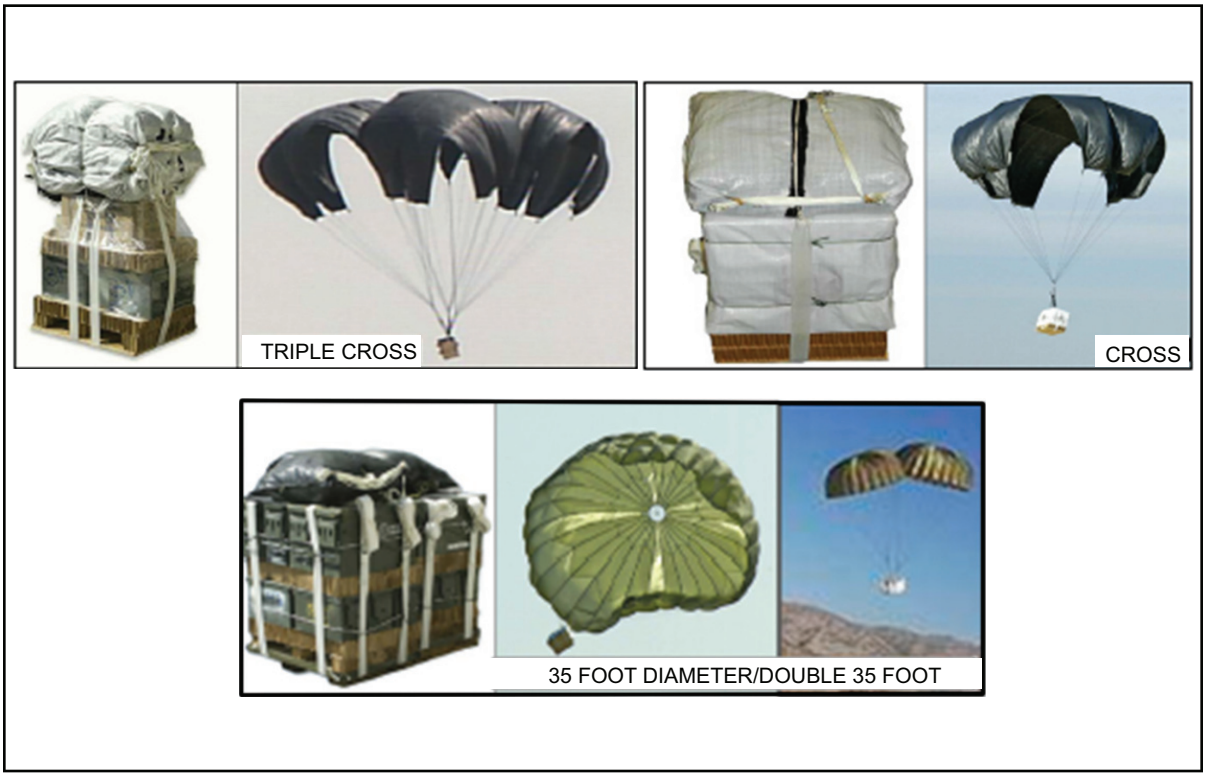
10.10.3 G-13 and G-14 Parachutes. The G-13 and G-14 are respectively 24 feet and 34 feet in diameter. Under normal conditions, the G-13 chutes are fully deployed 330 feet below the aircraft. The G-14 is fully deployed 180 feet below the aircraft.

10.10.4 LCLA. See **Table 10.3**, LCLA Chute Information and **Figure 10.5**, LCLA Chute Visualization.

Table 10.3 LCLA Chute Information

Parachute Configuration	Chute Characteristics	Suspended Load Weight Range
Cross	1 x 32-foot diameter polypropylene chute packed in polypropylene D-bag	80 to 200 pounds
Double cross	2 x cross	201 to 400 pounds
Triple cross	3 x cross	401 to 600 pounds
24-foot diameter cargo	T-10R parachute	80 to 300 pounds
Double 24-foot diameter cargo	2 x T-10R parachute	301 to 600 pounds
35-foot diameter cargo	1 x T-10 (or MC-1) packed in polypropylene D-bag	100 to 500 pounds
Double 35-foot diameter cargo	2 x T-10 (or MC-1)	501 to 1,000 pounds

Figure 10.5 LCLA Chute Visualization



10.10.5 Heavy Equipment. The G-12E, G-11B, and G-11C are the principal chutes used for HE airdrops. Minimum altitudes for HE drops range from 550 to 1,300 feet AGL, depending onload weight and chute type.

10.10.6 Personnel. The T-10, T-11, and MC1-1 are the principal parachutes used for personnel airdrops.

10.10.6.1 T-10 Parachute. The T-10 is a 35-foot parabolic chute. Under normal conditions, it is fully deployed 180 feet below the aircraft. Airborne and airlift commanders jointly determine the minimum drop altitude during combat operations.

10.10.6.2 T-11 Parachute. The T-11 is a 28.6-foot square chute. 500 feet AGL is the typical drop altitude. Airborne and airlift commanders jointly determine the minimum drop altitude during combat operations.

10.10.6.3 MC1-1 Parachute. The MC1-1 is a 35-foot, 11-inch modified T-10. Although its design allows increased maneuverability, it has disadvantages when compared to the T-10. Due to twisting and entanglement prior to gaining control, the MC1-1 has experienced numerous midair collisions; consequently, paratroopers require a higher degree of experience. Under normal conditions, it is fully deployed 180 feet below the aircraft. Airborne and airlift commanders jointly determine the minimum drop altitude during combat operations.

10.11 Roles and Responsibilities. DZ size and selection are the shared responsibility of the supporting force commander and the supported force commander. The supported force is responsible for DZ establishment, operation, safety, and for the elimination or acceptance of ground hazards associated with the DZ. The use of standard DZ are essential to safe operations. They are required for Air Force unilateral aircrew training, and recommended for allied/joint training airdrops. The supported force will take responsibility for injury of personnel and damage to equipment that could result from using a DZ that does not meet the standard DZ size criteria. The airlift mission commander is normally responsible for airdrop accuracy and safety-of-flight for all aircrew directed airdrops at drop zones meeting the above size criteria. The supported force is normally responsible for airdrop accuracy when using ground marking release system (GMRS), verbally initiated release system (VIRS), or jumpmaster directed release (JMDR) procedures. The JM is responsible for airdrop accuracy when using JMDR procedures.

10.11.1 Drop Zone Controller (DZC) Responsibilities.

10.11.1.1 The DZC represents the appropriate commander as provided in the mission directive. The DZC ensures that adequate medical and evacuation coverage is available prior to personnel airdrops. The DZC observes and evaluates:

- All factors that may adversely affect the safety of the operation and ensures transmission of weather information when required.
- Condition of the DZ prior to the airdrop.
- Placement of personnel and equipment on the DZ. Only designated vehicles and personnel will remain on the DZ. Recovery and medical personnel and equipment must be positioned so that constant contact is maintained with the DZC. During joint operations, the DZC and the drop zone safety officer (DZSO) are responsible for their respective equipment and personnel.

NOTE: For actual equipment or personnel airdrops, if the ceiling is less than 600 feet, direct all personnel and equipment off the DZ to ensure safety.

- The operation of other aircraft that could endanger the drop aircraft, equipment load, or parachutists.

- The DZC should have immediate access to ground-to-air communications equipment or sufficient signaling aids to operate the DZ. Ground-to-air communication is required for instrument meteorological conditions (IMC) airdrops.
- The DZC ensures non-DZC personnel are aware of the "NO DROP" signal in order to prevent an inadvertent signal to the aircraft.

10.11.1.2 Unsafe Conditions. In the event conditions are unsafe for airdrop operations, the DZC ensures that:

- "NO DROP" signals are displayed on the DZ.
- "NO DROP" or drop cancellation information is transmitted to the aircraft.
- A drop is canceled when advised by the DZSO. During a joint mission, the DZSO is responsible for evaluating the winds and surface conditions for an airdrop operation. When only Air Force personnel are involved, it is the responsibility of the DZC to cancel the airdrop when conditions are unsafe.
- Ensures necessary reports to include AF Form 4304, *Drop Zone/Landing Zone Control Log* are properly filled out and submitted to the appropriate agencies.

10.11.2 Drop Zone Safety Officer (DZSO). During training operations, the airdropped force furnishes the DZSO, who in turn is responsible for the following functions:

NOTE: DZC/DZSO duties may be combined during unilateral US Air Force operations.

- Ensuring adequate medical coverage is available at the DZ prior to any personnel drops. The supported unit normally provides medical coverage for itself and Air Force parachutists during joint operations.
- Clearing the DZ of all personnel and equipment not required for control.
- Determining when surface conditions (e.g., winds, vehicles) on the DZ are hazardous to airborne operations, making the decision to proceed with, suspend or cancel airdrops, and informing the DZC not later than two minutes prior to the drop. Airdrops are not suspended or canceled based solely on aircraft alignment with the DZ.
- Coordinating all "NO DROP" actions with the DZC.
- Ensures the conditions of the DZ will not affect operations or recovery of air items.
- Ensures the DZ meets operational and safety criteria for the type airdrop operations being conducted.

10.12 Drop Zone Safety. The DZC establishes the control point location taking into account pertinent factors such as an unobstructed line of sight, winds, positive control of the DZ, surrounding airspace, and security requirements. Safety factors must always be considered when choosing a control point location. During actual IMC, HVCDS, or HAARS, locate the control point off the DZ. The control point for multi-ship HE and all CDS equipment airdrops will be offset a minimum of 300 yards HE and 200 yards (CDS) from the intended PI. It is recommended when dropping actuals that you leave any vehicles on the drop zone running in case they have to be moved. Keep personnel on the DZ together at the control point to make sure they are aware of the drop. For personnel drops keep moving vehicles off the DZ until the personnel are on the ground. It is very difficult for vehicle drivers to see objects in the air above them.

10.13 Mishap Planning and Reporting.

10.13.1 Airdrop Malfunction. The failure of an airdrop item or component of an airdrop system to function as it was intended or designed, whether the equipment failed because of human error or emergency procedures were used.

10.13.2 Airdrop Incident. Any procedure that prevented the successful completion of any planned airdrop planned airdrop operation.

10.13.3 Documentation. In the event of an airdrop malfunction or incident inform the aircrew via a radio transmission and give a brief description of what you saw from the ground. Make a written statement of the conditions at the time of drop and what you saw. Keep any photos or videos you have of the incident. Do not alter the load or rigging until a qualified malfunction officer can investigate. If this is not possible document the rigging and chute to the best of your abilities before removing from the DZ. Turn over all information you have collected to the group tactics office as soon as possible. You might be asked to participate in a ***bad bomb board***, normally conducted the next day. Once there is an off DZ drop, malfunction, or incident during training, aircrew will stop dropping until an investigation has cleared the aircrew and the aircraft to fly.

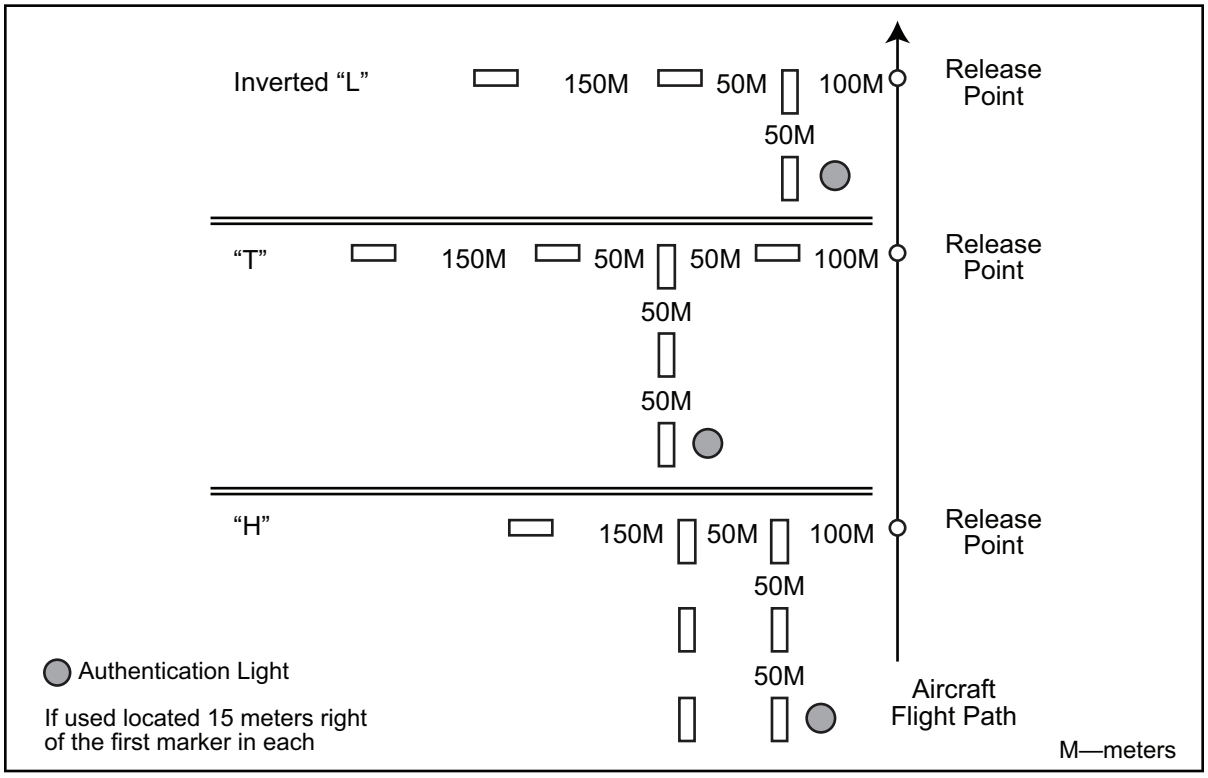
10.14 Drop Zone Markings. A marked DZ is defined as a DZ that has a PI or release point marked with a precoordinated visual or electronic signal. Standard DZs may be marked with raised angle markers (RAM), VS-17 marker panels, visible lighting systems, and light beacons. Virtually any type of lighting or visual marking system is acceptable if all participating units are briefed and concur. Night markings or visual acquisition aids may include a light gun, flares, fire pots, railroad fuses, flashlights, chemlights, and infrared (IR) lighting systems. Electronic NAVAID markings (e.g., ZM, SST-181, Tactical Aid to Navigation [TACAN]) may be used for either day or night operations and placed as directed by mission requirements. Ground parties and aircrews must coordinate and brief "NO DROP" markings for all types of DZs.

10.14.1 Day Operations. During day operations, the PI will be marked with a RAM or block letter. If authentication is required, a block letter will be used instead of the RAM. Authorized letters for PI markings are A, C, J, R, and S. The block letters H and O are authorized for circular DZs. The block letters should be aligned with the surveyed DZ axis or with the aircraft line-of-flight, if different from the survey. The minimum size for block letters is 35 feet by 35 feet (11 meters by 11 meters) and consists of at least nine marker panels.

10.14.2 Night Operations. During night operations, the PI will be marked with a block letter. The apex of the block letter will be located on the PI. The minimum size for block letters is 35 feet by 35 feet (11 meters by 11 meters) and consists of at least nine-white lights, with a recommended minimum output rating of 15 candela. When flanker lights are used, they will be white and located 250 meters left and right abeam the PI, unless precluded by obstacles or obstructions. If 250 meters is not used, the aircrew will be briefed. A trailing edge beacon may be used during actual personnel airdrops. When used, the amber trailing edge beacon will be placed along the surveyed DZ centerline 1,000 meters from the PI, or at the DZ trailing edge, whichever is closer to the PI. During pre-mission coordination for personnel drops, aircrews will identify to the DZC their trailing edge beacon requirements. For all airdrops, the DZ identification must be coordinated and briefed to the ground party and aircrews.

10.15 Ground Marking Release System (GMRS). When controlling an airdrop, the DZC can mark a point on the ground with a visual signal to designate the computed release point (RP) to the aircrew. This signal may be a four marker "L," six marker "T," or seven marker "H" and is placed abeam, 100 meters (110 yards) left of the desired release point. The drop is executed when the aircraft is directly abeam and 100 meters (110 yards) right of this marker on the prebriefed inbound heading. A prebriefed code signal or beacon may be collocated with the markers to aid in DZ identification. See **Figure 10.6**, GMRS Setup Diagram.

Figure 10.6 GMRS Setup Diagram



10.15.1 Determine Release Point. Once the PI has been determined, calculate the forward throw distance and wind drift effect to determine the release point.

10.15.2 Wind Drift. Wind drift is defined as the lateral movement of a parachute through the air caused by the wind. The distance of the wind drift is measured on a direct line from the parachute's fully deployed opening point to its actual point of impact on the ground. This drift is calculated using the formula: D = KAV, where D = drift in yards, K = the load drift constant, A = drop altitude in hundreds of feet (e.g., 1,000 feet = 10), and V = wind velocity in knots. See **Table 10.4**, K-Factors.

Table 10.4 K-Factors

TYPE DROP	K (Load Drift Constant)
Personnel (static line)	3.0
Heavy equipment	1.5
CDS/CRL/CRS	1.5
HVCDS	Zero
Door bundle	1.5
SATB	2.4
LEGEND: CDS—container delivery system CRL—container ramp loads CRS—container release system HVCDS—high velocity container delivery system SATB—standard airdrop training bundle	

10.15.3 Forward Throw. Forward throw distance is the distance along the aircraft flight path traveled by a parachutist or cargo container after exiting the aircraft, until the parachute fully opens and the load is descending vertically. See **Table 10.5**, Forward Throw.

Table 10.5 Forward Throw

TYPE DROP	C-130	C-17
Personnel (static line)/door bundle	250 yards (229 meters)	250 yards (229 meters)
Personnel (MFF)	328 yards (300 meters)	328 yards (300 meters)
Heavy equipment	500 yards (458 meters)	700 yards (640 meters)
CDS/CRS/CRL	550 yards (503 meters)	725 yards (663 meters)
SATB	160 yards (147 meters)	N/A
LEGEND: CDS—container delivery system CRL—container ramp loads CRS—container release system MFF—military free fall SATB—standard airdrop training bundle		

10.16 Verbal Initiated Release System. CCT, pararescue, and battlefield weather personnel use this procedure when normal drop procedures are not tactically feasible. The ground party determines the desired release point, gives verbal steering guidance to the pilot to align the aircraft over that point, and then initiates the release. Instructions transmitted to the aircraft must be concise.

10.16.1 Align Aircraft. Transmit "TURN LEFT" or "TURN RIGHT" to align aircraft on desired inbound heading.

10.16.2 Aircraft on Course. Transmit "STOP TURN" after alignment instructions when aircraft is on course.

10.16.3 Release Point Preparation. Transmit "STANDBY" to the aircraft approximately 5 seconds prior to the release point.

10.16.4 Release Point. Transmit "EXECUTE, EXECUTE, EXECUTE" when the aircraft reaches the release point. Upon hearing the first "EXECUTE" the navigator/pilot not flying calls "GREEN LIGHT."

10.17 ADHOC Markings. The tactical situation may dictate the use of nonstandard DZ markings. When nonstandard markings or identification procedures are used, it is imperative that all appropriate participants be thoroughly briefed.

10.17.1 Unmarked DZ. This type of DZ is not authenticated with any type of visual or electronic marking. Unmarked DZs are normally used for contingency operations and may not have a DZ party present. Air Force special tactics personnel, combat rescue officers, pararescue, RQS assigned or supporting SERE specialists, and USSOCOM assigned forces are authorized to drop on unmarked DZs. During training missions, a DZC party must be on site for safety.

10.18 Ground to Air Communications. Coordinate with the aircrew and/or tactics mission planners for a primary, secondary, and, in some cases, tertiary communications plan. Some aircraft may be tactical data link capable; coordinate applicable message types and information exchange that will aid airdrop execution. The complexity of the communications plan will depend on the theater and mission importance. Aircrews and DZ ground parties need to have a clear and common understanding of designated no-drop signals. To facilitate communication, aircrews must know when they will have LOS communications with the DZ party. An analysis can be run on Falcon View with digital terrain elevation data (DTED) to estimate when the DZ party will have LOS communication with the aircraft based on the route of flight and planned altitude. Depending on threats, terrain, and ingress altitude to the objective area, LOS, and radio transmission power communications may occur very late on the run-in.

10.18.1 Communications Out/Limited Emissions Operations. Communications out operations should be thoroughly briefed and understood by the aircrew and ground parties. During day drops colored smoke or mirror flashes can be used as authorization to drop or no drop. The removal of the block letter or scattering of the panels can be used as a no-drop signal, and leaving these intact clearance to drop. For nighttime operations an IR strobe blinking in a predetermined sequence or a ***buzz-saw*/*wagon wheel*** could be used. An IR laser is very visible under night vision goggles (NVG) and can be shown straight up to give clearance. Communication out operations increases risk resulting from aircrew misinterpreting a ground signal and decreased accuracy without updated surface winds.

10.18.2 NVG Considerations. If using colored lights to for drop zone signals remember that crews will have to look under their NVGs to discern color. If the light output is not strong enough crews might not be able to discern color. Avoid shining high output visible lights at aircrew operating on NVGs.

10.19 Threat Considerations. Both aircraft and the DZ ground party should take actions to minimize the amount of exposure they are in the enemy weapon engagement zone (WEZ). Coordination is essential to ensure both understand the tactical limitations and implications of every aspect of the operation, and what aspects have the most priority. For example, time on target is not as important as accuracy. As a general rule, place priority on first-pass success and create a plan to cover as many contingencies as possible to ensure success.

CHAPTER 11

DEFENSE SUPPORT OF CIVIL AUTHORITIES

11.1 Introduction. Effective use of air mobility capabilities are critical during DOD response to a disaster in the United States or its territories. AMLOs play an important role in supporting response efforts and should understand how DSCA is conducted. This chapter provides an overview of the DSCA legal authorities, associated command structures, levels of response to a disaster, DOD roles, and planning considerations for AMLOs supporting DSCA operations. Refer to JP 3-28, *Defense Support of Civil Authorities* for more information on DSCA.

AMLOs Supporting Hurricane Maria Relief Efforts
Situation: Hurricane Maria struck the US Virgin Islands and Puerto Rico (VIPR) on 20 September 2017 as a Category IV storm with wind speeds of approximately 150 miles per hour. Local and commonwealth authorities were immediately overwhelmed and lacked the necessary resources for effective response to the severe flooding and damage to the islands. This resulted in a massive federal government response aimed at saving lives and property.
Action: In anticipation of deployment of forces into the area via air assets, AMLOs deployed to the region to provide eyes on the ground for the director of mobility forces (DIRMOBFOR), conduct initial airfield assessments, and coordinate for receiving aircraft. AMLOs performed six airfield assessments, coordinated with local authorities to reopen airfields, advised deployed leadership on air mobility matters, and planned Title 10 force redeployments in what Federal Emergency Management Agency (FEMA) identified as the largest air mission in their history.
Reported Outcome: Three AMLOs deployed within 24 hours of the storm hitting the islands. All told, six AMLOs deployed to VIPR and provided support in one form or another while additional AMLOs supported operations from their respective operating locations. AMLOs were on the ground in VIPR from the beginning of the deployment phase and through the redeployment of Title 10 forces.

11.2 Defined. Department of Defense Directive (DODD) 3025.18, *Defense Support of Civil Authorities (DSCA)* defines DSCA as support provided by US federal military forces, DOD civilians, DOD contract personnel, DOD component assets, and National Guard forces (when the SecDef, in coordination with the governors of the affected states, elects and requests to use those forces in Title 32 status) in response to requests for assistance from civil authorities for domestic emergencies, law enforcement support, and other domestic activities, or from qualifying entities for special events. Also known as civil support.

11.3 National Guard. National Guard units, under the control of their respective state governors, have traditionally been the primary military responders to domestic natural disasters and other such emergencies. Federal forces are generally called upon only after state resources are exhausted or overwhelmed, or a specific capability is otherwise unavailable and federal assistance has been requested by the governor.

11.4 Federal Emergency Management Agency (FEMA). Under the direction of the Department of Homeland Security (DHS), FEMA is the primary agency (PA) in the federal response to natural disasters. DOD resources, in coordination with FEMA, may be requested to augment local, state, and federal capabilities in assisting with a state led response.

11.5 Authorities Governing DSCA. The authorities for provision of DSCA are found in legal statute, DOD policy, and crisis action orders. The authorities for DOD components to conduct DSCA operations are found in DODD 3025.18 and CJCS EXORD.

11.6 Legal Authority. Because of the unique nature of DSCA, AMLOs should be familiar with the legal authority issues associated with this mission.

11.6.1 The Constitution. In the context of this publication, the United States includes the 50 states, the District of Columbia, and the territories of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands. Under the 10th Amendment of the Constitution, each state/territory of the United States has the primary responsibility to prepare for and respond to disasters and emergencies occurring within its borders. The Constitution establishes the sovereignty of the states over many aspects of government. Additionally, and of particular importance to domestic operations, are the authorities granted by Congress to the states. Article 1, Section 8, Clause 16 of the Constitution, the *Militia Act of 1903*, and the *National Defense Act of 1916* are the basis for the distinction between National Guard forces and Active Component Title 10 forces. State governors retain authority over their respective National Guard forces. The authority over and control of DOD Title 10 forces are at the discretion of the POTUS as the Commander-in-Chief (CINC).

11.6.1.1 In response to DSCA, expectations of DOD capabilities should be effectively managed and communicated. The goal is efficient execution of relief operations and successful synchronization of military and civil capabilities after a disaster when local and state level infrastructure may be overwhelmed.

11.6.2 The Stafford Act. *The Robert T. Stafford Disaster Relief and Emergency Assistance Act* (the *Stafford Act*) authorizes the President, at the request of the affected State's Governor, to issue major disaster or emergency declarations in response to catastrophes that overwhelm state and local governments.

11.6.3 The Economy Act. *The Economy Act* permits federal agencies to provide resources and services to other federal agencies on a reimbursable basis.

11.6.4 Restricting the Use of DOD—Posse Comitatus Act (PCA). *The Posse Comitatus Act* prohibits federal, state, and local authorities from using Title 10 forces for any direct civil law enforcement activities unless a Constitutional or Act of Congress exception applies. PCA does not prohibit federal forces from assisting state and local organizations with humanitarian disaster relief.

11.6.4.1 Because PCA is often misunderstood, it is important for commanders of organizations in a Title 10 role operating in a DSCA environment be familiar with the act and be able to explain it to civil authorities. PCA does not apply to National Guard in State Active Duty or Title 32 status; however, it does apply to National Guard in a Title 10 status.

11.7 Department of Homeland Security (DHS). DHS is a Presidential cabinet organization with the responsibility of security of the homeland, including response to national disasters at the federal level. Both FEMA and the United States Coast Guard (USCG) are part of DHS.

11.7.1 Homeland Security Presidential Directive-5 (HSPD -5). HSPD-5: *Management of Domestic Incidents (2003)* required the Secretary of Homeland Security to develop and administer a National Incident Management System (NIMS) and a National Response Plan. The National Response Plan was replaced by the National Response Framework (NRF) in 2008. The directive requires all federal departments and agencies to adopt NIMS and use it in individual domestic incident management programs and activities, as well as in support of state, local, or tribal entities. It also provides detail on the authorities of various government officials within the national incident management system.

11.7.2 Homeland Security Presidential Directive-8 (HSPD-8). HSPD-8: *National Preparedness* (2003), a companion directive to HSPD-5, establishes policies to strengthen preparedness of the United States in order to prevent and respond to threatened or actual domestic terrorist attacks, major disasters, and other emergencies. The directive requires a national domestic, all-hazards preparedness goal, with established mechanisms for improved delivery of federal preparedness assistance to state and local governments. It also outlines actions to strengthen preparedness capabilities of federal, state, and local entities.

11.8 Incident Management Processes. The NRF and NIMS are designed to improve the Nation's incident management capabilities and overall efficiency in response to domestic incidents. Given the complexity and extent of local, state, and federal participation in domestic incident management, there are numerous national-level operational plans and agreements that detail roles and responsibilities of participants. Together, the NRF and the NIMS integrate the various capabilities into a cohesive and coordinated framework for domestic incident management.

11.9 National Response Framework (NRF). The NRF is designed to reduce vulnerability to natural and man-made hazards, minimize damage, and assist in recovery. It is an all discipline, all-hazards plan that establishes a single framework for management of domestic incidents. It also provides the structure and mechanisms for coordination of federal support to local, tribal, and state incident managers.

11.9.1 Purpose. The NRF is intended to ensure that government executives, leaders of private sector and NGOs, and emergency management practitioners across the Nation understand domestic incident response roles, responsibilities, and relationships in order to respond more effectively. Additionally, the NRF describes special circumstances in which the federal government exercises a larger role, including incidents where federal interests are involved and catastrophic incidents where a state would require significant support. It uses the foundation provided by the *Homeland Security Act*, HSPD-5, and the *Stafford Act* to provide a comprehensive, all-hazards approach to domestic incident management.

11.9.2 Principles of Operation. The overarching objective of response activities centers upon saving lives, protecting property, and the protecting environment. Five-key principles of operations within the NRF define response actions in support of the Nation's response mission. Taken together, these five-principles of operation constitute the national response doctrine characterized by:

- Engaged partnerships.
- Tiered response.
- Scalable, flexible, and adaptable operational capabilities.
- Unity of effort through unified command.
- Readiness to act.

11.10 National Incident Management System (NIMS). The NIMS provides doctrine, concepts, principles, terminology, and organizational processes that establish a template for incident management. Using this template enables local, tribal, state, and federal governments, as well as private sector, NGOs, and the DOD to work with unity of effort in disaster relief operations.

11.10.1 Coordination. Incidents typically begin and end locally and are managed on a daily basis at the lowest possible geographical, organizational, and jurisdictional level. However, there are instances in which successful incident management operations depend on the involvement of multiple jurisdictions, levels of government, functional agencies, and/or emergency responder disciplines. These instances require effective and efficient coordination across this broad spectrum of organizations and activities.

11.10.2 Incident Management. Incident management refers to how incidents are managed across homeland security activities, including prevention, protection, response, mitigation, and recovery. The NIMS framework forms the basis for interoperability and compatibility that enables a diverse set of public and private organizations to conduct well-integrated and effective emergency management.

11.10.3 Components. The NIMS incident management structure has three components:

- Incident command system (ICS).
- Interagency coordination systems.
- Public information systems.

11.10.4 Authority. NIMS distinguishes between command authority and coordination authority. Command authority is vested in the incident commander (IC) for a single incident or an area commander for multiple incidents or jurisdictions. Coordination authority is vested in various coordinating officers who have the authority to make decisions within their respective jurisdictions.

11.11 Incident Command System (ICS). An understanding of the command system used in federal responses to disasters within the United States will aid AMLOs supporting a DSCA response. Most incidents are managed locally and are typically handled by local communications/dispatch centers and emergency management/response personnel within a single jurisdiction. In other instances, incidents begin with a single response within a single jurisdiction and rapidly expand to multidisciplinary, multijurisdictional levels requiring significant additional resources and operational support. ICS is a widely applicable management system designed to enable effective, efficient incident management. ICS addresses incident command in terms of single incident command, area command, and unified command. It provides a flexible core mechanism for coordinated and collaborative incident management. When a single incident covers a large geographical area, multiple local emergency management and incident response

agencies may be required. Effective cross-jurisdictional coordination using processes and systems is critical in this situation.

11.11.1 Single Incident Command. The IC, usually an official of local police, fire or other municipal service, has the direct tactical and operational responsibility for conducting all incident management activities. The IC is specifically responsible for ensuring incident safety, providing information services regarding the incident and establishing and maintaining liaison with other agencies participating in the incident. He or she also has overall responsibility for managing the incident by defining objectives, planning strategies, and implementing tactics. To discharge these responsibilities, the IC may appoint one or more deputies from either the same or the different agencies. A command staff and a general staff generally support the IC.

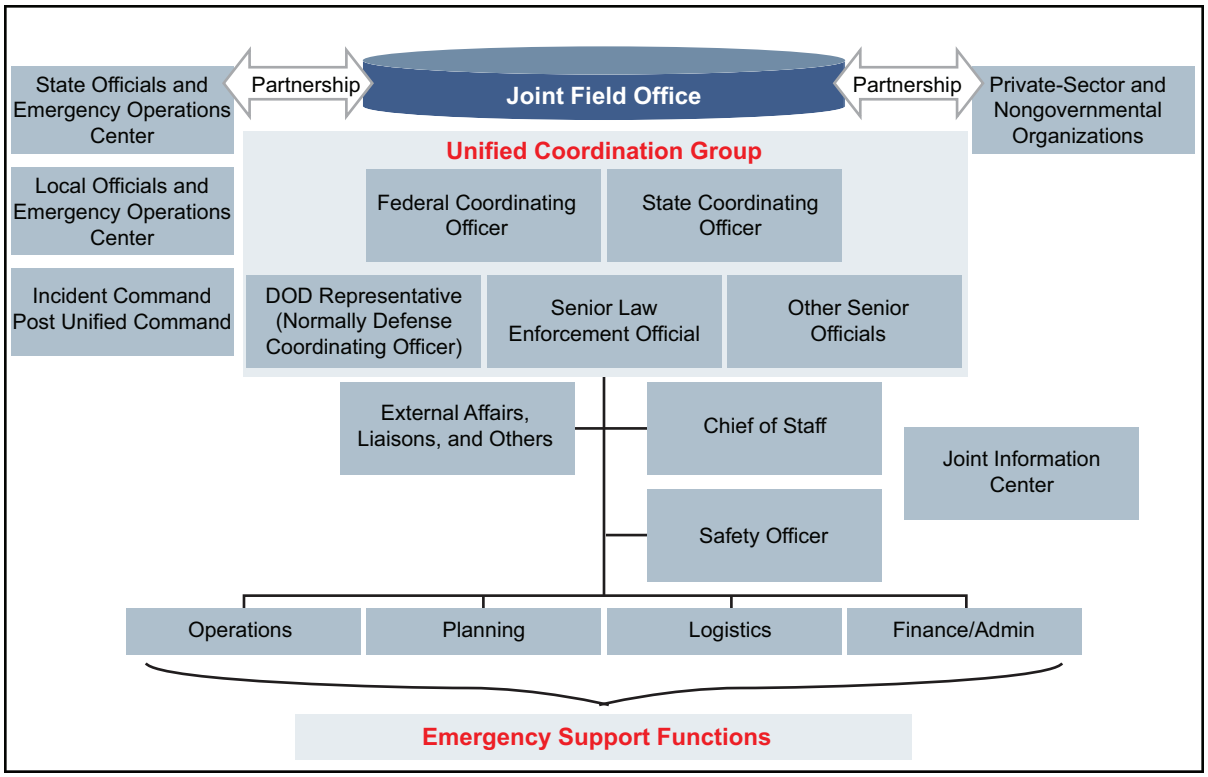
11.11.2 The Incident Command Post (ICP). The ICP is intended to provide a modular and standardized on-scene emergency management organization to support the IC. Regardless of how large, complex, or multijurisdictional the incident becomes, there is only one ICP per incident.

11.11.3 Area Command. An area command is intended to oversee multiple single incidents, either geographically dispersed or located in near proximity. Area commands are most effective for multiple incidents (e.g., two hazardous materials [HAZMAT] spills or several wildland fires) that will most likely be competing for the same resources and capabilities. When incidents are of different types or do not have similar resource or capabilities requirements, they will generally be handled as separate incidents.

11.11.4 Unified Command. A unified command (UC) is intended to allow multiple agencies to work together efficiently without affecting the authority, accountability, or responsibility of individual agencies. In a UC, agencies work together at a single ICP location to establish a common set of objectives and strategies and develop a single incident action plan (IAP). Agency ICs exercise authority over the personnel of their respective agencies and represent their function or subject matter in the ICP organization.

11.12 Joint Field Office (JFO). AMLOs should understand the functions within the JFO as many of the agencies they will coordinate with are located there. The JFO is an interagency coordination center established to provide a central location for the coordination of local, tribal, state, federal, nongovernmental, and private sector organizations with responsibilities for incident response. The JFO does not manage operations; rather, it provides support to on-scene efforts and conducts broad support operations. A coordinating officer and staff will assist each political level of jurisdiction (i.e., state, federal, defense) in a typical incident. See **Figure 11.1**, Joint Field Office Structure.

Figure 11.1 Joint Field Office Structure



11.12.1 Federal Coordinating Officer (FCO). The FCO is appointed to manage federal response support activities for *Stafford Act* disasters and emergencies. The FCO also plays a significant role in managing the financial aspects of DSCA.

11.12.2 State Coordinating Officer (SCO). The SCO is appointed by the governor to coordinate state response and recovery operations with the federal government.

11.12.3 Defense Coordinating Officer (DCO). The DCO is the Title 10 officer who serves as the DOD point of contact at the JFO.

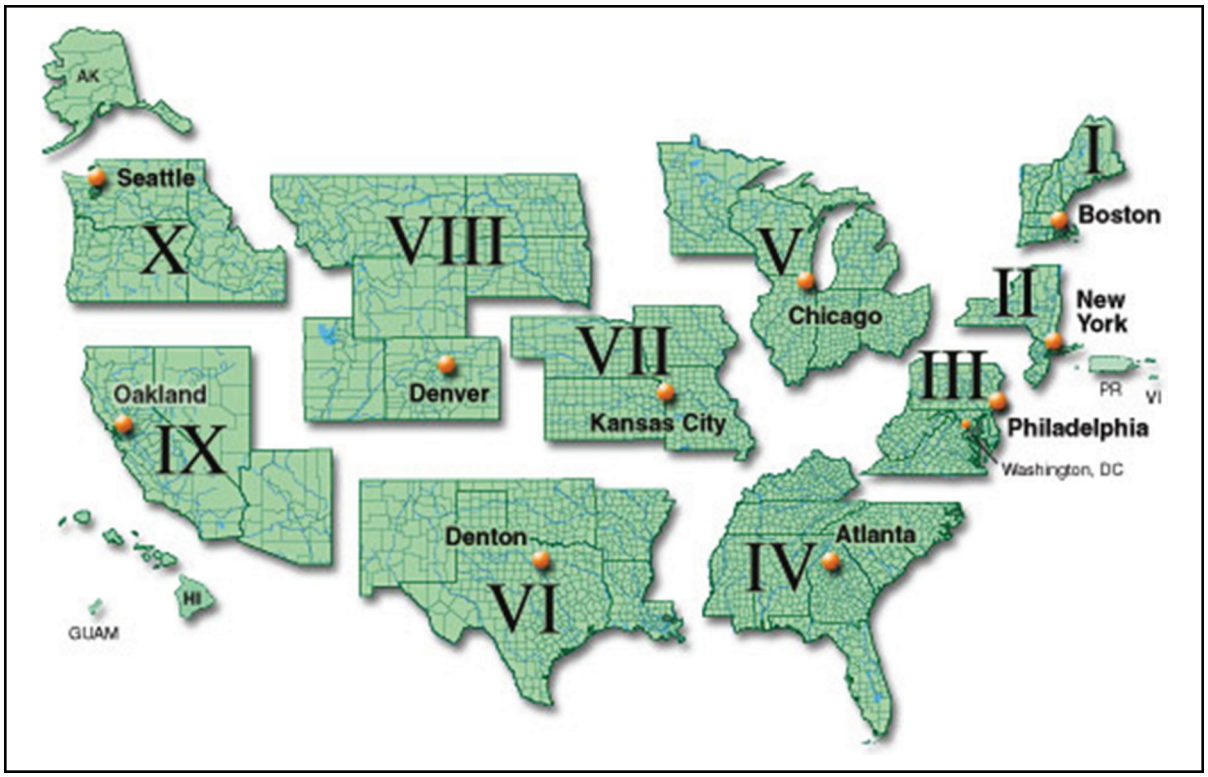
11.12.4 Joint Information Centers (JIC). JICs are facilities established to coordinate all public information activities related to incidents. They are often co-located with local, state, or federal emergency operations centers (EOC). JICs provide a location where the organizations participating in incident management can work together to ensure that timely, accurate, understandable, and consistent information is disseminated to the public. The JIC has representatives from each organization involved in management of an incident. ICs and interagency coordinating entities are responsible for establishing and overseeing JICs, including processes for coordinating and clearing public communications.

11.13 DHS Emergency Management Organizations.

11.13.1 Federal Emergency Management Agency (FEMA). FEMA was established in 1979 by executive order as an independent agency and became part of the DHS in 2003. FEMA serves as the executive agent of DHS for emergency management and is responsible for responding to, planning for, recovering from, and mitigating against disasters. FEMA is

organized into ten regions. Each region serves as the focal point for organizing and coordinating state and federal emergency management for incidents within the region. There is one DCO assigned to each FEMA region. See **Figure 11.2**, FEMA Regions.

Figure 11.2 FEMA Regions



11.13.2 Coordination. Each of FEMA's regional offices maintains a regional response coordination center (RRCC) that expands to become an interagency facility in anticipation of a serious incident in the region or immediately following an incident. RRCCs coordinate federal regional response efforts and maintain connectivity with state EOCs and other state offices and agencies.

11.13.3 United States Coast Guard. The USCG is one of the five armed services, as prescribed in Title 14, USC, Section 1, *Establishment of the Coast Guard* that states, "The Coast Guard as established January 28, 1915, shall be a military service and a branch of the armed forces of the United States at all times."

11.13.3.1 Placed under the DHS on February 25, 2003, the USCG executes a variety of missions, including search and rescue (SAR), maritime law enforcement, and defense readiness.

11.13.3.2 The USCG has trained a number of JFO support teams to assist FEMA during an incident. USCG JFO teams perform the dual responsibilities of representing USCG interests during an incident while providing support to the overall federal response.

11.14 Emergency Support Functions (ESF). ESFs are used by the federal government and many states as the primary mechanism to organize and provide assistance. ESFs are organized into

fifteen functional areas. They may be selectively activated for both *Stafford Act* and non-Stafford Act incidents and are assigned to support headquarters, regional, and field activities. See **Figure 11.3**, Federally Recognized ESFs.

11.14.1 Coordinator. The ESF coordinator or PA is the federal agency with significant authorities, roles, resources, or capabilities for a particular function within an ESF. The coordinator has ongoing responsibilities throughout the preparedness, response, and recovery phases of incident management. The ESF PA serves as a federal executive agent under the FCO (or Federal Resource Coordinator for non-Stafford Act incidents) to accomplish the ESF mission.

Figure 11.3 Federally Recognized ESFs

11.15 Incident Response Process. The typical incident response begins with first responders at the local level. If the response proceeds to the federal level, including a Presidential major disaster or emergency declaration, DOD forces may be deployed to support civilian efforts.

11.16 Local/First Tier Response. Local response is the first tier in the incident management process, and it is local responders who will make the determination for expanding response. First responders are local emergency and public works personnel who respond to an incident. From this group, generally the most experienced responder will take command as the IC. They will remain as the IC until voluntarily giving up command or replaced by a more qualified individual.

11.17 County and Regional/Second and Third Tier Response. If first responders are unable to contain an incident, they may ask for assistance from the county emergency managers located at the EOC. The EOC, if activated, maintains a current operating picture and communications capability with internal and external resources. Thus, the EOC is able to leverage assets from

throughout the county to respond to the incident. The EOC can also support resource management decision making when the incident exceeds existing resources and a request for additional assistance is required. However, the county or regional emergency manager, city mayor, or county executive must validate all such requests.

11.18 Tribal Governments. The United States recognizes the right of Native American tribes to self-govern. Tribal governments are responsible for coordinating resources to address actual or potential incidents. When local resources are not adequate, tribal leaders seek assistance from the state or federal government. The tribe can elect to deal directly with the federal government. Although a state governor must request a Presidential declaration under the *Stafford Act* on behalf of a tribe, federal departments or agencies can work directly with the tribe within the existing authorities and resources.

11.19 State/Fourth Tier Response. Every state maintains an EOC activated as needed to support local EOCs and provide multi-agency coordination. When local jurisdictions cannot contain an incident, the governor can declare a state of emergency and invoke the state's emergency plan to augment individual and public resources as required. Under the *Stafford Act*, states are also responsible for requesting federal emergency assistance for community governments within their jurisdiction.

11.19.1 State Coordinating Officer. The SCO plays a critical role in managing state response and recovery operation. As an incident escalates, the SCO will work with the Federal coordinating officer (FCO) to formulate state requirements, including those that are beyond state capability.

11.19.2 Resource Request. Should requirements exceed state response capabilities, the governor can use Emergency Management Assistance Compact (EMAC) agreements to request resources from other states. If requested resources are unavailable or requirements exceed capabilities, the governor may request federal assistance. When an event causes damage, or is of sufficient severity and magnitude to warrant federal disaster assistance and such assistance is requested, the President may issue a major disaster or emergency declaration. If either declaration is issued, assistance is then made available under the *Stafford Act*.

11.20 DOD Response. DOD provides support when requested by civil authorities and approved by the SecDef. There are a few specific exceptions when DOD resources may be provided without SecDef approval. These are immediate response authority (IRA), mutual aid agreements, or in accordance with the Chairman of the Joint Chiefs of Staff (CJCS) DSCA EXORD. Except for immediate response and emergency authority discussed below, DOD provides DSCA when requested by civil authorities and approved by the SecDef.

11.20.1 IRA. DOD response at the municipal, county, or tribal level is provided under IRA. If requested by appropriate authority, under imminently serious conditions and if time does not permit approval from higher authority, any commander can provide resources under their control, and subject to any supplemental direction from higher headquarters, to save lives, prevent human suffering, and mitigate great property damage. The civil authority's request for IRA should be directed to the installation commander or other appropriate DoD official responsible for the installation.

11.20.1.1 Initiation. A request for assistance from civil authority (e.g., tribal authority, mayor, chief of police, fire chief, sheriff, chief of emergency management) is required to initiate the IRA. This request may initially be made verbally; however, for mission assignment (MA) tracking and funding purposes, a follow-up in writing is desired.

11.20.1.2 Execution. The DSCA EXORD directs commanders to notify Service headquarters of IRA operations. Time for notification is Service-specific; the Army and Navy direct notification take place within 2 hours. Title 10 commanders should also notify the DCO for their FEMA region. The DCO may be able to assist in obtaining reimbursement for support provided by local and state officials, as well as reimbursement under the *Stafford Act* or *Economy Act*. Of note, IRA does not permit actions that would subject civilians to the use of military power that is regulatory, prescriptive, proscriptive, or compulsory.

11.20.1.3 Application. DOD immediate response authority does not apply to National Guard forces in state active duty (SAD) status. National Guard forces in SAD receive their authority to conduct immediate response from state law.

11.20.2 Mutual Aid Agreement. Mutual aid agreements authorized under Department of Defense Instruction (DODI) 6055.06, *DOD Fire and Emergency Services (F&ES) Program* are limited to emergency fire, medical, hazardous materials, and rescue services. Emergency services are often provided on a reimbursable basis by fire and emergency services (F&ES) personnel and emergency medical services (EMS) personnel who are collocated in the installation fire department. In the absence of an agreement, the same four types of assistance may be provided when the commander deems such assistance is in the best interest of the United States and under immediate response authority of DODD 3025.18.

11.20.3 DSCA EXORD. The CJCS DSCA EXORD sets the framework for resources and authorities provided to the supported combatant commander to conduct DSCA operations for actual or potential domestic incidents within the combatant commander's area of responsibility. The authorities granted by the EXORD are specified in four distinct categories of authorization:

- Assigned forces.
- Preidentified resources.
- Resources for internal use.
- Large-scale response categories.

11.21 State Military Response. The National Guard is the ***first line of military response*** to most incidents. When the governor of a state mobilizes the National Guard, the forces are typically in SAD status under command and control of the governor. SAD forces conduct all missions in accordance with the needs of the state and within the guidelines of state laws and statutes.

11.21.1 Reimbursement. A governor may request reimbursement from the federal government to resource pay and costs associated with state call-up of the National Guard to support an emergency. This money may be provided by the primary federal agency providing support, such as FEMA. The governor may also request federal funding from the SecDef under Title 32 USC. Regardless of the funding source, either state or federal, National Guard

forces remain under command of their respective governor so long as they remain in Title 32 status.

11.21.2 Joint Force Headquarters-State. Each state has a joint force headquarters (JFHQ-State) that provides command and control of all Army and Air National Guard forces and state militia. The JFHQ-State serves as the focal point for all National Guard domestic operations within each state. When National Guard forces conduct domestic operations support in Title 32 or SAD, JFHQ-States have the capability to serve as operational headquarters.

11.21.3 Joint Task Force-State. Each JFHQ-State may stand up one or more JTFs in support of internal and external missions and taskers. JTFs may be established in parallel with a Title 10 JTF or in a dual status command integrating Title 10 and National Guard forces.

11.21.4 State Defense Forces. In addition to the National Guard, 24 states authorize a state defense force as allowed by Title 32, United States Code (USC), Section 109, *Maintenance of Other Troops*. These forces may be used to augment the state National Guard and other civil authorities in an emergency. State defense forces are strictly state entities and are not part of DOD. These voluntary forces are typically trained in specialized fields such as law, administration, military police, communication, aviation support, SAR, logistics, medicine, or transportation. State defense force members are authorized to wear the military uniform assigned by the adjutant general (TAG) of the state. They are subject to the state's military code and during an emergency, receive pay according to state law.

11.22 Emergency Management Assistance Compact. The EMAC is administered by the National Emergency Management Association located in Lexington, Kentucky. It is a non-binding, collaborative arrangement among its members to provide a legal framework for states to assist one another in managing a disaster or an emergency that has been declared by the governor of the impacted state. All states, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands are members of EMAC. During actual or potential widespread disasters that affect multiple states, EMACs may become exhausted more quickly, requiring a more urgent request for federal response.

11.22.1 Supplemental Agreements. Supplemental agreements are executed between states when an event occurs. These agreements provide the specific details as to the type of support each assisting state will provide and the amount of reimbursement the impacted state will pay to each assisting state. When National Guard forces are needed, National Guard personnel sent by one state to another state are in a SAD status unless Title 32 status is approved by the SecDef. EMAC does not allow the use of armed National Guard forces from one state to perform civil disturbance or other law enforcement operations in another state. If this type of support is required, it must be approved between states in a separate mutual aid agreement.

11.23 Federal Response. Following a natural disaster, the POTUS may sign a *Stafford Act* declaration directing federal resources (funding, agencies, and personnel) to provide assistance to a state. The declaration may be requested prior to predicted incidents such as a hurricane, or after acute incidents such as an earthquake.

11.23.1 Title 32. Title 32 forces are assets under the direction of the state governor. However, they may be sourced to support federal requirements under the *Stafford Act* and *Economy Act,* when approved by the SecDef.

11.23.2 Presidential Disaster Declaration (Civil Authority). The steps for a Presidential disaster declaration are as follows:

Step 1: FEMA/federal and state representatives complete a preliminary damage assessment (PDA).

- Documents the impact of the event and estimates initial damage.
- Establishes a foundation for the governor to request assistance.
- Provides background for FEMA's analysis of the request.

Step 2: The governor requests assistance. The governor's request, by law, must:

- State that the governor has taken appropriate action and directed execution of the State Emergency Operations Plan.
- Certify that the incident is of such severity and magnitude that state and local resources are inadequate.
- Include a damage estimate.
- Describe the state and local resources committed to response and recovery.
- Describe the requested assistance and agree to cost-sharing provisions.

Step 3: FEMA reviews the request and makes a recommendation.

- Governor's request addressed to the POTUS through FEMA regional administrator.
- FEMA regional office completed analysis of request and recommendation.
- FEMA headquarters review of request to ensure compliance with *Stafford Act* requirements.
- FEMA administrator recommendation of a course of action to the POTUS.

Step 4: The POTUS makes a major disaster or emergency declaration, if warranted.

- POTUS decides whether to declare that major disaster or emergency exists.
- If declaration is issued, assistance is made available under the *Stafford Act*.
- FCO is designated to oversee disaster operations.

11.24 Natural Disaster Response (Federal Military). DOD will normally respond to a natural disaster when local and state resources have been exhausted or the incident/situation is projected to overwhelm local, tribal, or state capability and/or resources. DOD response to an incident may come through a variety of authorizations, including IRA, mutual aid agreement, or SecDef/designee's approval of a request for assistance (RFA) under the *Stafford Ac*t or the *Economy Act*.

11.24.1 Command and Control. Title 10 forces are federal assets under the command of the President. Title 10 forces include the Active Army, Navy, Marine Corps, Air Force, and the Reserves of each, as well as National Guard units ordered to federal active duty by the POTUS or Service Secretary.

11.24.1.1 Regional Planning Agents. Combatant commands serve as DOD's regional planning agents. The Service components of combatant commands may serve as the JFACC, joint force land component commander (JFLCC), or joint force maritime component commander (JFMCC) in a DSCA environment.

11.24.2 United States Northern Command. In the United States Northern Command (USNORTHCOM) AOR, the DCO is under command and control of United States Army North (USARNORTH)/JFLCC. The initial JFC staff may consist of the DCO, defense coordinating element (DCE), allocated Service emergency preparedness liaison officers (EPLO), and a USARNORTH augmentation team.

11.24.2.1 To facilitate emergency responses, 1st Air Force (Air Force North [AFNORTH]) typically acts as USNORTHCOM's JFACC.

11.24.2.2 United States Fleet Forces (USFF) Command is designated as the naval component commander for the USNORTHCOM. Additionally, the commander, USFF is normally designated as the JFMCC to the USNORTHCOM.

11.24.3 United States Pacific Command. Joint Task Force-Homeland Defense (JTF-HD) is the DOD's executive agent for United States Pacific Command (USPACOM) to synchronize incident management in support of civilian authorities within the joint operations area (JOA) that encompasses Hawaii, Guam, the Commonwealth of the Northern Mariana Islands, and American Samoa.

11.24.4 Defense Coordinating Officer. The DCO, a Title 10 active duty officer, is assigned to each FEMA region and may work at the RRCC, at the FEMA regional office, or may predeploy to an incident command site. A DCO will generally be involved in DOD's response to DSCA and may become the JFC with command and control of Title 10 forces. If federal military forces deploy, the DCO will normally deploy to the JFO location. The DCO coordinates DOD support to the PA. AMLOs should make contact with the DCO and the DCE early in a DSCA operation as there will be opportunities for mutual assistance. **Figure 11.4**, Typical DCE Organization shows the typical DCO organization structure.

11.24.4.1 Specific responsibilities of the DCO (subject to modification based on the situation) include:

- Subject matter expertise for all state and federal emergency response plans.
- Coordinating with FEMA staff, state emergency responders, TAGs, and JFHQ-State staff.
- Coordinating with the FCO and PAs for ESFs.
- Assigning military liaisons as appropriate.
- Coordinating with all military installations regarding BSI operations.

11.24.5 Defense Coordinating Element. The DCO has a DCE of ten permanent core staff and military liaison officers to facilitate coordination and support to activated ESFs. See **Figure 11.4** and **Figure 11.5**, Augmented DCE Organization. DCO/DCE responsibilities include:

- Representing DOD in the disaster area.

- Providing liaison to state, local, and other federal agencies.
- Reviewing/recommending validation of RFAs/MAs.
- Recommending the best military resource for the mission.
- Providing support of deployed DOD forces.

Figure 11.4 Typical DCE Organization

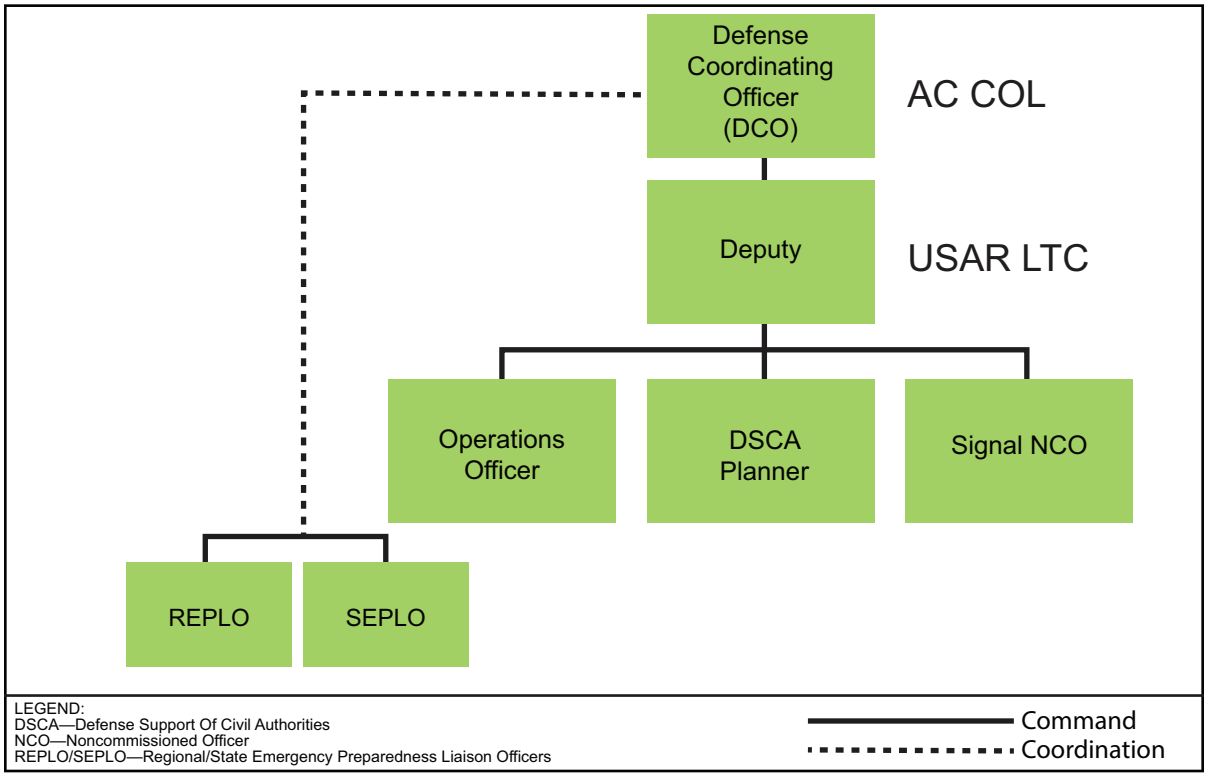
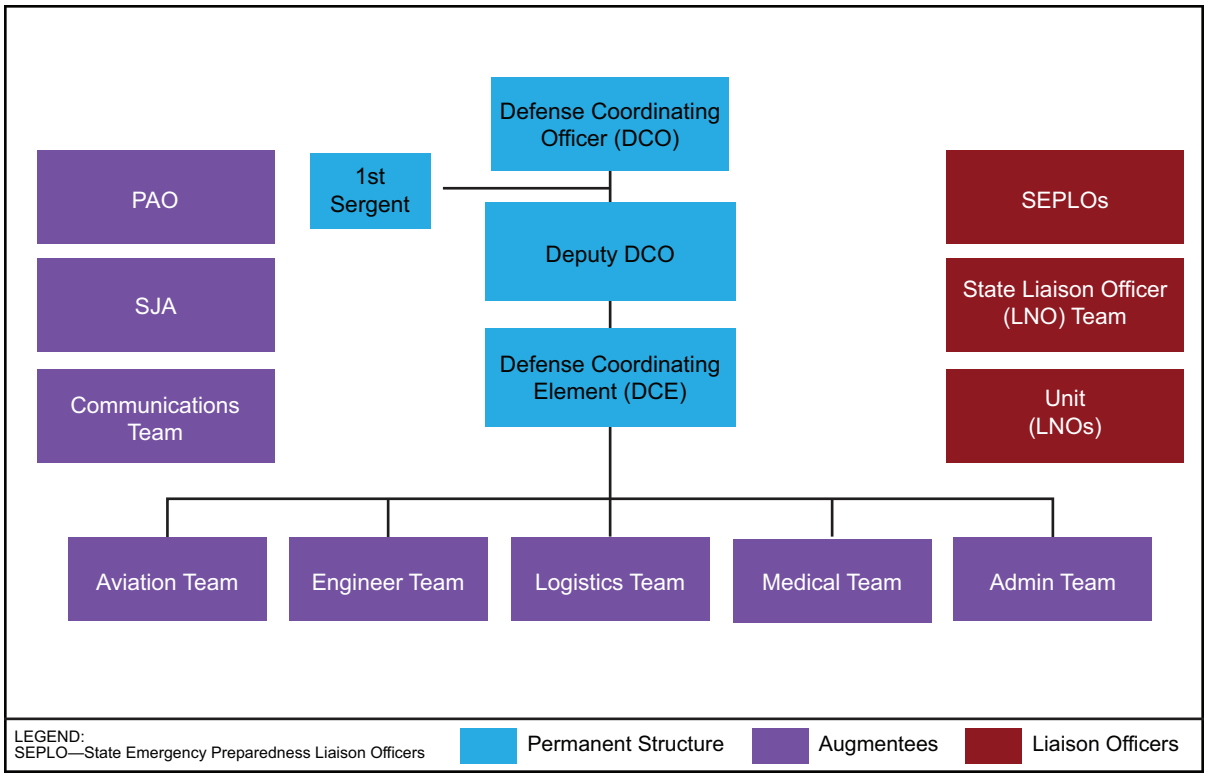


Figure 11.5 Augmented DCE Structure



11.24.6 Emergency Preparedness Liaison Officer. AMLO coordination with EPLOs will provide situational awareness on emergence mobility requirements for a DSCA operation. EPLOs are Service reservists performing duties under DODI 3025.16, *Defense Emergency Preparedness Liaison Officer (EPLO) Programs*. When sourced and allocated via the global force management process, EPLOs are under OPCON of the Service component commander, allocated to commander USNORTHCOM or commander USPACOM, and tactical control (TACON) to the DCO. Responsibilities of EPLOs include the following:

- Establish initial communication and coordination links between DOD and civil authorities at the regional, state, and local levels.
- Assist DOD forces in establishing connections with appropriate local civil authorities.
- Conduct pre-emergency coordination with military and civilian leaders within their region or state.
- Maintain effective communication between the DOD components and other state and/or federal governmental agencies.
- Promote mutual understanding among various organizations tasked with providing support in civil emergency situations.
- Coordinate and establish relationships between the National Guard and DOD federal forces.
- Represents DOD federal forces in coordinating with civil authorities at the state and regional level.

11.24.6.1 Regional Emergency Preparedness Liaison Officer (REPLO). REPLOs are Title 10 Service Reserve personnel assigned to the FEMA regions.

11.24.6.2 State Emergency Preparedness Liaison Officer (SEPLO). SEPLOs are Title 10 Reserve personnel who perform duty in the state EOC. As subject matter experts in their states, they serve as DOD liaisons for DSCA to state and federal agencies and maintain situational awareness within the state. On a daily basis, they build relationships to facilitate mission accomplishment.

11.24.7 Request for Assistance (RFA)/Mission Assignment (MA) Process. Title 10 forces cannot support DSCA operations until an MA is approved. Understanding how MAs work will provide AMLOs situational awareness for potential force moves. FEMA coordinates the federal response to a disaster and will issue an RFA/MA to other federal agencies. RFAs/MAs can also be initiated by states and/or agencies through the Executive Directorate at the Pentagon.

11.24.7.1 DSCA requests originating at the JFO are coordinated with and processed through the DCO. The DCO coordinates with state emergency managers, the state National Guard, and FEMA to assist in the preparation and review of suitability for DOD to perform an RFA/MA. The DCO then forwards suitable RFAs/MAs to USNORTHCOM or USPACOM for validation. The combatant commander may approve the RFA/MA using assigned forces or with the authorities provided in the CJCS Standing DSCA EXORD. If the RFA/MA cannot be satisfied by the combatant command, it can be submitted to the joint director of military support (JDOMS) for staffing through the request for forces (RFF) process and SecDef approval.

11.24.7.2 Once the SecDef approves the MA and signs an EXORD or deployment order (DEPORD), the JDOMS passes the order to force providers for sourcing. On order, the DCO may be called upon to execute OPCON or TACON of Title 10 forces designated to support the incident if the incident has not escalated to the point where additional command structure is necessary for sourcing and tasking.

11.24.7.3 Prescripted Mission Assignment (PSMA). PSMAs are developed to facilitate rapid response and standardize MA's. MAs and their associated estimated costs serve as a general guideline. If needed, PSMAs can be revised to fit requests.

11.24.7.4 Mission Assignment Tasking Order (MATO). MATOs are generally used to provide specifics for a broad statement of work (e.g., delivery sites for water). MATOs prevent the issuance of multiple MAs for the same statement of work. A task order will be prepared to direct specific activities within the scope of a mission assignment. Task orders may include personnel, resource movement, and locations for delivery and duty stations. They are the tactical equivalent of the FRAGORD where follow on orders/instructions are issued from an original base order (previously existing document that directs an overall action).

11.24.8 Title 10 Joint Task Force. Based on the complexity and type of incident and the anticipated level of DOD resources involved, DOD may elect to designate a JTF to command all Title 10 military forces in support of the incident. Close coordination between federal

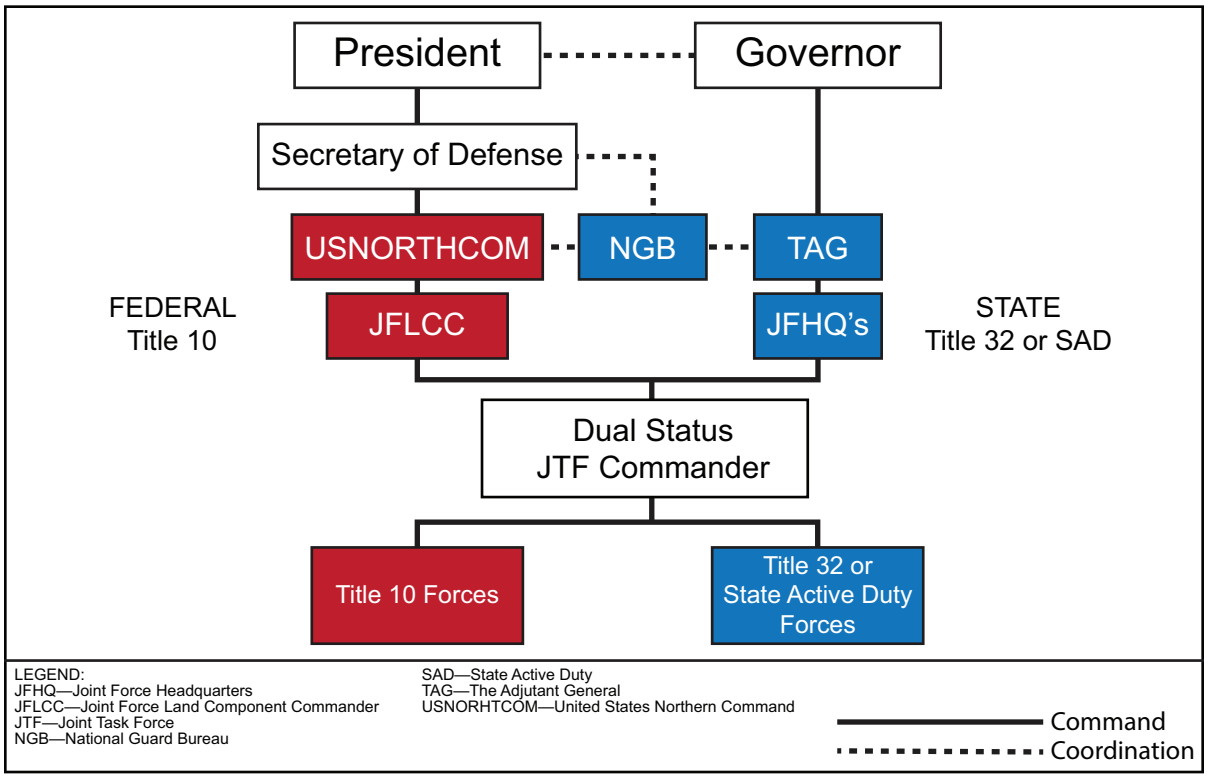
military other DOD entities such as the United States Army Corps of Engineers (USACE) and National Guard forces is critical. USNORTHCOM's standing joint task forces are:

- JTF-Alaska—Elmendorf Air Force Base, Alaska.
- JTF-Civil Support—Fort Monroe, Virginia.
- JTF-North—Biggs Army Airfield, Fort Bliss, Texas.

11.24.9 Title 10 Military Forces. Military units in a Title 10 status are under federal command and control and are usually OPCON to USNORTHCOM/USPACOM. Upon arrival, units are TACON to the JTF or JFC. Once deployed, they receive MAs from the JTF commander or JFC. AMLOs fall under Title 10 forces.

11.24.10 Dual Status Command. Dual status command allows a designated National Guard or federal military officer to command military personnel serving in a SAD, Title 32, or Title 10 status. Approval of a dual status commander requires the consent of the governor and approval of the POTUS. The dual status commander receives orders from both the federal chain-of-command (i.e., POTUS) and the state chain-of-command (i.e., governor). Dual status is most frequently used during national special security events (NSSE). See **Figure 11.6**, Dual Status Command.

Figure 11.6 Dual Status Command



11.24.11 Release from Mission Assignment and Redeployment. As the incident recovery process begins, military assets will be released once MAs are completed. This decision is made in coordination with the DCO/JFC for Title 10 units, or JFHQ-State/JTF-State for Title 32 units.

11.24.12 Other Entities Operating in a DSCA Environment. Any of the following agencies may also be operating in the DSCA area of responsibility.

11.24.12.1 United States Army Corps of Engineers. The USACE has authority for flood control and coastal emergencies under its Title 33 role and is the PA supporting ESF 3, Public Works and Engineering, as seen in **Figure 11.3**. USACE is responsible for providing infrastructure protection and emergency repair support to assist in needs related to reconnaissance and emergency clearance of debris from damaged areas (route clearance).

11.24.12.2 Defense Logistics Agency (DLA). The DLA is the largest logistics support agency of DOD. DLA provides worldwide logistics support to the military Services, as well as several civilian agencies and foreign countries.

11.24.12.3 National Geospatial Intelligence Agency. The National Geospatial Intelligence Agency is the support agency of DOD in the areas of imagery, intelligence, and geospatial information. The USG relies on this agency for coherent management of the disciplines of imagery and mapping.

11.24.12.4 Civil Air Patrol (CAP). When CAP is tasked by the USAF, in an Air Force auxiliary (AFAUX) role, can perform reconnaissance, emergency services, homeland security, and disaster relief missions.

11.24.12.5 Non-Governmental Organizations (NGO). NGOs are officially designated as support elements to national response capabilities. The American Red Cross (ARC) is a supporting agency to mass care functions of ESF 6, Mass Care, Emergency Assistance, Housing, and Human Services as seen in **Figure 11.3**. While it does not direct other NGOs, ARC takes the lead in integrating efforts of national NGOs that provide mass care services during response operations.

11.24.12.6 National Voluntary Organizations Active in Disaster. National Voluntary Organizations Active in Disaster (NVOAD) is a consortium of approximately 50 national organizations and 55 state and territory equivalents. Through NVOAD, organizations share knowledge and resources to help disaster survivors and their communities. NVOAD typically sends representatives to the DHS/FEMA National Response Coordination Center (NRCC) to represent the voluntary organizations and assist in response coordination.

11.25 DSCA Planning Considerations. AMLOs can use the joint planning process (JPP) as outlined in JP 5-0 and this publication as a guide for preparing for operating in a DSCA environment. AMLOs should expect rapid mobilization when supporting a DSCA operation. Disaster can happen unexpectedly, leaving responding forces little time to plan and prepare. While every response to a disaster is unique, below are some basic considerations for AMLOs deploying to support a DSCA operation.

11.25.1 Predeployment.

11.25.1.1 Plan for austere living conditions. AMLOs may deploy in disaster-stricken areas where there may not be electrical power, running water, or available food.

11.25.1.2 Plan for poor communications. Phone lines and cell phone towers may be unusable. An iridium satellite phone, portable radios, and solar chargers should be part of

the AMLO's deployment gear for DSCA events. Have a plan to check in with your chain of command on a prescheduled basis. Likewise, a DAGR or other authorized stand-alone GPS is highly recommended since cell phones may not provide accurate map or location information when cell phone towers are inoperable.

11.25.1.3 Expect to work both in the field and on a joint staff. Early in a DSCA operation the status and capabilities of an airfield are important pieces of information that responding forces need so that they can plan force flow into the operating area. An AMLO may be the first person to an airfield who can provide that information. Likewise, AMLOs will advise and assist joint staff leadership in charge of Title 10 forces regarding air mobility matters.

11.25.1.4 Make contact with DIRMOBFOR for the operation. Normally for DSCA events a Deputy DIRMOBFOR is designated to augment USAFNORTH, and that person is who AMLOs will work with on a regular basis.

11.25.1.5 If not specified what equipment to bring when tasked to support a DSCA operation, AMLOs should contact AMC/A3 and/or DIRMOBFOR for guidance prior to deploying. Each DSCA event will be unique and may require different equipment depending on the nature of the situation. Consider whether to bring LZ/DZ kits, light kits, DCP, iridium phones, GPS.

Equipment Considerations from Hurricane Maria
AMLO tasked to support Hurricane Maria operations in September 2017 were given the following tasks in their vocal orders (VOCO) to deploy: "Report to 601st Air Mobility Division (AMD), embed with AFNORTH joint air component coordination elements (JACCE) in Saint Croix, Saint Thomas, and Puerto Rico; keep AMC/A3 informed, and provide eyes-on for director of mobility forces (DIRMOBFOR)." Anticipating a requirement for landing zone (LZ) operations and lack of island communications, AMLOs departed with LZ kits, light kits, and iridium phones. LZ and light kits were not needed, but they were prepared for that possibility.

11.25.2 After Arrival. :

11.25.2.1 If required, assess airfields and provide updates to DIRMOBFOR. There may be additional agencies attempting to assess airfields after a disaster. If so, coordinate to synchronize those efforts.

11.25.2.2 Make contact with applicable SAA/airfield management.

11.25.2.3 Make contact with FEMA air operations representatives. FEMA is in charge of what deploys into a relief operation, and it will be invaluable to synchronize air mobility efforts with them.

11.25.2.4 Make contact with sister Service LNOs. Expect LNOs from each branch of the service to be involved in a DSCA event.

11.25.2.5 Make contact with state and other Title 32 air mobility planners. Understanding their current and future operations may allow you to identify potential shortfalls that would

require Title 10 air mobility assets. Likewise, synchronizing air operations with them will provide situational awareness to joint leadership.

11.25.2.6 Request access to force flow information. Expect Title 10 force flow data to be distributed by NORTHCOM service component JOPES personnel (e.g. ARNORTH/A-3 JOPES). Also, NORTHCOM-Northern Command Deployment and Distribution Operations Cell (NDDOC) will have FEMA mission schedules. And you will need to link in with appropriate state or other Title 32 representatives to get their force flow information.

11.25.2.7 Become familiar with agencies and their POCs within the JFO. There may be opportunities for mutual assistance between agencies we normally would not work with.

11.25.2.8 Make contact with redeployment planning teams and plan to be part of their efforts.

11.25.2.9 Be prepared to be involved in planning for aeromedical evacuation, general population evacuation, and airspace coordination for rotary-wing SAR.

Hurricane Harvey
Title 10 air mobility support for Hurricane Harvey response in August 2017 was primarily for aeromedical evacuation. Title 32 Air National Guard (ANG) units handled a sizable evacuation of civilians from around the Houston area. AMLOs should be ready to assist Title 10 forces if given that task.

11.25.2.10 See **Table 11.1**, AMLO Tasks—Hurricane Maria and **Table 11.2**, AMLO Coordination Agencies—Hurricane Maria for examples of air mobility tasks and interagency partners AMLOs have worked in previous DSCA operations.

Table 11.1 AMLO Tasks—Hurricane Maria

Major Force Moves	Airfield Issues	Other Issues
Deployment and redeployment force flow tracking; Aviation units Field hospitals Army Corps of Engineers equipment moves Contracted passenger moves	Airfield assessments and reporting to joint force land component commander (JFLCC), 18th Air Force (AF) [now Air Mobility Command (AMC)/A3], director of mobility forces (DIRMOBFOR), Federal Emergency Management Agency (FEMA). Coordination with Marine Corps, contingency response (CR) forces, FEMA, local Puerto Rico airfield management on airfield operation courses of action. Hand-off of airfields to CR/airlift control flight.	Patient moves. Synchronization with combined air operations cell (7-plus air components). Isolated personnel reporting process and landing zone selection. Assistance with overall distribution system.

Table 11.2 AMLO Coordination Agencies—Hurricane Maria

Joint	Air Force	Interagency/Other
USNORTHCOM – JFMCC (Air LNOs, 24 MEU), JFLCC/ARNORTH/TF 51 (CG, DCG, COS, J-3/J-4/J-5, CHOPS, 3 ESC, 4 SB, 1 AD CAB, USACE), NDDOC	JFACC – DIRMOBFOR, JACCE, A-7, 601 AMD (+AMOS)	Puerto Rico Emergency Management Agency
USTRANSCOM	AMC/A3, AMLO FAM, 618 AOC	Puerto Rico Port Authority/Airfield Management
JTF-Puerto Rico/Dual-Status Commander	CRG	FEMA Logistics Cell
National Guard Bureau	ANG/ALCF	FEMA Air Operations Cell
US Coast Guard	EPLO	Isolated Personnel Task Force
Deployment Control Officers	JACCE	Mass Care Task Force
	AEG	FEMA Contracted Airfield Support
	JECC	FBOs

LEGEND:

AD—armored division
AEG—air expeditionary group
AF—Air Force
ALCF—airlift control flight
AMC—Air Mobility Command
AMD— air mobility division
AMLO—air mobility liaison officer
AMOS— air mobility operations squadron
ANG—Air National Guard
AOC—air operations center
ARNORTH—US Army North
CAB—combat aviation brigade
CG—commanding general
CHOPS—chief of operations
COS—Chief of Staff
CRG—contingency response group
DCG—deputy commanding general
DIRMOBFOR—director of mobility forces
EPLO—emergency preparedness liaison officer
ESC—expeditionary sustainment command
FAM—functional area manager
FBO—fixed base operator
FEMA—Federal Emergency Management Agency
JACCE—joint air component coordination element
JECC—Joint Enabling Capabilities Command
JFACC—joint force air component commander
JFLCC—joint force land component commander
JFMCC—joint force maritime component commander
JTF—joint task force
LNO—liaison officer
MEU—Marine expeditionary unit
NDDOC—United States Northern Command Deployment and Distribution Operations Cell
SB—sustainment brigade
TF—task force
USACE—United States Army Corps of Engineers
USNORTHCOM—United States Northern Command
USTRANSCOM—United States Transportation Command

11.25.3 Humanitarian Relief. Supporting relief operations outside of the United States and its territories are not DSCA operations despite their proximity. For example, the United States response to the Haiti earthquake in 2010 and other islands affected by Hurricane Maria in 2017 (e.g., The Bahamas, British Virgin Islands, Dominica) do not fall under DSCA. Despite that,

many of the planning considerations listed above can be used in preparing for an AMLO deployment to support those operations.

Support to SOUTHCOM for Hurricane Maria
In addition to the six AMLOs who deployed to support Hurricane Maria relief efforts in Puerto Rico and the US Virgin Islands, another AMLO deployed to support efforts at other Caribbean islands in the United States Southern Command (USSOUTHCOM) AOR. His preparation for the deployment and tasks he accomplished while deployed were very similar to what the VIPR AMLOs did with the only discernible differences being the agencies he worked with.

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 12

EVACUATIONS

12.1 Noncombatant Evacuation Operations (NEO). As used by the DOS, a NEO is an ordered departure from a threatened area abroad. The NEO is carried out with the assistance of the DOD, as opposed to ordered departures that do not require DOD assistance, but are carried out using commercial or chartered transportation. The DOS may declare a NEO based on the nature of the threat or the lack of availability of alternative forms of transportation. For further information refer to JP 3-68, *Noncombatant Evacuation Operations*.

12.2 Noncombatants. Noncombatants are (1) US citizens who may be ordered to evacuate by competent authority, and who are civilian employees of all agencies of the US government and their dependents, excepting dependents who are residents in the country concerned of their own volition; military personnel of the Armed Forces of the US specifically designated for evacuation as noncombatants; and dependents of members of the Armed Forces of the US; (2) US citizens and non-US citizens who may be authorized or assisted to evacuate by competent authority, and who are civilian employees of US government agencies and their dependents who are residents in the country concerned of their own volition, but express the willingness to be evacuated; private US citizens and their dependents; military personnel of the Armed Forces of the US and their dependents; and designated personnel, including dependents of persons ordered to evacuate, as prescribed by the DOS.

NOTE: Private US citizens cannot be ordered to evacuate.

12.3 Department of State. DOS possesses several levers to execute evacuations, dependent on the situation.

12.3.1 Authorized Departure. A voluntary departure of command-sponsored military dependents, nonessential DOD civilian employees and their families, families of essential DOD civilian employees, and DOD dependents schools staff and faculty to an announced safe haven encouraged and authorized at government expense, with return also at government expense. These government authorized expenses do not apply to local US citizens who do not have service agreements for return transportation to the US at government expense.

12.3.2 Ordered Departure. A mandatory departure of some or all categories of personnel and dependents (such as military dependents, nonessential DOD civilian employees and their families, families of essential DOD civilian employees, and DOD dependents schools staff and faculty) to designated safe havens directed by DOS, with implementation of the theater evacuation plan. Historically, DOS accomplishes most ordered evacuations using commercial transportation (scheduled or chartered), without the use of military personnel or assistance. However, DOS may request a DOD-assisted NEO (e.g., using DOD organic or chartered transportation assets) based on the nature of the threat, or the lack of availability of alternative forms of transportation.

12.4 Operational Environments. There are three environments in a NEO: permissive, uncertain, and hostile. To successfully complete the evacuation, it is necessary to understand these operational environment considerations: political, military, economic, social, information, and infrastructure (PMESII). Alternative mission plans should be developed for permissive, uncertain, and hostile environments.

12.4.1 Permissive. In a permissive environment, there is no apparent physical threat to evacuees; the political environment is stable. The host government is either in support of, or will not oppose, the orderly departure of evacuees. If military assistance is required, it is generally limited to support and security functions, such as additional transportation assets or military police for security functions. This type of operating environment often occurs in connection with serious natural or man-made disasters. An example of this type of environment occurred in 1991 with Operation FIERY VIGIL. Following the Mount Pinatubo eruption in the Philippines, military personnel and their dependents were evacuated from Clark Air Force Base and Subic Bay Naval Station. While not popular with the local population, this evacuation was unopposed and took place in a permissive environment.

12.4.2 Uncertain. In an uncertain environment, the degree of danger is not known. The host government may or may not be in control, but cannot ensure the safety of US citizens. Possible opposition may come from the HN government, an opposition force, outside force, or all three. Due to the uncertainty, the military commander may elect to reinforce the evacuation force with additional security. An example of this type of environment occurred in 1991 with Operation EASTERN EXIT. US citizens were evacuated from Somalia because the civil war had escalated to the point of the Somali government collapsing and no longer being able to guarantee their safety. Military dependents departed Turkey in 2016 due to an uncertain political and military environment.

12.4.3 Hostile. In a hostile environment the host government, or other forces, are expected to oppose evacuation and US military assistance. Forced entry by the US military, into the AO, may be required to secure some evacuees; follow-on combat operations may be required. In this environment, the focus may shift from evacuation to retrograde combat operations. Because all commanders must be prepared to deal with large numbers of displaced civilians and noncombatants, the presence of civil affairs assets is critical. An example of this type of environment occurred in 1975 with the evacuation of the US Embassy in Saigon, Vietnam.

12.5 Operational Planning. AMLOs should participate in planning at the operational level. This is especially important for AMLOs stationed overseas. Preparation for NEO is critical and requires consideration of all phases of the evacuation operation. AMLOs can assist planning teams in determining airlift requirements and capabilities and can also provide unique solutions to difficult problems. AMLOs stationed overseas should be familiar with the installation/theater NEO plan and make every effort to participate in NEO exercises. In addition, every AMLO should be familiar with locations already identified as safe havens.

12.6 Exercise Support. Overseas commands routinely exercise NEO scenarios and AMLOs should engage at every level of exercise planning and execution. Exercises range from staff-only tabletop exercises (TTX), to an actual flight of volunteer noncombatant evacuees (NCE) from the HN to a temporary safe haven. For example, United States Forces, Korea (USFK) annually conducts FOCUSED PASSAGE to ensure NEO readiness of eligible personnel living in South Korea.

12.7 Air Support Coordinator (ASC). The primary point of contact for AMLOs supporting NEO operations is the air support coordinator. The AMLO could serve as the ASC during the initial phases of a NEO. The ASC is part of the evacuation site party. The evacuation site party identifies, and where possible, establishes the assembly areas, evacuation sites, and the evacuation

control center (ECC) site. When the evacuation force enters the country and the evacuation commences, the evacuation site party becomes the operations center and/or section of the ECC.

12.7.1 ASC Responsibilities. The ASC is responsible for all aspects of aircraft, passengers, cargo movement, aircraft support, aircraft configuration and capabilities, MOG determination, airfield operations (e.g., parking, fuel, upload/download of cargo/passengers/forces), LZ and DZ operations, crew rest cycles, and mission planning. AMLOs will be a critical link to the ASC during the initial stages of NEO.

12.7.2 AMLO Responsibilities.

- Coordinate with the DIRMOBFOR, if applicable.
- Maintain direct lines of communication with applicable AOCs (especially the AMD) and track inbound strategic airlift (STRATLIFT).
- Provide real-time reports of the situation for mission planning, crew situational awareness, and risk assessment.
- Brief mobility aircraft (e.g., C-5, C-17, C-130, KC-10, KC-135) capabilities to NEO mission planners.
- Assist in coordination and or provide guidance of aircraft support, such as sequence, parking deconfliction, fuel, MHE, and configuration.
- Assist/coordinate/complete drop zone surveys.
- Provide assessments for landing zone and coordinate for surveys if one is needed.
- NEO during combat situations will require additional security planning, prioritization of passengers, and considerations for 24 hour operations.

12.8 Support Intermediate Staging Base (ISB) Operations. The ISB is a temporary location used to stage forces prior to HN insertion. The ISB may be located in another country, close to where the evacuation is taking place, or may be any ship under US control. ISB operations may include force sequencing, which is the phased introduction of forces into and out of the operational area.

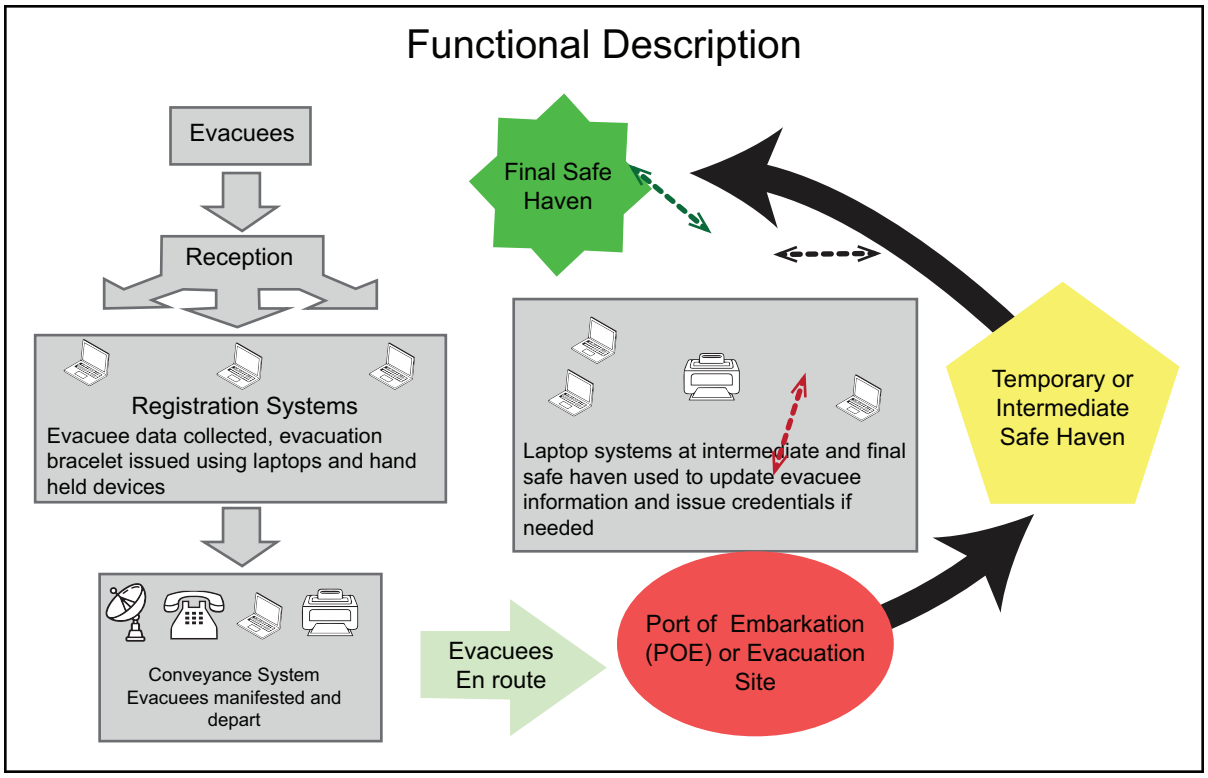
12.8.1 AMLO Responsibilities. Once ISBs are identified, AMLOs should assist the JFC and/or ASC in determining ISB operational requirements. AMLOs should:

- Assist with suitability and capacity of the airfield and or port.
- Assist with LZ survey required.
- Assessment of facilities to store cargo or hold passengers.
- Contingency response force requirements.
- Aircraft maintenance facilities and refuel capabilities.

12.9 NEO Tracking System (NTS). The NTS is an automated data processing package designed to assist JFCs in maintaining visibility and accountability of noncombatant evacuees as they proceed through the evacuation pipeline. The NTS uses the paradigm of assigning a barcode to a package and then tracking the package through to its delivery. NTS provides accountability of evacuees by enabling operators to maintain a database of information (via bar code) for each evacuee (to include pets) as they enter, proceed through, and finally exit the evacuation process at a reception site or other exit point. With trained operators in a permissive environment, the NTS

(with five-registration stations) can process approximately 5,000 evacuees in approximately 50 hours. This estimate assumes the registration stations are operated continuously and around the clock. See **Figure 12.1**, NEO Tracking System.

Figure 12.1 NEO Tracking System



ATTACHMENT 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

A1.1 References.

ADP 1-02, *Terms and Military Symbols,* 14 August 2018

ADP 5-0, *Operations Process,* 17 May 2012

ADP 6-0, *Mission Command,* 17 May 2012

AFI 11-231, *Computed Air Release Point Procedures,* 31 August 2005

AFI 13-106, *Air Mobility Liaison Officers (AMLO),* 4 June 2013

AFI 13-217, *Drop Zone and Landing Zone Operations,* 10 May 2007

AFI 33-360, *Publications and Forms Management*, 1 December 2015

AFI 90-802, *Risk Management,* 11 February 2013

AFMAN 33-363, *Management of Records*, 1 March 2008

AFPAM 10-1403, *Air Mobility Planning Factors,* 12 December 2011

AFPAM 32-2004, *Aircraft Fire Protection for Exercises and Contingency Response Operations,* 25 September 2014

AFTTP 3-2.68, *Multi-Service Tactics, Techniques, and Procedures for Airfield Opening,* 1 June 2015

AFTTP 3-3.C-130J, *Combat Aircraft Fundamentals-C-130J,* 12 July 2016

AFTTP 3-3.C-17, *Combat Aircraft Fundamentals-C-17,* 12 July 2016

AFTTP 3-4.4, *Contingency Airfield Operations,* 2 November 2017

AMCI 11-208, *Mobility Air Forces Management,* 8 February 2017

ATP 4-16, *Movement Control,* 5 April 2013

ATP 4-93, *Sustainment Brigade,* 11 April 2016

ATP 4-94, *Theater Sustainment Command,* 28 July 2013

DODD 3025.18, *Defense Support of Civil Authorities (DSCA),* 29 December 2010

DODI 3025.16, *Defense Emergency Preparedness Liaison Officer (EPLO) Programs,* 8 September 2011

DODI 6055.06, *DOD Fire and Emergency Services (F&ES) Program,* 21 December 2006

ETL 09-6, *C-130 and C-17 Contingency and Training Airfield Dimensional Criteria,* 17August 2009

ETL 97-9, *Criteria and Guidance for C-17 Contingency and Training Operations on Semi-Prepared Airfields,* 25 November 1997

FM 3-94, *Theater Army, Corps, and Division Operations,* 21 April 2014

JP 3-0, *Joint Operations,* 17 January 2017

JP 3-01, *Countering Air and Missile Threats,* 21 April 2017

JP 3-17, *Air Mobility Operations,* 30 September 2013

JP 3-18, *Joint Forcible Entry Operations,* 11 May 2017

JP 3-28, *Defense Support of Civil Authorities,* 31 July 2013

JP 3-68, *Noncombatant Evacuation Operations,* 18 November 2015

JP 4-0, *Joint Logistics,* 16 October 2013

JP 4-09, *Distribution Operations,* 19 December 2013

JP 5-0, *Joint Planning,* 16 June 2017

MCWP 5-10, *Marine Corps Planning Process,* 2 May 2016

Title 10, United States Code (USC), Section 109, *Maintenance of Other Troops*, Current Edition

Title 14, USC, Section 1, *Establishment of Coast Guard,* Current Edition

TM 3-34.48-2, *Theater of Operations: Roads, Airfields, and Heliports - Airfield and Heliport Design,* 29 February 2016

A1.2 Adopted Forms.

AF Form 847, *Recommendation for Change of Publication*

AF Form 3822, Version 1, *Landing Zone Survey*

AF Form 3823, Version 2, *Drop Zone Survey*

AF Form 4304, *Drop Zone/Landing Zone Control Log*

AMC Form 174, *Airfield Survey*

DD Form 365-4, *Weight and Balance Clearance Form - F*

A1.3 Abbreviations and Acronyms.

5-W .....who, what, when, where, why
a/c.....aircraft
A/DACG .....arrival/departure airfield control group
AAGS.....Army air-ground system
AAR .....after action report; after action review
ACO .....airspace control order
ADCON .....administrative control
ADE .....airdrop damage estimation
ADP .....Army doctrine publication; automated data processing
AE .....aeromedical evacuation
AEG .....air expeditionary group
AF .....Air Force
AFAUX .....Air Force auxiliary
AFFOR.....Air Force forces
AFI .....Air Force instruction

AFNORTH.....Air Force North
AFPAM.....Air Force pamphlet
AFTRANS.....Air Force Transportation Component
AFTTP.....Air Force tactics, techniques, and procedures
AGL.....allowable gross load
ALO.....air liaison officer
ALR.....acceptable level of risk
AMAG.....air mobility advisory group
AMC.....Air Mobility Command
AMCI.....Air Mobility Command instruction
AMLO.....air mobility liaison officer
AMP.....airfield marking pattern
AMR.....air mission request
AO.....area of operations
AOC.....air operations center
AOD.....air operations directive
AOR.....area of responsibility
APCC.....aerial port control center
APEX.....Adaptive Planning and Execution
APOD.....aerial port of debarkation
APOE.....aerial port of embarkation
AR.....air refueling
ARC.....American Red Cross
ARFOR.....Army forces
ARNORTH.....US Army North
ASC.....air support coordinator
ASCC.....Army Service component command
ASOG.....air support operations group
ASOS.....air support operations squadron
ASRR.....airfield suitability and restrictions report
ATC.....air traffic control
ATO.....air tasking order
ATP.....air transportation plan; Army techniques publication
ATTLA.....Air Transportation Test Loading Activity
AW.....airlift wing
AWACS.....airborne warning and control system
BDE.....brigade
C2.....command and control
C3.....command, control, and communications
CAF.....combat Air Force
CAOC.....combined air operations center
CAP.....crisis action planning
CARP.....computer air release point
CAS.....close air support
CBR.....California bearing ratio

CCDR.....combatant commander
CCT.....combat control team
CDA.....collateral damage assessments
CDS.....container delivery system
CFLCC.....coalition forces land component commander
CFR.....crash, fire, and rescue
CG.....commanding general
CIF.....central issue facility
CINC.....Commander-in-Chief
CJCS.....Chairman of the Joint Chiefs of Staff
COA.....course of action
COS.....Chief of Staff
CPOF.....command post of the future
CR.....contingency response
CRC.....control and reporting center
CRF.....contingency response force
CRRC.....combat rubber raiding craft
CRW.....contingency response wing
CTO.....corps transportation officer
CTS.....combat training squadron
DAGR.....Defense Advanced Global Positioning System Receiver
DCAPES.....Deliberate and Crisis Action Planning and Execution System
DCE.....defense coordinating element
DCGM.....deputy commanding general of maneuver
DCGS.....deputy commanding general of sustainment
DCO.....defense coordinating officer
DCP.....dynamic cone penetrometer
DDOC.....deployment and distribution operations center
DEPORD.....deployment order
DHS.....Department of Homeland Security
DIRLAUTH.....direct liaison authorized
DIRMOBFOR.....director of mobility forces
DLA.....Defense Logistics Agency
DOD.....Department of Defense
DODD.....Department of Defense directive
DODI.....Department of Defense instruction
DOS.....Department of State
DSCA.....defense support of civil authorities
DTO.....division transportation officer
DTS.....Defense Transportation System
DZ.....drop zone
DZC.....drop zone controller
EC.....USAF Expeditionary Center
ECC.....evacuation control center
EDRE.....emergency deployment readiness exercise

EMAC.....emergency management assistance compact
EMCON.....emission control
EMDCOA.....enemy's most dangerous course of action
EMLCOA.....enemy's most likely course of action
EMS.....emergency medical services
EOC.....emergency operations center
EPLO.....emergency preparedness liaison officer
ESC.....expeditionary sustainment command
ESF.....emergency support function
ETL.....Engineering Technical Letter
EXORD.....execute order
FCO.....federal coordinating officer
FEMA.....Federal Emergency Management Agency
FEO.....forcible entry operations
FISA.....fixed installation satellite antenna
FM.....field manual; flight manager
FOB.....forward operating base
FRAGORD.....fragmentary order
GAMSS.....global air mobility support system
GATES.....Global Air Transportation Execution System
GCC.....geographic combatant commander
GDSS2.....Global Decision Support System II
GFC.....ground force commander
GLOC.....ground line of communication
GMRS.....ground marking release system
GPS-RTS.....Global Positioning System-retransmit subsystem
HAHO.....high altitude high opening
HALO.....high altitude low opening
HAZMAT.....hazardous materials
HE.....heavy equipment
HEMTT.....heavy expandable mobility tactical truck
HF.....high frequency
HHQ.....higher headquarters
HN.....host nation
HQ.....headquarters
HV.....high-velocity
HVCDS.....high-velocity container delivery system
IAP.....incident action plan
IC.....incident commander
ICAO.....International Civil Aviation Organization
I-CDS.....improved-container delivery system
ICODES.....Integrated Computerized Deployment System
ICP.....incident command post
ICS.....incident command system
IED.....improvised explosive device

IGO .....international governmental organization
IMC.....instrument meteorological condition
IPOE.....intelligence preparation of the operational environment
IR .....infrared
IRA.....immediate response authority
ISB .....intermediate staging base
ITV.....in-transit visibility
JA/ATT.....joint airborne and air transportability training
JAGIC .....joint air-ground integration center
JAOC .....joint air operations center
JDDOC.....joint deployment and distribution operations center
JDOMS .....joint director of military support
JFC .....joint force commander
JFE .....joint forcible entry
JFHQ-State.....joint force headquarters-state
JFLCC.....joint force land component commander
JFMCC.....joint force maritime component commander
JFO.....joint field office
JI.....joint inspection
JIC.....joint information center
JLLIS .....Joint Lessons Learned Information System
JLOC.....joint logistics operations center
JM .....jumpmaster
JMDR.....jumpmaster directed release
JOC .....joint operations center
JOPES .....Joint Operation Planning and Execution System
JOPP.....joint operation planning process
JP.....joint publication
JPADS .....joint precision aerial delivery system
JPP .....joint planning process
JSOC .....joint special operations command
JTAC .....joint terminal attack controller
JTB.....joint transportation board
JTF .....joint task force
LCADS-HV .....low-cost aerial delivery system-high velocity
LCADS-LV .....low-cost aerial delivery system-low velocity
LCLA .....low-cost/low-altitude
LCN .....load classification number
LHS.....load handling system
LOGDET .....logistics detail
LOGFAC.....logistics feasibility analysis capability
LOGFOR .....logistics force packaging
LOGMOD.....logistics module
LOGPLAN.....logistics planning
LV.....low-velocity

LZ.....landing zone
LZSO .....landing zone safety officer
MA .....mission assignment
MAF.....mobility air forces
MAJCOM .....major command
MANPADS .....man-portable air defense system
MARSOC.....United States Marine Corps Forces, Special Operations Command
MATO .....mission assignment tasking order
MCB.....movement control battalion
MCPP.....Marine Corps planning process
MCT.....movement control team
MCWP .....Marine Corps warfighting publication
MDMP .....military decision-making process
ME3C-(PC)2.....mission, environment, enemy, effects, capabilities - plan, phasing, contracts, and contingencies
MEF .....Marine expeditionary force
MEP .....mission essential personnel
METT-TC.....mission, enemy, terrain and weather, troops and support available-time available and civil considerations
MHE.....materials handling equipment
MPC .....mission planning cell
MSE .....mission support equipment
MSOS.....mobility support operations squadron
NAVAID.....navigational aid
NCE .....noncombatant evacuee
NDDOC .....United States Northern Command Deployment and Distribution Operations Cell
NEO .....noncombatant evacuation operation
NGO.....nongovernmental organization
NIMS .....National Incident Management System
NOAA.....National Oceanic and Atmospheric Administration
NORDO .....no radio
NRCC.....National Response Coordination Center
NRF.....National Response Framework
NSSE.....national special security events
NTS.....noncombatant evacuation operation tracking system
NVG.....night vision goggle
NVOAD.....National Voluntary Organizations Active in Disaster
OA.....operational area
OG.....operations group
OPCON.....operational control
OPLAN .....operational plan
OPSEC.....operations security
OPT.....operational planning team
OSS .....operational support squadron

OWS.....operational weather squadron
PA.....primary agency
PACAF.....Pacific Air Forces
PADS-MP.....precision airdrop system-mission planner
PCA.....Posse Comitatus Act
PCN.....pavement classification number
PDA.....preliminary damage assessment
PI.....point of impact
PMESII.....political, military, economic, social, information, and infrastructure
POC.....point of contact
POTUS.....President of the United States
PSMA.....prescripted mission assignment
RAM.....raised angle marker
RCR.....runway condition rating
REPLO.....regional emergency preparedness liaison officer
RF.....radio frequency
RFA.....request for assistance
RFF.....request for forces; rolling friction factor
RFI.....request for information
RM.....risk management
ROC.....rehearsal of concept
ROZ.....restricted operating zone
RP.....release point
RQS.....rescue squadron
RRCC.....regional response coordination center
RRM.....rolling resistance material
SAA.....senior airfield authority
SAAM.....special assignment airlift mission
SAD.....state active duty
SAR.....search and rescue
SATB.....standard airdrop training bundle
SCO.....state coordinating officer
SecDef.....Secretary of Defense
SEPLO.....State Emergency Preparedness Liaison Officer
SMO.....strategic mobility office
SMS.....Single Mobility System
SOF.....special operations forces
Space-A.....space available
SPINS.....special instructions
SPOD.....seaport of debarkation
SRD.....strategy division
ST.....special tactics
STRATLIFT.....strategic airlift
TACAN.....tactical aid to navigation
TACON.....tactical control

TACP.....tactical air control party
TACS.....theater air control system
TAF .....terminal aerodrome forecast
TAG.....the adjutant general
TERPS .....terminal en-route procedures specialist
T-JTB .....theater-joint transportation board
TM .....technical manual
TPFDD.....time-phased force and deployment data
TPFDL .....time-phased force and deployment list
TSC .....theater sustainment command
TTP .....tactics, techniques, and procedures
TTX.....tabletop exercise
TWG .....threat working group
UC.....unified command
UHF .....ultrahigh frequency
UHF-DRS .....ultrahigh frequency-dropsonde receive system
UMO .....unit movement officer
USACE .....United States Army Corps of Engineers
USAFE.....United States Air Forces in Europe
USARAF.....US Army Africa
USAREUR.....US Army Europe
USARNORTH .....United States Army North
USCG.....United States Coast Guard
USFF.....United States Fleet Forces
USFK .....United States Forces, Korea
USG .....United States Government
USNORTHCOM.....United States Northern Command
USPACOM.....United States Pacific Command
USTRANSCOM .....United States Transportation Command
UTC .....unit type code
VIRS .....verbally initiated release system
WBC .....weight bearing capacity
WEZ.....weapon engagement zone
WOC .....wing operation center
XOO.....current operation
ZAR .....zone availability report

THIS PAGE INTENTIONALLY LEFT BLANK

ATTACHMENT 2

DEPLOYMENT EXECUTION SYSTEMS

A2.1 Joint Operation Planning and Execution System (JOPES). JOPES is the DOD's primary system for translating policy decisions into operational plans. JOPES feeds information directly into the Deliberate and Crisis Action Planning and Execution System (DCAPES).

A2.1.1 Automated Data Processing (ADP). JOPES ADP helps planners build the force list during force planning. Force planning begins when the combatant commander identifies the major apportioned forces needed to support his concept of operations, and continues with the identification of combat support and combat service support force requirements. Initially, for gross planning estimates, notional (generic) units may be designated. As the process continues, actual units must be identified.

A2.2 Deliberate and Crisis Action Planning and Execution Segments (DCAPES). DCAPES is the Air Force's war planning system and provides an Air Force feed to JOPES ADP. The objective of DCAPES is to enable improved and streamlined operations planning and execution processes which include associated policy and procedures, along with organizational and technology improvements. DCAPES provides standard data files, formats, application programs, and management procedures that are Air Force unique and joint guidance compliant and used primarily for force planning, sourcing equipment and personnel requirements, transportation feasibility estimation, civil engineering support, and medical planning.

- DCAPES and JOPES share common business rules and ADP procedures and policies to plan and execute joint military operations.
- Air Force planners at all levels will use DCAPES to support the combatant commander's selected COA in a timely manner.
- DCAPES supports accurate and timely sourcing which includes validation and verification.
- DCAPES also supports sourcing and tailoring of lower levels of detail beyond the JOPES level of detail.

A2.3 Logistics Module (LOGMOD). LOGMOD is a logistics-planning program that receives and maintains the cargo and personnel details for UTCs and taskings. It maintains detailed cargo records as well as personnel records (levy file positions and the personnel to fill them) and provides a command and control capability through the LOGMOD schedule.

A2.3.1 Modules. LOGMOD is composed of two program modules, MAJCOM and base level. The MAJCOM module contains three subsystems: logistics force packaging (LOGFOR), logistics planning (LOGPLAN), and logistics feasibility analysis capability (LOGFAC) system.

A2.3.2 LOGFOR. The LOGFOR subsystem provides the capability to create and maintain the standard database of logistics supplies and equipment for each UTC in the Air Force. This database is called the logistics detail (LOGDET).

A2.3.3 LOGPLAN. The LOGPLAN subsystem provides the capability to tailor or customize the plan unique UTC database of equipment and supplies for each USAF operation or contingency plan.

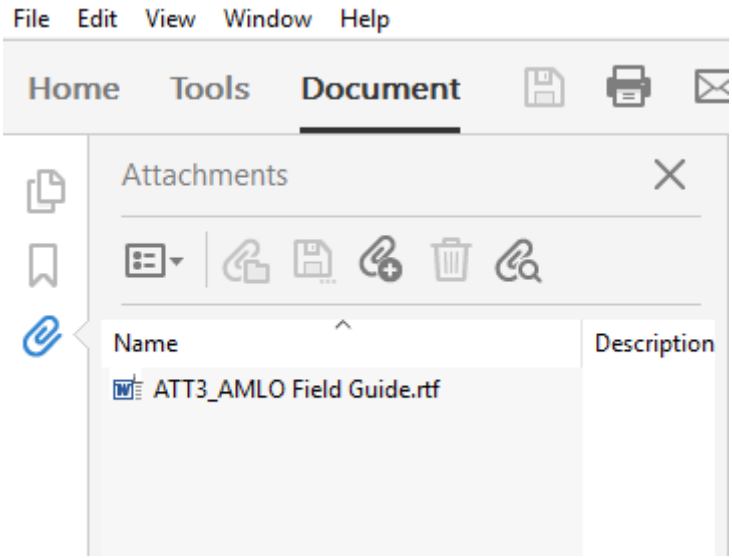
A2.3.4 LOGFAC. The LOGFAC subsystem of LOGMOD supports the logistics feasibility assessment of operation plans.

A2.4 Global Air Transportation Execution System (GATES). GATES is the current AMC real-time system that supports fixed, deployed, and mobile sites. It will process and track cargo and passengers, support resource management, and provide C2 support information.

ATTACHMENT 3
AMLO FIELD GUIDE

This Guide is located as a file attachment to this PDF.

See the paperclip icon located on the left side bar.



THIS PAGE INTENTIONALLY LEFT BLANK

THIS PAGE INTENTIONALLY LEFT BLANK

AFTTP 3-4.13V1, AIR MOBILITY LIAISON OFFICER