

Bases, Infrastructure, and Facilities



Air Force Doctrine Document 2-4.4
13 November 1999

This document complements related discussion found in Joint Publication (JP)
4.0, *Doctrine for Logistic Support of Joint Operations*.

OPR: HQ AFDC/DR (Lt Col Michael W. Lamb, Sr.)
Certified by: HQ AFDC/DR (Col Thomas A. Bowermeister)
Pages: 66
Distribution: F
Approved by: TIMOTHY A. KINNAN, Major General, USAF
Commander, Air Force Doctrine Center

FOREWORD

Whether it is called upon to respond to crises in the deserts of Saudi Arabia, the mountains of Bosnia, or along the flooded towns and cities along the Mississippi River, the Air Force continues to prove indispensable to America's needs. Its unique people, skills, responsiveness, and capabilities are the foundation of America's projection of national power.

Air Force Doctrine Document (AFDD) 2-4.4 does not stand alone as the only doctrine for bases, infrastructure, and facilities. It is essential that it be read together with AFDDs 1, 2, and 2-4. Together, these doctrine documents spell out for every Air Force member, from airman basic to general, what their roles are to project **combat power—providing warfighter support.**

In this connection, providing bases, infrastructure, and facility support to our forces is the key to meeting the Air Force's Title 10 responsibilities to provide administrative and logistical support to forces assigned to the combatant commands. To meet these responsibilities and to provide agile combat support when and where needed requires well-trained logistics staffs throughout the Air Force.

This document states the US Air Force's beliefs on bases, infrastructure, and facilities. Further, the Air Force develops the subsequent operating methods and practices that commanders should employ at all levels of warfare. *With this guidance, Air Force people will understand and operate as an integral part of the overall Air Force mission in combat support.* This document spells out what we, the United States Air Force team, expect from our members, commanders, and leaders and the principles by which they can most successfully provide support to the warfighter.

TIMOTHY A. KINNAN
Major General, USAF
Commander, Air Force Doctrine Center

13 November 1999

TABLE OF CONTENTS

INTRODUCTION	v
CHAPTER ONE—	
Basing, Infrastructure, and Facilities (BIF)—Fundamentals	1
General	1
Bases	1
Infrastructure	6
Facilities	7
Warfighting Attributes of Expeditionary Basing	9
Security	10
Maneuver and Mobility	11
Surprise	12
Mass and Economy of Force	12
Rear Area Operations	12
Rear Area Management	14
Rear Area Movements	15
Agile Combat Support	15
Operational Concepts	16
Infrastructure Development	17
Base Defense	19
CHAPTER TWO—Planning	21
Key Factors	21
Considerations	22
Garrison Mode	24
Expeditionary Mode	25
Threats and Vulnerabilities	27
Expeditionary Airbase Planning	28
Forward Operations Base Planning	32
Strategic Basing	34
CHAPTER THREE—Employment	37
General	37
Support Functions	37
Command And Control (C2)	39
Governing Concepts	42
Expeditionary Command and Control	43
Contingency Operations	43
EPILOGUE	47

Suggested Readings 49

Glossary 51

INTRODUCTION

We cannot become confused about the fundamental purpose of our armed forces. That purpose is their readiness to fight and win our nation's wars. As we reshape and train our forces, it must be for this purpose above all others.

General Ronald R. Fogleman
former Chief of Staff, USAF

PURPOSE

This Air Force Doctrine Document (AFDD) delineates the fundamental principles and operational-level Air Force doctrine for basing, infrastructure, and facilities (BIF).

APPLICATION

This AFDD applies to all active duty, Air Force Reserve, Air National Guard (ANG), and civilian Air Force personnel. This doctrine is authoritative but not directive. Commanders should exercise judgment when applying this doctrine to accomplish their missions. It is intended to assist commanders and all active duty, Air Force Reserve, ANG, and civilian Air Force personnel in planning and conducting operations to accomplish assigned missions.

SCOPE

Air Force basing, infrastructure, and facilities doctrine provides guidance for Air Force commanders in their roles of fulfilling Department of Defense (DOD) missions. A common doctrine helps ensure all elements of a command have a common baseline for developing and conducting operations. Doctrine is a guide for the exercise of professional judgment rather than a set of inflexible rules. It describes our understanding of the best way to do the job. The doctrinal statements in this document are general—they are to be implemented through tactics, techniques, and procedures (TTP) as well as unified and major command, field operating agency, and unit concepts of operations, operations plans, and other supporting documents.

CHAPTER ONE

BASING, INFRASTRUCTURE, AND FACILITIES (BIF) – FUNDAMENTALS

In 1991, the US military's combat success in Operation DESERT SHIELD/DESERT STORM and the extraordinary six-month buildup of combat forces and infrastructure before actual hostilities between coalition forces and Iraq commenced have been well documented. Indeed, numerous lessons have been gleaned from these combat experiences. First, if the Gulf War is an example, aerospace power in future conflicts may not receive the proper emphasis; we made it look easier than it was. Second, we should not forget we benefited by an extensive compatible infrastructure that was readily available and abundant host-nation support. Third, we had six months to prepare. Coalition forces had available airfields, ports, prepared infrastructure, adequate fuel supplies, unopposed landings, widespread public support, and minimal friction from external sources. Although these conditions were elements leading to overwhelming success, planners should not expect such conditions to avail themselves in future military operations.

Multiple Sources

GENERAL

Combat support provides the foundation that enables global engagement and is a linchpin that ties together Air Force core competencies. It includes those actions taken to create, deploy, employ, generate, sustain, protect, and redeploy aerospace personnel, assets, and capabilities through all peacetime and wartime military operations. The fundamental mission for BIF incorporates the unique contributions and capabilities of aerospace power: speed, flexibility, versatility, and global reach.

Each major combat support function has a role in the integrated combat support process. The commander should be familiar with these functions, as each will have an impact on the decisions regarding BIF. Table 1 briefly describes the role of each function. While each is critical and necessary, the impact may vary according to the operations a commander may have to support.

**Table 1
Functions and Roles**

Function	Role
Acquisition	Plans for, develops, and procures spare parts and complete weapons and support systems in rapid response to a combat need.
Chaplain Service	Implements global ministry strategies supporting the free exercise of religion. Meets the diverse religious needs of Air Force personnel and their families through spiritual care and ethical leadership. Provides religious observances, pastoral care, and advice to Air Force leaders.
Civil Engineer	Provides general and combat engineering; explosive ordnance disposal; disaster preparedness; environmental management; major accident recovery; fire protection; and mitigation and recovery from the effects of weapons of mass destruction (including nuclear, biological, and chemical weapons), peacetime emergencies, and terrorist incidents.
Communications and Information	Provides the capabilities to create, store, retrieve, fuse, display, disseminate, and dispose of information. This capability includes communications, information resources management, information warfare support, knowledge management through records management, postal support, visual information, and computer support.
Comptroller	Provides the appropriate application of funds to ensure the timely delivery of services and capabilities.
Contracting	Provides the means for basic life support, including billeting, food, water, and transportation. Negotiates leasing and renting contracts, provides local services, and assists in rebuilding infrastructure, bridges, and roads.
Health Services	Provides a variety of activities grouped into force health protection, health surveillance and risk assessment, dentistry, prevention, health care delivery, and interface with aeromedical evacuation.
Legal	Provides legal advice to commanders on disciplinary issues and on the legal aspects of other base support issues, to include finance, personnel, and contracting issues. Legal also provides advice and assistance on all operational and international law.
Logistics Plans	Responsible for integrating logistics functions as well as base support, deployment, reception, resupply, and redeployment planning.
Maintenance	Repairs weapon and support systems and their components. Provides organic, intermediate, and emergency battle damage depot-level maintenance on the flight line.
Materiel Management	Manages worldwide asset requirements, visibility, and accountable inventories for serviceables and reparable, to ensure prepositioned and resupply stock levels are available when needed.
Munitions	Procures, manages, allocates, and maintains munitions to include maintenance, buildup, staging, delivery, and loading.
Office of Special Investigation	Investigates crimes against the Air Force and its members. Conducts counterintelligence defensive information operations. Performs civilian contractor background checks.

Table 1—continued

Function	Role
Personnel	Provides airmen with the proper skills, training, and experience required to accomplish the mission. Builds and sustains accession, development, and workforce management plans and programs needed to allow all functions to meet their missions with effective human resources. Provides accountability of in-garrison and deployed forces. Provides commanders reachback capabilities to increase or decrease available personnel.
PublicAffairs	Disseminates information to the Air Force, news media, and public.
Quality and Manpower	Provides controls to ensure efficient and economical use of available personnel and processes.
Safety	Promotes a safe environment for aerospace forces to live and work.
Security Forces	Provides forces for air base defense, security, and law enforcement services. Provides protection to weapons systems, personnel, and infrastructure.
Services	Provides food service, mortuary affairs, lodging, fitness, retail sales and services, laundry and dry cleaning services, and recreational opportunities while maintaining a sense of community and quality of life.
Space Support Teams	Provides space expertise and applications to theater air commanders.
Supply	Stocks, stores, and issues assets that support operations and the repair of assets.
Transportation	Provides timely delivery, resupply, retrograde, and vehicle support.

Bases

A base is a locality from which operations are projected or supported. Bases can also be defined as installations containing facilities and infrastructure. Bases vary in size, location, and operations. Infrastructure is a term generally applicable to all fixed and expeditionary installations, fabrications, facilities, and processes that support and control military forces and military adjuncts. A facility is a real property entity consisting of one or more of the following:

- ★ A building.
- ★ A structure (including temporary structures like tentage).
- ★ A utility system.
- ★ Pavements.
- ★ Underlying lands.

The typical air operation contains a core infrastructure and support activity that includes aircraft, runways, support personnel, and a command post. Core functions of bases usually include providing power, fuels, ordnance, water, civil engineers, security, services, medical, and command and control. The primary elements of an airbase are:

- ✪ Aircraft operating surfaces, operational facilities, and associated air traffic control and navigational aids.
- ✪ Industrial areas for inspection, maintenance, test and evaluation, and repair of aerospace vehicles and associated equipment.
- ✪ Logistical support areas for the storage and dispensing of materials, equipment, consumables (i.e., fuels, oils, and lubricants) along with ground vehicle operations, maintenance, and repair.
- ✪ Headquarters and administrative facilities for command and personnel support.
- ✪ Communications and information systems support.
- ✪ Food service and dining facilities.
- ✪ Industrial areas to include utility systems and facilities.
- ✪ Unaccompanied and accompanied family housing.



- ✧ Medical facilities.
- ✧ Security and fire protection facilities.
- ✧ Community support facilities (e.g., postal, retail sales, recreational, religious, health, and welfare).
- ✧ Lodging facilities.

Bases can be further characterized by the weapon system or weapon support system that forms the major operating focus of the base or installation:

✧ **Aerospace Operations.** The primary purpose of bases in this category is to support operational missions based on predominant use and mission suitability. This category includes the base and airspace, ranges, and facilities.

✧ **Information Operations.** The primary purpose of bases in this category is to provide operations and technical support for offensive and defensive information warfare operations, information operations support, and command and control.

✧ **Industrial.** The primary purpose of bases in this category is to provide highly technical support for depot-level maintenance, research, and development. This category includes depots, product centers, and laboratories.



✧ **Medical Centers, Contingency/Theater Hospitals.** The primary purpose of bases in this category is to provide medical care. This category could also include aeromedical evacuation staging areas or a stand-alone air transportation hospital (SAATH).



✧ **Education and Training.** The primary purpose of bases in this category is to support technical training, flying training, and education. This category could also include special use airspace, ranges, and facilities.

✦ **Test and Evaluation.** The primary purpose of bases in this category is to support test and evaluation of weapons and weapon systems. This category includes the base, associated test and evaluation airspace, electromagnetic frequencies, ranges, and facilities.

Bases are labeled by function and intensity of the operations within these characterizations. The intensity of operations drives associated requirements for funding, personnel support, and weapon system operations. Base functional identities include:

✦ **Main Operations Bases (MOB).** Main operations bases are characterized by highly developed infrastructure and support activities. These bases cover the varying extremes in operating environments with a high degree of sophisticated infrastructure.

✦ **Collocated Operations Bases (COB).** Collocated operations bases are usually owned and operated by an ally. These bases vary in accessibility, readiness, infrastructure, and support activity. These bases include installations that support the Air Force Reserve and ANG.

✦ **Forward Operations Bases (FOB).** Forward operations bases range from bases that are usually austere with little or no infrastructure to some that are well developed. Usually, these bases are minimally maintained with limited support capabilities. Within this category are en route support bases, forward operating locations, bare bases, and forward arming and refueling locations. The worst case is a bare base, defined as a site with a usable runway, taxiway, parking areas, and a source of water that can be made potable. It must be capable of supporting assigned aircraft; providing landing/recovery surfaces; and providing sufficient space for other mission essential features such as a logistical support and services infrastructure composed of people, facilities, equipment, and supplies. A bare base requires mobile facilities, utilities, and support equipment that can be rapidly deployed and installed, and be available to transform—virtually overnight—undeveloped real estate into a survivable, operational airbase.

Infrastructure

Infrastructure is the provision of services, processes, facilities, and related support required for developing, generating, sustaining, maintaining, and recovering aerospace power. Infrastructure is a collection of physical elements, such as squadron operations buildings, and processes,

such as the military personnel flight operations. Infrastructure supports operations across the spectrum of conflict and in both garrison and expeditionary environments. Infrastructure includes:

- ★ Installations.
- ★ Logistics.
- ★ Personnel services.
- ★ Health services support.
- ★ Headquarters and headquarters support functions.
- ★ Science and technology programs.
- ★ Test, evaluation, and target facilities and ranges.
- ★ Electromagnetic frequencies.
- ★ Non-unit training.
- ★ Acquisition, contracting, and financial services support.
- ★ Command, control, communications, computers and intelligence (C4I) systems.
- ★ Installation support functions.
- ★ Community support functions.
- ★ Depot maintenance.
- ★ Associated aerospace support systems.

Infrastructure supporting operations, regardless of the type of mission, should be the focus of initial planning and development. As the mission evolves, more emphasis may be needed in the other infrastructure areas to support mission accomplishment, morale, quality of life, and to ensure the provision of essential services.

Facilities

Facilities are registered elements of real property. Usage and cost reports are associated with their procurement, operation, improvement, and disposal. The following are types of facilities:

- ★ Buildings.
 - ★★ Family housing to hospitals.
 - ★★ Maintenance hangars to munitions igloos.
- ★ Utility systems.
 - ★★ Electricity, water, and waste systems.

- ✪✪ Fuel storage and distribution.
- ✪✪ Heat and cooling plant systems.
- ✪ Communications and information systems.
- ✪ Pavements.
 - ✪✪ Runways, ramps, and taxiways.
 - ✪✪ Roads, parking lots, and sidewalks.
- ✪ Underlying lands.
 - ✪✪ Flora and fauna.
 - ✪✪ Natural and cultural resources.

Deployed operations present unique challenges for the provision of facilities. Foremost, before the deployment of the main force, advance teams operating with the geographically designated contract construction agent (CCA) coordinate the use of host-nation (HN) lands and facilities. While this can be accomplished in advance under the terms of HN agreements, the actual deployment still requires coordination and may require liaison with the State Department. Use of HN lands and facilities requires agreement on the length of use, existing condition of the lands and facilities, security, force protection, and general environmental condition of the site, along with an agreement on post-use recovery and return of facilities.

The provision of buildings, utility systems, and pavements in the deployed environment can occur in varying phases representing the stages of the mission and types of facilities. The first phase, called expedient, covers the initial deployment of forces to the forward location. Facilities in this phase are both preexisting HN assets (runways and aircraft shelters) and mobility equipment in the form of tents and other bare base equipment items. Facilities constructed using initial standards are intended for immediate austere operation use by units upon arrival in the theater for a limited time up to 6 months dependent on the type of facility. Maximal use of reachback logistics and HN facilities systems how we can reduce the deployed footprint. Reachback is that capability allowing commanders to obtain or coordinate support from units not physically located with the forward force. By leveraging advances in communications technology, reachback capabilities make it possible to use continental US (CONUS) and/or rear-based assets and organizations to perform various functions in support of Aerospace Expeditionary Forces (AEF) operations. Effective use of reachback will reduce the number of personnel and amount of equipment, which deploy to the area of responsibility (AOR), reduce

airlift and support requirements, and will positively affect a commander's ability to protect the deployed force. Reachback is predicated on global communications, rapid global mobility, and time-definite resupply capabilities.

Temporary standard construction facilities are intended to replace initial standard facilities and to increase efficiency of operations for use up to 24 months. Examples include replacing tents with relocatable hardwall structures and replacing smaller generators with central power plants. The use of civil augmentation contracts such as the Air Force Contract Augmentation Program (AFCAP) can augment or reduce deployed forces engaged in sustainment activities and the operation of temporary facilities for military operations other than war (MOOTW) and humanitarian relief operations (HUMRO). AFCAP is a contingency type of contract and is not intended to replace inherently military missions such as force beddown.

It was not until the 1950s that military planners developed techniques to pre-package base support equipment that was predominantly World War II hardware. This equipment consisted mainly of tents, field kitchens, medical facilities, power generators, cots, desks, and other equipment. It was bulky, heavy, and required excessive time to position and erect. This initial deployment kit was given the nickname Gray Eagle. In the mid-1960s, more equipment was added to the package and some were redesigned to make them more air transportable, and the name was changed to Harvest Eagle. Harvest Falcon and Harvest Eagle are the two primary bare base equipment programs. Harvest Falcon provides complete facilities for long duration bare base flying and support operations. These assets were intended for use in SWA [Southwest Asia], but may be deployed to any theater if required. Harvest Eagle provides facilities for bare base living and working or for supporting additional requirements at an existing installation. These assets were intended for use in the European and Pacific theaters, but may be deployed to any theater.

Multiple Sources

In the permanent phase, deployed environments mirror facilities built for MOB locations. Their construction entails detailed design, coordination with HN authorities, and programmatic action to fund construction. Facilities in deployed locations must satisfy force protection, durability, functional, and quality of life issues.

WARFIGHTING ATTRIBUTES OF EXPEDITIONARY BASING

Aerospace power is only available through the coordination of the total warfare system: the weapon system, the weapon support system, and the

basing system. Air Force leaders should recognize the importance and synergy of the basing system in staging, delivering, and sustaining combat power. Aerospace power capabilities depend on cutting-edge delivery systems and their complementary basing systems with an up-to-date, efficient infrastructure. The basing system includes the infrastructure, personnel, materiel, information, and other resources needed to sustain operation of the weapon and weapon support systems.

In two years of war in Korea, no single factor had so seriously handicapped Fifth Air Force operational capabilities as the lack of adequate air facilities. Operations from short and rough runways damaged and deteriorated combat aircraft, posing inordinate maintenance, supply, and attrition burdens upon the combat wings and tactical air force.

Robert Futrell

The United States Air Force in Korea, 1950-1953

The Air Force generates, flies, fights, and controls its warfighting resources from its bases. The processes, systems, and training of base-level organizations, whether deployed or in garrison, and their ability to enhance the effectiveness of the warfighter's capabilities is known as the "Blue Order of Battle." It is here that aerospace power is most dependent and most vulnerable. The base must not only withstand aerial and ground attacks; it must also be capable of supporting concentrated and prolonged air activities against the enemy. Base survival is not enough—the base must be operable and capable of supporting its missions.

The following are principles that guide the commander in development of BIF:

Security

Security means to protect friendly forces and their base operations from enemy action. The commander can not afford to focus solely on physical security, but also has to secure the base net-



work from cyber attacks. The commander should ensure staff planning is detailed and completely reflects a thorough understanding of enemy strategy, tactics, and doctrine. This improves security and reduces vulnerability to surprise. Security results from the measures taken by the commander to protect his unit and its resources from attack, surprise, observation, detection, interference, espionage, sabotage, and harassment. Establishing and maintaining protective measures against hostile acts achieves security, or it may be assured by deception operations designed to confuse and dissipate enemy attempts to interfere with the forces being secured. For additional information about security, see the AFDD on Force Protection.

Security and, more specifically, base operability and defense are part of the primary missions of combat support. Support is provided through the integrated efforts of airbase operability and defense, logistics, information protection, and combat support. Whether fighting from a long established base or a deployment location, support and operational components should be tailored to counter known and anticipated threats. As the threats increase, the commander may take passive defensive measures such as dispersal, camouflage, deception, armoring (personal), immunizing, public health protection measures, hardening to preserve forces, or active defensive measures such as increased surveillance and other security enhancements. Just as much as operational forces, support forces should be prepared to operate in likely threat conditions. The chemical and Scud missile threats encountered during Operation DESERT SHIELD/DESERT STORM reinforced the importance of base defense concepts, organizations, equipment, and training.

Maneuver and Mobility

Maneuver and mobility are the actions taken to place an enemy in a position of disadvantage through flexible application of combat power. The commander should continue to provide timely, responsive support to the full range of contingencies and conflicts and to support joint forces as well as multinational efforts.

When a crisis erupts anywhere around the world, the United States will need to rapidly deploy forces from its bases to deter a potential aggressor or defeat an adversary. Our ability to move rapidly to any spot on the globe ensures that we can respond quickly and decisively to unexpected challenges. When an operation must be carried out quickly, airlift and aerial refueling will be key players. Mobility builds the air bridge for

joint forces, enables multinational peace efforts, or speeds tailored forces wherever they are needed. Deployment is an important combat force multiplier providing strategic maneuver. Mobility requirements are the drivers that determine the types of basing a commander will need to meet the mission. For additional information on mobility, see the AFDD on Air Mobility Operations.

Surprise

Surprise is the principle of attacking at a time, place, or in a manner for which the enemy is not prepared. The flexibility and versatility inherent in rapid global mobility allow us to achieve surprise, one of our strongest advantages. The essential premise in agile combat support (ACS) is the ability to move airbase capabilities between wings. This flexibility allows for aerospace power logistics flexibility. ACS allows the commander to meet air operation objectives and airbase operational objectives of employment, generation, sustainment, protection, and redeployment. Rapid global deployment allows surface forces to reach foreign destinations quickly, seizing the initiative and allowing the commander to define the time and place of assault. The ability to deploy rapidly and sustain the forces allows the commander the element of surprise. To maximize surprise while sustaining forces, the commander should plan for providing appropriate base support, infrastructure, and facilities that allow seizing and maintaining the initiative.

Mass and Economy of Force

The principles of war call for concentration of combat power at a decisive time and place. The principle of mass is fundamental in all military operations for the commander to achieve desired and decisive results. While ensuring decisive combat power is available, rapid global deployment and ACS provide for the right mix at the right time and right place to support operational or strategic objectives. The commander should determine which basing modes provide the right mix at the right time at the right place to support the forces in any given situation.

REAR AREA OPERATIONS

Recalling that bases are those localities from which operations are projected or supported, the commander should understand that rear area operations play a vital role in combat support and formulate the baseline

of bases, infrastructure, and facilities development. Agile combat support requires the correct sizing of the forward deployed logistics footprint through reductions in logistics forces, facilities, equipment, and supplies. These reductions enable significant enhancements to force protection, services, health services, joint logistics policies, structures, and processes in inventory management, engineering, maintenance, and infrastructure improvements. Rear area operations include:

- ✧ **Force Protection Measures.** Commanders at every level should take all reasonable measures, including camouflage, concealment, deception, dispersion, hardening, and movement, to avoid becoming engaged with forces that could disrupt forward support of combat forces. Force protection measures will:
 - ✧✧ Prevent or minimize enemy interference with communications and information systems.
 - ✧✧ Protect personnel and facilities. Commanders should ensure units take active and passive measures that protect themselves and high value assets in the joint rear area (JRA).
 - ✧✧ Protect lines of communications (LOC). Protection of land, water, and air routes within the JRA connect an operating military force with its theater base of operations is essential to sustaining aerospace forces.
 - ✧✧ Find, fix, contain, and defeat enemy incursions. The commander should maintain situational awareness (SA) through all means of ISR, counter-reconnaissance, law enforcement agency support, use of military force, and detection to anticipate and locate enemy incursions.
 - ✧✧ Plan and execute area damage control. Commanders at all levels should prepare plans, establish specific responsibilities, and ensure all available assets are prepared for operations to ensure continuous support and restoration of assets.
 - ✧✧ Assess and prioritize protective measures. Commanders should assess and prioritize bases for protection and damage repair to ensure operational and logistics planners are able to identify key bases, establish security and area defense requirements for those bases, and to position other assets. These measures should include employment of environmental intelligence including chemical and biological detection measures and support mechanisms to guard against subversive biological and/or chemical attacks.

- ✦ **Communications and Information.** The commander should maintain interoperable, secure, reliable, flexible, and survivable intertheater and intratheater networks to accomplish the mission.
- ✦ **Intelligence.** Commanders need effective collection, analysis, and distribution of intelligence and counterintelligence for planning and conducting successful force protection operations. Counterintelligence is particularly effective in identifying espionage, sabotage, subversion, and terrorist threats.
- ✦ **Sustainment.** Logistics integrates strategic-, operational-, and tactical-level logistics operations. To support the commander in chief's (CINC) strategy, logistics must balance the necessity for security with the logistics principles of responsiveness, simplicity, sustainability, survivability, flexibility, economy, and attainability. Identifying logistics principles necessary for the successful execution of an operational plan is critical to the joint rear area logistics system. A commander should be familiar with these guiding logistics principles. Operationally, theater logistics constraints may dictate the rate of buildup or theater movement, overall size of the combat force, the depth of any attack, or the speed of advance. Often, the commander is faced with a conflict between various principles, operational requirements, and rear area security.

REAR AREA MANAGEMENT

Effective rear area management is critical to the success of rear area operations because of the security implications when positioning assets may provide protection for the operations area or when determining locations for vital support facilities that require security assistance. A commander's primary area management responsibility is to ensure units are positioned and stationed and facilities are made with due consideration for force protection. Factors affecting unit positioning include the implications of the current threat assessment, the suitability and survivability of available facilities, and the subordinate unit's mission requirements. Commanders should use these factors and threat and vulnerability assessments to determine whether units should be dispersed, thereby enhancing their survivability or be grouped together for mutual support. These considerations include:

- ✦ **Clustering.** Clustering support activities or bases reduces vulnerability to ground attack but can increase vulnerability to air, artillery, missile, and/or nuclear, biological, or chemical (NBC) attack. Clustering

also increases the vulnerability to mortar attacks (a ground attack) and makes targets more attractive for terrorists.

- ✦ **Location.** Locating key facilities away from high-speed routes minimizes vulnerability to enemy ground penetrations but may also reduce accessibility to units requiring support.
- ✦ **Dispersal.** Dispersing critical supplies such as fuel, ammunition, and spare parts reduces the risk of loss but also reduces the ease and speed of distribution. Dispersal also increases the security requirement.

REAR AREA MOVEMENTS

Commanders should maintain movement control, keep LOCs open, protect key reception and transshipment points, and obtain host-nation support (HNS) to preserve freedom of movement throughout the JRA. Such movements could involve:

- ✦ Receipt of combat forces and their movement to forward areas.
- ✦ Movement of materiel, replacement personnel, and support forces.
- ✦ Evacuation of patients, other casualties, and human remains.
- ✦ Evacuation of US nationals and other noncombatants, or allied/coalition partners.
- ✦ Evacuation of enemy prisoners of war, civilian internees, detainees, and refugees.
- ✦ Retrograde of materiel.

AGILE COMBAT SUPPORT

ACS is an Air Force core competency and although not doctrine, it underpins global engagement and provides the foundation for the other Air Force core competencies. As discussed in AFDD 1, *Air Force Basic*

Agile Combat Support is the cornerstone of global engagement and the foundation for other Air Force competencies. Agile combat support creates, sustains, and protects all air and space capabilities to accomplish mission objectives across the spectrum of military operations. Agile combat support provides the capabilities that distinguish air and space power—speed, flexibility, and global perspective.

**Lieutenant General William P. Hallin, USAF
Deputy Chief of Staff, Installations and Logistics**

Doctrine, it includes the processes that create, sustain, and protect all aerospace capabilities to accomplish mission objectives across the spectrum of military operations. ACS supports the capabilities that distinguish aerospace power—speed, flexibility, and global perspective.

ACS supports “how” Air Force assets are organized, trained, equipped. It is also “how” we operate, conduct, and support Air Force, joint, and coalition operations. Expeditionary Combat Support improves responsiveness, deployability, and sustainability of US forces through aerospace power, enabling a paradigm shift from massive forward-deployed support to support forces tailored and poised for rapid deployment.

Agile combat support must focus on giving the combat commander, or Air Force component to the warfighting CINC, the capability to bring air power decisively to the table, doing it very rapidly, with a small footprint, and with a streamlined investment in infrastructure.

**Lieutenant General William P. Hallin
Deputy Chief of Staff, Installations and Logistics**

It includes and stresses improved command and control of resources that will allow aerospace forces to deploy and operate with reduced quantities of materiel tailored for any operational scenario. In short, agile combat support focuses on Air Force capability to rapidly get to the fight or respond to short-notice emergencies, ready to sustain the force as it engages.

Operational Concepts

Based on Joint Chiefs of Staff direction, unified, specified, and component commands develop operation plans (OPLANs) which delineate operational parameters for US military forces under various contingency conditions. These documents identify basing options for US forces that currently reflect the philosophy of anticipating regional conflicts rather than major theater war or global conflicts. Plan taskings provide baseline requirements in determining the potential scope and assets associated with these operations. OPLAN annexes will provide detailed information relative to base infrastructure shortfalls and requirements.

Base support functions cover a broad spectrum of required capabilities. Support agencies, in most cases, perform their normal assigned tasks as modified by base development activities and subsequent operations.

Support functions should be tailored to the criteria of utility, air transportability, survivability, serviceability, and austerity for possible bare base operations to the extent unit capabilities are closely related to the operational environment. Maximum flexibility and responsiveness should be assured at all times.

Combat operations require highly responsive and agile forces. Support should be designed to maximize agility, thereby reducing the initial footprint and airlift requirement. Needs of the deployed forces can be met through reachback to the CONUS, with sustainment beginning immediately upon arrival. Reachback encompasses the complex network that transfers information regarding weapons systems status and requirements. It is the concept whereby the CINC's staff and deployed (expeditionary mode) units seek support from rear or CONUS-based (garrison mode) organizations. Deployed units transmit requests for support and status reports back to CONUS. The status reports provide the mechanism for prioritization of requests and order of replenishment. This process should be supported by information systems that ensure the top priority requirements are automatically identified and delivered by the fastest transportation mode. The success of reachback depends on seamless data flow from the forward location through the entire support pipeline.

Basing, wherever located and for whatever mission, is therefore a key component of the Air Force's global engagement vision. The Air Force plays a pivotal role by providing the availability of CONUS-based and forward-deployed MOBs, COBs, and FOBs. The commander should ensure the base infrastructure meets the needs of current and future weapon systems for launch, recovery, and rapid turn-around.

In summation, bases may be required for the following purposes:

- ✦ Bed down the force structure in CONUS and overseas to meet warfighting, force projection, training, and support requirements.
- ✦ Provide throughput for intertheater airlift and/or intratheater airlift.
- ✦ Support overseas presence.

Infrastructure Development

Forces deployed to developed areas should be able to capitalize on the established infrastructure and use existing resources. Use of all methods such as joint logistics plans (JLP), preexisting HNS agreements, and

acquisition cross-Service agreements (ACSA) to obtain HNS in manpower, medical, host support services (HSS), equipment, and material should be maximized within the constraints of security. Forces deployed to less developed areas must rely more on construction of new but austere, initial, or temporary facilities in accordance with established base development criteria. HNS should always be actively sought but will normally be less available than in developed areas.

The effective use of all approaches to obtain HNS leads to a decreased logistics footprint and increased survivability, enhancing the capability of forces to maintain successful combat operations on any location or during humanitarian operations. Many HNs can provide valuable support for conducting force protection operations. However, force protection planning should precede any planning for HNS. Use of non-US resources off base increases likelihood of enemy/terrorist attack success and must be weighed heavily against considerations regarding off-base lodging, health care support, and other services. On the other hand, HNS can significantly reduce the deployment of airlift flow in the early stages of a contingency and allow for a more rapid build-up of combat power.

The commander should consider HN capabilities in the planning and conduct of force protection operations. HN personnel and organizations can frequently perform many functions as well as, or better than, US personnel or units because of their familiarity with language, local



customs, terrain, transportation networks, communication networks, facilities, and equipment. Through (but not limited to) such vehicles as support agreements, ACSA, and JLP, the HN provides specific support in prescribed conditions. In general, HNS is highly situational and heavily dependent on both the operational capabilities of the HN and its support for US policies. The commander should determine functional types and levels of HNS that can be accepted with a high assurance that the HN will be able to deliver on the commitments. Factors that should be considered include:

- ★ Capability, dependability, and willingness of the host nation to provide and sustain resources (especially food and water sources, storage, and distribution centers/assets).
- ★ Quality and compatibility of HNS materials and services provided for infrastructure construction, repair, and maintenance.
- ★ Shortfalls in US forces supplemented by HNS and reductions in US forces made possible by using HNS.
- ★ Effects of HNS on the political structure within the host nation.
- ★ Effects on security, to include operations and communications and information security and force protection concerns.
- ★ HN international agreements and treaties that specify US involvement in the deployed area.
- ★ Capability of US forces to accept and manage HNS.
- ★ Availability of HNS in the type and quantity agreed upon across the range of military operations.
- ★ Capability of US forces to supplement and assist HN forces executing rear operations.

Base Defense

The commander is responsible for having sufficient forces capable of contributing to the security and defense of the rear area as part of his or her responsibilities for force protection and coordinates these forces to best capitalize on their combined capabilities, synergies, and mutual supportiveness, while minimizing the vulnerabilities of each. The installation commander has the overall responsibility for defense of the base against attack by surface forces or terrorists. Hosted forces from other Service or functional components may be tasked to contribute to the overall base defense, commensurate with their capabilities and the circumstances. Commanders of base clusters are responsible for coordinating the defense

of those bases and integrating base defense plans into a base cluster defense plan. For additional information, see the AFDD on Force Protection.

The commander's specific responsibilities for installation defense at the tactical level include the following:

- ✦ Establishing a base defense operations center (BDOC) and alternate BDOC that serves as the base's tactical operations center and focal point for security and defense and provides assistance with the planning, direction, coordination, integration, and control of base defense efforts.
- ✦ Planning for employment of transient forces by ensuring base defense plans include provisions for augmenting the regularly assigned base defense forces present at the base during an attack or when the base is threatened with attack. Coordinating with the JRA commander to ensure security measures are in compliance and compatible with JRA governing security plans.
- ✦ Ensure adequate defensive measures exist or will be provided through coordination with both US and HN security forces and civil engineering. These defensive measures include aircraft revetment, defensive fighting positions, blast protection for critical facilities, and structures to resist forced entry by hostile vehicle/personnel through any gates onto the base. Ensure coordination with the medical control center (MCC) and survival recovery center (SRC).

Commanders should be aware of tenant forces' responsibilities at a base:

- ✦ Participating in the preparation of base defense plans.
- ✦ Providing, staffing, and operating base defense facilities in accordance with the base defense plans.
- ✦ Conducting individual and unit training of assigned and attached forces, as necessary, to ensure their readiness to perform their assigned tasks in defense of the base.
- ✦ Providing appropriate facilities and essential personnel for a BDOC for the installation commander, and providing liaison and support as necessary.
- ✦ Providing for the internal security of the command.

CHAPTER TWO

PLANNING

What is quite beyond argument is that bright and shiny equipment manned by battle-worthy and dedicated men is not going to frighten or deter a potential aggressor, unless he can perceive that all these components of support are also in the order of battle.

Admiral of the Fleet Sir Peter Hill-Norton

KEY FACTORS

From peacekeeping, to aiding developing nations, to conducting counterdrug operations, the military continues to adapt to evolving missions. Combat support infrastructure and processes must, therefore, evolve continuously to support the new spectrum of demands. Commanders should create robust, responsive, and flexible combat support systems within current budgetary constraints for successful support of future combat operations.

An operational risk management (ORM) predeployment mission risk assessment should be accomplished as soon as possible in the planning stages to identify and mitigate any risks associated with the operation. The use of ORM during the planning process will not only enhance mission effectiveness at all levels while preserving essential assets, but will also provide a logical process to identify and exploit opportunities with the greatest return on the investments of time, dollars, and personnel.

To begin effective operations in a forward location, deployed forces should rely on war reserve materiel (WRM) and critical functional experts such as those listed in Table 1.

Use of HNS, such as ACSA, to acquire equipment and supplies, through payment in cash (PIC), equal value exchange (EVE), or replacement-in-kind (RIK) commitments from allied hosts or coalition partners has the potential to ease, not eliminate, requirements for certain types of WRM or bare base assets. Depending on supply availability and required delivery lead times, contingency contracting officers should also take advantage of local allied business entities and contract networks that are familiar with the markets and asset availability. The more that can be acquired

locally without risk to health (after assessment by deployed medical team advisors) and security, the less must be stored and maintained in ready condition, reducing the logistics transportation requirements. This also reduces the inventory, the cost of assets by eliminating initial purchase cost, maintenance, inspections, and depreciation of assets. As previously mentioned, it also decreases airlift requirements. However, equipment and material from the HN may be substandard and should be checked before utilization to ensure compatibility with deployed assets, and that it can be safely operated and maintained by US personnel.

CONSIDERATIONS

The Air Force rapid mobility concept is to deploy a force, complete with shelters and facilities, capable of independently supporting and launching sustained combat operations with the same independence as fixed theater installations. This concept presents challenges to the engineers, planners, and developers who have the ultimate responsibility of base, infrastructure, and facilities development. Consequently, a conceptual planning guide (CPG) found in the AFH 10-222 series publications has been developed to highlight key features and considerations associated with forward base planning, to describe the types of shelters, utilities, and support items available for bases, and to address



the general procedures for installing and erecting these assets. The CPG provides a concept of employment and a sequence for bare base construction. It addresses the issues most likely to be encountered and gives guidance so some important issues will not be overlooked.

The Harvest Falcon mobile package has provided support for several major multinational exercises through the 1980s and during the Iraq War in 1990-91. Sufficient Harvest Falcon equipment exists to support approximately 55,000 personnel. The vast majority of the assets are prepositioned overseas for Southwest Asia support. A small number of assets (to support approximately 2,200 personnel) are available in Europe and US for worldwide deployment.

Multiple Sources

The CPG primarily addresses potential FOB locations where it is not anticipated that any form of major host-nation support or other Service support will be available, i.e., aerospace forces standing alone at a bare base installation which is a situation normally viewed as a worst case scenario. In many cases, however, a FOB could be the host of several diverse occupants such as host nation military units, host nation civilian agencies, allied military units, and forces from other US services. Commanders should consider such planning factors as facility usage, equipment and vehicle allocations, work taskings, and manpower support that will have to be worked out to the agreement of all parties. These factors have an immediate affect on a planner's initial efforts and should be addressed early in the FOB development process because they could have an impact on such issues as airlift flow of base assets, sequence of construction, projected use of local materials, and allocation of mobile facility assets.

Additional data should also be gathered to determine site-specific characteristics such as existing facilities, airfield configuration, water sources, topography, climate, soil conditions, vegetation, endemic diseases, or environmental pollution. Major commands (MAJCOMs) and numbered air forces/Air Force forces (NAF/AFFORs) and deploying units have primary responsibility for developing base support plans (BSP) with site-specific layouts. For potential base locations named in OPLANs, units responsible for site-specific planning are easily identified since they will be shown as deploying forces in the time-phased force and deployment list (TPFDL). For short notice deployments which have not been preplanned, units responsible for site specific planning will be those first on the scene. Therefore, employment planning is completely reliant on databases cataloging previously accomplished BSP, standardized site surveys, and specifically outlined concepts for employment execution in the AFFOR operation order (OPORD). Regular updates to all supporting plans should be accomplished to ensure currency and accuracy.

Site specific data should be gathered from intelligence sources or first-hand observation before laying out plans since a well planned and executed deployment hinges on the planner's ability to produce a comprehensive site layout. In this data gathering process, one of the first pieces of necessary information to obtain is the threat analysis for the base. It is essential to know whether the base is located in a forward or rear area, even when the distinction between the two is blurred, because:

- ✪ Aircraft must survive while on the ground.
- ✪ Aircraft must be able to get airborne to perform their mission during and after attack.
- ✪ Logistics and communications infrastructure must survive to sustain future air operations.
- ✪ Personnel must survive and operate in spite of the rigors of environmental stressors induced by climate, geography, endemic disease, combat, and extended hours.

It is equally important commanders know and understand in what mode the base will be operating such as garrison mode (existing fixed location) or expeditionary mode (contingency location).

Garrison Mode

A garrison base represents the traditional concept of an Air Force base (AFB), with developed infrastructure, permanent facilities, and an established workforce. As such, the garrison mode generally applies to active, reserve, and National Guard installations and depots, training centers, and test ranges.

Operations at garrison bases represent their functional organizations that comprise one or more primary missions. A garrison base may have a power projection mission, such as a wing equipped with combat aircraft, a depot function mission, and an associated guard or reserve unit mission. The inclusion of families and their related support structures drive planning, programming, and operating requirements not seen at forward operating bases or mobility sites. At garrison bases the maintenance of a sense of community and the perception of the overall quality of life can affect readiness and mission accomplishment.

In addition to these internal relationships, garrison bases are affected by community relationships. Every Air Force base is part of a larger community. Base operations consider impacts to the community and environment through environmental management programs involving hazardous materials, waste, toxic substances, water, noise, endangered species, old pollutant sources, and other media. As a component of the community, bases also impact social, economic, and political structures. As an example, unconstrained expansion of the surrounding civilian community may create noise and safety issues that could result in flight and mission constraints. However, a team effort at all levels may result in

community involvement that mutually supports and enhances base and civilian communities.

Another characteristic of garrison mode basing is the formal nature in which infrastructure and facilities are programmed, developed, operated, and maintained. A typical garrison base will have a base master plan describing the present and future conditions, constraints, and development plans for the installation. From these plans, combined with mission related requirements, will come the budgetary inputs to execute work through various programs, including military construction (MILCON) and operations and maintenance (O&M).

Infrastructure and facility related work on a garrison base can be described as a continuous, cyclical process involving programming, design, construction, operation, maintenance, demolition, and back to programming. Each of these elements consists of subcycles and pairings to generate and control their activities.

A final characteristic of garrison mode bases is they can be the home of deploying forces. While in garrison mode, deployment forces engage in training and perform operational support missions, including base maintenance, fire protection, food service operations, aircraft maintenance, communications, and base supply services. Many of the operational support missions duplicate the missions performed in expeditionary environments.

Expeditionary Mode

In situations where US forces deploy to a host nation as an expeditionary force to MOBs, COBs and FOBs, they become tenants with specific facilities and areas of the base made available. Under these conditions, the HN usually shares the airfield (runway, taxiways, and parking aprons), but available airfield buildings and base support facilities may be limited. The commander should plan and develop the US portion of the base to accommodate the deployed forces, factoring in renovation, maintenance, and repair requirements for existing facilities and infrastructure. At locations where the US is offered an unoccupied host-nation base, the civil engineer and base communications officer can usually expect a significant amount of renovation, maintenance, and repair effort to meet minimum deployment requirements. Joint support agreements, status-of-forces agreements, or other country-to-country agreements will dictate tenant and host responsibilities throughout the deployment. In some cases, informal agreements with on-scene HN officials may be all that is required.



Plans for limited base support facilities should account for varied conditions.



The commander should plan and develop a comprehensive package to ensure all infrastructure aspects of the deployment are met. Normally, the HN and the United States will have agreed to the provision of specific land, facilities, and other infrastructure to meet the deployment's

mission needs. Conditions range from full facility and utility support to nothing but a bare piece of land which happens to be at the right location. Besides land and facilities, HN agreements may specify labor, supplies, equipment, and base services the host nation will provide. For situations where no preexisting agreement is in-place for provision of HNS at a deployed location, also check to see if there is an existing ACSA with the HN. Even if there is no HN support agreement, at most locations nationals can provide contracted services such as refuse and hazardous waste collection, construction equipment rental, supply delivery, custodial support, and varying degrees of construction, base maintenance, and utility systems support. ACSA is the most expeditious way to make this happen. The commander should clearly define standards and requirements and ensure these are enforced. Depending on the deployment mission and identified threats, force protection measures may mitigate extensive use of local national labor.

In order to reduce forward-deployed inventories, a rigorous base support planning effort is necessary. This will allow assessment of what a deploying force must bring with it, vice what it can obtain locally. This includes support provided through local rental or leasing agreements, or HN support agreements. There are opportunities to acquire many resources through these means instead of buying and stockpiling them as WRM.

HN constraints must be considered during support planning as local laws, customs, and support agreements may limit access to local resources. HN constraints may also limit what can be brought into a country. Advance planning and training can minimize the impact. Although one goal of agile combat support is to reduce forward-deployed inventories, even under the Expeditionary Aerospace Force (EAF) concept, these stocks cannot be entirely eliminated. Deploying forces must still rely on some prepositioned assets to prepare deployed forces for immediate operations and rely on sustainment to begin immediately.

THREATS AND VULNERABILITIES

Threat and vulnerability assessments should be obtained from the responsible intelligence and force protection personnel. The possible types of attacks, their intensity, and types of weapons that could be used should be known or at least estimated. A threat assessment can help commanders determine whether individual facilities and facility groupings should be dispersed or nondispersed, whether electrical and water plants will be

dispersed or centrally located, whether expedient hardening will be performed, or whether rapid runway repair sets will be required. In some forward areas the nature of the threat may make it necessary to plan camouflage and decontamination capabilities. The nature of the threat and associated vulnerabilities should influence the commander's BIF decisions.



Decontamination Station

All combat support functions should obtain threat and vulnerability assessments.

For example, medical and health threat assessments consider intelligence factors when planning for the employment of humans within certain environments. Environmental stressors, including endemic disease and other detriments to health, must be considered for both infrastructure and public health planning. Survival against conventional, biological, and chemical attack should also be considered. Selection of operational and support locations (including lodging, feeding, hospitalization, alternate medical facility, communications and information, and other support functions) should be gauged against threat and potential threat indicators.

EXPEDITIONARY AIRBASE PLANNING

Before World War I

The procedures used for establishing airfields have remained relatively unchanged throughout the years. In the choice of locations for airbases, then as now, certain basic requirements were considered. The basic requirements included weather, transportation networks, urban proximity, and physical conditions of the site (terrain, soils, existing facilities, and infrastructure). For the earliest bases, the Army used a number of methods to choose locations; selection by boards of officers, collocation with an existing reservation, leasing, and acceptance of proposals from local business groups. In searching for a site, the following criteria were often used:

- ✦ **Climate.**
- ✦ **Proximity to industry and transportation.**
- ✦ **Character of the land for experimental flying.**
- ✦ **Facilities for over-water flying.**

★ **Trained mechanics in the locality.**

★ **Factors affecting the health, happiness, and cost of living.**

Based on these criteria, bases at Langley Field, Kelly, the Philippines, and others were established in the years before America's entrance into World War I.

Multiple Sources

There are several types of installations on which US forces may have to operate during wartime or contingencies. Regardless of the quality and extent of base facilities, it must meet one basic common criterion—*can it support its wartime and contingency missions adequately?*

The standards of construction, established by the Joint Chiefs of Staff (JCS), determine the types of materials and construction techniques used in wartime or contingency operations. These construction standards are designed to minimize engineer effort while providing facilities of a quality consistent with the mission requirements, personnel health and safety, and the expected availability of construction resources. The two types of construction standards most commonly applied to wartime operations are initial standards and temporary standards:

★ Relatively austere facilities and utilities, intended for use during the first six months of a conflict, characterize the initial standard. Examples of these facilities are tents, slit trench latrines, and low voltage electrical distribution systems.



★ Facilities and utilities of a more substantial nature characterize the temporary standard. They are intended to increase efficiency of operation and their use is normally up to 24 months. Examples of



these types of facilities include wood frame buildings, rigid fuel tanks, and paved roads.

Harvest Eagle and Harvest Falcon mobile facility assets are considered to be initial construction standards. This connotation, however, does not mean they will be totally replaced after six months; but rather they will be used by Air Force forces at the onset of a conflict. It is not inconceivable that some of these mobile assets will last several years before needing replacement.

While standards of construction dictate the type of facility to be used, wartime planning factors dictate the scope of facilities. These factors are also provided by JCS. When the JCS planning factors are applied, they will normally yield substantially smaller facility scopes than do the factors used for peacetime O&M or MILCON planning and construction. Most of the planning factors are applied against the numbers of aircraft or population to be at an installation. In some cases, however, the planning factor itself provides the facility scope.

The expeditionary airbase planning process provides the commander with a methodology for determining wartime airbase facility and utility requirements. The planning process identifies the necessary attributes of the assets chosen to fulfill the requirements and evaluates the effectiveness of an installation's collective facility and utility network in supporting the operational mission of the base. The process itself is somewhat mechanical; however, there are decision points at various intervals that are best addressed by personnel familiar with contingency operations. Once the process has been completed for a particular airbase, the commander can be relatively sure the facilities, communications and information, and utilities networks provided have been balanced with the mission requirements, threat conditions, and operational needs of the mission.

The primary mission of an installation is usually straightforward, e.g., a base supporting counterair operations, an aerial port, a strategic bomber base, medical facility, etc. The commander should keep in mind, however, other missions or requirements might be present. For example, most bases will eventually be resupplied by air; therefore, the capability to handle large frame aircraft must be considered. Some bases may also serve as staging bases for ground forces, which may affect support operations. These types of options should be carefully considered before planning can begin. The commander and planner can find this mission-

related information from the aircraft operations planners at unit level and the all-Service timed-phased force and deployment data (TPFDD) associated with the airbase in an OPLAN or OPORD. If all potential missions cannot be reasonably well defined, some assumptions may have to be made by the commander with respect to total mission requirements.

Considerable data is necessary if the overall base situation is to be fully understood. The number and types of aircraft, base population over time, transient forces, and expected duration of the operation can be obtained from the OPLAN being considered. Information concerning the base itself is also required. This can take the form of base maps, aerial photographs, construction drawings, past site surveys, and data contained in various documents accumulated by the intelligence office. In some cases, BSPs or joint support plans may be available. Sometimes a member of the deploying unit or someone from the MAJCOM or NAF/AFFOR staff who has been to the installation can provide current information. All sources should be investigated, including those of the HN.

The next step, after all the sources of data have been tapped as much as possible, is to analyze the data. This analysis of the base situation, threat, and mission provides an overall framework upon which to base more detailed efforts. The analysis should be reviewed by the commander to ensure no major items have been overlooked and the planning is headed in the right direction to meet mission requirements.

Planners should ensure adequate bare base assets are available, either prepositioned or deployable from CONUS. Planners should also ensure the bare base assets are designed to function independently with no external support for a limited period of time until logistics sustainment is established. As an example, prepositioned or deployed generators must be capable of starting when needed and operating without major repairs for a set period.

Expeditionary airbase planning principles, published in various planning guides, are precepts derived and validated from past experience and application. In the context of the expeditionary airbase planning process, they are compared against the basic requirements that have been calculated to see what special considerations should be made with respect to satisfying the facility or utility need. It is probable not all principles will be applicable to all facility and utility system requirements. In fact, there may be some facilities or utilities that none of the principles will relate to. Nevertheless, if time permits, it is prudent to look at each identified

facility and utility individually when the principles are applied. This action gives the commander a more complete product and lessens the chance something will be overlooked.

The expeditionary airbase planning process provides a credible compilation package of facility and utility requirements and is particularly viable when several options including construction are available for satisfying facility needs over extended periods. In an FOB situation where mobile facility assets are the only option initially, the number of assets made available in the deployment packages essentially predetermines facility scopes.

FORWARD OPERATIONS BASE PLANNING

World War I

The initial deployment of the 1st American Expeditionary Force to France encountered a multitude of challenges with regard to basing, infrastructure, and facilities. The first challenge occurred at the ports of debarkation where no provisions had been made to billet the incoming forces, re-form units, and move them out of the staging areas. When coupled with the degraded transportation infrastructure, the average time of a unit from arrival to reporting ready for combat was over one month. During this time the unit, ranging from companies of 100 men to battalions of over 1,000 were expected to find their own shelter, provisions, and logistics. As American involvement in the war progressed, infrastructure and staging bases were rapidly developed to reduce the processing time and provide basic sustainment to deploying forces.

Multiple Sources

A FOB could range from a bare field with a well to a fully developed Soviet airfield in Eastern Europe. Therefore, it is impossible to state definitely in advance what personnel should be included in the forces setting up a FOB. Planners should perform a careful analysis of the environment and probable requirements before determining the composition of these forces. In an expeditionary mode, the worst case scenario a commander will face is to deploy to an austere FOB—a bare base. A bare base deployment normally takes place with the phased movement of three distinct forces—the advance echelon, the initial force, and the follow-on force.

✪ **Advance Echelon (ADVON).** The ADVON team should be the first element to arrive at the bare base location. This team should be totally independent and multidisciplined with both operational and support personnel represented. The team usually includes a combat control element; an engineer site survey team; a services team; and a public

health team with equipment and vehicles; mobile communications with weather element; and materiel maintenance, medical, and aeromedical evacuation (AE) personnel as required. Security force elements with vehicles will also be included. If the initial analysis of the situation indicates local liaison, services, and supplies will be required to establish the base, then legal and contracting personnel should be included on the ADVON team. The ADVON team develops the base layout plan; sets up command, control, and communications; installs navigational aids; and establishes an aerial port function that will off-load the initial force and its hardware when they arrive. Once the ADVON force is satisfied the bare base location can support the required mission activities, deployment of the initial force can begin.

✪ **Initial Force.** The initial force may contain the first aircraft squadron with limited operations, maintenance, and support functions; mobility equipment; and spares kits. As these forces arrive, they will set up their own shelters with the



technical assistance of civil engineers. Civil engineers also have the responsibility for installing the above ground utility systems. Initial communications and information systems will be set up. Aerospace medicine and limited emergency medical care teams will also accompany initial force elements.

✪ **Follow-on Force.** The follow-on force may contain additional aircraft squadrons, and an upgraded maintenance capability including functions such as propulsion, environmental, and missile maintenance. Support functions such as security forces, health services support, supply, vehicle maintenance, communications and information, civil engineering, contracting, and financial services are expanded to give the base a full operational capability.

There are two distinct phases of employment during a bare base operation: the erection and construction phase, and the operation and maintenance phase. The first phase is more manpower intensive than the second phase. The number of civil engineer personnel required during

the erection and construction phase may not change radically with missions requiring lower populations because the tasks of preparing taxiways and runways, installing runway lights, constructing petroleum, oils, and lubricants (POL) and ammunition areas, and installing utility systems remain relatively constant regardless of base population. However, for some other support functions such as communications, the size of the base population may have a direct effect on the number of personnel required to accommodate them, especially during the initial installation of the base network.

STRATEGIC BASING

Strategic basing under the auspices of BIF has two aspects. The first is the decisions made regarding basing during garrison mode operations. These decisions reflect the need to provide a desired level of support to the base population and the supported weapon system. The second aspect of strategic basing occurs in expeditionary environments and encompasses two sub-set considerations. One sub-set is the actions taken to ensure rapid exploitation of basing opportunities is accomplished in support of the mission. The other sub-set is those actions taken to deny an adversary the same set of advantages. Collectively these two sub-sets form the principal of asymmetrical basing.

Strategic basing in the garrison mode of operations seeks to strike a balance between the often-competing demands to increase efficiency while maintaining a high quality of life and sense of community. A successful balancing of these requirements yields a base that is operationally effective, promotes quality of life, operates efficiently, and is environmentally sound. Strategic basing requires thoughtful long-range planning to insure the fiscal and physical resources are available to provide the infrastructure to operate the installation. The procurement of resources is drawn from a plethora of sources, ranging from military construction accounts to commercialization projects. Resource allocation is based on a spectrum of base operations which is driven by contextual factors that include the mission, geography, demographics, economics, and force protection considerations.

Asymmetrical basing seeks, at a physical level, to apply some of the principles of war—surprise, security, mass—to determine the best location to rapidly establish aerospace power and decisively prosecute the aerospace mission across the spectrum of operations. Asymmetrical basing encompasses the tenets of agile combat support to minimize the

deployed force while maximizing the ability of an installation to conduct operations. As such, asymmetrical basing is not one base, but rather a network of bases operating in concert to provide, sustain, operate, and recover aerospace assets. For every forward location, several supporting bases reaching back to CONUS locations may be required.

Asymmetrical basing depends on the concepts and employment of expeditionary forces. The capability these forces bring to asymmetrical basing is the ability to conduct rapid global deployments using task-tailored forces. These task-tailored forces require less logistics sustainment and physical space, which broadens the range of locations from which expeditionary forces can operate. The high level command, control, communication, and computers (C4) support enable basing decisions to be made in real time. Robust intelligence, surveillance, and reconnaissance (ISR) which can locate adversary vulnerabilities and capabilities can further refine these decisions. This mixture can be used to determine which basing option brings the greatest combat power to bear, or identifies the key point for humanitarian operations, or the optimum location for en route support. The ability to rapidly deploy and engage, combined with real-time command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR), is a fundamental cornerstone of asymmetrical basing.

Asymmetrical basing can also be used as an operational capability against an adversary. By denying them information on our intentions, by reducing their infrastructure, and by degrading the critical nodes that support base operations, we gain an operational advantage. Thus, while we increase our presence and capability in the AOR, our adversary becomes increasingly limited in their ability to employ aerospace power. This cascading failure of denied airbases, reduced sortie generation rate, and increasing mission ineffectiveness directly enhances our ability to achieve air dominance. With air dominance established, forces—both terrestrial and aerospace—can devote greater effort to bringing the adversary to their culminating point and terminating the conflict.

CHAPTER THREE

EMPLOYMENT

World War II

In January 1939, the Army Air Corps had only 17 airbases, 4 air depots, and 6 bombing and gunnery ranges. Following the attack on Pearl Harbor, the Army Air Forces (AAF) began moving into new fields to disperse their aircraft and provide for dispersed operations on existing fields. The continued growth in the AAF meant an increase in facilities and several procedural changes. Methods of quick and cheap construction were sought to reduce construction times and expense, such as Quonset huts and tarpaper buildings. By 1943 the AAF operated from 2,252 installations within the United States. In every theater, engineers constructed airfields in all types of terrain, ranging from crushed coral on Tinian Island to rain forest in South America to sand in North Africa. By the end of the war, 1,435 airfields located in 67 foreign countries had been used, built, or improved by the AAF.

Multiple Sources

GENERAL

Operational commands require combat support to provide them the flexibility to employ their weapons systems without dependence on others. The support provided by civil engineers encompasses everything from force beddown and routine operations and maintenance, to emergency and follow-on war damage repairs of the bare base. Each MOB, COB, or FOB our forces will deploy to will have different site conditions, airfield layout, and other criteria that will dictate the degree of site preparation and engineering effort needed to sustain the base complex, once developed. A typical forward operating base that is considered a bare base could be a commercial airport or allied military airfield on which the Air Force is given use of the runways, a water source, and an area for erection of bare base facilities. In some cases, there may be some preexisting facilities and services that could be used instead of mobility support at locations such as an allied airfield. The commander should consider these factors; because they will dictate the overall level of effort needed to establish, operate, and recover a bare base.

SUPPORT FUNCTIONS

A commander should consider and plan for necessary support and the associated functions (Table 1) that will be required by the base, whether a MOB, COB, or FOB. For example, services PRIME Readiness in Base

Vietnam

In the early days of the Vietnam War, large numbers of US Air Force strike aircraft were deployed to bases where pavement for aircraft parking was at a premium. Aircraft were parked wingtip to wingtip, vulnerable to an accidental explosion or enemy attack. In May 1965, a bomb accidentally exploded at Bien Hoa Air Base and destroyed 40 unprotected aircraft. In response to this accident and other factors, the Air Force was tasked to expand its basing footprint in Vietnam, to create an organic capability to construct airfields, and to develop dedicated base readiness personnel. From this directive came Rapid Engineer Deployable Heavy Operational Repair Squadron, Engineer (RED HORSE), the Air Force's heavy construction and engineering force. As an example of RED HORSE's capabilities, the 820th RED HORSE deployed to Tuy Hoa AB in October 1966 where the unit constructed 170 aircraft revetments, 120,000 square feet of buildings, and 175,000 square yards of AM-2 matting.

Multiple Sources

Services (RIBS) personnel play a vital and necessary role in time of war. A PRIME RIBS team is a force whose primary wartime mission is to provide support to the base populace for both operational and humanitarian missions. PRIME RIBS are prepared to fulfill their mission requirements across the spectrum of operations and under a full range of environments. In addition to providing the vital functions of food service, lodging, and mortuary support, PRIME RIBS also provides fitness, recreation, and field exchange programs. A contingency contracting officer who is responsible for acquiring resources necessary to the development of a bare base situation is essential when organic means are not available. Contracting provides the necessary construction, services, and commodities support to ensure sustainment of operations in the AO.

Other examples are medical and public health care resources, which are essential for ensuring environmental quality control of facilities as well as health maintenance of personnel. The size and capabilities of medical support are dependent on numerous factors, including population size and type (for humanitarian support considerations), threat (from disease, nonbattle injury, and enemy attack), distance from supporting medical units, evacuation distances and time of response, as well as other indicators. Initial re-



sponse would focus on public health and limited emergency care. Follow-on elements would be sized and focused towards early stabilization, minimal holding/staging, and rapid evacuation.

Contracting and financial services are also employed to provide the means of locally procuring goods and services for sustained operations at forward locations. Financial services personnel also provide pay inquiry, check cashing, currency exchange, and other services to deployed and transient personnel.

These are just a few examples of the support functions that would be employed. The commander should be familiar with the functions that are essential and vital to the success of the mission as well as to the operation of the base, no matter what type it may be.

COMMAND AND CONTROL (C2)

Command and control (C2) in the Air Force is based upon a set of three parts: the C2 elements, the C2 processes, and the C2 environments. The elements include organizations (or C2 centers like the aerospace operations center (AOC) at the theater/operational level and expeditionary operations center (EOC) at the installation level). Command relationships as defined by doctrine, concepts of operation, OPLANs, and OPORDs define the responsibilities and give the authority for C2 centers and their commanders to execute C2 processes. The systems/modalities assist in the execution of the processes, which includes sensing, deciding and executing within the C2 environments at the global, theaterwide, and installation/unit levels.

At the theater or operational level, US Air Force forces are presented to the various theater CINCs in a single, capabilities-based entity—the Aerospace Expeditionary Task Force (ASETf). The



Inside a JAOC.

ASETF consists of fielded forces often from AEF, a Commander Air Force Forces (COMAFFOR), and the AFFOR/AOC staffs.

The COMAFFOR's headquarters organization should be tailored to meet specific mission requirements and is the primary agent for airbase and installation employment, generation, sustainment, force protection planning, and redeployment. At minimum, it should contain a Service component AFFOR/AOC staff providing C2 for US Air Force forces. When dual-hatted as joint force air component commander (JFACC), the COMAFFOR will require a robust staff, including an A-Staff, special staff, joint aerospace operations center (JAOC) with a JAOC director, and Director of Mobility Forces (DIRMOBFOR). For more information on this subject see AFDD 2.

The AFFOR A-Staff provides comprehensive C2 of US Air Force forces at theater airbases organized into an ASETF. These aerospace forces are presented to theater commanders for employment across the spectrum of operations and the phases of global engagement operations. The AFFOR A-Staff supports the COMAFFOR as the senior operational-level component warfighter with established operational control (OPCON) and administrative control (ADCON) of assigned/attached AF forces.

When aligned to support a theater CINC, the AFFOR staff provides a capable, ready, theater-smart C2 element for the COMAFFOR. The key AFFOR tasks include:

- ★ Preparing the operational environment.
- ★ Building the air bridge and force beddown.
- ★ Installation/airbase employment and generation.
- ★ Force protection, force C2, and force sustainment.
- ★ Operating location buildup.
- ★ Operating location recovery, redeployment, and reconstitution.

The AFFOR A-Staff provides C2 across a broad scope of functional areas for the COMAFFOR. Primarily focused on support to the fighting forces, the lion's share of AFFOR staff work is accomplished in the rear, reachback C2 node in a split-based headquarters. Command relationships between the AFFOR and its subordinate, lateral, and higher headquarters staffs need to be clearly established, especially as we migrate to collaborative, split-based C2 activities. In case of reachback C2 to support the deployed AFFOR, the COMAFFOR must have the same degree of

control over the reachback staff as he does over the deployed staff. The AFFOR staff, whether deployed, in garrison, involved in a low-scale peace-keeping operation, or fighting a major theater war, is all about command and control. The history of warfare clearly shows that C2 has always been much more than a mere enabling ingredient for success. The nature of human conflict simply requires effective C2 for victory.

Command and control for bases organizes and delivers support in both garrison and expeditionary environments. In both environments C2 is exercised in connection with a spectrum of deliberate activities from refuse collection to crisis response to the restoration of communication services following a hurricane. Base C2 also operates in conjunction with internal and external relationships. In garrison mode, these relationships can include military dependents and state regulatory agencies. The key C2 processes at installations in a garrison mode include unit administration/support; unit maintenance readiness; mission generation/support; mobility generation; emergency warning and response; recovery/reconstitution; reporting; and force protection. In the expeditionary mode, C2 relationships can include the joint force commander (JFC), multinational forces, and host-nation liaisons. The essential C2 processes at installations in an expeditionary mode include unit administration/support; reception, integration, and employment; mission generation/support; sustainment requirements generation; emergency/attack warning and response; reporting; redeployment; and force protection.

Korea

On 25 June 1950, North Korean troops, supported by Soviet-supplied tanks and artillery, advanced across the 38th parallel, routing the lightly armed South Koreans. The immediate tasks facing Far East Command and its air component, the Far East Air Force, were to provide equipment for the embattled South Koreans and to evacuate the American personnel. Fighters and bombers of the Far East Air Forces contributed to the evacuation by protecting the ships and aircraft carrying the refugees to Japan. Later phases of the war featured sea-saw combat on the ground and a protracted air campaign in the skies of North and South Korea.

The Korean War presented tremendous challenges for the fledgling Air Force. One of the challenges was a lack of bases and supporting infrastructure in South Korea. This forced operations to be conducted from Japan, which dramatically limited combat sorties and loiter time on station. To meet the operational requirements, the Air Force constructed or improved 53 bases on the Korean peninsula and expanded others in Japan. Expanding bases in Korea helped the Air Force achieve air superiority over the peninsula.

Multiple Sources

Governing Concepts

C2 for bases should follow these governing concepts:

- ✦ **Agility and Survivability.** For both garrison and expeditionary locations, C2 for bases should maintain agility to meet the demands of changing circumstances and mission requirements, and to counter the effects of surprise. Agility can be achieved through efficient organizations; centralized planning combined with decentralized execution, and clear communications. In expeditionary environments, agility can be achieved through the use of the several sub-principles:
 - ✦✦ Reachback to nondeployed elements for logistics sustainment and C2 systems to reduce deployed requirements and enable more expeditious employment.
 - ✦✦ HN, military-to-military (through use of the ACSA program), and contractor support, where appropriate, to reduce deployed personnel and logistics requirements.
 - ✦✦ Employment of technologically advanced systems (aircraft, delivery systems, lodging, etc.) to reduce the physical support requirements.
- ✦ **Simplicity.** Removing obstacles to clear communication and coordination is part of the governing principle of simplicity. Simplicity in organization allows commanders to deliver base support with a minimum of overhead and staff functions. This simplicity also can reduce cost and make the function more responsive to customer requirements. Simplicity in base organization can also take the form of integrated plans, programs, and policies.
- ✦ **Unity of Effort.** Bases, infrastructure, and facilities must be aligned and operated in a manner that achieves synergy with the other elements of aerospace power. One method to achieve this synergy is through unity of effort, which is derived from such sources as commander's intent, mission orders, and training.
- ✦ **Security.** Bases, both in a physical and operations sense, are a prime factor in security. In a physical sense, the design, construction, and operation of a base can either enhance or degrade security. Likewise, the responsibility for providing security is assigned to the leadership of the base system. While typically associated with the expeditionary environment, the principle of security applies equally to garrison locations.

Expeditionary Command and Control

For the Air Force, expeditionary base support mirrors the functions, roles, and responsibilities of the garrison environment. The primary differences between the two environments are the lack of dependents in expeditionary locations and the temporary nature of construction and infrastructure development. Additional differences, especially in overseas locations, include an increased threat level and potential for hostile activities and specific requirements to coordinate actions with joint and multinational forces.

The command and control arrangement in expeditionary environments may reflect various staffing structures. A sound C2 structure similar to that found in a typical expeditionary wing or group will reduce confusion and enable reachback to similar staff structures at nondeployed locations. However, deployed Air Force elements may not be operating independently in the deployed AOR. If the deployed forces are part of a joint or combined task force, the C2 structure may reflect the typical joint headquarters organization. Such an arrangement aligns the deployed Air Force elements into a C2 structure that mirrors the joint force system. In the joint environment, the traditional group organization is usually replaced by an A-staff alignment that mirrors J-staff organization. Within the joint structure, the A-4 Logistics Director is the point of primary responsibility for the provision of base support. Within the A-4 organization are the functions of Civil Engineers, Supply, Services, and Transportation. The Security Forces function is aligned under the A-3 Operations Director, as are the operational squadrons (e.g., deployed fighter squadrons). The A-6 Communications Director integrates all deployed communications, computer, and command systems into one organization with a focus on mission support requirements. Use of this type of C2 structure can reduce deployed manpower and staff functions.

Contingency Operations

For expeditionary environments, the focus of base support C2 in contingency operations is twofold: 1) preserve and maintain essential services, and 2) repair and restore mission critical systems as expeditiously as possible. Every element of deployed base support has a combat or contingency role. To facilitate C2 operations in contingency situations, the following are generally used:

✦ **Installation Operations Centers.** Each separate installation whether headed by a wing or group has an EOC to ensure positive control over its assigned forces. Additionally, the EOC is the focal point for resource allocation, mission tasking, status reporting, and decision making. Below the EOC are unit/group or squadron level operations centers. They may be characterized as unit or functional and may serve as both (as in the case of the medical control center [MCC] that is both a unit and functional operations center). They include the EOC's organic survival recovery center (SRC), the aforementioned installation health service MCC, the damage control center (DCC), the Security Forces BDOC, the maintenance operations center (MOC), and logistics readiness center (LRC). At joint supported installations, some of the functions of the EOC may be combined. In addition, to the physical resources of base support, medical and personnel operation centers track and report personnel casualty status, individuals requiring aeromedical evacuation, and status of personnel replacements.

✦ **Priority of Defense and Repair.** One of the prime functions of the SRC and DCC is to determine which facilities and processes are mission essential and in what order these facilities and processes will be restored to service if damaged or destroyed. Figure 3.1 lists the notional damage repair priorities for base systems. Specific facility repair priorities are determined by the senior AF commander on the installation.

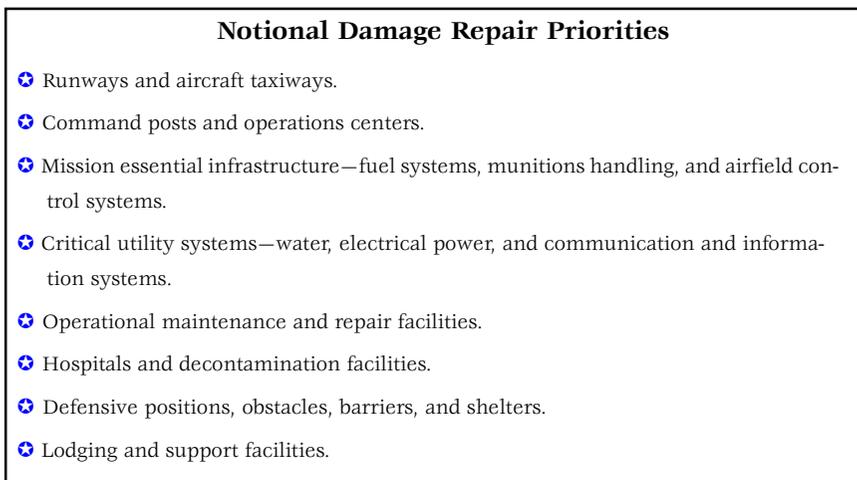


Figure 3.1. Battle Damage Repair Priorities

✦ **Force Protection.** As part of the effort to mitigate damage to critical resources and personnel, commanders are charged with the responsibility to ensure force protection measures are implemented. The implementation of force protection is a cross-functional responsibility among the commanders, Security Forces, Intelligence, Office of Special Investigations (OSI), public health, civil engineers, and other elements as needed. Figure 3.2 lists some of the initial work priorities for base defense in support of force protection that should be considered by commanders.

- Work Priorities in Base Defense**
- ✦ Emplacing obstacles and barriers.
 - ✦ Establishing hard perimeter with maximum stand-off zones, and strict entry/exit control points.
 - ✦ Hardening structures and shelters.
 - ✦ Protecting infrastructure, public health, utility, and facility systems.
 - ✦ Establishing redundant capabilities for essential systems.
 - ✦ Camouflage, concealment, and deception measures including physical protection sensors/alarms, biochemical detectors, and surveillance systems.

Figure 3.2. Base Defense

EPILOGUE

Bases, infrastructure, and facilities provide direct, tangible combat support for the warfighter. This translates directly to combat capability with sustained aerospace weapons systems and personnel in any theater at any command level, in any operation. Tangible resources (people, materiel, and facilities) are combined with intangible resources (time and information) to produce a capability that can be employed and properly sustained by commanders at all levels.

Combat power projection is the end result of the global engagement philosophy. Global engagement has transformed the way the Air Force views combat support and the requirements to ensure that decisive combat power is readily available. Rapid global deployment and agile logistics provide for the right mix of resources and capabilities at the right time and right place to support operational or strategic objectives.

War-fighter support is the ultimate objective of combat support. Providing the right item at the right time at the right place in the right quantity is the ultimate objective for basing, infrastructure, and facilities doctrine. The Air Force continues to lead the way with its combat support vision, organizational relationships, and concepts of operation well into the future.

At the Very Heart of Warfare lies Doctrine . . .

Suggested Reading

Martin Van Creveld, *Supplying War-Logistics from Wallerstein to Patton*, Cambridge University Press, New York, NY, 1977.

William G. Pagonis, Lt Gen, USA (Ret), *Moving Mountains-Leadership and Logistics from the Gulf War*, Harvard Business School Press, Boston, MA, 1992.

Donald W. Engels, *Alexander the Great and the Logistics of the Macedonian Army*, University of California Press, Berkeley, CA, 1978.

Air Force Phamplet (AFPAM) 10-219, Volume 5, *Bare Base Conceptual Planning Guide*, 1 June 1996.

Air Force Handbook (AFH) 10-222, Volume 1, *Guide to Bare Base Development*, 1 July 1996.

AFPAM 91-216, *USAF Safety Development and Contingency Pamphlet*, 1 December 1998

Doctrine References

- ✦ AFDD 1, *Air Force Basic Doctrine*.
- ✦ AFDD 1-1, *Air Force Task List*.
- ✦ AFDD 2, *Organization and Employment of Aerospace Power*.
- ✦ AFDD 2-1, *Air Warfare*.
- ✦ AFDD 2-2, *Space Operations*.
- ✦ AFDD 2-3, *Military Operations Other Than War*.
- ✦ AFDD 2-4, *Combat Support*.
- ✦ AFDD 2-5, *Information Operations*.
- ✦ AFDD 2-6, *Air Mobility*.
- ✦ AFDD 2-7, *Special Operations*.
- ✦ AFDD 2-8, *Command and Control*.
- ✦ Joint Publication 4-0, *Doctrine for Logistic Support of Joint Operations*.
- ✦ Joint Publication 3-34, *Engineer Doctrine for Joint Operations*.

Glossary

Abbreviations and Acronyms

AAF	Army Air Forces
ACS	agile combat support
ACSA	acquisition cross-Service agreement
ADCON	administrative control
ADVON	advance echelon
AE	aeromedical evacuation
AEF	Aerospace Expeditionary Forces
AFB	Air Force base
AFCAP	Air Force Contract Augmentation Program
AFDD	Air Force doctrine document
AFFOR	Air Force forces
AFH	Air Force handbook
AO	area of operations
AOC	aerospace operations center
AOR	area of responsibility
ASETf	Aerospace Expeditionary Task Force
BDOC	base defense operations center
BIF	basing, infrastructure, and facilities
BSP	base support plan
C2	command and control
C4	command, control, communications, and computers
C4ISR	command, control, communications, computers, intelligence, surveillance, and reconnaissance
CCA	contract construction agent
CINC	commander in chief
COB	collocated operations base
COMAFFOR	Commander, Air Force Forces
CONUS	continental United States
CPG	conceptual planning guide
DCC	damage control center
DIRMOBFOR	Director of Mobility Forces
EAF	Expeditionary Aerospace Force
EOC	expeditionary operations center
EVE	equal value exchange

FOB	forward operations base
HN	host nation
HNS	host-nation support
HSS	host support services
HUMRO	humanitarian relief operation
ISR	intelligence, surveillance, and reconnaissance
JAOC	joint aerospace operations center
JCS	Joint Chiefs of Staff
JFACC	joint force air component commander
JFC	joint force commander
JLP	joint logistics plan
JRA	joint rear area
LOC	lines of communications
LRC	logistics readiness center
MAJCOM	major command
MCC	medical control center
MILCON	military construction
MOB	main operations base
MOC	maintenance operations center
MOOTW	military operations other than war
NAF	number air force
NBC	nuclear, biological, and chemical
O&M	operations and maintenance
OPCON	operational control
OPLAN	operation plan
OPORD	operational order
ORM	operational risk management
OSI	Office of Special Investigations
PIC	payment in cash
POL	petroleum, oils and lubricants
PRIME BEEF	Prime Base Engineer Emergency Force
PRIME RIBS	Prime Readiness in Base Services

RED HORSE	Rapid Engineer Deployable Heavy Operational Repair Squadron, Engineer
RIK	replacement in kind
SA	situational awareness
SAATH	stand-alone air transportation hospital
SRC	survival recovery center
SWA	Southwest Asia
TPFDD	time-phased force and deployment data
TPFDL	time-phased force and deployment list
TTP	tactics, techniques, and procedures
WRM	war reserve materiel

Definitions

acquisition and cross service agreements. Bilateral agreements with foreign governments to acquire or transfer military logistics support, supplies, and services on a reciprocal basis. Also called **ACSA**. (JP 1-02)

agile combat support. An Air Force core competency which encompasses the process of creating, sustaining, and protecting all aerospace capabilities to accomplish mission objectives across the spectrum of operations. Also called **ACS**. (AFDD 2-4)

airbase defense. Those measures taken to nullify or reduce the effectiveness of enemy attacks on, or sabotage of, airbases to ensure the senior commander retains the capability to accomplish assigned missions.

Air Force Civil Engineer Support Agency. AFCESA is a center of excellence dedicated to assisting the Air Force and Civil Engineers worldwide. The AFCESA mission is to provide the best tools, practices, and professional support to maximize Air Force Civil Engineer capabilities in base and contingency support. Also called **AFESA**.

area of operations. An operational area defined by the joint force commander for land and naval forces. Areas of operation do not typically encompass the entire operational area of the joint force commander, but should be large enough for component commanders to accomplish their missions and protect their forces. Also called **AO**. (JP 1-02)

A-Staff. The COMAFFOR headquarters should usually be comprised of normal staff directorates, A- 1 through A- 6, as well as a special staff. The A-staff structure is used instead of the more “traditional” Air Force staff designations (DO, LG, SC, etc.) to more readily identify the Air Force component staff equivalents of the corresponding J-staff functions. (AFDD 2)

bare base. A base having minimum essential facilities to house, sustain, and support operations to include, if required, a stabilized runway, taxiways, and aircraft parking areas. A bare base must have a source of water that can be made potable. Other requirements to operate under bare base conditions form a necessary part of the force package deployed to the bare base. (JP 1-02)

base development (less force beddown). The acquisition, development, expansion, improvement, and construction and/or replacement of the facilities and resources of an area or location to support forces employed in military operations or deployed in accordance with strategic plans. (JP 1-02)

base support plan. The base level planning accomplished to support combatant commands wartime operation planning, as well as MAJCOM supporting plans. It cuts across all functional support areas in a consolidated view of base missions, requirements, capabilities, and limitations to plan for actions and resources supporting war and contingency operations, including deployments, post deployment, and employment activities. Also called **BSP**.

camouflage, concealment, and deception. The use of concealment, disguise, and decoys to minimize the possibility of detection or identification of troops, material, equipment and installations. It includes taking advantage of the natural environment as well as the application of natural and artificial materials.

collocated operations base. A base, usually owned and operated by an ally, that contains an active or reserve airfield designated for joint or unilateral use by US Air Force wartime augmentation forces or for wartime relocation of US Air Force in-theater forces. COBs are not US bases. Also called **COB**.

command and control. The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are

performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. Also called **C2**. (JP 1-02)

contingency. An emergency involving military forces caused by natural disasters, terrorists, subversives, or by required military operations. Due to the uncertainty of the situation, contingencies require plans, rapid response, and special procedures to ensure the safety and readiness of personnel, installations, and equipment. (JP 1-02)

contingency plan. A plan for major contingencies that can reasonably be anticipated in the principal geographic subareas of the command. (JP 1-02)

conventional weapons. A weapon which is neither nuclear, biological, nor chemical. (JP 1-02)

decontamination. The process of making any person, object, or area safe by absorbing, destroying, neutralizing, making harmless, or removing chemical or biological agents, or by removing radioactive material clinging to or around it. (JP 1-02)

deploy. To relocate a unit, or an element thereof, to a desired area of operations or to a staging area. Deployment will be accomplished with all required personnel and equipment. Deployment begins when the first aircraft, personnel, or item of equipment leaves the home base. The force is deployed when the last component of the unit has arrived. Also called deployment. (JP 4-0)

disaster control. Measures taken before, during or after hostile action or natural or man-made disasters to reduce the probability of damage, minimize its effects, and initiate recovery. (JP 1-02)

exercise. A military maneuver or simulated wartime operation involving planning, preparation, and execution. It is carried out for the purpose of training and evaluation. It may be a combined, joint, or single-Service exercise, depending on participating organizations. (JP 1-02)

facility. A real property entity consisting of one or more of the following: a building, a structure, a utility system, pavement, and underlying land. (JP 1-02)

force beddown. The provision of expedient facilities for troop support to provide a platform for the projection of force. These facilities may include modular or kit-type facility substitutes. (JP 1-02)

force protection. Security program designed to protect Service members, civilian employees, family members, facilities, and equipment, in all locations and situations, accomplished through planned and integrated application of combating terrorism, physical security, operations security, personal protective services, and supported by intelligence, counterintelligence, and other security programs. (JP 1-02) Because terminology is always evolving, the Air Force believes a more precise definition is: [*Measures taken to prevent or mitigate successful hostile actions against Air Force people and resources while not directly engaged with the enemy.*] [Italicized definition in brackets applies only to the Air Force and is offered for clarity.]

forward operations base. In special operations, a base usually located in friendly territory or afloat that is established to extend command and control or communications or to provide support for training and tactical operations. Facilities may be established for temporary or longer duration operations and may include an airfield or an unimproved airstrip, an anchorage, or a pier. A forward operations base may be the location of a special operations component headquarters or a smaller unit that is controlled and/or supported by a main operations base. Also called **FOB**. (JP 1-02)

Harvest Eagle package. Harvest Eagle is a housekeeping package designed to support activities in remote areas where it is not feasible to preposition assets. A complete Harvest Eagle package is designed to support 550 people at a single beddown location. However, a set can be broken down into smaller subsets to meet lesser needs of a smaller deployment. A Harvest Eagle package is designed to be deployed incrementally to permit flexibility in establishing base-type support requirements for any combination of bare base contingency plans. The Harvest Eagle sets in the Air Force inventory are dispersed in three areas: USAFE, PACAF, and in the CONUS. The sets in the CONUS are worldwide deployable assets that are maintained and stored at Holloman AFB. (JP 1-02)

Harvest Falcon package. A Harvest Falcon package is comprised of housekeeping, industrial, and flightline support assets. These assets may

be deployed to a bare base. They are dispersed in two locations: CENTAF AOR and in the CONUS. CENTAF's assets are prepositioned in several sites in support of the CENTAF mission. The sets in the CONUS are maintained and stored at Holloman AFB, NM and are worldwide deployable assets. (JP 1-02)

host-nation support. Civil and/or military assistance rendered by a nation to foreign forces within its territory during peacetime, crises or emergencies, or war based on agreements mutually concluded between nations. Also called **HNS**. (JP 1-02)

high threat area. An area, which, because of its location or strategic targets, is highly susceptible to enemy, attacks.

joint support plan. A plan for the reception and beddown of forces which is collectively developed by the host nation, the theater in-place sponsor, and the affected augmentation unit. The plan outlines all facets of operations at a collocated operating base to include personnel, facilities, and equipment. Also called **JSP**.

limiting factor. A factor or condition that either temporarily or permanently impedes mission accomplishment. Illustrative examples are transportation network deficiencies, lack of in-place facilities, and malpositioned forces or materiel, extreme climatic conditions, distance, transit or overflight rights, political conditions, etc. (JP 1-02)

main operations base. In special operations, a base established by a joint force special operations component commander or a subordinate special operations component commander in friendly territory to provide sustained command and control, administration, and logistical support to special operations activities in designated areas. Also called **MOB**. (Joint Pub 1-02) *[A base on which all essential buildings and facilities are erected. Total organizational and intermediate maintenance capability exists for assigned weapon systems. The intermediate maintenance capability may be expanded to support specific weapon systems deployed to the MOB.]* {Italicized definition in brackets applies only to the Air Force and is offered for clarity.}

mobility. A quality or capability of military forces which permits them to move from place to place while retaining the ability to fulfill their primary mission. (JP 1-02)

mutual support. That support which units render each other against an enemy, because of their assigned tasks, their position relative to each other and to the enemy, and their inherent capabilities. (JP 1-02)

nuclear, biological and chemical defense. The methods, plans, procedures and training required to establish defense measures against the effects of attack by weapons of mass destruction. Also called **NBC defense.** (JP 1-02)

operations plan. Any plan, except for the Single Integrated Operations Plan, for the conduct of military operations. Plans are prepared by combatant commanders in response to requirements established by the Chairman of the Joint Chiefs of Staff and by commanders of subordinate commands in response to requirements tasked by the establishing unified commander. Operation plans are prepared either in a complete format (OPLAN) or as a concept plan (CONPLAN). The CONPLAN can be published with or without a time-phased force and deployment data (TPFDD) file. a) OPLAN—An operation plan for the conduct of joint operations that can be used as a basis for development of an operation order (OPORD). An OPLAN identifies the forces and supplies required to execute the CINC's strategic concept and a movement schedule of these resources to the theater of operations. The forces and supplies are identified in TPFDD files. OPLANs will include all phases of the tasked operation. The plan is prepared with the appropriate annexes, appendixes, and TPFDD files as described in the Joint Operation Planning and Execution System manuals containing planning policies, procedures, and formats. Also called **OPLAN.** b) CONPLAN—An operation plan in an abbreviated format that would require considerable expansion or alteration to convert it into an OPLAN or OPORD. A CONPLAN contains the CINC's strategic concept and those annexes and appendixes deemed necessary by the combatant commander to complete planning. Generally, detailed support requirements are not calculated and TPFDD files are not prepared. Also called **CONPLAN.** c) CONPLAN with TPFDD—A CONPLAN with TPFDD is the same as a CONPLAN except that it requires more detailed planning for phased deployment of forces. (JP 1-02)

Prime Base Engineer Emergency Forces. A Headquarters US Air Force, major command (MAJCOM), and base-level program that develops and maintains a highly skilled, agile military combat support civil engineer force capable of rapid responses in support of for worldwide contingency operations. It assigns civilian employees and military personnel to both

peacetime real property maintenance and wartime engineering functions. Also called **Prime BEEF**.

Prime Readiness in Base Services. A Headquarters US Air Force, major command (MAJCOM), and base-level mobility program that organizes and trains Services military forces for wartime and peacetime contingency support roles worldwide. Also called **Prime RIBS**.

repair of aircraft operating surfaces. The process of using construction equipment, tools, portable equipment, expendable supplies, and temporary surfacing materials to provide a minimum runway, taxiway, or aircraft parking area through expedient repair methods. Also called **RAOS**.

reachback. The process of obtaining products, services, and applications, or forces, equipment, or materiel from Air Force organizations that are not forward deployed. (AFDD 2)

RED HORSE. These units are wartime-structured to provide a heavy engineer capability. They have a responsibility across the area of operations, are not tied to a specific base, and are not responsible for base operation and maintenance. These units are mobile, rapidly deployable, and largely self-sufficient, for limited periods of time. (AFDD 2-4)

survivability. Capability of a system to accomplish its mission in the face of an unnatural (man-made) hostile environment. Avoidance, hardness, proliferation, or reconstitution (or a combination) may achieve survivability. (JP 1-02)

time-phased force and deployment list. Appendix 1 to Annex A of the operation plan. It identifies types and/or actual units required to support the operation plan and indicates origin and ports of debarkation or ocean area. It may also be generated as a computer listing from the time-phased force and deployment data. Also called **TPFDL**. (JP 1-02)

war reserve materiel. Materiel required in addition to primary operating stocks and mobility equipment to attain the operational objectives in the scenarios authorized for sustainability planning in the Defense Planning Guidance. Broad categories are: consumables associated with sortie generation (to include munitions, aircraft external fuel tanks, racks, adapters, and pylons); vehicles; 463L pallet systems; materiel handling equipment; aircraft engines; bare base assets; individual clothing and equipment; munitions and subsistence. Also called **WRM**.

