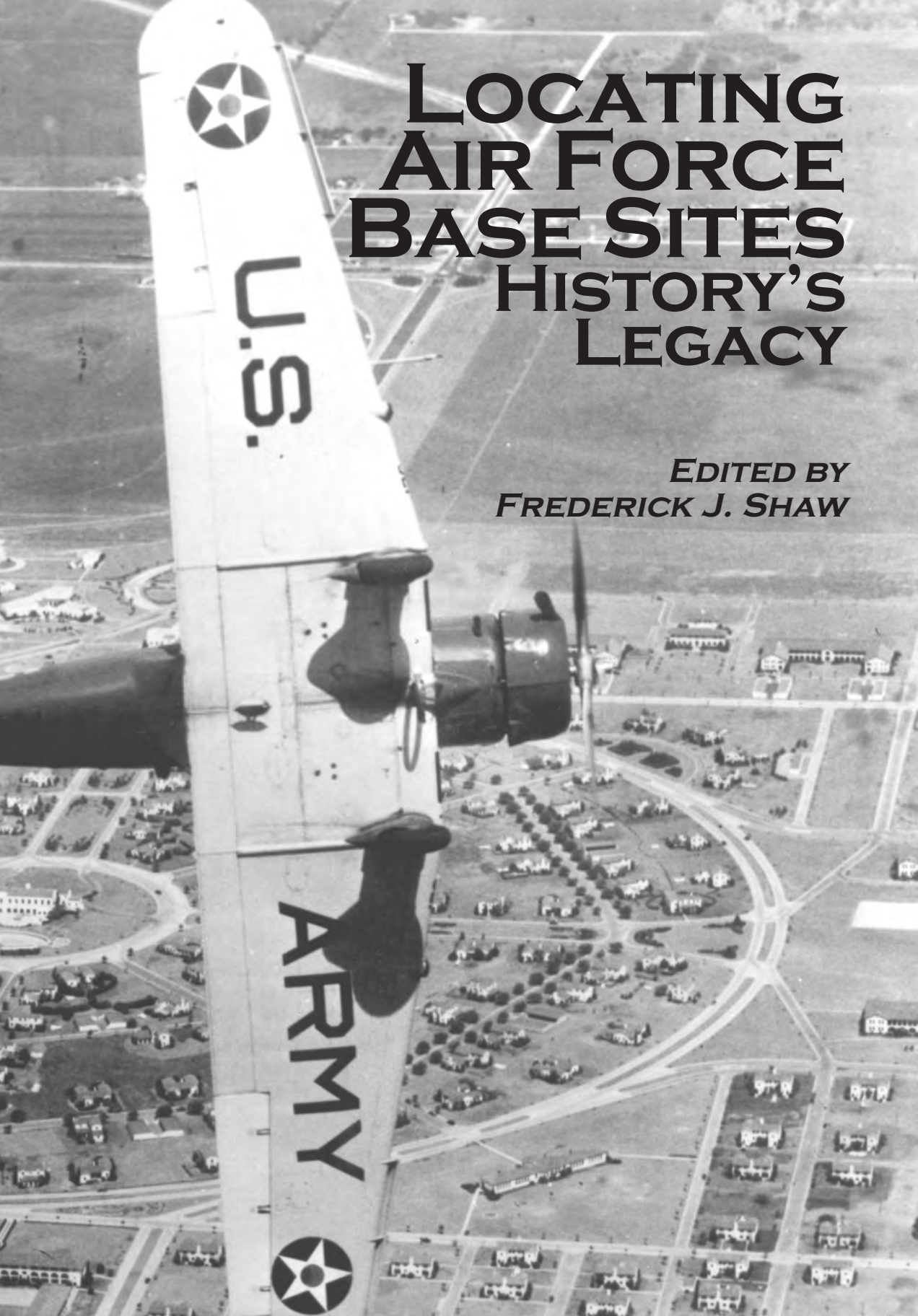


Locating Air Force Base Sites
History's Legacy

Edited by
Frederick J. Shaw

Locating Air Force Base Sites
History's Legacy

Frederick J. Shaw
Editor

Updated Edition 2014

Air Force History and Museums Program
United States Air Force
Washington DC
2004

Library of Congress Cataloging-in-Publication Data

Locating air force base sites : history's legacy / Frederick J. Shaw, ed.
p. cm.
1. Air bases—United States—History. 2. Air bases, American—History. 3. Air bases—Location—United States. 4. United States. Air Force—History. I. Shaw, Frederick J. ck J.

UG634.49.L63 2004
358.4'17'0973

2004026963

Preface

This is a an updated edition created in 2014. It adds chapter 5 on the Base Realignment and Closure Commission, 2005, and chapter 6 on the Joint Basing Initiative. The original Preface is continued below

Over the past twelve years, the base infrastructure of the United States Air Force (USAF) has shrunk rapidly to accommodate force downsizing engendered by the ending of the Cold War. Still more radical changes are necessary to efficiently support the agile forces required to wage the "Global War on Terrorism." Historically, the ebb, flow, and utilization of Air Force installations are interconnected to changes in the size, composition, and capabilities of major flying and nonflying organizations. As a result, the number of USAF installations has fluctuated according to the complex interaction of the perceived global threat, technology, strategy, tactics, and projected force structure. This study describes military, technical, economic, and political reasoning that has influenced the location, or basing, of major flying and nonflying units in the continental United States, excluding Alaska, between 1907 and 2003. Specifically, it deals with the basing of bomber, fighter, airlift and missile units, training installations, logistic centers, and product centers. Locating flying and nonflying organizations involves assigning them to installations, usually Air Force bases, that are compatible with their missions. So closely related is the expansion, contraction, and relocation of USAF force structure to the utilization of base infrastructure that the two subjects must necessarily be considered together.

This volume, a preliminary, groundbreaking effort planned and produced within a prescribed period of time, is intended as a reference work offering historical perspective on current basing issues. It examines four critical periods in the history of USAF basing. During the first period, from 1907 through August 1947, expansion of the Army's air force in response to two major wars established a foundation for the current basing network. The second period, September 1947 through 1960, saw a rapid expansion to support the rise of the United States Air Force as the major instrument of strategic deterrence. Radical retrenchment, followed by politically enforced stability, characterized the third period, 1961 to 1987. From 1961 through the mid-1970s, base infrastructure contracted steadily in response to changes in military threat, budgetary pressures, and the retirement of obsolete aircraft. From 1977 through 1987, strict interpretations of the National Environmen-

tal Policy Act effectively paralyzed basing actions, despite a moderate expansion of the force after 1980. During the fourth period, 1988–2003, the ending of the Cold War resulted in a substantial drawdown of force structure. The reality of sharply reduced forces, in combination with budgetary pressures, created a political consensus that permitted base closures and realignments to resume. Through 1987, the decision to open or close bases was, at least formally, strictly an executive branch prerogative. Beginning in 1988, the establishment of the Base Realignment and Closure (BRAC) Commission initiated the formal participation of Congress in basing decisions.

The decision to open or close bases during the first three periods — 1907 through August 1947, September 1947 through 1960, and 1961 to 1988 — was, at least formally, strictly an executive branch prerogative. During the fourth period, 1988–2003, the establishment of the Base Realignment and Closure process initiated formal participation by Congress in basing decisions. In 2003, the Department of Defense began preparing for yet another Base Realignment and Closure Commission Review intended to eliminate unnecessary infrastructure. This study offers the public a historical perspective on BRAC-directed actions by documenting and explaining rationales that have informed the decisions to locate the major operational units and activities within the continental United States, excluding Alaska, during these periods.

The Air Force Historical Research Agency, Maxwell AFB, Alabama, is the repository for most of the documents cited in this study. Most frequently used are the official histories of major air force commands and air staff directorates along with their supporting documents. The Air University Library was another important repository, primarily for the published records of congressional hearings and the BRAC Commissions and other published sources. Finally, the personal papers of former Secretary of Defense Robert S. McNamara, held by the National Archives facility at College Park, Maryland, yielded several key documents concerning his tenure (1961–1968).

The assistance, encouragement and support of several individuals made this study possible. Mr. Michael A. Aimone, P.E., Deputy Assistant Secretary of the Air Force for Basing and Infrastructure, recognized the need for a general explanation of the military reasoning for locating Air Force units and their bases and generously sponsored and supported the ensuing research. Mr. Roy Murray, his executive assistant, coordinated the project within the Air Staff. Mr. William C. Heimdahl, then the Acting Air Force Historian, encouraged the historians at the Air Force Historical Research Agency to undertake the task. Col. Carol S. Sikes, then Director of the Air Force Historical Research Agency, ensured that the undertaking received the appropriate priority in terms of personnel and resources and confidently accepted the professional judgments of her staff regarding the daily details of research, writing, and analysis. Ms. Mary B. Tuggle, Secretary, Research Division, patiently handled the tiresome details of copy editing and formatting the manuscript. Finally, Ms. Barbara Wittig meticulously edited and refined the manuscript.

Contents

Preface iii
Introduction 1

1 Locating Army Air Installations, 1907–1947 5
A. Timothy Warnock

Trends and Factors Affecting Site Location 5
Pioneer Years, 1907–1917 8
The Great War and Its Aftermath, 1917–1925 12
The Army Air Corps Five-Year Plan, 1926–1935 16
The Wilcox Act, 1935–1939 19
World War II Expansion, 1940–1944 24
Force Drawdown, 1944–1947 40
Notes 48

2 Air Force Bases, 1947–1960 53
Daniel L. Haulman

Force Expansion 53
The Base Selection Process 54
General Base Selection Criteria 55
Major Command Requirements 56
Strategic Forces Bases 57
Air Defense Bases 70
Tactical Forces Bases 74
Intertheater Airlift Bases 77
Flying Training Bases 79
Basic and Technical Training Bases 81
Education Bases 82
Air Materiel Bases 85
Research and Development Bases 87

Summary 89
Notes 93

3 Retrenchment, Consolidation, and Stabilization, 1961–1987 101

Forrest L. Marion

Strategic Bases 105
Mobility/Airlift Bases 117
Tactical Bases 121
Air/Aerospace Defense Bases 125
Training Bases 128
Logistics Bases 134
Systems/Product Centers 136
Summary 139
Notes 142

4 Reorganization after the Cold War, 1988–2003 151

Jeffrey P. Sahaida

Force Structure and Basing Issues, 1988 153
BRAC Commission, 1988 156
BRAC Commission, 1991 160
BRAC Commission, 1993 168
BRAC Commission, 1995 176
Beyond BRAC 1995 185
Summary 186
Notes 195

5 Base Realignment and Closure Commission, 2005 202

Daniel L. Haulman

Notes 226

6 Planning and Establishing Joint Bases, 2002-2011 231

Christopher N. Koontz

The Joint Basing Concept 232
Preliminary Analysis and Studies for Joint Basing 235
Headquarters Air Force Joint Basing Activities 238
Disputes with OSD 240
Final Analysis and Implementation 243
Early results of Joint Basing 246
Notes 248

Conclusion: History's Legacy 255

Acronyms 257

Select Bibliography 259

Contributors 267

Maps

Principal Air Corps Fields and Depots, 1939 4
USAF Major Active Installations, September 1960 52
USAF Major Active Installations, May 1980 100
USAF Major Active Installations 2003 150

Tables

Table 1.1: Key Historical Army Air Service Installations, World War I 13
Table 1.2: Reorganized Army Air Corps Installations, September 1936 20
Table 1.3: Key Historical Army Air Corps Installations, 1939 23
Table 1.4: 54-Group Stations, by Geographic Area, December 1940 27
Table 1.5: 54-Group Training Stations 28
Table 1.6: New Tactical Air Fields, by Geographic Area, January 1942 . . .29
Table 1.7: 84-Group Training Stations 30
Table 1.8: 273-Group Training Stations, May 1942 32
Table 1.9: New Technical Training Schools, March 1943 33
Table 1.10: Air Transport Command & I Troop Carrier Command, Operations and Training Installations, 1943–1944 35
Table 1.11: Second Air Force Heavy Bombardment Training Stations, May 1943 38
Table 1.12: Third Air Force Unit Training Stations, May 1943 39
Table 1.13: Very Heavy Bomber Bases, 1943–1945 40
Table 1.14: Status of Army Air Forces Continental Installations, 1941–1945 41
Table 1.15: Major Army Air Forces U.S. Installations, by Command, September 1947 44

Table 2.1: New Air Force Bases, 1950s 56
Table 2.2: Strategic Air Command Bases and Combat Aircraft, Number in 1948–1960 62
Table 2.3: Bases Selected for SAC ICBMs, End of 1960 64
Table 2.4: Geographic Distribution of Strategic Air Command Bases, End of 1960 66
Table 2.5: Major Strategic Air Command Bases, 1947–1960 68
Table 2.6: Geographic Distribution of Air Defense Command Bases, End of 1960 72
Table 2.7: Major Air Defense Command Installations, 1947–1960 73
Table 2.8: Tactical Air Command Bases, 1947–1960 76
Table 2.9: Major Military Air Transport Service Bases, 1947–1960 78
Table 2.10: Major Air Training Command Flying Training Bases, 1947–1960 80

Table 2.11: Major USAF Installations for Nonflying Training and Education, 1947–1960 82
Table 2.12: Air Materiel Areas and Weapon System Specialties, 1959 85
Table 2.13: Major Air Materiel Command (Logistics) Bases, 1947–1960 . .87
Table 2.14: Major Air Research and Development Command Bases, 1947–1960 88
Table 2.15: Major USAF Bases Activated, 1948–1960 90
Table 2.16: USAF Bases in the Continental United States, Inactivated or Transferred, 1947–1960 92

Table 3.1: Number of USAF Major Active Installations, Continental United States, FYs 1961–1980 102
Table 3.2: Major Strategic Bases, 1961–1987 108
Table 3.3: Announcements of USAF/DOD Installation Closures/Realignments, 1961–1976 111
Table 3.4: Operational Titan ICBM Bases, Year of Squadron Activation . .114
Table 3.5: Operational Minuteman ICBM Bases, Year of Squadron Activation 115
Table 3.6: Major Mobility/Airlift Bases, 1961–1987 119
Table 3.7: Major Tactical Bases, 1961–1987 123
Table 3.8: Major Air/Aerospace Defense Bases, 1961–1979 128
Table 3.9: Major Technical Training Bases, 1961–1987 130
Table 3.10: Major Flying Training Bases, 1961–1987 131
Table 3.11: Major Logistics Bases, 1961–1987 135
Table 3.12: Major Systems/Product Centers, by Function, 1961–1987 . . .138
Table 3.13 Major USAF Bases, Continental United States, 1987 140

Table 4.1: USAF Total Aircraft Inventory, FYs 1988–1995 152
Table 4.2: USAF Installation Posture, FYs 1988–2003 152
Table 4.3: USAF Major Active Bases, Continental United States, 1988 . .155
Table 4.4: Defense Secretary's Commission on Base Realignment and Closure, 1988 Criteria 157
Table 4.5: DOD Criteria for the 1991, 1993, 1995 Base Realignments and Closures 163
Table 4.6: Projected Air Force Structure, 1991 163
Table 4.7: Base Recommendations for Closure and Realignment, 1991 . .165
Table 4.8: Reorganized USAF Major Active Bases, Continental United States, July 1992 169
Table 4.9: Projected Air Force Structure, 1993 170
Table 4.10: Recommendations for Base Closure and Realignment, 1993 .172
Table 4.11: Projected Air Force Structure, 1995 177
Table 4.12: Recommendations for Base Closure and Realignment, 1995 .179
Table 4.13: Air Logistics Centers, 1995 181

Table 4.14: Air Combat Command, 2003 188
Table 4.15: Air Education and Training Command, 2003 189
Table 4.16: Air Force Materiel Command, 2003 190
Table 4.17: Air Force Space Command, 2003 191
Table 4.18: Air Force Special Operations Command, 2003 192
Table 4.19: Air Mobility Command, 2003 193
Table 4.20: Air Force Reserve Command and Air National Guard, 2003 .194

Table 5.1: USAF, AFR, and ANG Bases DoD Recommended to BRAC Commission 2005 for Closure 211
Table 5.2: Non-Regional Meetings of the BRAC Commission 2005 . . .214
Table 5.3: Regional Meetings of the BRAC Commission 2005 216
Table 5.4: USAF Installation BRAC Commission 2005 Decided not to Close, Despite USAF and DoD Recommendations 218
Table 5.5: USAF, AFR, and ANG Closing as a Result of BRAC Commission 2005 218
Table 5.6: USAF Installations Becoming Part of Joint Basing 220
Table 5.7: USAF, AFR, & ANG Installations Ceasing to be USAF Installations as a Result of BRAC Commission 2005 221
Table 5.8: Air National Guard Facilities Scheduled to Lose Aircraft 222
Table 5.9: Air National Guard Facilities Losing Some Aircraft but Keeping Others 223

Table 6.1: Air Force Installations Selected for Joint Basing 233

Photographs

Hangars and water tower at College Park, Maryland, 1911 9
Oldest military building at Wright-Patterson AFB, constructed in 1917 11
Aerial view of “new” Bolling Field in April 1939 15
“Taj Mahal,” built at Randolph Field in 1931 17
Hangars in 1943 at Great Falls Field, Montana 34
B–36 hangar under construction in 1948 at Limestone Air Force Base, Maine 59
Aerial view of Glasgow Air Force Base, Montana, constructed during the 1950s 67
Air University academic circle at Maxwell Air Force Base, Alabama 83
The distinctive chapel at the Air Force Academy 84
A 1977 flight line display at Minot Air Force Base, North Dakota 106
Construction site, early 1960s, for Atlas ICBM at Plattsburgh Air Force Base, New York 113

The 1965 entrance sign at Seymour Johnson Air Force Base, North Carolina 122
Entrance to K.I. Sawyer Air Force Base, Michigan, as seen in 1985 126
The old and new towers in 1992 at Whiteman Air Force Base, Missouri .154
Aerial view of March Air Force Base, California 159
Solitary KC–135 on a quiet flight line at Grissom Air Force Base, Indiana, in 1994 166
Main gate at Francis. E. Warren Air Force Base, Wyoming, in 1992 175

Introduction

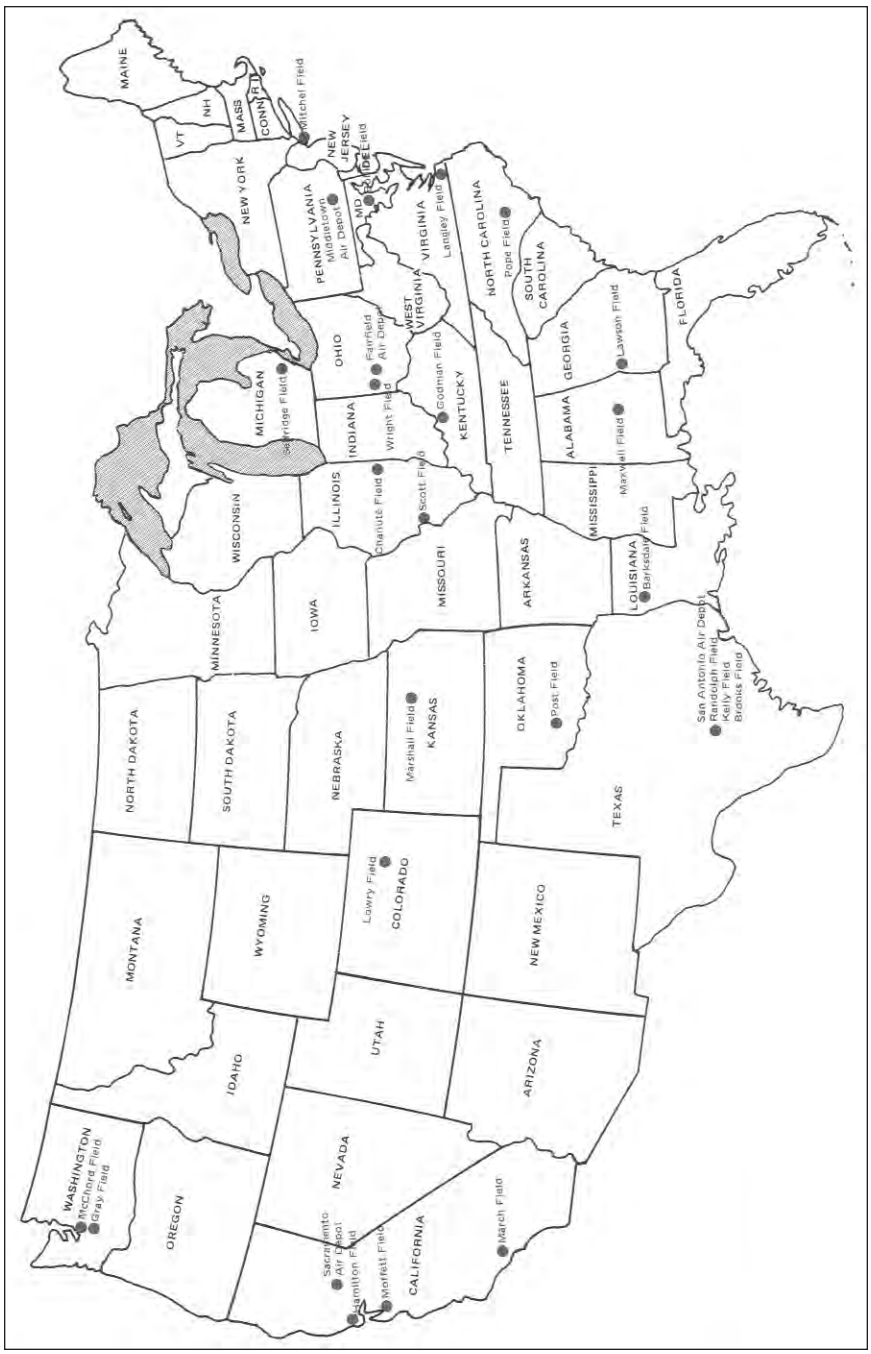
In the year 2003, the Department of Defense began preparing for yet another Base Realignment and Closure Commission Review intended to eliminate unnecessary infrastructure. Since 1988, four Base Realignment and Closure (BRAC) reviews have been instrumental in the closing 30 of 102 major Air Force installations. Focused on rising deficits and growing national debt, the presidential administrations of George H. W. Bush (1989–1993) and William J. Clinton (1993–2001) have publicized these actions as a means of eliminating expensive and unnecessary overhead. From the military perspective, the reviews have permitted the Air Force and its sister services to adjust and relocate their assigned forces and activities to deal with the ending of the Cold War and its turbulent aftermath.

The relocation of USAF units and functions is by no means a recent phenomenon. It has taken place continuously since the birth of United States air power with attendant consequences for individual citizens and their communities. To many Americans the most visible and personally significant reminder of their nation's air power is an Air Force base located within or near their community. Whether an operational air base with an active flight line, a logistics depot, a research complex, or a facility with a combined function, these installations employ thousands of military and civilian personnel and pump millions of dollars into the local economy through payrolls and the purchases of goods and services. To some civilians the air base provides a secure economic livelihood; to others it represents a competitor for economic resources, a source of noise and chemical pollution, and a potential safety hazard. Such opposite perceptions may influence a military basing decision, but not decisively. To the professional airman's mind, the major value of an installation must be its contribution to the effective application of air power.

In a functioning democracy, concerns of its citizens projected into the political arena may influence the selection of a basing site. Instances when political interests have exerted sufficient leverage to override military opinion in the matter of basing decisions are notable. Greenville AFB, Mississippi, and Loring AFB, Maine, are two examples when bases were retained on active status well after their military usefulness had expired. After 1976, skewed interpretations of the National Environmental Policy Act (NEPA) effectively blocked base closings required to align infrastructure with the much-reduced post-Vietnam force structure. During the same period, opponents of Peacekeeper missile basing in the Southwest also used the NEPA to their advantage.

Introduction

Often the accommodation of political pressures within military requirements has been valid and necessary in military decision making. From the dawn of military aviation, U.S. airmen have recognized that favorable community attitudes can tangibly reduce the cost of acquiring a base and enhance the efficiency of air base operations. Accordingly they have considered favorable community attitudes, particularly those expressed through donations of land, infrastructure, and services, when determining the location of an air base. But, no matter the political context of a basing decision, U.S. airmen have insisted that military requirements have precedence. In 1952, Secretary of the Air Force Thomas K. Finletter issued guidance to the Air Staff regarding the selection of air base sites. Observing that a basing decision would inevitably affect someone, he advised his staff to make their decisions on technical requirements while accommodating "other" interests once technical interests were satisfied. Secretary Finletter's guidance reflected the wisdom of accumulated decades that his successors have also chosen to follow.



Principal Air Corps Fields and Depots, 1939

1

Locating Army Air Installations 1907–1947

The location and development of airfields have always been vital concerns in the projection of military air power. In fact, Orville Wright testified before the Morrow Board in 1925 on the importance of suitable airfields for the effective basing and operations of air forces. In the forty years between the U.S. Army's issuance of a bid specification for a heavier-than-air flying machine in 1907 until the establishment of the U.S. Air Force as a separate service in 1947, the Army's military aviation branch developed the basic criteria for selecting and building modern air installations.[1] This chapter traces the development and resulting trends in air base location.

Trends and Factors Affecting Site Location

National defense needs significantly and consistently influenced the ebb and flow of base openings and closings. During World War I, the number of military bases dramatically increased, but within five years of the armistice the number of Air Service installations had dropped to the lowest point of the interwar period. Responding to the threat of war in the late 1930s, the Army Air Corps (later, the Army Air Forces) began building its infrastructure, which peaked by 1943. As World War II wound down, so did the number of installations, and after the surrender of Japan, the reduction in the number of bases accelerated until the U.S. Air Force was established in 1947. This ebb and flow was characterized by the permanent and temporary construction of facilities. As Army aviation began expanding in earnest during each world war, it promptly adopted a policy of building temporary, easily constructed, and inexpensive structures. The Army could quickly build such structures to accommodate rapidly increasing numbers of personnel and aircraft and could just as easily abandon them when the current emergency ceased. With ebbing military needs, when the number of installations had been reduced to

a suitable peacetime level, the air service began erecting permanent buildings and infrastructure on its remaining bases. Practical military criteria were always paramount in selecting base sites, but nonmilitary issues often significantly influenced the work of site selection boards.[2]

Site Selection Boards

In the pioneer days, the Aeronautical Division of the Signal Corps generally relied on individuals to select and recommend sites. Then, in the spring of 1913, the Signal Corps selected a group of officers, essentially the first site board, to determine the best location of the Signal Corps Aviation School. By the beginning of World War I, the process of locating aviation installations by site boards was well established. The War Department or the Army Signal Corps, and subsequently the Army Air Service, would appoint officers to a site board that would select the location for a particular installation. Board members often worked with the local citizenry who could provide valuable information on real estate and other local conditions. The War Department would approve their selection, and Congress would pass legislation authorizing the purchase or lease and then appropriate the necessary money. This process changed somewhat with the enactment of the Wilcox Act of 1935 which authorized the War Department to select sites without having to obtain congressional approval. Still, Congress could and frequently did influence site locations through the appropriation process. Another significant change occurred with the establishment of the Army Air Forces (AAF) in 1941. In that action, the War Department gave the AAF Commanding General total authority to appoint or delegate the appointment of site boards and approve the selection of locations. The more prominent practical military considerations considered by the boards over the years included geography, topography, and technology. While site selection boards did not directly consider political, economic, or bureaucratic issues, all these factors could influence their decisions.

Geography affected the location of air bases for several reasons. In the pioneering days, the need for favorable flying weather and an agreeable climate received paramount consideration. Later, other important geographic considerations included proximity to transportation, utilities, adequate housing, recreational facilities, and other base support. During World War I, a major consideration in selecting sites for centers that were to offer training in photography, mechanics, and medicine was their proximity to centers of technical expertise. After the war, the fact that a base formed the center of an aircraft's radius of flight became a more important issue. Thus, for air defense, a base should be located near the center of the region in which its aircraft operated or near the target that it was to protect.[3] By 1933, the Commanding General of the Army Air Corps (AAC) had defined areas of the nation that were critical for air defense. These changed over the years and were eclipsed during the middle of World War II when bases went up all over the country. With the establishment of the Air Defense Command in March 1946, air defense sectors were once again identified across the United States.

The topography of an area affected base location due to practical considerations. The physics of flight required that a region have certain physical characteristics. A potential airfield had to be well drained, level, and easy to prepare at minimum expense. Surrounding features, both natural and manmade, influenced the desirability of a particular site. Size became increasingly important as aircraft developed into larger, heavier, and faster-moving machines that required more area for their operation. Early fields could be as small as ten acres, but by 1940 the AAC was looking for bases of several thousand acres to accommodate long, hard-surfaced runways and more infrastructure for personnel, aircraft maintenance, and other aviation functions.[4]

The move to ever-larger airfields was driven largely by advances in aircraft and their associated technologies. The first aircraft were designed to take off and land on turf. Because they were light machines, easily upset by crosswinds, an important consideration in selecting and constructing airfields was the prevailing wind. In 1934, to accommodate the new four-engine heavy bombers and other heavier aircraft, the AAC decided that new runways should be surfaced, all-weather constructions. At this time, aviation engineers sought money to build hard-surfaced runways at least 7,000 feet long to accommodate the B–17 and other heavy and speedy aircraft. Larger, heavier, and faster aircraft developed before World War II required airfields with obstacle-free approaches that permitted flatter glide angles. More complex aircraft also needed larger, better-equipped maintenance shops and hangars as well as housing and other support services for personnel. As aircraft range increased, airfields no longer needed to be close to the defended target. As technology advanced, air congestion and air traffic control became increasingly important issues in site selection.[5]

As air power needs and technology changed, so did the functions of bases. An outstanding example is March Field, California. In World War I it was a minimally desirable field because excessive wind hindered flying the light, underpowered aircraft of the time. But by 1938, technological advances had produced more powerful aircraft, and the addition of the nearby Muroc bomb and gunnery range made it one of the most desirable bases in the AAC. Sometimes a base developed for a specific purpose could not be readily adapted for another use, and it became surplus after a relatively short time. For example, during World War II the troop carrier base at Grenada, Mississippi, was used for only ten months. Also, the AAF expanded several bases for B–29 training even as it was declaring many other bases surplus.[6]

Politics, Economics, and Local Community Support

In matters of military basing, the issues of politics, economics, and local support were too tightly intertwined to separate. Support for locating an air base in a particular community generally rested on perceived economic benefits to be generated by the base. For instance, when the Aeronautical Division of the Army Signal Corps began looking for a winter flying site in the fall of 1911, communities sought

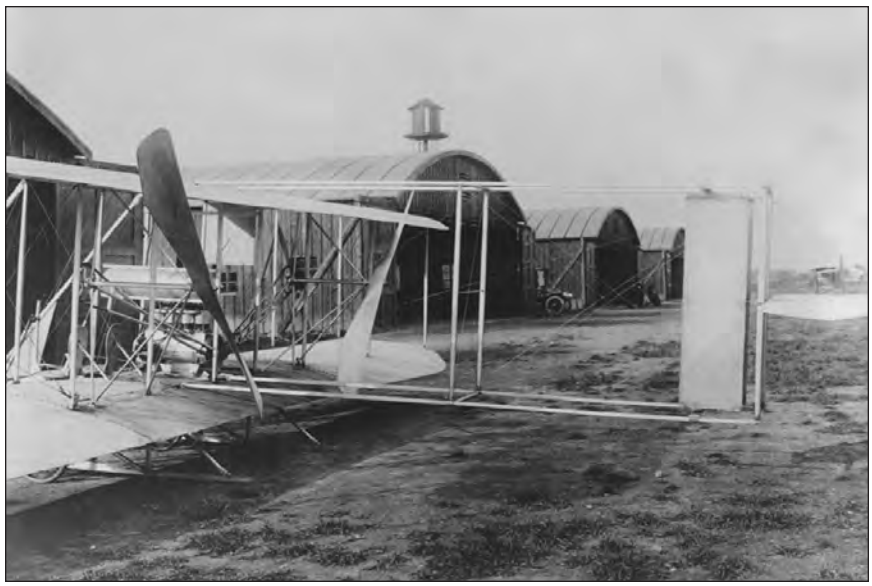
to influence its decision. In choosing the location, the Army aviation arm considered practical factors first, a practice that continued throughout the period. Local opposition to a base usually lay in economic considerations as well. Thus, as Army aviation began expanding its installations in the late 1930s and early 1940s in the West, cattlemen, miners, and foresters holding permits for public land use often opposed transferring the property to the aviation service.

The Army aviation arm's interest in and use of local, primarily municipal, airports also frequently affected local civil-military relations. Between 1919 and 1926, the Army Air Service aggressively encouraged local communities to establish and develop airfields. Later, during the buildup to and through World War II, Army aviation's reliance on local airports justified the first major federal financial support of municipal airports. As one historian pointed out, "municipal airports would play a significant role in the development of military air power. In return, cities would receive for the wartime service of their airports a certain measure of benefits."[7]

Pressure for or against locating and developing a particular site could be politically motivated. Congress would often authorize the purchase of land but then fail to provide the necessary appropriations to effect its legislation. The dominant issue for such failures was congressional reluctance to spend the money, although the absence of effective leadership from the executive branch sometimes contributed. On other occasions, the desire of a local congressional delegation to obtain a vital economic asset in the form of a local airfield could overcome congressional inertia. In fact, the War Department and the AAC frequently welcomed local support, which could be crucial to obtain the appropriation for a particular site. To bring a base to the community or keep an existing installation open during the interwar period, local civic groups would usually push their local governments for concessions and their congressional delegations to intervene with the War Department or to enact legislation. Later, during the buildup of installations in the three years preceding World War II and then during the war, political influence was minimal. Keeping the actual selection of sites confidential until Congress had appropriated funds to procure and develop them blunted political pressures. Moreover, the very multiplicity of local claims tended to counteract the pressure exerted by Congress on the AAC to choose one location over another.[8]

Pioneer Years, 1907–1917

When the U.S. Army Signal Corps issued specifications for bids on a heavier-than-air flying machine in December 1907, it required that the airplane be delivered to Fort Myer, Virginia, for flight trials on the drill field. Orville Wright inspected the site in May 1908 and found it so small as to be barely adequate for flying.[9] In August 1909, after the flight trials, the Army accepted the Wright airplane. Because a larger space than the Fort Myer drill field was needed to train the first Army pilots, Lt. Frank P. Lahm made a survey by balloon and horseback of nearby loca-



Hangars and water tower at College Park, Maryland, 1911. A Wright Flyer Model B is in the foreground.

tions. He chose a field at College Park, Maryland, where, in October 1909, Wilbur Wright trained two officers to fly the airplane. Wright also gave some flying lessons to Lt. Benjamin D. Foulois. By early November, weather at College Park had become too cold and windy for safe flying. In December, the Army issued orders to Lieutenant Foulois to move the airplane to Fort Sam Houston, Texas, where the weather was warmer and more favorable for winter flying. Foulois and his crew of mechanics arrived with the airplane in February 1910 and began flying from the parade ground the next month. This site, small, crowded, and used for other purposes much of the time, was the Army's sole airfield for the next year and a half.[10]

In March 1911, the Signal Corps again leased the field at College Park and began constructing hangars there. In July, it abandoned the parade ground at Fort Sam Houston and established the Signal Corps Aviation School at College Park. In October, before cold weather descended on College Park, the Army looked for a site with a climate more conducive to regular flying in the winter. Local chambers of commerce and congressmen beset Capt. Charles D. Chandler during his scouting trip through the Carolinas and Georgia. In turn, Chandler consulted Weather Bureau maps of wind velocities and temperatures and chose a spot near Augusta, Georgia. The field, just east of the city, provided ample area for aircraft landings and takeoffs, and it was close to facilities to board and house the pilots and mechanics. In November 1911, the entire school moved to Augusta, where several pilots received training before returning to College Park in April 1912.[11]

Locating Army Air Installations

Deploying from College Park, pilots and airplanes participated in Army ground maneuvers and exercises about the country, including at Bridgeport, Connecticut, in August 1912 and at Fort Riley, Kansas, in October. The Army also sent officers in 1911 and 1912 to aircraft factories to train as pilots and mechanics. In November 1912, the Signal Corps sent the Wright airplanes and crews back to Augusta, but the Curtiss airplanes and crews went to North Island, San Diego, California, at the invitation of Glenn Curtiss, who was operating a school there. In February 1913, the Army, nervous about the turmoil of the Mexican Revolution, ordered all personnel, Wright airplanes, and equipment in Augusta to move to Texas City, Texas. Meantime, the Signal Corps tried to purchase the College Park site, but Congress failed to enact authorizing legislation. Consequently, an Army commission sought a locale suitable for year-round flying, settling on North Island as the best site for the aviation school. In addition to its favorable climate of minimal wind and little inclement weather and its topography featuring areas suitable for landing and overland and overwater space for flying, a local group had bought the land to lease at a very low cost to the government for aviation purposes. In June, the Signal Corps transferred the 1st Aero Squadron and the rest of the equipment at College Park to North Island, which eventually became known as Rockwell Field. The Army abandoned College Park permanently at the end of June, and Texas City in November. In July 1919, Congress would authorize the purchase of North Island for the joint use of the Navy and Army.[12]

Brig. Gen. George P. Scriven, Chief Signal Officer, determined to establish an operational aviation center geographically distinct from the aviation school. Separating the two would avoid operational and training units having to share the same infrastructure and funding, with the attendant danger of commingled funds. Criteria for the proposed operational center included good weather, presence of troops, and available government land. An old target range some four miles north of the main post at Fort Sam Houston met those criteria, but a lack of money to develop the site delayed the project until March 1915. In November, the 1st Aero Squadron, having been on maneuvers at Fort Sill, Oklahoma, flew across country to the new field at Fort Sam Houston. It remained there only a few months before deploying in March 1916 to Columbus, New Mexico, to join Maj. Gen. John J. Pershing and the Punitive Expedition into Mexico.[13]

Until this time, the Signal Corps Aviation School at North Island had been adequate for training the Army's aspiring aviators. However, with the war in Europe threatening U.S. national security, the Army established a second flying school in July 1916 at Mineola (later, Hazelhurst Field), Long Island, New York, where the first aero company of the National Guard had been organized in November of the previous year. The Signal Corps quickly located several other primary flying schools. Criteria for choosing these sites were fairly simple. The fields had to be level, free of obstacles, and large enough to permit landings and takeoffs in two different directions. By October 1917, six months after the United States entered World War I, the Signal Corps had begun primary flight training at several newly

The oldest military building extant at Wright-Patterson AFB. Building 1 was constructed in 1917 as a warehouse for war materiel.

constructed sites in Illinois, Michigan, Ohio, and Texas. It also established advanced flying schools at Houston, Texas, and Lake Charles, Louisiana. Then, on 15 December, it transferred all cadets to southern locations because year-round training in the milder climate permitted an even flow of students.[14]

Criteria for locating an experimental field were considerably more detailed, perhaps because the Army, Navy, and National Advisory Committee for Aeronautics (NACA) had agreed in 1916 to a joint facility. The general area should encompass one by two miles, with the long axis into the prevailing wind, and it should be located south of the Mason-Dixon Line, east of the Mississippi River and sufficiently inland to avoid hostile attacks from the sea. Other considerations included general climatic conditions suitable for flying most of the year, proximity to industry and transportation, a body of water for overwater flying and water landings, the availability of skilled labor, and factors, such as accessibility to towns, that would affect the health and morale of personnel. Each of the three participating organizations appointed a site board to survey possible locations. In November, a 1,650-acre site in Hampton, Virginia, was selected after a local citizens' group offered to install a railroad and other basic infrastructure and sell the land at a reasonable price, less than the $300,000 Congress had approved. The Navy never developed facilities at Langley Field, but in 1917 the Signal Corps Aviation Section began

construction on the new site, although the war caused the Army to change its plans and develop the base as a flying field. After the war, in 1919, NACA established its laboratory for scientific research into aeronautics at Langley Field.[15]

By April 1917, the Signal Corps had gained sufficient experience in locating and developing flying fields to serve Army aviation through World War II. Gathering information on climate and topography, using existing military reservations, and using boards or committees to select sites became routine procedures. Also, the Army consistently relied on local civic and business groups to obtain information on real estate and to purchase and consolidate several small tracts of land that would be required for a large airfield; these groups typically sold or leased the land to the government at affordable prices. Usually, the Army aviation arm leased with an option to buy. The Army customarily awarded contracts to local engineering, architectural, and construction firms. Local governments or groups frequently committed to developing basic infrastructure, such as electrical power, transportation, and other utilities. Consequently, many fields selected early in the war proved to be enduring sites that survived drastic postwar reductions.[16]

The Great War and Its Aftermath, 1917–1925

On the eve of the United States' entry into World War I in April 1917, practically no military aviation infrastructure existed in the country. During that year, the Army built more than a score of flying fields, five supply depots, three concentration depots, three balloon camps, two repair depots, one experimental field, and one radio laboratory, as well as establishing ground and mechanic schools at several universities. By the end of the war, the Air Service operated some thirty training facilities, mostly in the West and South. During the eighteen months of the war, the Army aviation arm leased, opened, and operated within the United States for varying lengths of time some 105 installations. Most construction on these installations consisted of temporary wood-frame buildings and steel-frame hangars. Runways were usually dirt, sod, gravel, or cinders. Some sites presented unique problems, like the excessive turbulence at March Field due to its location in a valley surrounded by hills. At McCook Field, Ohio, to take advantage of prevailing winds, the runway traversed the short expanse of the field adjacent to the Miami River; however, a sign on one hangar warned pilots, " This Field Is Small—Use It All." At Texas airfields, excessive winds created summer dust storms or forced suspension of flying altogether during the windy midday.[17]

The Air Service relied on existing commercial centers for locating several of its bases and technical schools. For example, in March 1917 it opened a school for photofinishers at Rochester, New York, the manufacturing location of Kodak, the country's largest manufacturer of cameras, films, and photographic supplies. McCook Field at Dayton, Ohio, was selected in large part because the city was a center for aircraft manufacturing. It became the Air Service's chief experimental station — involving research, engineering, and testing of new and improved air-

borne and ground equipment — a result of the construction delays at Langley Field. In spite of drainage problems, Selfridge Field, Michigan, offered a site close to America's automobile industry, and the Liberty engine underwent its tests here. Transshipment of supplies to Europe required supply depots near ports of embarkation served by efficient transportation; thus the depots at Middletown, Pennsylvania, and Richmond, Virginia.[18] Those World War I installations that proved to be long-lasting, major air bases of historical significance are listed in Table 1.1.

Table 1.1: Key Historical Army Air Service Installations, World War I

Installation	Date Established	Operational Date	Remarks
Bolling Field, D.C.	Oct. 2, 1917	Jul. 1918	Flying field; aerial defense of Washington
Brooks Field, Tex.	Dec. 8, 1917	Jan. 1918	Flying field; instructors' school
Chanute Field, Ill.	May 21, 1917	Jul. 1917	Flying field; primary flying school
Ellington Field, Tex.	Sep. 14, 1917	Nov. 1917	Flying school; armorer's school, bombing school; radio school
Fort George Crook, Nebr.	c. Sep 1918	c. Dec 1918	Balloon field (in 1924, named Offutt Field)
Kelly Field, Tex.	Mar. 27, 1917	May 1917	Flying field; primary flying school; school for adjutants, supply officers, engineers; mechanics school; aviation general supply depot (later, San Antonio Air Depot)
Langley Field, Va.	Dec. 30, 1916	Jun. 1917	Flying field; balloon station; observers' school; photography school; experimental engineering department; aerial coast defense
McCook Field, Ohio	Nov. 1917	Dec. 1917	Testing field; experimental station; functions transferred to Wright Field when McCook closed in Oct. 1927
March Field, Calif.	Mar. 23, 1918	Apr. 1918	Flying field; primary flying school
Mather Field, Calif.	Feb. 21, 1918	Apr. 1918	Flying field; primary flying school
Middletown General Supply Depot, Pa.	Sep. 20, 1917	Oct. 1917	Aviation general supply depot (air field named Olmsted Field in 1923)
Mitchel Field, N.Y.	Jul. 16, 1918	Jul. 1918	Flying field; temporary storage depot
Engine & Repair Depot, Montgomery, Al.	Apr. 9, 1918	Jul. 1918	Aviation repair depot (air field named Maxwell Field in 1922)
Pope Field, N.C.	Sep. 5, 1918	Feb. 1919	Flying field associated with field artillery center at Camp Bragg
Rochester, N.Y.	Mar. 25, 1916	Mar. 1916	School of photography
Rockwell Field, Calif.	Jun. 1913	Nov. 1912	Flying field; primary flying school; pursuit school; aerial gunnery school; supply depot
Scott Field, Ill.	Jun. 23, 1917	Aug. 1917	Flying field; primary flying school
Selfridge Field, Mich.	Jul. 3, 1917	Jul 1917	Flying field; aerial gunnery school
Wilbur Wright Field, Ohio	May 22, 1917	Jun. 1917	Flying field (renamed Patterson Field in 1931); Fairfield Aviation General Supply Depot; armorers' school; temporary storage depot

Sources: World War I Group, Historical Division, Special Staff, United States Army, *Order of Battle of the United States Land Forces in the World War (1917–1919) Zone of the Interio*r, vol. 3, part 1 (Washington, D.C.: Government Printing Office, 1949), 107–108; Robert Mueller, *Air Force Bases,* vol. 1, *Active Air Force Bases Within the United States* (Washington, D.C.: Office of Air Force History, 1989); *History of the Middletown Air Depot from Activation to 1 February 1943* (Middletown Air Depot, Pa.: August 1944) AFHRA 205.04–1.

Locating Army Air Installations

After the World War I Armistice in November 1918, the fledging Army Air Service, even as it began to abandon most of its leased facilities, hoped to purchase and maintain fifteen flying fields as well as five balloon stations for training purposes. By July 1919, it had bought fifteen sites and requisitioned two aviation general supply depots for permanent use. It also retained McCook Field for engineering research and development of aircraft and engines. In November, the Air Service located its recently established School of Aviation Medicine at Mitchel Field near New York City so that physicians could gain practical experience in the city's hospitals. In June 1926, however, the Air Service moved the school to the flying training base at Brooks Field, where flight surgeons could obtain more practical experience in an aviation environment. In the end, a parsimonious Congress curtailed many military aviation plans, and the Air Service had to adapt to a greatly reduced infrastructure. Over the next eight years, the Air Service tried to reduce overhead costs by consolidating functions at relatively few bases.[19]

In 1921, Maj. Gen. Mason M. Patrick, Commanding General of the Air Service, reported that the Air Service had abandoned several fields and concentrated its primary training at Brooks Field. In 1922, the service moved its advanced flying training to Kelly Field, also near San Antonio, and consolidated its technical training at Chanute Field, Illinois. Congress meantime determined that excess military land would be sold regardless of financial loss. Such action eliminated infrastructure maintenance at taxpayers' expense and returned the real estate to state and local government tax rolls.[20]

In 1922, the Air Service still leased McCook Field, its engineering and aeronautical research installation, although the field's location was practically within Dayton's city limits and its small size made flying airplanes extremely dangerous. As land value increased, the cost of the lease became excessive. Due to the field's inadequacies, the Air Service considered looking for another site. A group of citizens, anxious to retain the facility near Dayton, bought several thousand acres of land, including the leased Wilbur Wright Field at Fairfield. The new land had several advantages. Its proximity to McCook Field lessened the cost for transferring equipment. The Air Service already had existing facilities, including a depot there. In use since World War I for service and tactical tests of airplanes and equipment, it already had a trained labor force. The civic group offered the land to the government at no cost, and President Calvin Coolidge accepted title on 24 August 1924. Congress, questioning the involvement of an Army Reserve colonel and local businessman, Edward Deeds, in the deal, delayed an appropriation to fund the transfer of the engineering plant from McCook Field to the new site until 1926. Construction finally began in April on the expanded facility known as Wright Field.[21]

General Patrick in 1923 reported that the Air Service owned twenty-six sites, representing the low point between the wars in the number of Army aviation installations. Most sites met the basic requirement of a clear, unobstructed, and level mile-square flying field, but Bolling Field, Anacostia, Washington, D.C., was a major exception. After World War I, when the Air Service argued it needed a site

in the Washington area, Bolling at Anacostia was thought to offer the best available location at minimum expense. In 1921, Congress set aside the land, an irregular strip of 275 acres bound on one side by low wooded hills and the other by the Anacostia River. The site had poor drainage, and aircraft could land only along one axis, regardless of wing direction. As flaws in the location became obvious, the AAC (previously, the Army Air Service) began plans in 1929 to abandon it. Congress approved the purchase of a more suitable tract of 480 acres immediately to the south, but difficulties in acquiring the property, among other factors, delayed its development. Not until 1937 did the AAC turn over Anacostia to the Navy and move Bolling Field to its new site. The new, asphalt-choked slag runway opened in 1938, one of the first modern hard-surfaced runways in the AAC.[22]

In the early 1920s, the Air Service sought to establish new flying fields and retain existing ones in support of the national airways system and navigation aids being developed across the country. The objective was to "fulfill the strategic requirements of national defense" by ensuring that Army aircraft could move quickly from one part of the country to another.[23] Also, numerous suitable landing sites about the countryside would ensure that pilots could engage in cross-country flight training. Such training required airfields with servicing and refueling facilities every 150 to 200 miles because of aircraft range limitations. Safety was also a consideration for numerous landing sites because the airplanes frequently suffered

Aerial view of "new" Bolling Field in April 1939, showing the innovative asphalt runways.

engine failure or other problems that forced pilots to make emergency landings on the nearest suitable terrain.[24]

To achieve these objectives, the Air Service instituted a Reserve flying field program and coordinated the establishment of the national airway system. It constructed the Model Airway, a series of properly placed, equipped, and marked airfields between Cumberland, Maryland, and Columbus, Ohio. Based on this model, the Army Air Service established the following criteria for suitable local airports: they should have aircraft servicing and refueling facilities; be easily accessible by ground transportation; have a clear landing area of about 2,700 feet, preferably in all directions, and at least into the prevailing wind; and be clearly marked for easy identification from the air. In 1923, the Air Service published a manual instructing municipalities on how to construct an airport. In addition to the Model Airway, the Army Air Service established a Reserve flying field program. Congress in 1920 provided for the training of Air Service Reserve pilots to be called to active duty in the case of emergency. The War Department would construct facilities on municipal airfields provided by cities, and the Air Service would lease the land for $1 a year. The reduction in forces and austere funding, however, hindered manning a full complement of stations, and the Air Service soon ended the Reserve flying field program. Instead, it turned to local communities, encouraging them to construct airfields suitable for military as well as commercial and private aircraft. It coordinated the establishment of the national airway system and collected information on airfields that Air Service pilots could rely on for emergency landings. By 1925, the Air Service operated from some fifty locations (most were minor leased facilities), but far more areas of the nation were accessible to its aircraft than had been available in 1918.[25]

The Army Air Corps Five-Year Plan, 1926–1935

The Air Corps Act of 2 July 1926 represented a watershed for the Army's aviation branch. While not specifically directed to installations, the act provided for more personnel and equipment, which naturally meant increases in stations and flying fields under the five-year program. Although the growth was slated for five years, delays imposed by economic considerations caused implementation of the program to span nearly a decade.[26]

General Patrick, in May 1926, outlined a strategic plan for the buildup of forces. Basically he called for consolidating flying activities to reduce overhead expenses while meeting the strategic objectives of supporting the Army forces and providing aerial forces for national defense. Nine observation squadrons would be stationed at existing installations to support the Army corps areas. Also in support of the Army would be a wing consisting of a pursuit group and the attack group at Kelly Field. The wing and both groups would be headquartered at Fort Crockett, Texas. To meet air defense requirements, General Patrick proposed establishing a bombardment group and a pursuit group at Langley Field in the East and a bombard-

ment group at March Field with a corresponding pursuit group at Rockwell Field, both in the West. Another pursuit group would be stationed at Selfridge Field in a position to move via the Transcontinental Airways System to reinforce the East and West Coast air defenses. General Patrick's comprehensive plan for facilities in 1927 incorporated his previous plan and also called for construction of permanent facilities to replace the temporary wartime buildings at most aviation stations. Another consideration in refurbishing flying fields was the advancement in technology with respect to aeronautics and airfield design and construction. Larger fields with better landing surfaces could be built to accommodate faster and heavier aircraft. March Field became the first installation to benefit from these advances.[27]

The AAC five-year plan included establishment of a new primary flying school. The site location board appointed in April 1927 investigated several places but concentrated its attention in Texas, particularly at San Antonio, because of its excellent weather, climate, and topography. Proximity to advanced flying training at Kelly Field added to the area's attraction. Interest of the Texas congressional delegation and the city's offer with no cost to the U.S. government of a suitable 2,300-acre site some fifteen miles northeast of San Antonio clinched the deal. The Secretary of War finally received title to the land in August 1928, and construction began a short time later. Touted as the West Point of the Air, Randolph Field became operational in October 1931 with the move of primary flying training from Brooks and March Fields.[28]

The "Taj Mahal" has been a symbol of flying training since it was built at Randolph Field in 1931. Originally constructed as the base administration building, it ingeniously enclosed a 50,000-gallon water tank.

Locating Army Air Installations

Originally, the AAC plan for the five-year program had called for a wing to be stationed at Fort Crockett, Texas, and two attack squadrons did move there in June 1926. The station proved unsatisfactory because the flying field was too small to accommodate an entire wing, and damage from Gulf of Mexico storms occurred frequently. The AAC sought another location in the same general area. The city of Shreveport, Louisiana, bought more than 23,000 acres with local bond revenue and in November 1930 donated the land to the federal government. The AAC named the site Barksdale Field and developed it to include its own gunnery and bombing range. Initially occupied by a pursuit group when it became operational in October 1932, Barksdale also received the 3d Attack Group in February 1935.[29]

The AAC five-year plan did not include giving up its oldest permanent installation, Rockwell Field on North Island, but that is what happened. From the beginning, the Army shared North Island with the Navy. As early as 1921, the Navy sought sole possession of the island, a move the Army persistently opposed. The AAC consistently held that its station on the island was strategically important to national defense, including its responsibilities for aerial coastal defense, but under constant pressure from the Navy and Navy supporters in Congress, the AAC in the mid-1920s quietly and somewhat reluctantly identified two other possible sites near San Francisco: 1,100 acres near Alameda, and 917 acres in Marin County. In late 1930, Congress authorized the AAC to accept the donation of these two locations. In the authorizing legislation, for the first time, Congress dictated the actual location of AAC installations at the behest of California's Rep. Florence Kahn. While the AAC developed Hamilton Field in Marin County and Benton Field at Alameda, it also continued to operate Rockwell Field on North Island. Finally, President Franklin D. Roosevelt intervened and on 26 October 1935 transferred the AAC facilities on North Island to the Navy. In the same executive order, he authorized the transfer of Bolling Field (Anacostia) to the Navy. In return, the AAC received Sunnyvale Naval Air Station (later, Moffett Field), California, and the new Bolling Field site. It retained its depot on North Island until new facilities were completed at Sacramento in 1939.[30]

In 1933, Gen. Douglas MacArthur, U.S. Army Chief of Staff, reinforced results of the five-year program by emphasizing Army aviation's strategic mission of performing air operations for national defense. He divided the country into four strategic regions — North Central, Northeast, South, and Pacific Coast — and organized a field army command in each. He integrated the AAC bases into War Department plans for continental defense, a factor that would affect future airfield locations. Following General MacArthur's lead, in July the AAC chief, Maj. Gen. Benjamin D. Foulois, submitted to the War Department an "Air Plan for the Defense of the United States" that defined seven critical areas: Great Lakes, New England, Chesapeake Bay, Florida, Puget Sound, San Francisco Bay, and Los Angeles–San Diego. He proposed the use of civilian fields within these areas where insufficient numbers of Army airfields existed.[31]

The AAC five-year program resulted in significant gains in the number and

quality of installations. While losing North Island and Anacostia, the AAC developed five major new facilities, including the new Bolling Field, plus adding significant land purchases at Maxwell Field, Alabama, and at the Little Rock, Arkansas, and Middletown air intermediate depots. It also significantly improved working and living conditions on most bases. Furthermore, the expansion of AAC facilities continued with barely a pause as the federal government pushed deficit spending to stimulate the depressed economy, and local communities vied for the location of bases as economic assets.[32]

The Wilcox Act, 1935–1939

In 1935, Florida's Rep. J. Mark Wilcox introduced a broad bill authorizing the Secretary of War to determine priorities and locations of air bases. Previously, Congress had passed legislation authorizing the procurement of each permanent base, but this act provided a blanket authority that would ease the task of base selection tremendously through World War II. In defending it, Wilcox noted that it specifically precluded congressional involvement in decisions on the actual location of bases. When Congress passed the Wilcox Act in August, it named seven geographic areas, roughly corresponding to those listed in the AAC plan of 1933. Existing and new installations would be suitably located to support forces of the General Headquarters Air Force in war and to promote training in the strategic areas. It also specifically authorized new bases in the Northeast and Southeast, as well as air depots in the southeastern United States and Rocky Mountain region. The War Department gave priority to the location of new air facilities in the Northwest, where few AAC installations existed. The Northeast, another area deficient in AAC installations, would not receive any new bases until the pre–World War II buildup in 1939–1941. The major benefits for AAC facilities under the Wilcox Act were the replacement on existing bases of temporary structures with permanent buildings, installation of hard-surfaced runways on many fields to accommodate larger aircraft being developed, and, for the first time on most military airfields, installation of modern navigational aids. Under the Wilcox Act, the AAC made major strides in establishing strategic plans and building new installations. The War Department significantly assisted the act's implementation when in July 1936 it gave General Headquarters Air Force, the combat organization of the AAC, jurisdiction over its permanent, peacetime stations. Army corps area commanders had previously controlled those installations. Table 1.2 shows how the AAC reorganized in September to take advantage of this development.[33]

The first action of the AAC under the Wilcox Act was to look for an air depot site near the Pacific Coast since it was being forced to give up Rockwell Field Depot on North Island. A board settled on 1,117 acres near Sacramento, California, for the air depot. The Sacramento site was on a railroad junction, eighty miles inland, only eleven miles from inactive Mather Field. The Army already held an option, and the land was reasonably priced. Congress appropriated the money for

Table 1.2: Reorganized Army Air Corps Installations, September 1936

Organization	Unit	Location
Office, Chief of the AAC		Bolling Field, Washington, D.C.
	Materiel Division	Wright Field, Ohio
	Fairfield Air Depot	Patterson Field, Ohio
	Middletown Air Depot	Olmstead Field, Pa.
	San Antonio Air Depot	Duncan Field*, Tex.
	Rockwell Air Depot	Rockwell Field, Calif.
	Scott Field Air Depot	Scott Field, Ill.
	Air Corps Technical School	Chanute Field, Ill.
	Air Corps Training Center	Randolph Field, Tex.
	Primary Flying School	Randolph Field, Tex.
	Advanced Flying School	Kelly Field, Tex.
	Air Corps Tactical School	Maxwell Field, Ala.
General Headquarters Air Force		Langley Field, Va.
	First Wing	March Field, Calif.
		Hamilton Field, Calif.
	Second Wing	Langley Field, Va.
		Mitchel Field, N.Y.
		Selfridge Field, Mich.
	Third Wing	Barksdale Field, La.
AAC Installations Assigned to Corps Areas or Other Army		
		Brooks Field, Tex.
		Fort Bragg, N.C.
		Fort Lewis, Wash.
		Moffett Field, Calif.
		Scott Field, Ill.

Source: Memorandum to Section, Branch and Unit Chiefs, Subject: Reorganization of the Air Corps within the Continental Limits of the United States, September 19, 1936, Air Corps Materiel Division, AFHRA 145.91–302, Aug. 1934–Sep. 1936; *History of the San Antonio Air Service Command [San Antonio Air Depot] from Inception to 1 February 1943*, vol. 1, 1–2, AFHRA 205.11–1.

*Duncan Field was treated as a separate facility at this time, although it was collocated with Kelly Field.

purchase and development in the First Deficiency Appropriation Act for fiscal year 1936, and construction began shortly afterward. The Army also in October 1936 gave up Benton Field, which the AAC had little interest in, to the Navy. The next base purchased and developed was McChord Field, adjacent to Fort Lewis, near Seattle, Washington. Tacoma in 1937 donated its municipal airfield, and the War Department purchased the land between the field and Fort Lewis for the AAC facility. Construction began by mid-1938, and McChord Field became operational two and one-half years later.[34]

The AAC also used the authority of the Wilcox Act to address its deficiencies in modern bombing and gunnery ranges. As early as 1933, a landowner at Valparaiso, Florida, on the Gulf Coast, had offered to donate nearly 1,500 acres to the AAC. Officers from Maxwell Field visited the site in 1934 and recommended it as a bombing and gunnery range. Although title to the site, supplemented by adjacent land from the U.S. Forestry Service, did not pass to the War Department until 1936, Maxwell Field units began using the new range late in 1935. Meantime, the AAC in 1933 began using a section of the Mojave Desert near Muroc, California, as a bombing range for March Field units. The next year, the Secretary of War sought from the Agriculture Department the use of additional land in the area. Eventually, some 81,000 acres were transferred to the AAC, but private owners contested the title to nearly half of the land. Congress finally provided money to purchase the disputed tracts in 1938. In fact, the acquisition of the Muroc range made March Field (a less than desirable training site during World War I) the envy of other bases. Remote from urban development and characterized by topographical diversity, March enjoyed an abundance of flying space. The Florida and California sites provided badly needed ranges in the Southeast and the West.[35]

The Wilcox Act sought to eliminate political considerations in the selection of AAC sites. Often, however, congressional delegations, backed by local communities desperate for an economic boost in the midst of the depression, intervened in the process. Sometimes, such political pressures frustrated AAC plans and caused tremendous difficulties in efforts to modernize and expand its installations. The controversy over location of the Air Corps Technical School provides one of the more notorious cases. The school had been occupying temporary buildings at Chanute Field, Illinois, since 1921, even though the location was not especially desirable. A poor climate prohibited year-round flying, and lease of the required aerial gunnery range was very costly. After several fires at Chanute and deterioration of the buildings, General Foulois in February 1934 appointed a site selection board to find a new location. Site criteria included favorable weather for year-round flying; a gunnery and bombing range; access to a large city with churches, schools, and recreational facilities; and adequate utilities and transportation. After investigating some fifty-seven locations, the board settled in June 1935 on a mile-square site with a nearby 64,000-acre tract suitable for a range in Colorado. A citizens' group from Denver was willing to donate the land to the government. The AAC and the War Department accepted the board's recommendation, but for the next two years the Illinois congressional delegation fiercely fought removal of the technical school. Deteriorating conditions at Chanute forced the AAC to suspend some technical training even as new, more advanced aircraft and equipment being introduced into the inventory required increasing technical expertise. The War Department offered to build new schools at both sites, and finally, in August 1937, Congress accepted this compromise. Soon after, the AAC began training in photography and armament specialties at Lowry Field while it continued the training of mechanics at Chanute.[36]

Locating Army Air Installations

As the AAC slowly improved its installations, Europe and the Far East faced growing international violence. Responding to this threat to U.S. national security, in January 1939 President Roosevelt recommended to Congress a massive augmentation of personnel and new aircraft and equipment for the AAC. Congress quickly passed the necessary legislation, which also provided for the modernization and development of AAC installations. The War Department announced in the spring a 24-group program for its aviation arm. As the AAC began work on expanding its installations and building new ones, it followed the general strategic directions established by the Wilcox Act. Chief of the Army Air Corps Maj. Gen. Henry H. Arnold asked for funds for two new continental air bases and two new air depots. To preserve the appropriated money to these projects, he warned station commanders against using civilian channels to pressure the War Department for local projects.[37]

The AAC in October 1938 appointed a board to select a major air base site in the Northeast. The board recommended a 4,300-acre site near Chicopee Falls, Massachusetts. In spite of heavy population density, the location met the two primary requirements: it was far enough inland to be protected from enemy attack, and it was more or less centrally located in the national defense area. Approval of the location finally came in September 1939, but because of construction delays, Westover Field in Massachusetts could not receive its scheduled heavy bombardment group until May 1941. In January 1939, the board extended its search to include an air base in the Southeast. It chose a site that became MacDill Field near Tampa, Florida. This location had the advantage of being shielded by the Florida landmass from possible air attacks launched from enemy ships in the Atlantic Ocean.[38] In addition, aircraft based there could operate over the Caribbean Sea. MacDill received its heavy bombardment group in May 1940. The site selection board also located a tract near Mobile, Alabama, for a depot, which could supply maintenance for forces in the Southeast and, if needed, in the Caribbean area. The War Department approved the Mobile depot location in July 1939. Difficulties in construction on the swampy site delayed the opening of Brookley Field and the Mobile depot until January 1942. The last depot planned under the Wilcox Act was built at Ogden, Utah, a site selected in 1935. The depot was adjacent to the Army's Ogden Ordnance Depot, could supply anywhere on the Pacific Coast, and was far enough inland to be safe from enemy attack. The Ogden depot and Hill Field were ready for limited operations in 1940.[39]

These new facilities would complete all the continental base installations that the Wilcox Act authorized. That act had by 1939 built on the foundations of World War I bases to provide the AAC with most of its historically significant installations for the buildup to World War II.

Table 1.3: Key Historical Army Air Corps Installations, 1939

Installation	Date Established	Operational Date	Remarks
Barksdale Field, La.	Nov. 18, 1930	Oct. 1932	Pursuit & attack base
*Bolling Field, D.C.	Oct. 2, 1917	Jul. 1918	Proficiency flying field; support of AAC Hqs. (New site)
Brookley Field, Ala.	Jul. 1939	Jan. 1942	Mobile Air Depot (under construction)
*Brooks Field, Tex.	Dec. 8, 1917	Jan. 1918	School of Aviation Medicine; observation flying field
*Chanute Field, Ill.	May 21, 1917	Jul. 1917	Technical training from Feb. 1921
Eglin Field, Fla.	Jun. 14, 1935	Jun. 1935	Bombing & gunnery range for Maxwell Field
*Ellington Field, Tex.	Sep. 14, 1917	Nov. 1917	Inactive, Aug. 1922-Aug. 1940
Hamilton Field, Calif.	Jul. 3, 1930	Dec. 1933	Bomb base
Hill Field, Utah	Jan. 12, 1939	Nov 1940	Ogden Air Depot (under construction)
*Kelly Field, Tex.	Mar. 27, 1917	May 1917	Advanced pursuit & bomb flying training; San Antonio Air Depot at Duncan Field
*Langley Field, Va.	Dec. 30, 1916	Jun. 1917	GHQ Air Force; gunnery range; observation & reconnaissance flying field
Lowry Field, Colo.	Oct. 1, 1937	Feb. 1938	Technical training
MacDill Field, Fla.	May 24, 1939	Mar. 1940	Under construction
*March Field, Calif.	Mar. 23, 1918	Apr. 1918	Pursuit and bomb base from 1931
*Mather Field, Calif.	Feb. 21, 1918	Apr. 1918	Sub post of Hamilton Field
*Maxwell Field, Ala.	Apr. 9, 1918	Jul. 1918	Air Corps Tactical School
McClellan Field, Calif.	Jul. 1936	Nov. 1938	Sacramento Air Depot
McChord Field, Wash.	May 5, 1938	Mar. 1940	Under construction
*Mitchel Field, N.Y.	Jul. 16, 1918	Jul. 1918	Pursuit base, air defense
Muroc Lake Range, Calif.	Sep. 1933	Sep. 1933	Bombing and gunnery range for March Field
*Offutt Field, Nebr.	c. Sep. 1918	c. Dec. 1918	Inactive since 1935; located on Ft. George Crook
*Olmstead Field, Pa.	Sep. 20, 1917	Oct. 1917	Middletown Air Depot
*Patterson Field, Ohio	May 22, 1917	Jun. 1917	Fairfield Air Depot; Air Corps Materiel Division (formerly, Wilbur Wright Field)
*Pope Field, N.C.	Sep. 5, 1918	Feb. 1919	Observation & balloon support of ground forces at Ft. Bragg
Randolph Field, Tex.	Oct. 11, 1928	Oct. 1931	Primary & basic pilot training
*Scott Field, Ill.	Jun. 23, 1917	Aug. 1917	Technical training
*Selfridge Field, Mich.	Jul. 3, 1917	Jul. 1917	Pursuit base
Westover Field, Mass.	Oct. 2, 1939	May 1940	Under construction
Wright Field, Ohio	Apr. 16, 1926	Oct 1927	Aeronautical engineering & research; museum

Sources: Maurer Mauer, *Aviation in the U.S. Army, 1919–1939* (Washington, D.C.: Office of Air Force History, 1987) app. 1, 451–453 & app. 7, 471–473; Robert Mueller, *Air Force Bases,* vol. 1, *Active Air Force Bases Within the United States on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982); R. Frank Futrell, "The Development of Base Facilities," in *The Army Air Forces in World War II,* vol. 6*, Men and Planes*, ed. Wesley Frank Craven and James Lea Cate, 119–168 (Washington, D.C., Office of Air Force History, new imprint, 1983).

*Established during World War I

World War II Expansion, 1940–1944

Meanwhile, President Roosevelt pushed the American people, Congress, the War Department, the AAC, and American industry to vastly expand the U.S. Army aviation arm. He announced impossible production goals for aircraft, calling for 10,000 new aircraft in 1939 and 50,000 in May 1940. In response to the Pearl Harbor attack and declarations of war against Germany and Japan, he demanded 60,000 aircraft in 1942 and 125,000 in 1943. To use the rapidly growing inventory of aircraft effectively, the War Department planned to increase the number of combat groups. In 1940, it initiated the First Aviation Objective, a 54-group program, only to replace it in March 1941 with the Second Aviation Objective of 84 groups. Seventy of these were active but understrength and underequipped when Japan attacked Pearl Harbor. In September 1941, on the basis of the Air Staff's AWPD–1 air war plan, the War Department aimed for 239 groups. In December 1942, the Commanding General of the AAF,[40] "Hap" Arnold, settled on 273 combat groups as the maximum sustainable size of the service, and that figure did not change for the remainder of World War II.[41]

As air tactical forces grew under President Roosevelt's 1939 initiative, General Arnold asked for funds to develop gunnery and bombing ranges. In early 1940, the War Department appointed boards to find range sites in the eastern and western areas of the country. The selection criteria specified that general ranges for gunnery and bombing had to be large reservations closed to the public and that each reservation would have an airfield. One board located a tract of wasteland near Mather Field,[42] California, which the Army almost immediately secured. The AAC also obtained a 60- by 90-mile area at Tonopah, Nevada. Settlement of numerous private claims on the range delayed its use until December. The AAC obtained from the Department of Interior 1.5 million acres in Utah where, after settling private claims, it built Wendover Field and Range. Wendover became operational in late 1941, as did facilities at Broadman Range, near Arlington, Oregon. The AAF also obtained a 60- by 30-mile tract of public land near Alamogordo–Las Cruces, New Mexico, where it developed the White Sands Range in early 1942. This site possessed the twin advantages of mild winters and nearly deserted surroundings. In the East, in June 1940 Congress gave the AAC the Choctawatchee National Forest near Eglin Field, Florida. Later, the AAF secured over 200,000 acres at Avon Park, Florida, and slightly more at Myrtle Beach, South Carolina. Many bases used local areas as ranges or trained overwater, usually in the Gulf of Mexico. By June 1943, the AAF controlled over 12.5 million acres, mostly for range use.[43]

Since the 1939 augmentation program included no funds for new flying training fields that would be needed for hundreds of new pilots, the AAC contracted with civilian flying schools around the country to enroll AAC pilot cadets in basic flying training. The initial nine contract schools began training cadets in July 1939. In May 1940, the AAC extended this program, contracting with the original nine

schools to open nine more flying training fields, all on the West Coast. In addition to flying training, it contracted in late summer 1939 for technical training of aviation mechanics at seven civilian schools. In August 1940, the Air Corps Technical School contracted with Pan American Airways to operate a school in Florida for navigators. By October it had contracted with seven more civilian institutions for technical training. In November, the AAC sought contracts for an additional eleven flying training schools. It continued using contract schools for flying and technical training through much of World War II. To expand technical training, the AAC in July 1940 also secured two Army posts: Jefferson Barracks at St. Louis, Missouri, for basic training, and Fort Logan, Colorado, for its clerical school.[44]

Another aspect of the prewar expansion of air base facilities in preparation for hemispheric defense involved regular Army and National Guard observation and reconnaissance units not under the direct control of the AAC. Some of these air squadrons already existed, but more were created as the Army and National Guard added more divisions and corps that required aerial reconnaissance support. Bases for such aerial squadrons had to be located near the ground forces being supported, like Stewart Field's location near West Point, New York; Pope Field at Fort Bragg, North Carolina; Lawson Field at Fort Benning, Georgia; Godman Field at Fort Knox, Kentucky; Gray Field at Fort Lewis, Washington; and Post Field at Fort Sill, Oklahoma. These bases belonged to the ground forces rather than the AAC, but the aviation arm located other temporary sites for their aerial reconnaissance and observation units. In December 1940 the War Department directed the Chief of the Army Air Corps to establish a board to select sites, and by April 1941 the board had selected thirty stations. Requirements for airfields to handle light aircraft and provide housing for the small personnel complements were undemanding, but generally uninterested ground commanders often neglected to provide adequate facilities for training, operations, maintenance, and personnel housing. Consequently, in July 1941, the War Department directed the Commanding General of the AAF to take control of the observation squadrons and their stations.[45]

Most communities were eager to bring a military base to their local area to stimulate the economy. For example, Selma, Alabama, donated nearly 2,000 acres to the government for an advanced pursuit school, and between the time construction began and Craig Field became operational, annual payroll totals in the region more than doubled. Other training sites selected in 1940 included a bombardier school at Ellington Field, near Houston, Texas; a new basic school at the municipal airport (later, Gunter Field), Montgomery, Alabama; and advanced schools at the municipal airport, Stockton, California, and a field near San Angelo, Texas.[46]

Closely related to the establishment of new AAC installations was work of the Works Project Administration. Its cooperation with the AAC actually began with its founding in 1935. It soon became involved in construction projects at military facilities, and some fifty-one Army, Navy, and National Guard airfields benefited from Works Project Administration projects between 1935 and 1940. The Civil Aeronautics Administration program also began developing and enhancing local

airports for the AAC. As early as August 1939, the AAC asked it and the Works Project Administration to improve civil airports between Maine and Alabama that were within 100 miles of the coast. The Works Project Administration agreed to assign priority to airport projects in the East, and the Civil Aeronautics Administration indicated it would encourage local communities to support military-related projects at municipal airports. A board appointed by General Arnold recommended extensive airport improvements in the Northwest, Northeast, and Southeast. When Congress provided funds in October 1940 for the Civil Aeronautics Administration Airport Program, the Secretaries of War, Navy, and Commerce formed a board to approve airports chosen for improvement, thus ensuring the development of important defense as well as commercial airfields. The AAC Commanding General established criteria for recommending airports for improvement. The airfields should be in strategic defense areas, be suitable for military ferrying operations, or be capable of use by tactical military aircraft. Accomodation of civilian flying that military aviation would displace was also a consideration. In 1941, Congress enacted two more appropriations that brought the total of civilian airports to be improved to 399. In July 1942, the Civil Aeronautics Administration received an additional appropriation and upped the number of airdromes to be built or improved to 668. The AAF co-opted many of these for its own use.[47]

While the Work Projects Administration and the Civil Aeronautics Administration made many improvements to municipal airports, once the AAF took over an airport it usually made additional improvements. It often had to build shop hangars, other specialized facilities, additional infrastructure, and military housing. For example, at Atlanta the AAF constructed a parking apron, a huge metal hangar that after the war would serve as the airport's terminal building, and a heavy-duty power station. In addition, a few municipal airports became permanent military air bases. These included Charleston and Myrtle Beach Fields, South Carolina; Bedford Field (later, Hanscom), Massachusetts; Grandview Airport (later, Richards-Gebaur AFB), Missouri; Wichita Municipal Airport (later, McConnell AFB), Kansas; Davis-Monthan Field, Arizona; and San Bernardino Field (later, Norton AFB), California.[48]

By April 1940, the AAC had achieved sufficient personnel strength for the twenty-four combat groups planned in 1939. But as Germany continued its advance in Europe, the aviation service turned to the 54-group plan. It needed more installations and facilities to train, maintain, and base such a large force. It established four new air district headquarters: Northeast Air District (later, First Air Force) at Mitchel Field, New York; Northwest Air District (later, Second Air Force) at Fort George Wright, Washington; Southeast Air District (later, Third Air Force) at Tampa, Florida; and Southwest Air District (later, Fourth Air Force) at Riverside, California. It also moved various groups to other stations and municipal airports and inactivated some organizations, including the Air Corps Tactical School at Maxwell Field, to make room for the new groups and other organizations. The new stations, mostly leased, are listed in Table 1.4.[49]

Table 1.4: 54-Group Stations, by Geographic Area, December 1940

Station	Geographical Area	Location
	Northeast	
Bradley Field		Windsor Locks, Conn.
Grenier Field		Manchester, N.H.
	Southeast	
Municipal airport		New Orleans, La.
Municipal airport		Orlando, Fla.
Daniel Field		Augusta, Ga.
Drew Field		Tampa, Fla.
Dale Mabry Field		Tallahassee, Fla.
Harding Field		Baton Rouge, La.
Hunter Field		Savannah, Ga.
Key Field		Meridian, Miss.
Morris Field		Charlotte, N.C.
Morrison Field		West Palm Beach, Fla.
	Mid-Continent	
Municipal airport		Salt Lake City, Utah
Bowman Field		Louisville, Ky.
Gowen Field		Boise, Idaho
Will Rogers Field		Oklahoma City, Okla.
	Southwest	
Davis-Monthan Field		Tucson, Ariz.
Kirtland Field		Albuquerque, N. Mex.
	West (California)	
Hammer Field		Fresno, Calif.
	Northwest	
Municipal airport		Pendleton, Ore.
Municipal airport		Portland, Ore.
Geiger Field		Spokane, Wash.
Paine Field		Everett, Wash.

Source: R. Frank Futrell, "The Development of Base Facilities," in *The Army Air Forces in World War II*, vol. 6, *Men and Planes*, ed. Wesley Frank Craven and James Lea Cate, 135 (Washington, D.C., Office of Air Force History, new imprint, 1983).

For the 54-group training program, in June 1940, the AAC instituted three flying training centers under its training command. The headquarters of the new Southeast Training Center was organized at Maxwell; the Gulf Coast Training Center was organized at Randolph Field; and the West Coast Training Center, at Moffett Field. The AAC also asked for eight new flying training fields and two new

gunnery-training fields. Although some objection was made to locating any more flying training stations in California, the Office of the Chief, AAC, approved the sites because of the favorable flying weather there. Sites for the flying training stations and gunnery schools (shown in Table 1.5) had been approved by early March 1941.[50]

Table 1.5: 54-Group Training Stations

Station	Center/School	Location
	Gulf Coast Training Center	
Foster Field		Victoria, Tex.
	West Coast Training Center	
Gardner Field		Taft, Calif.
Luke Field		Phoenix, Ariz.
Mather Field		Sacramento, Calif.
Minter Field		Bakersfield, Calif.
	Southeast Training Center	
Cochran Field		Macon, Ga.
Turner Field		Albany, Ga.
	Gunnery Schools	
Las Vegas Air Field		Las Vegas, Nev.
Tyndall Field		Panama City, Fla.

Source: R. Frank Futrell, "The Development of Base Facilities," in *The Army Air Forces in World War II*, vol. 6, *Men and Planes*, ed. Wesley Frank Craven and James Lea Cate, 137 (Washington, D.C., Office of Air Force History, new imprint, 1983).

Until the creation of the AAF headquarters on 20 June 1941, the War Department had appointed or delegated authority to appoint site boards before it approved the final selection of Army aviation installations. On 20 September the War Department transferred the direct responsibility for the selection of new stations to the AAF Commanding General. General Arnold gave the Buildings and Grounds Division the job of evaluating site recommendations for his final approval. It came up with an elaborate scoring system on several site suitability factors. Each of the following factors was worth twenty points: flying weather; terrain; location in relation to ranges, civil airways, or ground forces; cost; and availability of housing in the local area. A combination of tactical and strategic factors received thirty points. In January 1942, General Arnold set out for new construction four general principles, which would affect site selection as well. As the historian R. Frank Futrell summarized, these were "(1) conservation of funds, materials, and national effort; (2) efficiency of operation; (3) maximum use of available facilities — military and civilian; and (4) elimination of non-essentials."[51]

After establishment of the Second Aviation Objective of eighty-four combat groups, the AAF decentralized the station selection process to procure new bases

as rapidly as possible by appointing a site board for each numbered air force. Each board consisted of an AAF and a Medical Corps representative from the numbered air force, a member of the AAF headquarters, an Army engineering officer, and an Army officer from the pertinent corps area. In November 1941 the AAF had asked Congress for funding to build fourteen new bases in the United States. Political pressure by local communities desiring military bases was neutralized by keeping locations confidential until Congress enacted construction appropriations. General Arnold had approved all fourteen proposed sites by 1 January 1942.[52]

Under the Second Aviation Objective, the AAF also decentralized the selection process for training sites. In 1941, General Arnold delegated the responsibility for appointing selection boards to the commanding general of each of the three training centers. Board members consisted of an AAF officer, an engineering officer, a medical officer, and the Army's district engineer. Each board looked at sites with favorable climates, well removed from populous areas and other air traffic. Unfortunately, desirable locations were becoming scarce. For example, the West Coast

Table 1.6: New Tactical Air Fields, by Geographic Area, January 1942

Station	Geographical Area	Location
	Northeast	
Syracuse Field		Syracuse, N. Y.
	Southeast	
Richmond Field		Richmond, Va.
Greenville Field		Greenville, S.C.
Ft. Worth Field		Ft. Worth, Tex.
El Paso Field		El Paso, Tex.
	Mid-West	
Lockbourne Field		Columbus, Ohio
Smyrna Field		Smyrna, Tenn.
Sioux City Field		Sioux City, Iowa
Topeka Field		Topeka, Kan.
	West	
Santa Maria Field		Santa Maria, Calif.
Pueblo Field		Pueblo, Colo.
Rapid City Field		Rapid City, S. Dak.
Reno Field		Reno, Nev.
	Northwest	
Walla Walla Field		Walla Walla, Wash.

Source: R. Frank Futrell, "The Development of Base Facilities," in *The Army Air Forces in World War II*, vol. 6, *Men and Planes*, ed. Wesley Frank Craven and James Lea Cate, 142 (Washington, D.C., Office of Air Force History, new imprint, 1983).

Training Center had to look farther north in areas subject to excessive rainfall, and in desert areas of the Southwest where extreme heat, dust, and inadequate housing impeded operations. Still, by the fall of 1941, the AAF had new sites for twenty-one primary and advanced flying schools plus a gunnery school (see Table 1.7).[53]

The AAF in December 1942 proposed a total of 91 main tactical bases and 364 auxiliary fields for the 273-group force, since no more than one-third would be based in the continental United States at any one time. Each combat group would have a main base and four subbases, all suitable for combat training of aircrews. During the year, most AAF construction effort went to building support, particularly flying training, and facilities for the 273-group force. The most favorable areas available for the three training centers were already saturated with bases, so more marginal regions had to be considered to avoid airspace congestion. Most

Table 1.7: 84-Group Training Stations

Station	Center/School	Location
	Gulf Coast Training Center	
Enid Field		Enid, Okla.
Lake Charles Field		Lake Charles, La.
Lubbock Field		Lubbock, Tex.
Midland Field		Midland, Tex.
Moore Field		Mission, Tex.
Perrin Field		Sherman, Tex.
Waco Field		Waco, Tex.
	West Coast Training Center	
Chico Field		Chico, Calif.
Lemoore Field		Lemoore, Calif.
Merced Field		Merced, Calif.
Victorville Field		Victorville, Calif.
Roswell Field		Roswell, N.Mex.
Williams Field		Chandler, Ariz.
	Southeast Training Center	
Columbus Field		Columbus, Miss.
Greenville Field		Greenville, Miss.
Napier Field		Dothan, Ala.
Tuskegee Field		Tuskegee, Ala.
Hendricks Field		Sebring, Fla.
Moody Field		Valdosta, Ga.
Spence Field		Moultrie, Ga.
Shaw Field		Sumter, S.C.
	Gunnery School	
Harlingen Field		Harlingen, Tex.

Source: R. Frank Futrell, "The Development of Base Facilities," in *The Army Air Forces in World War II*, vol. 6, *Men and Planes*, ed. Wesley Frank Craven and James Lea Cate, 139 (Washington, D.C., Office of Air Force History, new imprint, 1983).

older stations also expanded their facilities, often by erecting tent cities to house personnel, and a few tactical bases converted to training sites. By May 1942, forty-five new airfields (see Table 1.8) were operational, though none was completed.[54]

As the Army aviation arm rapidly expanded its personnel strength, capacity for technical training at Lowry and Chanute Fields quickly proved inadequate. By early 1941, the AAC was for the first time planning to place technical training centers in the South, the traditional location of flight training. In January, a selection board recommended sites at Biloxi, Mississippi (Keesler Field), and at Wichita Falls, Texas (Sheppard Field). In addition to the favorable climate, local community incentives played a part in these selections. The AAC leased both sites, and construction began in February at Sheppard and in June at Keesler, with both ready by September. In the same month, because of overcrowding at Chanute, Technical Training Command headquarters moved into leased offices at Tulsa, Oklahoma. In 1942, as the AAF planned for even greater force strength, it selected eight new technical training facilities (Table 1.9) and had them opened by March 1943.[55]

This expansion did not come close to meeting the needs of the Technical Training Command for housing and classrooms. Its commander, Maj. Gen. Walter R. Weaver, decided to lease hotels as the most cost-effective and quickest means to obtain AAF technical training goals. By the end of 1942, hotels, apartment houses, and other buildings had been leased in Miami Beach, St. Petersburg, Boca Raton, and Clearwater, Florida; Atlantic City, New Jersey; Grand Rapids, Michigan; and Chicago, Illinois. In addition, several schools and universities under contract with the AAF provided technical training in meteorology, mechanics, clerical practices, and other subjects through mid-1943.[56]

The inadequate numbers of air depots, four in operation and two under construction, became a concern in early 1941. The AAC needed three more new depots. One was slated for the Northeast because Middletown Air Depot could not be expanded. Another in the Midwest would handle overflow from the other depots, and in the Southeast the third would augment the Mobile Air Depot, which was expected to devote most of its capacity to supporting aircraft stationed in the Caribbean region. Site selection boards investigated various sites in each desired area in March 1941. In the Northeast, the board settled, despite the inclement winter weather, on Rome, New York, where the local community offered free utilities. In the Midwest, Oklahoma City offered free land and a good local labor supply, although intense summer heat and inadequate housing presented difficulties. In the Southeast, a site board choose the Wellston site near Macon, Georgia, because the land was free and an abundant, though largely unskilled, labor pool was available. In June 1941, the AAC appointed another board to locate two more depot sites. On the board's recommendation, the War Department selected the San Bernardino County Airport, California, plus a site near Spokane, Washington. The Spokane site received priority because it boasted better weather; had access to raw materials from the East; and was on the inland route to Alaska, sufficiently distanced from the coast to be safe from enemy attack. The local governments bought and donat-

Table 1.8: 273-Group Training Stations, May 1942

Station	Center	Location
	Gulf Coast Training Center	
Aviation Cadet Classification Center		San Antonio, Tex.
Aloe Field		Victoria, Tex.
Bryan Field		Bryan, Tex.
San Angelo Field		San Angelo, Tex.
Big Spring Field		Big Spring, Tex.
Eagle Pass Field		Eagle Pass, Tex.
South Plains Field		Lubbock, Tex.
Hondo Field		Hondo, Tex.
Majors Field		Greenville, Tex.
Blackland Field		Waco, Tex.
San Marcos Field		San Marcos, Tex.
Laughlin Field		Del Rio, Tex.
Pampa Field		Pampa, Tex.
Childress Field		Childress, Tex.
Coffeyville Field		Coffeyville, Kan.
Garden City Field		Garden City, Kan.
Independence Field		Independence, Kan.
Dodge City Field		Dodge City, Kan.
Liberal Field		Liberal, Kan.
Strother Field		Winfield, Kan.
Altus Field		Altus, Okla.
Frederick Field		Frederick, Okla.
	West Coast Training Center	
Aviation Cadet Classification Center		Santa Ana, Calif.
Marfa Field		Marfa, Tex.
Pecos Field		Pecos, Tex.
Marana Field		Marana, Ariz.
Douglas Field		Douglas, Ariz.
Kingman Field		Kingman, Ariz.
Yuma Field		Yuma, Ariz.
La Junta Field		La Junta, Colo.
Carlsbad Field		Carlsbad, N. Mex.
Deming Field		Deming, N. Mex.
Hobbs Field		Hobbs, N. Mex.
Ft. Sumner Field		Ft. Sumner, N. Mex.
	Southeast Training Center	
Aviation Cadet Classification Center		Nashville, Tenn.
Blytheville Field		Blytheville, Ark.
Walnut Ridge Field		Walnut Ridge, Ark.
Newport Field		Newport, Ark.
Stuttgart Field		Stuttgart, Ark.
George Field		Lawrenceville, Ill.
Freeman Field		Seymour, Ind.
Malden Field		Malden, Mo.
Monroe (later Turner) Field		Monroe, La.
Greenwood Field		Greenwood, Miss.
Courtland Field		Courtland, Ala.
Bainbridge Field		Bainbridge, Ga.
Ft. Myers Field		Ft. Myers, Fla.
Marianna Field		Marianna, Fla.

Source: R. Frank Futrell, "The Development of Base Facilities," in *The Army Air Forces in World War II*, vol. 6, *Men and Planes*, ed. Wesley Frank Craven and James Lea Cate, 151 (Washington, D.C., Office of Air Force History, new imprint, 1983).

Table 1.9: New Technical Training Schools, March 1943

Location	Function
Seymour-Johnson Field, Goldsboro, N.C.	Basic technical training center
Kearns, Utah	Basic technical training center
Truax Field, Madison, Wis.	Radio school
Sioux Falls, S. Dak.	Radio school
Lincoln, Neb.	Mechanics school
Amarillo, Tex.	Mechanics school
Greensboro, N.C.	Mechanics school
Gulfport, Miss.	Mechanics school

Source: R. Frank Futrell, "The Development of Base Facilities," in *The Army Air Forces in World War II*, vol. 6, *Men and Planes*, ed. Wesley Frank Craven and James Lea Cate, 152 (Washington, D.C., Office of Air Force History, new imprint, 1983).

ed the land to the War Department. By late 1942, the first three depots were at least partially operational; by mid-1943, the Spokane depot opened for business; and in early 1944, the San Bernardino site became operational. Meanwhile, in February 1943, the Air Service Command began construction of a twelfth depot which became operational fifteen months later at Miami's 36th Street Airport in Florida. The command also leased 62 million square feet of warehousing during the war and used several existing bases to train service personnel, store materiel, and perform maintenance outside the depots.[57]

The Lend-Lease Act of 1941 added a new dimension to the selection of airfields. The AAF needed bases from which aircraft could be flown to overseas destinations, particularly to England. Plans called for maximum use of existing municipal and AAC airfields. Initially, ferrying flights originated from Bolling Field, but the field was too small for additional aircraft and personnel. The commander of the newly created Ferrying Command, Col. Robert Olds, appointed a board in the summer of 1941 to select a site within a hundred miles of Washington, D.C. It chose New Castle County Airport, near Wilmington, Delaware, as the first of several aerial transport bases for overseas flights. By December, Presque Isle, Maine, became the chief embarkation base for the North Atlantic aerial route. The next month, Hamilton Field, California, became the West Coast embarkation base. Air Transport Command, successor to the ferrying command, in June 1942 took over Morrison Field, West Palm Beach, Florida, for the South Atlantic route. About the same time, it obtained Gore Field, Great Falls, Montana, to serve as the originating base for ferrying aircraft to Alaska, where lend-lease airplanes were turned over to the Soviet Union. Beginning in 1942, the command set up operational training units to meet the more advanced requirements of aircrew training. Among these was the 3d Operational Training Unit, based at Reno, Nevada, to train C–46 crews who would be flying at high altitudes over the mountainous terrain of the Himalayas in the China-Burma-India Theater. Reno was an ideal training base because the nearby

Hangars in 1943 at Great Falls Field (earlier, Gore Field), Montana, used to facilitate the transition through the base of Lend Lease aircraft bound for the Soviet Union.

Sierra Nevada Mountains offered an environment as analogous as possible to conditions expected in the theater. To train crews flying troop carrier aircraft, the AAF in April 1942 set up the I Troop Carrier Command, which initially trained aircrews at three prewar fields and later added five new fields scattered about the country (see Table 1.10).[58]

The Pearl Harbor attack in December 1941 had an immediate and urgent, though not necessarily long-lasting, effect on AAF basing practices. Steps taken to protect coastal airfields against surprise attack included dispersing aircraft from main bases to airports, building revetments, and camouflage. Aircraft based on the East and West Coasts were redeployed to outlying locations; General Arnold on 9 December ordered all aircraft west of the Rocky Mountains dispersed. At this time, the AAF brought many of the civilian airfields under its control, usually for a nominal rent. But resistance by local officials in Spokane, Washington, and Bangor, Maine, forced the AAF to purchase those municipal airfields outright. Within a year, with the recognition that continental airfields were unlikely to come under attack, several expensive projects related to airfield defenses were terminated.[59]

In December 1941 the AAF reacted to the Pearl Harbor attack with urgent efforts to bolster air defenses along the western seaboard. The Second Air Force moved a pursuit group to Seattle, Washington, and requested procurement of three other airfields in Washington well as two in Oregon. It also received permission from the Navy to add AAF facilities to five Navy fields near the coast. On 26 January 1942, the Second Air Force transferred its responsibilities for air defense in the Northwest to the Fourth Air Force, which continued the program already begun for that area. By then, the Fourth had moved pursuit squadrons and detachments to municipal airfields along the coast in California and to North Island Naval Air Station. By May 1943, the IV Interceptor Command had control of fifty-one subbases and auxiliary fields on the western seaboard, but shortly afterward, the Fourth Air Force reoriented most of these stations to training, which replaced the air defense mission.[60]

Table 1.10: Air Transport Command & I Troop Carrier Command Operations and Training Installations, 1943–1944

Command	Base	Location	Remarks
ATC			
	Gravelly Point	Va.	ATC Hqs.
	Gore Field	Great Falls, Mont.	Embarkation base, Alaska route
	Hamilton Field	Calif.	Embarkation base, Pacific route
	Morrison Field	West Palm Beach, Fla.	Embarkation base, South Atlantic route
	Presque Isle Field	Maine	Embarkation base, North Atlantic route
	Houlton Field	Maine	Staging base
	Lunken Airport	Cincinnati, Ohio	Staging base
	New Castle County Airport	Wilmington, Del.	Staging base
	Wayne County Airport	Romulus, Mich.	Staging base
	Charleston	S.C.	OTU
	Greenwood	Miss.	OTU
	Homestead	Fla.	OTU
	Palm Springs	Calif.	OTU
	Reno	Nev.	OTU
	Rosecrans Field	St. Joseph, Mo.	OTU
I TCC			
	Stout Field	Indianapolis, Ind.	I TCC Hqs.
	Bowman Field	Louisville, Ky.	Built 1940
	Lawson Field	Fort Benning, Ga.	Built 1940
	Pope Field	Fort Bragg, N.C.	Built 1940
	Alliance Field	Neb.	New, 1943
	Bergstrom Field	Austin, Tex.	New, 1943
	Grenada	Miss.	New, 1943
	Laurinburg-Maxton	N.C.	New, 1943
	Sedalia Field	Mo.	New, 1943

Sources: R. Frank Futrell, "The Development of Base Facilities," in *The Army Air Forces in World War II*, vol. 6, *Men and Planes,* Wesley Frank Craven and James Lea Cate, eds. (Washington, D.C., Office of Air Force History, new imprint, 1983), 157, 160; John D. Carter, "The Air Transport Command," *The Army Air Forces in World War II*, vol. 7, *Services Around the World*, ed. Wesley Frank Craven and James Lea Cate, 42, 44–45 (Washington, D.C., Office of Air Force History, new imprint, 1983).

Locating Army Air Installations

On the East Coast, immediately after the Japanese attack in Hawaii, the First Air Force deployed its pursuit squadrons to defend potential targets in the Northeast and Central Atlantic coastal areas. In the next year, it looked for more permanent defense sites, leasing and developing between September 1942 and May 1943 Suffolk County Airport, Westhampton Beach, New York, and Camp Springs Army Air Field (later, Andrews Field), Maryland. First Air Force by December 1942 had fighter units at three other bases north of the Nation's Capital. It also found stations for its antisubmarine aircraft, assigned to I Bomber Command (later, AAF Antisubmarine Command), to aid the Navy in patrolling for enemy submarines in offshore waters of the Atlantic Ocean and Gulf of Mexico. While most bases already existed, a few new ones were developed. The AAF leased the Dover, Delaware, airport in December 1941, and a year later built a bomber station there. Bluethenthal Field, Wilmington, North Carolina, came into the AAF in the same way and at about the same time. When the AAF Antisubmarine Command ceased operations in September 1943, it had specially modified B–24s at fifteen stations along the eastern seaboard. Then, training replaced air defense and antisubmarine missions in the Fourth Air Force.[61]

During the 1942–1943 peak of AAF installation construction, four simultaneous expansion programs were in progress. Construction to support pilot training was underway at 105 existing and new stations. A lesser expansion in ground-air support stations saw construction at about eighty existing stations, mostly municipal airports and Civil Aeronautics Administration fields. The Operational Training Unit Program for Third Air Force required construction affecting 234 stations from coast to coast and from the Great Lakes to the Gulf of Mexico. Finally, construction for Second Air Force heavy bombardment training culminated in fifty-six existing and new stations in the West and Northwest. The War Department, however, directed in February 1942 that all this new construction be temporary to save money and time. Although permanent Army aviation facilities had been built since 1927, the AAF could not afford to continue such construction during the national emergency.[62]

Beyond basic training and technical training, the AAF needed to train personnel in tactical units before deploying them overseas. The Second and Third Air Forces, not having defense responsibilities as the First and Fourth Air Forces did, received the burden of unit training. Site selection boards often worked with severe time constraints. For instance, in the Third Air Force during March 1942 several important locations had to be identified within ten days. Selection of airfield sites rested on factors of climate, soil, cost of preparation, and degree of air congestion. Auxiliary fields had to have well-drained soil that would support a good turf, so that runways would not have to be paved. Air congestion generally was no problem, because training bases were usually located thirty or forty miles apart.[63]

Second Air Force from January 1942 had the job of heavy bombardment (B–17 and B–24) unit training. It used existing facilities to the maximum before beginning the construction of four new bases in May. When the Second Air Force sought

additional bases in August, it had to compete with the Navy for locations in Nebraska and Kansas; consequently, it got only one of five sites it had desired in those two states. By the spring of 1943, the Second Air Force had twelve new main bases and eleven new subbases in use for heavy bombardment unit training (see Table 1.11).[64]

The Third Air Force undertook unit training for light, medium, and dive bombardment units and replacement training for most of the fighter pilot units. Preferred states for training bases were Alabama, Georgia, and Mississippi because their climates provided more favorable flying weather. Only two main bases, at Columbia, South Carolina, and at Sarasota, Florida, were new. To settle conflicts with the Navy in Florida, the AAF agreed to divide the state. The Navy took the entire east coast except for small areas near Miami, Palm Beach, Jacksonville, and Boca Raton. The AAF took central Florida and the west coast, from Pensacola to Key West. Local commanders could arrange variations. By May 1943, the Third Air Force had 11 main bases, 22 subbases, and 17 auxiliary fields (see Table 1.12).[65]

The AAF established the School of Applied Tactics at Orlando, Florida, and constructed twelve airfields in central Florida that were used, along with other existing AAF facilities, to simulate a theater of operations. The school provided basic instruction on tactics and doctrine. Most fighter pilot trainees after November 1942 spent as long as a month in Florida training in the latest combat tactics. In addition, these facilities were used for operational tests of specific equipment associated with aerial tactics.[66]

The School of Applied Tactics is only one example of existing installations often receiving additional work in experimental and test functions. As early as the fall of 1939, the AAC shifted armament and ordnance service testing to Eglin Field, Florida, which had adequate space of almost 400,000 acres to study ballistic and fire control problems. Muroc, California, in 1941 added to its bombing and gunnery range missions the experimental flight-testing of jet aircraft. The base was ideal because of its remote location, excellent year-round flying weather, and dry lakebed which served as a 44-square-mile runway. Thus, aerial research and development during World War II required no new bases, with most such functions remaining at Patterson Field, Ohio.[67]

Table 1.11: Second Air Force Heavy Bombardment Training Stations, May 1943

Location	State	Remarks
	California	
Blythe		Transferred from other AAF use
	Idaho	
Mountain Home		Newly built main base
Pocatello		Newly built main base
	Kansas	
Great Bend		Newly built main base
Herington		Existing Second AF base
Pratt		Newly built main base
Salina		Existing Second AF base
Topeka		Existing Second AF base
Walker Field, Hays		Newly built main base
	Louisiana	
Alexandria		Transferred from other AAF use
	Mississippi	
Gulfport		Transferred from other AAF use
	Montana	
Cut Bank		Newly built sub-base
Glasgow		Newly built sub-base
Lewistown		Newly built sub-base
Great Falls		Newly built main base
	Nebraska	
Ainsworth		Newly built sub-base
Bruning		Existing Second AF base
Fairmont Field, Geneva		Existing Second AF base
Grand Island		Existing Second AF base
Harvard		Existing Second AF base
Kearney		Existing Second AF base
McCook		Existing Second AF base
Scottsbluff		Newly built sub-base
Scribner		Newly built sub-base
	New Mexico	
Alamorgordo		Newly built main base
Clovis		Newly built main base
	Oregon	
Madras		Newly built sub-base
Redmond		Newly built sub-base
	South Dakota	
Mitchel		Newly built sub-base
Pierre		Newly built sub-base
Watertown		Newly built sub-base
	Tennessee	
Dyersburg Field, Halls		Transferred from other AAF use
	Texas	
Dalhart		Newly built main base
Galveston		Transferred from other AAF use
Pyote		Newly built main base
	Utah	
Wendover		Newly built main base
	Washington	
Ephrata		Newly built main base
Moses Lake		Newly built main base
	Wyoming	
Casper		Newly built main base

Source: R. Frank Futrell, "The Development of Base Facilities," in *The Army Air Forces in World War II*, vol. 6, Men and Planes, ed. Wesley Frank Craven and James Lea Cate, 155 (Washington, D.C., Office of Air Force History, new imprint, 1983).

Table 1.12: Third Air Force Unit Training Stations, May 1943

Location	State	Remarks
	Alabama	
Demopolis		Auxiliary field
Ozark		Sub-base
	Florida	
Bartow		Sub-base
Carrabelle		Auxiliary field
Dale Mabry Field, Tallahassee		Main base
Drew Field, Tampa		Main base
Ft. Myers		Sub-base
Lakeland		Sub-base
Immokalee		Auxiliary field
Jacksonville		Sub-base
Lake Wales		Auxiliary field
MacDill Field, Tampa		Main base
Perry		Sub-base
Punta Gorda		Auxiliary field
Sarasota		Main base (new)
St. Petersburg		Sub-base
Tampa		Sub-base
Winter Haven		Auxiliary field
	Georgia	
Chatham Field, Savannah		Main base
Dublin		Auxiliary field
Harris Neck Field, South Newport		Sub-base
Hunter Field, Savannah		Main base
Thomasville		Sub-base
Waycross		Sub-base
	Louisiana	
De Ridder		Auxiliary field
	Kansas	
Marshall Field, Ft. Riley		Sub-base
	Michigan	
Oscoda		Sub-base
Selfridge Field, Mount Clemens		Main base
	Mississippi	
Hattiesburg		Sub-base
Laurel		Sub-base
Key Field, Meridian		Main base
	Oklahoma	
Ardmore		Sub-base
Gage		Auxiliary field
Hobart		Auxiliary field
Muskogee		Sub-base
Perry		Auxiliary field
Tulsa		Auxiliary field
Will Rogers Field, Oklahoma City		Main base
Woodward		Sub-base
	South Carolina	
Anderson		Auxiliary field
Barnwell		Auxiliary field
Columbia		Main base (new)
Congaree Field, Columbia		Sub-base
Florence		Sub-base
Greenville		Main base
Greenwood		Sub-base
Johns Island		Auxiliary field
North		Auxiliary field
Spartanburg		Auxiliary field
Walterboro		Sub-base

Source: R. Frank Futrell, "The Development of Base Facilities," in *The Army Air Forces in World War II*, vol. 6, *Men and Planes*, ed. Wesley Frank Craven and James Lea Cate, 156 (Washington, D.C., Office of Air Force History, new imprint, 1983).

Force Drawdown, 1944–1947

By the end of 1943, the number of AAF installations active during World War II had peaked. Much of the service's combat strength was deployed overseas, and the emphasis shifted from rapid growth to maintaining and augmenting the combat forces. In January and February 1944, the AAF headquarters placed severe limits on new construction, including a requirement that new projects had to receive General Arnold's personal approval. When the AAF established the Continental Air Forces (later, Strategic Air Command) in 1944, it developed Andrews Field in Maryland as the command's headquarters station. Most new construction involved facilities to accommodate the very heavy bombers, Boeing B–29s and Consolidated B–32s, so infrastructure on existing bases (see Table 1.13) was usually augmented to meet the needs for very heavy bombardment training. B–29 and B–32 bases also needed longer runways able to withstand their exceptional weight, plus additional housing and maintenance facilities were required. The deployment of the B–29s in the Pacific Theater required that additional logistical support facilities be built along the West Coast. They included an in-transit depot at Alameda, Cali-

Table 1.13: Very Heavy Bomber Bases, 1943–1945†

Numbered AF/Command	Base	Location
Second Air Force		
	Salina	Kans.
	Great Bend	
	Pratt	
	Walker	
	Clovis	N.Mex.
Third Air Force		
	Barksdale	La.
	Gulfport	Miss.
	MacDill	Fla.
	Chatham	Ga.
Fourth Air Force		
	Muroc	Calif.
AAF Training Command		
	Maxwell	Ala.
	Lowry	Colo.
	*Fort Worth	Tex.
	Randolph	
	Roswell	N.Mex.

Source: R. Frank Futrell, "The Development of Base Facilities," in *The Army Air Forces in World War II*, vol. 6, *Men and Planes*, ed. Wesley Frank Craven and James Lea Cate, 164 (Washington, D.C., Office of Air Force History, new imprint, 1983).

† All are B–29 bases, with one exception, as noted.

* The only B–36 base was located near the B–36 manufacturing plant to take advantage of the manufacturer's expertise.[69]

fornia, and an overseas replacement depot at Camp Kohler, Sacramento, California. The AAF and the Civil Aeronautics Administration cooperated to improve Mills Field, San Francisco, for deployment of B–29 units, while the Air Transport Command improved Mather, Fairfield, Suisun, and Hamilton Fields to handle more overseas flights in support of such units.[68]

At the same time that the AAF was building facilities for very heavy bombardment units, it began identifying and closing excess installations, starting with contracted functions and leased properties. For example, by the end of 1944 it had reduced hotel leases from a peak of 464 to 75 (see Table 1.14) and placed most surplus airfields in a caretaker status. Some installations were used for prisoner of war camps, foreign laborers' housing, grazing leases, and other purposes. The AAF also began divesting itself of surplus installations. In March 1944 it transferred eighty-four stations to the Navy, which needed airfields near the coasts for carrier pilot training. In return, the Navy agreed that the Army could use its airfields in emergencies. As historian R. Frank Futrell noted, such an agreement "might better have been enunciated in December 1941."[70] As of 31 December 1943, the AAF had approximately 2,252 installations in the United States; by 2 September 1945, the day of the Japanese surrender, the number had declined to 1,811 (see Table 1.14).

With the end of the war and transition to peace came termination of base development and the disposition of facilities no longer needed. The AAF headquarters

Table 1.14: Status of Army Air Forces Continental Installations, 1941–1945

	Dec 7 1941	Dec 31 1941	Dec 31 1942	Dec 31 1943	Dec 31 1944	VE Day	VJ Day
Main and Sub-bases	114	151	416	461	414	412	401
Auxiliary Fields	*	*	198	322	309	291	269
Contract Pilot Schools	*	*	69	66	14	14	6
Rented Office Space (a)	*	*	*	*	79	109	103
Hotels (b)	*	*	464	216	75	75	75
Bombing and Gunnery Ranges	*	*	*	*	480	473	433
Civilian and Factory Schools	*	*	66	47	21	17	16
College Training Detachments	*	*	16	234	2	1	1
Depots	*	*	12	41	68	51	43
Miscellaneous Installations	(c) 67	(d) 46	29	32	44	30	30
Total Installations	181	197	1270	1419	1506	1473	1377
Training Establishments	112	151	479	833	464	454	434
Grand Total	293	348	1749	2252	1970	1927	1811

Source: Robert F. Futrell, *Development of AAF Base Facilities in the United States, 1939–1945* (Maxwell AFB, Ala.: USAF Historical Division, Air University, 1951), 169, AFHRA 101–69.

(a) AAF sites and other small leased installations are not included here.
(b) This row includes hotels leased, owned, or on a contractual basis.
(c) Forty-seven of these were airfields projected or under construction.
(d) Thirty-three of these were airfields projected or under construction.
* Represents missing information, which precludes exact comparison of totals, but trends are obvious.

consolidated units and functions at larger installations to facilitate base closures. The process of inactivation and disposal of surplus air bases presented problems for the numbered air forces and major commands. Retention of necessary installations for possible future use by the Air Reserve program, political pressure in the case of some bases, and bureaucratic delay complicated and hindered installation dispositions. The process consisted of several steps. First, the AAF headquarters and the affected command had to agree that the base was no longer needed. Sometimes, other commands became involved because the affected command would be given custodial responsibility for bases ultimately assigned to another command. Regardless, decisions to declare bases surplus usually rested on good operational requirements. Next, the base would be placed in inactive status, with the command maintaining a custodial staff. This step required that the command transfer military personnel, transfer or terminate civilian employees, close out accounts, conduct audits and inventories, dispose of surplus equipment and supplies, and close out the records. The newly organized Air Materiel Command had as its immediate and most urgent task the actual disposition of inventories, equipment, and supplies. Political aspects of a particular base closure frequently called for coordination and resolution of issues with local government authorities. Special teams were formed in several instances to accomplish the required tasks. Finally, the base would be transferred to the appropriate District Engineer. By the end of 1945, the AAF retained only 429 installations, including auxiliary fields.[71]

For the AAF, the end of the war also meant extensive reorganization, which resulted in functional changes for many remaining installations. On 21 March 1946, the AAF implemented an organization based on eight major air commands. Strategic Air Command (SAC) was made responsible for strategic bombardment. Tactical Air Command (TAC) primarily provided aerial support of U.S. Army ground forces. Air Defense Command (ADC) had responsibility for air defense of the nation. Air Transport Command (ATC) continued its basic mission of providing strategic airlift for ground and air services. AAF Training Command (AAFTC) retained responsibility for basic military, flying, and technical training. Air University (AU), which traced its origins to the prewar Air Corps Tactical School, in April 1946 became the command under which the AAF concentrated all its specialized schools. Air Materiel Command (AMC) became established in March 1946 with headquarters at Wright Field, traditionally the home of AAC and AAF research, development, procurement, supply, and maintenance functions. AAF Proving Ground Command at Eglin Field, Florida, conducted testing of newly developed weapons and other tactical equipment. All of these commands, between 1946 and the establishment of the U.S. Air Force as a separate service, suffered from the extreme reductions in forces and the required dispositions of real estate. Table 1.15 gives a summary view of major AAF installations around the time of the organization of the new service.[72]

Given the threat from the Communist world in the immediate postwar period, the AAF tended to concentrate most of its efforts to build a force, even as the nation

demobilized, on SAC. Its mission, while somewhat chaotic in the beginning, gradually focused on the building and operation of a long-range, atomic-armed bombardment force that could deter aggression and resist the enemy, should deterrence fail. But the command faced a "formidable challenge of organizing a large combat-ready force with extremely limited resources."[73] In mid-1947, it had only six B–29 groups and identified some twenty-five installations as desirable, according to its criteria. These bases should have sufficient housing, be close to town, and be suitable for B–29 operations, which required sufficiently long and durable runways, adequate aircraft parking space, large hangars, and adequate shop facilities. Generally, bases meeting the SAC criteria were located in the West. By September 1947, SAC owned eleven major active bases (see Table 1.15), but housing and many other facilities were substandard because they were mostly constructed as temporary structures.[74]

TAC also faced the problems of instituting a new mission in the milieu of force reduction. Actually, TAC's primary mission focused on the old doctrinal idea of air support for ground forces, including troop carrier, fighter-bomber, and light bombardment roles. Thus, the move of its command headquarters to Langley Field, Virginia, in May 1946 was driven by plans to put Headquarters Army Ground Forces at the adjacent post, Fort Monroe, Virginia. Likewise, in reducing the number of TAC bases from forty-four in March 1946, primary consideration was given to retaining airfields with active TAC units near supported Army forces. For example, TAC acquired Stewart Field, New York, due to its proximity to the United States Military Academy and because it offered a good base for a proposed light bombardment group. It did try to rid itself of bases unsuitable for tactical flying. For example, it did not want to keep McChord Field, Washington, because it had generally bad weather and excessive fog. It also sought to shed inactive bases for which it had custodial responsibility and bases that were better suited to other commands. As of September 1947, TAC still retained McChord plus twelve other major active bases (see Table 1.15).[75]

The third combat command, ADC, headquartered at Mitchel Field, New York, faced quite different problems. To perform its continental air defense mission, the command was given a total of one fighter group with three squadrons, a single night fighter squadron, and a few radar warning stations. Thus, its role was reduced mostly to planning and organizing a potential air defense system. Organizationally, it consisted mostly of stationing a numbered air force in each Army area to provide air defense of the continental United States (see Table 1.15). The six numbered air forces divided the country into the New York through New England sector; the mid-Atlantic seaboard west to the Mississippi River; the southeastern states; the southwestern states from Louisiana to New Mexico; the eight westernmost states; and the midcontinent region.[76] In fact, much energy went into a secondary mission of maintaining the Air National Guard and the Air Reserve "in a highly trained operational condition of readiness."[77] These reserve forces were considered service, rather than command, assets, but ADC had to select bases in coordination

Table 1.15: Major Army Air Forces U.S. Installations, by Command September 1947

Commands	Active Installations	Inactive Installations	Remarks
Hq, AAF			
	Bolling, D.C.		Bolling Field Command (later, AF District of Washington)
SAC			
	Andrews, Md.		Hqs, SAC
	Castle, Calif.	Wendover, Utah	
	Peterson, Colo.	Mountain Home, Idaho	
		Clovis, N. Mex.	(later, Cannon AFB)
	Davis-Monthan, Ariz.		
	MacDill, Fla.		
	Selfridge, Mich.		
	Smoky Hill, Kan.		
	Fort Worth, Tex.		(later, Carswell AFB)
	Rapid City, S. Dak.		(later, Ellsworth AFB)
	Roswell Field, N. Mex.		(later, Walker AFB)
	Spokane, Wash.		(later, Fairchild AFB; AMC air material area, tenant)
TAC			
	Langley, Va.		Hqs, TAC
	Biggs, Tex.	Dover, Del.	
	Brooks, Tex.	Campbell, Ky.	
	Greenville, S.C.	Moody, Ga.	
	Bergstrom, Tex.	Myrtle Beach, S.C.	
	Lawson, Ga.		
	Lockbourne, Ohio		
	March, Calif.		
	Marshall, Kans.		
	Stewart, N.Y.		
	Pope, N.C.		
	Shaw, S.C.		
	McChord, Wash.		
ADC*			
	Mitchel, N.Y.		Hqs, ADC & First Air Force
	Offut, Nebr.		Second Air Force (hqs at Ft. Crook Annex)
	Hamilton, Calif.		Fourth Air Force
	Brooks, Tex.		Tenth Air Force
	(See AMC below)		Eleventh Air Force (tenant at Olmsted)
	Orlando, Fla.		Fourteenth Air Force
ATC			
	Gravelly Point, Va.		Hqs, ATC (moved to Westover on Oct. 25, 1947)
	Fairfield-Suisun, Calif.		West Coast Aerial Port of Embarkation (later, Travis AFB)
	Great Falls, Mont.		Aerial Port of Embarkation (later, Malmstrom AFB)
	Westover, Mass.		East Coast Aerial Port of Embarkation; search & rescue; medical air evacuation
	(See AMC below)		Aerial Port of Embarkation (tenant at Brookley)

AAFTC			
	Barksdale, La.		Hqs, AAFTC
	Lackland, Tex.		Indoctrination Division (basic training)
	Randolph, Tex.		Flying Division
	Williams, Ariz.		
	Mather, Calif.		
	Las Vegas, Nev.		(later, Nellis AFB)
	Goodfellow, Tex.		
	Scott, Ill.		Technical Division
	Chanute, Ill.		
	Lowry, Colo.		
	Keesler, Miss.		
	Francis E. Warren, Wyo.		
AU			
	Maxwell, Ala.		Hqs, AU
	Craig, Ala.		
	Tyndall, Fla.		
AMC			
	Wright, Ohio		Hqs, AMC
	Patterson, Ohio		R & D
	Alamogordo, N. Mex.		R & D (later, Holloman AFB)
	Rome, N.Y.		Rome Air Materiel Area (later, Griffis AFB)
	Olmsted, Pa.		Middletown Air Materiel Area (Hqs, Eleventh AF, ADC, tenant)
	Robins, Ga.		Warner Robins Air Materiel Area
	Hill, Utah		Ogden Air Materiel Area
	Kelly, Tex.		San Antonio Air Materiel Area
	Tinker, Okla.		Oklahoma City Air Materiel Area
	(See SAC above)		Spokane Air Materiel Area (tenant at Spokane)
	Brookley, Ala.		Mobile Air Materiel Area (ATC embarkation port, tenant)
	McClellan, Calif.		Sacramento Air Materiel Area
	San Bernardino, Calif.		San Bernardino Air Materiel Area
		Muroc, Calif.	(later, Edwards AFB)
		Redbank, N.J.	
		Kirtland, N. Mex.	
AAFPGC			
	Eglin, Fla.		Hqs, AAFPGC

Sources: *History of SAC 1947* (Offutt Air Force Base, Nebr.: 1949), 235, AFHRA 416.01; *History of the Tactical Air Command for 1947*, vol. I (Langley AFB, Va.: August 1949), 50, fn 126 & 51, fn 127, AFHRA 417.01; *History, Air Defense Command, March 1946–June 1947* (Mitchel AFB, N.Y.: November 1948), 5–6, AFHRA 410.01; *History of Air Training Command, 1 January 1947 Through 31 December 1947*, vol. I (Barksdale AFB, La.: 1948), Chart 2, AFHRA 220.01; *The Air University History, 1 July 1947–30 June 1948*, vol. 1 (Maxwell AFB, Ala.: 1949), 18, 45–46, AFHRA 239.01; *History of Air Materiel Command, 1947*, vol. II, Appendix 10, Chart I, AFHRA 200–7; *Air Proving Ground Historical Data, 2 September 1945–30 June 1949*, vol. 1 (Eglin AFB, Fla: December 1951), 245 & Plate 9, AFHRA 240.01; Incoming Message, 29 September 1947, from CG ATLD ATS Fort Totten N.Y., 9/27/47 ATLD 6021, in *A Summary of the Activities of the Headquarters, Air Transport Service, 1947* (Westover AFB, Mass.: n.d.), AFHRA 300.01; *Listing of AAF Organizations in Continental U.S., as of 30 September 1947* (Washington, D.C.: Hqs, U.S. Army Air Forces, Office of Air Comptroller, October 21, 1947), AFHRA 134.45–20; Robert Mueller, *Air Force Base*s, vol. 1, *Active Air Force Bases Within the United States* (Washington, D.C.: Office of Air Force History, 1989).

* List does not include ADC locations manned by reserve units, which at the time were minimally equipped and basically nonoperational.

† ATC kept small tenant units at AMC bases to support the air materiel areas.

with the Air National Guard Bureau and the states' Guard organizations. What's more, it had to select the Air Reserve installations. Key criteria for these determinations were population density of the reserve personnel and geographic distribution. The ADC teams often encountered hostility from local interests wanting to reserve municipal facilities for commercial and other uses. State governments frequently procrastinated on basing decisions in the hope that the ADC would choose a military base for the Air National Guard units. In fact, many Air Guard and Air Reserve units ended up on active or inactive Army or Navy installations. The first four Air Reserve facilities opened in mid-June 1947; by the end of the year, seventy locations had reserve units in place.[78]

ATC at Gravelly Point, Virginia, continued its primary tasks: aircraft ferrying; aerial transportation of War Department personnel, materiel, and mail; and evacuation of sick and wounded personnel. In addition, it picked up several other important functions, including those of the Army Airways Communications System, AAF Weather Service, and Air Rescue Service. Like the rest of the AAF after World War II, ATC faced drastic cuts in personnel, equipment, and facilities. Demand for its transport services did not diminish proportionately with reductions in its resources; consequently, the command resorted to contracts with civil air carriers for airlift, maintenance, communications, and weather support along established key air routes. Within the continental United States, the command dropped the number of bases it operated from some three dozen in 1943 to three by September 1947; it also operated as a tenant from Brookley Field, Alabama (see Table 1.15). Retention of these continental bases still permitted the ATC to serve AMC's supply bases; fly regular routes westward over the Pacific and eastward over the Atlantic, south to the Caribbean, Panama, and South America, and north to Canada and Alaska; and operate search and rescue and medical evacuation flights within the United States.[79]

The AAFTC had well-established organizations and missions. As early as 1943, it had begun cutting back on technical training and subsequently reduced flying training in 1944. By January 1947 it had only eight pilot training bases; during the year it discontinued three of them. Often, reasons for abandoning bases involved local interest in the airfield. For example, the command relinquished Geiger Field, Washington, under considerable pressure. The National Guard wanted to use several of the hangars, the city of Spokane sought the site for a municipal airport, and commercial airlines desired use of the airfield. At about the same time, however, AAFTC acquired from the Army Fort Francis E. Warren, Wyoming, as a technical training base. Political pressure was exerted to keep the base open, especially because of its permanent construction. The command recognized the base's positive attributes of size (67,000 acres and capacity for 12,000 personnel), a desirable climate for aviation engineering training, and a favorable terrain, but its undesirable aspects included excessive operational expense, an acute housing shortage at Cheyenne, and lack of an airfield. AAFTC took Francis E. Warren reluctantly when AAF senior leadership decided to accept it. The transfer from the Army was com-

pleted on 12 May 1947. By September 1947, the once mighty AAFTC operated a dozen major active bases (see Table 1.15).[80]

The AAF Proving Ground Command did not come close to the size of the training command. Although it had activities at ten bases scattered about the country in March 1946, by June all functions were concentrated at Eglin, Florida. It also had small detachments at Aberdeen and Edgewood, Maryland, and at Muroc, California, and it had ten auxiliary fields on the Eglin reservation itself.[81]

The AAF determined that it would reestablish its educational institution in a new command, AU at Maxwell Field, Alabama. Having been the command post for the Eastern Flying Training Command during World War II, Maxwell had a large airfield, adequate housing, and plenty of space to accommodate the university's schools and classes. At Tyndall Field, Florida, AU operated the Air Tactical School to study improved employment of tactical equipment. The Special Staff School at Craig Field, Alabama, provided officers instruction concerning administrative and technical staff responsibilities. The School of Aviation Medicine, a tenant organization at Randolph Field, Texas, carried on research in aviation medicine, operated a hospital, and trained flight surgeons and nurses. AU also coordinated the curriculum of the AAF Institute of Technology at Wright Field, Ohio.[82]

The Institute of Technology was assigned to the AMC at Wright Field. Like the other commands, AMC faced drastic reductions in funds, personnel, and facilities. In July 1947 it had twenty-nine active and seven inactive fields in addition to eleven depots. By September, only twelve major active installations plus a tenant air materiel area (depot) at Spokane Field remained (Table 1.15).[83]

After the establishment of the U.S. Air Force as a separate military service in September 1947, the decline in the number of air installations reached its nadir in December at 115 active bases.[84] New threats on the international front would soon lead to a reversal of the post–World War II ebb.

NOTES

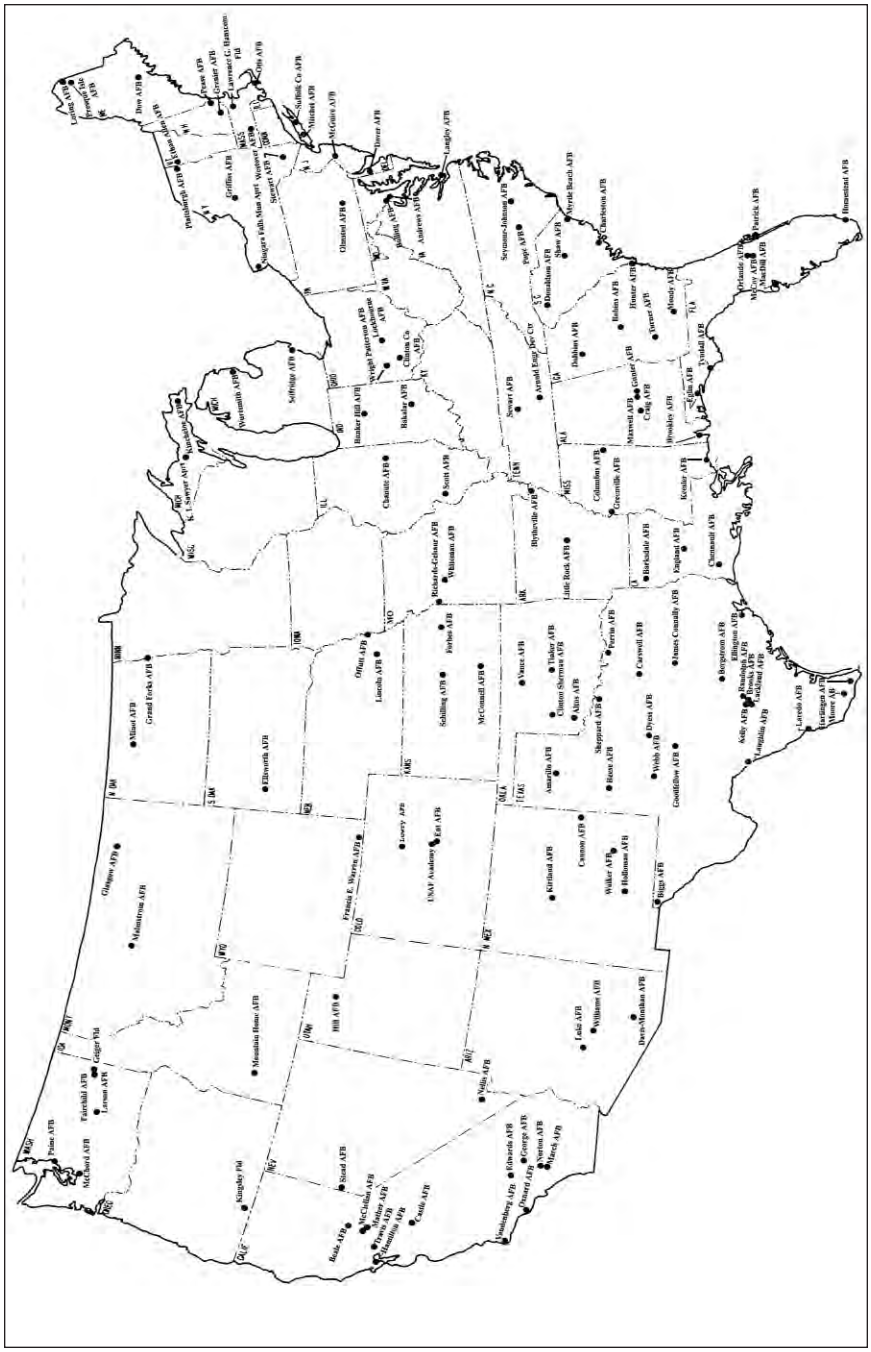
1. Jerold E. Brown, *Where Eagles Land: Planning and Development of U.S. Army Airfields, 1910–1941* (New York: Greenwood Press, 1990), (hereafter, Brown) 1–2, 11; R. Frank Futrell, "The Development of Base Facilities," (hereafter, Futrell) in *The Army Air Forces in World War II,* vol. 6, *Men and Planes,* ed. Wesley Frank Craven and James Lea Cate, 120, 166 (Washington, D.C., Office of Air Force History, new imprint, 1983).
2. Generally, remarks in this executive summary are based on the text, but specific sources are cited when they are not used elsewhere in the chapter.
3. Brown, 2, 4, 116.
4. Brown, 2–5.
5. Brown, 4–5, 8; Futrell, 122–123; Maurer Mauer, *Aviation in the U.S. Army, 1919–1939* (Washington, D.C.: Office of Air Force History, 1987), (hereafter, Maurer) 369–370.
6. Futrell, 168; Rebecca Hancock Cameron, *Training to Fly: Military Flight Training, 1907–1945* (Washington, D.C.: Air Force History and Museums Program, 1999), (hereafter, Cameron) 123, 285.
7. Janet R. D. Bednarek, *America's Airports: Airfield Developments, 1918–1947* (College Station: Texas A&M University Press, 2001), (hereafter, Bednarek) 11, 159.
8. Futrell, 167; Brown, 4, 8, 11–12; Cameron, 47.
9. Juliette A. Hennessy, *The United States Army Air Arm: April 1961 to April 1917* (Washington, D.C.: Office of Air Force History, 1985), (hereafter, Hennessy) 26; A. Timothy Warnock, "From Infant Technology to Obsolescence: The Wright Brothers' Airplane in the U.S. Army Signal Corps, 1905–1915," *Air Power History* 49 (Winter 2002), 49.
10. Hennessy, 34, 39, 40; Cameron, 41; Benjamin D. Foulois, "Early Flying Experiences: Why Write a Book, Part II?" *The Air Power Historian* 2 (July 1955), 50–52.
11. Hennessy, 45, 47, 54, 60; Cameron, 43, 47, 55.
12. Cameron, 55–56; Hennessy, 62, 72–74, 79, 86, 91, 105, 120; Brown, 22–24; Martha E. Layman, *Legislation Relating to the Air Corps Personnel and Training Programs, 1907–1939,* Army Air Forces Historical Studies: No. 39 (hereafter, Layman), 120–121, AFHRA 101–39; "1st Reconnaissance Squadron," http://afhra.maxwell.af.mil/www-root/rso/squadrons_flights_pages/0001rs.html.
13. Hennessy, 149, 167; Brown, 22, 26.
14. Hennessy, 177, 181–182; Brown, 29; Cameron, 122; Layman, 123.
15. Brown, 28–29; Hennessy, 131; Futrell, 121.
16. Brown, 30–31, 39–40.
17. Brown, 37–38, 48; Cameron, 123; Annual *Report of the Director of Military Aeronautics, U.S. Army: 1918* (Washington, D.C.), 8–10, AFHRA 167.4011, FY 1918; World War I Group, Historical Division, Special Staff, United States Army, *Order of Battle of the United States Land Forces in the World War (1917–1919) Zone of the Interior,* vol. 3, part 1 (Washington, D.C.: Government Printing Office, 1949), 107–108; Diane G. Cornelisse, *Splendid Vision, Unswerving Purpose,* (Wright-Patterson AFB, Ohio: Aeronautical Systems Center History Office, 2002)
18. Brown, 40–41, 44–45; Martin B. Claussen, *Materiel Research and Development in the Army Air Arm, 1914–1945,* Army Air Forces Historical Studies No. 50 (Washington, D.C.: AAF Historical Office, 1946), (hereafter, Claussen) 3, 16, AFHRA 101–50.
19. Cameron, 222; Brown, 53–55; Maurer, 66–67; *Annual Report of the Director of Air Service, Fiscal Year 1919,* (Washington, D.C., Sep. 25, 1919), 23, 38, AFHRA 167.4011, FY 1919.

20. Brown, 59; Maurer, 64; *Annual Report of the Chief of Air Service for the Fiscal Year Ending June 30, 1921* (Washington, D.C., Oct. 4, 1921), 11–12, AFHRA 167.4011, FY 1921; *Annual Report of the Chief of Air Service for the Fiscal Year Ending June 30, 1922* (Washington, D.C., Sep. 9, 1922), 9, AFHRA 167.4011, FY 1922.
21. Brown, 61–62; Claussen, 41, 129; *Annual Report, Chief of Air Service, 1925* (Washington, D.C., Sep. 10, 1925), 12, AFHRA 167.4011, FY 1925; Robert Mueller, *Air Force Bases,* vol. 1, *Active Air Force Bases Within the United States* (Washington, D.C.: Office of Air Force History, 1989), (hereafter, Mueller) 597–598.
22. Brown, 61, 82; Mueller, 43; Maurer, 370–371; *Annual Report of the Chief of Air Service for the Fiscal Year Ending June 30, 1923* (Washington, D.C., Sep. 13, 1923), (hereafter Air Service Report, 1923) 14–15, AFHRA 167.4011, FY 1923.
23. Air Service Report, 1923, 12.
24. Bednarek, 18–21; Air Service Report, 1923, 12.
25. Maurer, 150–151; Brown, 69; Air Service Report, 1923, 12.
26. Brown, 73.
27. Brown, 73–74; 79; Futrell, 121–122; Maurer, 197; Memo, Chief of Air Service to Assistant Chief of Staff, G–3, May 8, 1926, Subj: Major Army Project No. 4 — Air Service, Ex. C in Army Project No. 4, Air Service, May 21, 1926, AFHRA 145.91–108, 1926–1927.
28. Cameron, 246, 252, 257; Brown, 78–80; Maurer, 206–207; Mueller, 487.
29. Brown, 81; Maurer, 217–218; Mueller, 15.
30. Brown, 82–87, 167, notes 31, 32 & 168, note 34; Maurer, 330; Futrell, 122.
31. Brown, 97; Maurer, 289–290
32. Brown, 88–89, 93.
33. Brown, 95, 97–98, 100–101, 114; Futrell, 122; Maurer, 340; Edwin L. Williams, Jr., *Legislative History of the AAF and USAF, 1941–1951* (Maxwell AFB, Ala.: Research Studies Institute, Air University, 1953) 8, AFHRA 101–84.
34. Brown, 102–103; Futrell, 124; Mueller, 391; Maurer, 330.
35. Brown, 103, 108; Futrell, 125; Cameron, 123, 284–285.
36. Brown, 101, 103, 109–110; Futrell, 123, 125; Maurer, 371; Layman, 130, 132; *Report of Board of Air Corps Officers on the Location of the Air Corps Technical School* (Washington, D.C.: Office Chief of Air Corps, March 4, 1935), AFHRA 145.93–105.
37. Brown, 114, 115, 116; Futrell, 127.
38. The distance across the peninsula provided warning and preparation time for defense of the base from such a threat.
39. Brown, 102, 118, Futrell, 128–129.
40. Hqs, Army Air Forces replaced Hqs, Army Air Corps in June 1941. For any event in the text before this date, "Army Air Corps" or "Air Corps" is used, and for any event after this date "Army Air Forces" is used.
41. Brown, 116; Futrell, 131, 148; Cameron, 309–310; George M. Watson, "Building Air Power," in *Winged Shield, Winged Sword: A History of the United States Air Force,* vol 1, ed. Bernard C. Nalty, 232–233 (Washington, D.C.: Air Force History and Museums Program, 1997).
42. From 1940 until 1948, Army (and later Air Force) aviation installations carried a variety of designations, including Field, Air Field, Army Air Field, Air Base, and Army Air Base. For the sake of simplicity, the term "Field" is used in the text and tables.
43. Futrell, 129, 142–143, 161–162; Cameron, 438; Mueller, 439.
44. Futrell, 129, 132–133; Brown, 129.

45. Futrell, 125, 143–144.
46. Futrell, 132; Brown, 129–130.
47. Bednarek, 154–155; Brown, 127, Futrell, 130, 133–134, 148.
48. Bednarek, 158, 160.
49. Futrell, 131, 133, 135, 137.
50. Futrell, 131–132, 137–138.
51. Futrell, 142; Robert F. Futrell, *Development of AAF Base Facilities in the United States, 1939–1945* (Maxwell AFB, Ala.: USAF Historical Division, Air University, 1951), (hereafter, Futrell Study) 66, 90, AFHRA 101–69.
52. Futrell, 141–142, 150.
53. Futrell, 138–139, 150.
54. Futrell, 148–151.
55. Futrell, 140; Brown, 131–132
56. Futrell, 152–153, 165.
57. Futrell, 138, 140–141, 159–160; Futrell Study, 49.
58. Brown, 134; Futrell, 144–145, 157, 160; John D. Carter, "The Air Transport Command," (hereafter, Carter) *The Army Air Forces in World War II,* vol. 7, *Services Around the World,* ed. Wesley Frank Craven and James Lea Cate, 9–10, 42, 44–45 (Washington, D.C.: Office of Air Force History, new imprint, 1983); Frank H. Heck, "The Northwest Air Route to Alaska," in Craven and Cate, *Services Around the World,* 152, 158.
59. Futrell, 145–146.
60. Futrell, 147; Cameron, 540; Futrell Study, 86.
61. Futrell, 146–147; Cameron, 540; A. Timothy Warnock, *The U.S. Army Air Forces in World War II: The Battle Against the U-Boat in the American Theater* (Washington, D.C.: Center for Air Force History, n. d.), 26, 28.
62. Futrell, 149; Thomas E. Greacen II, *The Buildings and Grounds Office of the Army Air Corps, 1918–1944* (Washington, D.C.: March 29, 1944) 40, AFHRA 144.01, 1918–1944.
63. Futrell, 154; John E. Fagg, "Interview with Brigadier General John G. Williams," December 16, 1943 (hereafter, Williams Interview) in John G. Williams Personal Papers, AFHRA 168–608.
64. Futrell, 154–155.
65. Futrell, 156–157; Williams Interview.
66. Futrell, 161; Cameron, 540; Claussen, 133.
67. Claussen, 124–125, 130; Mueller, 125, 133; James O. Young, "Riding England's Coattails: The Army Air Forces and the Turbojet Revolution," in *Technology and the Air Force: A Retrospective Assessment,* ed. Jacob Neufeld, George M. Watson, Jr., and David Chenoweth, 21 (Washington, D.C.: Air Force History and Museums Program, 1997).
68. Futrell, 162–165.
69. History of Army Air Forces Training Command, 1 January–30 April 1945, vol. 1, 138, AFHRA 220.01.
70. Futrell, 165–166.
71. Chauncey E. Sanders, "Redeployment and Demobilization," (hereafter, Sanders) in Craven and Cate, *Services Around the World* 545, 569, 577; History of SAC 1947, (hereafter, 1947 SAC History) 233, AFHRA 416.01; History of Army Air Forces Training Command, 1 January 1946 Through 30 June 1946, vol. I, 12–13, AFHRA 220.01; History of Air Training Command, 1 January 1947 Through 31 December 1947, vol. I

(hereafter, 1947 ATC History) 20–21, AFHRA 220.01; History of the Tactical Air Command, March 1946–December 1946, vol. I (hereafter, 1946 TAC History) 39–42, 51–52, AFHRA 417.01; *United States Air Force Statistical Digest, 1947* (Washington, D.C.: Hqs, USAF, August 1948) 185, AFHRA 134.11–6.

72. Sanders, 576–579.
73. Walton S. Moody, *Building a Strategic Air Force* (Washington, D.C.: Air Force History and Museums Program, 1996), (hereafter, Moody) 68.
74. Moody, 76; 1947 SAC History, 231, 233.
75. 1946 TAC History, 2–3, 33–34, 36, 51–52; History of the Tactical Air Command for 1947, vol. I, 50–51, AFHRA 417.01
76. Sanders, 576; History, Air Defense Command, March 1946–June 1947, vol. I (hereafter, 1947 ADC History) 5–6, AFHRA 410.01.
77. 1947 ADC History, 5.
78. *Story of the Air Defense Command: Evolution of the Mission, March 1946–March 1947,* vol. I, 2, 50, 52, 62–64, AFHRA 410.01.
79. History of Air Transport Command, 1 October 1945–31 December 1946, iii, 1–2, AFHRA 300.01, Oct.–Dec. 1945; Incoming Message, 29 September 1947, from CG ATLD ATS Fort Totten NY, 9/27/47 ATLD 6021, in *A Summary of the Activities of the Headquarters, Air Transport Service, 1947,* AFHRA 300.01, 1947; Dick J. Burkard, *Military Airlift Command: Historical Handbook, 1941–1984* (Scott AFB, Ill.: December 1984), 106–114.
80. Sanders, 578; 1947 ATC History, 20–21, 24–27.
81. Sanders, 578–579; *Air Proving Ground Historical Data, 2 September 1945–30 June 1949,* vol. 1 34–36, 245 & Plate 9, AFHRA 240.01.
82. Jerome A. Ennels and Wesley Phillips Newton, *The Wisdom of Eagles: A History of Maxwell Air Force Base* (Montgomery, Ala.: Black Belt Press, 1997) 117, 119; The Air University History, 29 November 1945–30 June 1947, vol. 2, 302–303, 348, 433, 438, AFHRA 239.01.
83. *History of Air Materiel Command, 1947,* vol. I, 9, 44–46, AFHRA 200–7; *History of Air Materiel Command, 1947,* vol. II, Ap. 10, Chart I, AFHRA 200–7.
84. *United States Air Force Statistical Digest, 1947,* 185, AFHRA 134.11–6.


Lubbock AFB
Reese AFB
Dow AFB
Pease AFB
Lawrence G. Bancom Fld
Dyess AFB
Sheppard AFB
Kelly AFB
Randolph AFB
Bergstrom AFB
Bellingham AFB
Hickam AFB
Wheeler AFB
Lorenzo AFB
Ft Sill
Lawton AFB
Tinker AFB
Vance AFB
Altus AFB
Clinton Sherman AFB
Tulsa AFB
Perrin AFB
Carswell AFB
James Connally AFB
Sheppard AFB
Dyess AFB
Webb AFB
Goodfellow AFB
Bivins AFB
Amarillo AFB
Reese AFB
Kirtland AFB
Cannon AFB
Walker AFB
Holloman AFB
Biggs AFB
Williams AFB
Davis-Monthan AFB
Luke AFB
Falcon AFB
Nellis AFB
Indian Springs AFB
Gowen AFB
Mountain Home AFB
Hill AFB
Malmstrom AFB
Glasgow AFB
Francis E. Warren AFB
Lowry AFB
USAF Academy
Ent AFB
Ellsworth AFB
Grand Forks AFB
Minot AFB
Offutt AFB
Lincoln AFB
Whiteman AFB
Richards-Gebaur AFB
Forbes AFB
Schilling AFB
McConnell AFB
Little Rock AFB
Blytheville AFB
Scott AFB
Chanute AFB
Malmstrom AFB
Glasgow AFB
Kingsley Fld
Beale AFB
Travis AFB
Mather AFB
McClellan AFB
Sacramento AFB
Castle AFB
Stead AFB
Hamilton AFB
Moffett AFB
Onizuka AFB
Vandenberg AFB
Edwards AFB
Norton AFB
Mesa AFB
Phoenix AFB
Davis-Monthan AFB
Williams

2

Air Force Bases 1947–1960

When the U.S. Air Force gained its independence on 18 September 1947, it inherited the dwindling resources of the Army Air Forces. The number of major air installations in the "zone of the interior" had declined from more than 1,000 in 1943 to only 115 by the end of 1947. Within a few years, the outbreak of the Cold War, development of a Soviet nuclear threat, and the Korean conflict reversed this trend, initiating a period of rapid expansion that peaked in 1956 with 183 (143 combat) wings on 162 major operational installations. Approximately 190 airfields across the United States were active major Air Force installations at one time or another between 1947 and 1960. After discussing force expansion and the general process of base selection and criteria during this expansionary period, this chapter describes the relationship between specific mission requirements and force location.[1]

Force Expansion

The size and composition of the Air Force determines its base infrastructure. During the late 1940s, the administration of President Harry S. Truman adopted a policy of containment to check the expansion of the Soviet bloc. In 1947, his Air Policy Commission, headed by future Secretary of the Air Force Thomas K. Finletter, determined that fifty-five Air Force combat groups were inadequate and recommended seventy such groups by the end of 1952. An economy-minded Congress, however, cut the projected force to only forty-eight groups. In April 1950, frustrated by congressional parsimony, Secretary of the Air Force W. Stuart Symington resigned.[2]

That spring, the National Security Council issued a paper (NSC 68) recommending general U.S. rearmament. The invasion of South Korea by Communist North Korea in June helped convince Congress and the President to expand the armed forces, especially the Air Force. In their eyes, the Air Force deserved spe-

cial attention because early in the war it had demonstrated its ability to counter numerically superior Communist ground forces. On 1 September 1950 the Joint Chiefs of Staff approved an Air Force of 95 wings (80 combat and 15 airlift). By the end of 1951, President Truman endorsed expansion to 143 wings (126 combat and 17 airlift) to be achieved by the end of 1955.[3]

The tendency to favor the Air Force in defense spending became more pronounced under President Dwight D. Eisenhower (1953–1961). Wanting to balance the federal budget and encourage a thaw in the Cold War after the death of Joseph Stalin and the end of the Korean War in 1953, Eisenhower at first slowed U.S. rearmament. He authorized an interim Air Force expansion to only 120 combat wings and reduced funding for the Army and Navy. A continued Soviet arms buildup, including the development of thermonuclear weapons and the means to deliver them with long-range bombers, convinced Eisenhower to introduce a "New Look" to the Department of Defense (DOD) and resume the 143 combat wing program. Administration defense experts reasoned that only the fear of a massive nuclear retaliation would prevent the Soviet leadership from initiating new wars, limited or global. Because only the Air Force had the ability to deliver nuclear weapons to distant targets, New Look defense spending concentrated on strengthening the service's strategic force at the expense of Army and Navy forces. Between fiscal years 1954 and 1955, for example, the Air Force budget increased from $15.6 billion to $16.4 billion, while the Army and Navy–Marine Corps budgets decreased from $12.9 billion to $8.8 billion and from $11.2 billion to $9.7 billion, respectively. Air Force expansion meant more wings, more personnel, more aircraft, and more bases.[4]

The Base Selection Process

In the years 1947–1960, the Air Force developed a process to select bases to host its new wings and weapon systems. In March 1949, a new Air Force Development Board began choosing installations for the Chief of Staff to approve as permanent Air Force bases. The board considered such factors as force structure, operations, deployments, and available facilities. Permanent bases were those deemed sufficiently important to justify construction with an anticipated 25-year lifespan. A year later, the board produced a list of eighty-five installations in the continental United States (CONUS) to be designated as permanent bases. In July 1950, shortly after the outbreak of the Korean War, the Air Force Installations Board replaced the Air Force Development Board and inherited its responsibilities and recommendations. After resolving administrative controversies subsequent to the Korean War, the Air Force Council, Air Force Chief of Staff Gen. Hoyt S. Vandenberg, and Secretary of the Air Force Thomas K. Finletter finally approved the 85-base list in December 1952.[5]

Approval by the Secretary of the Air Force did not automatically guarantee construction. A proposal for a new base had to survive protracted scrutiny outside Air

Force channels before it secured approval. The Air Force relied on the Army Corps of Engineers to manage its real estate purchases and to contract for construction, and the service's construction projects had to be approved by DOD, the Bureau of the Budget, and Congress. In 1950, Brig. Gen. Colby M. Myers, USAF Director of Installations, noted that "the cycle of construction programming and execution is constantly passing through so many echelons of control and review that the Air Force must foresee and plan its construction requirements at least three years in advance." Beginning in 1953, the Air Force issued a series of regulations (AFR 85–1 in 1953; AFR 87–5 in 1954, 1955, and 1957) that specified how to assign, activate, designate, classify, and transfer Air Force installations.[6]

General Base Selection Criteria

In 1952 the Installations Board appended to its permanent base listing a set of criteria for selecting additional permanent bases or sites. Whenever possible, existing active or inactive DOD installations were to become the candidates for permanent status. To save money during the Korean War, President Truman directed that the Air Force build new domestic bases only if no existing base could be modernized or if no suitable surplus base could be transferred from another service. The need for new bases was minimal because so many recently inactivated World War II installations were available, even if most were of temporary construction that had deteriorated. Permanent bases were to have enduring value and be located consistent with their mission. They were to be federally owned, under exclusive Air Force control, and near construction, maintenance, and logistics services. The 1952 criteria called for permanent bases to be expandable or adaptable, close enough to a civilian community to have access to supplementary housing and services, and free from industrial and other civilian activities that might endanger the health of the base population. Another prerequisite was support from the local citizenry. Donation of real estate to attract a permanent installation was one very tangible measure of local support.[7]

As the Air Force expanded during the 1950s, it refined its criteria for new permanent bases. Air Force Secretary Finletter insisted the location of an air base was a technical problem that had to be decided first by the Air Staff because its officers were trained and skilled in the technical requirements for base selection. He recognized that civilian interests existed and should be accommodated, but only after military and technical criteria had been satisfied. To support his policy, Finletter established a Directorate of Installations, elevating it to a higher administrative level than the old Board of Installations. Harold E. Talbott perpetuated the directorate after becoming the Secretary of the Air Force under Eisenhower in 1953. In October 1954, the Air Force Directorate of Real Property, Assistant Chief of Staff for Installations, Air Planning Division, Base Selection Branch, issued new "site selection criteria" that reaffirmed and expanded on the old. The Air Force would authorize permanent construction only on bases for which it had clear title. It want-

ed permanent base sites to have topography sufficiently level to support a 15,000-foot runway and encompass approximately 5,000 acres of land, depending on the type of mission to be located there. The bases were to be at least fifteen miles from the nearest city to satisfy noise and safety considerations, but not be more than twenty-five miles distant because of the need for laborers, materiel, housing, and recreational facilities. Permanent airfields were to be where military air traffic would not create hazardous flying conditions as a result of congested air space. The Air Force also expected its permanent Air Force Reserve bases to be near large metropolitan areas as sources of local manpower.[8]

For certain kinds of bases, the Air Force determined that building new installations from scratch would be less costly than tearing down and rebuilding those that remained after World War II. In January 1952, Edwin V. Huggins, then in charge of installations for the Secretary of the Air Force, announced that while the service would continue to reactive older bases, it would construct brand new bases when necessary. During the 1950s, the Air Force constructed eight new installations, including four for Air Defense Command (ADC), two for Strategic Air Command (SAC), and two as direct reporting institutions (see Table 2.1).[9]

Table 2.1: New Air Force Bases, 1950s

Installation	Year	Location	Original Purpose
Arnold Engineering Development Center	1950	Tennessee	Research and development
Limestone (later, Loring) AFB	1953	Maine	Strategic bombardment
Little Rock AFB	1955	Arkansas	Strategic bombardment
K. I. Sawyer AFB	1956	Michigan	Air defense
Glasgow AFB	1957	Montana	Air defense
Grand Forks AFB	1957	North Dakota	Air defense
Minot AFB	1959	North Dakota	Air defense
Air Force Academy	1959	Colorado	Education

Sources: Robert Mueller, *Air Force Bases*, vol. I, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982); Base files in the Research Division of the Air Force Historical Research Agency, Maxwell AFB, Ala.

Major Command Requirements

The major air commands had unique basing requirements determined by their specific missions. In the first years of the U.S. Air Force as an independent service, the need to relocate headquarters of commands closer to the geographic center of their operations also influenced base assignments. In the early 1950s, formal Air Staff guidance specified command requirements as well as generalized criteria for air

base selection. The major commands generally followed this guidance because it reflected their interests. Practical considerations, such as the absence of available sites in a desirable geographic area, a general shortage of bases, and aircraft limitations, could, however, necessitate policy deviations.

At times, Air Force headquarters acted as a broker among its major commands, transferring bases from one command to another to balance competing interests. This was a dynamic and complex process, sometimes involving more than two commands. For example, in 1957 the Air Force moved the headquarters of three commands: Air Training Command (ATC) headquarters moved from Scott AFB in Illinois to Randolph AFB in Texas; Military Air Transport Service (MATS) headquarters moved from Andrews AFB in Maryland to Scott; and Air Research and Development Command (ARDC) headquarters moved from Baltimore to Andrews. During the 1950s, the Air Force stressed SAC and ADC over the other commands as a reflection of national defense priorities.[10]

Strategic Forces Bases

The mission of SAC throughout 1947–1960 remained unchanged: maintain capability to attack key long-range targets in the heartland of the enemy (which at the time was the Soviet Union). Until missile-carrying submarines entered the U.S. Navy's inventory, SAC was the only command in the only service that could deliver nuclear weapons at long range. For this reason, it was the cornerstone of President Eisenhower's policy of deterring Soviet aggression with the threat of massive nuclear retaliation. While the SAC mission did not change, the technology and methods for accomplishing it evolved throughout the period, and with them, the requirement for SAC bases.[11]

SAC's earliest basing concern was to find a suitable location for its headquarters. In 1948, Air Force Chief of Staff Hoyt S. Vandenberg moved SAC headquarters from the Washington, D.C., area to Offutt, a former ADC base in Nebraska. Air traffic and vulnerability had become problems in the National Capital area. Offutt was closer to other SAC bases that would be under its control. Later that year, Lt. Gen. Curtis E. LeMay became the SAC commander.[12]

General LeMay wanted SAC to keep its best bases, dispose of those with the worst facilities, and obtain from other commands installations more suitable for heavy bombers and tankers. He preferred installations with long, strong runways, large hangars, and ample fuel supplies to support the heavy aircraft. In 1949 SAC took over Barksdale AFB in Louisiana from ATC; March AFB in California from Continental Air Command (CONAC); and Fairfield-Suisun (later, Travis) AFB in California from MATS, because these bases met LeMay's requirements. SAC quickly established a reputation for acquiring bases from other commands.[13]

Occasionally, SAC chose to build a new base to accommodate its expanding force structure. An example is Little Rock AFB, Arkansas. According to Everett Tucker, Jr., of the Little Rock Chamber of Commerce, Arkansas was "the hole in

the donut," a state surrounded by others that had active military installations, but a state owning none of its own. The Arkansas congressional delegation agreed. In January 1952, the chamber wrote a letter to Secretary Finletter offering more than 7,000 acres of land for a new air base and the construction of access roads. The chamber stressed the value of its state's central location within the protective coastal radar screen, midway between the Atlantic and Pacific Coasts. Central Arkansas offered an adequate labor supply; construction facilities; good sources of electricity, natural gas, coal, and water; a variety of churches; a temperate climate; and adequate communication and medical facilities. During the same month, Brig. Gen. H.R. Maddox, assistant for air bases under the Air Force deputy chief of staff, visited the proposed site. The next month, Tucker flew to Offutt AFB and to Washington to push his case. General LeMay was receptive and so was Congress. In May, DOD asked Congress to authorize $31 million to construct a new base near Little Rock and $16 million to reopen Blytheville, an old World War II base in Arkansas. Congress approved in July, and the construction of Little Rock AFB began in 1953.[14]

Weapon systems and their missions influenced SAC base selections. Bombers designed to carry nuclear weapons were initially stationed near atomic bomb stockpiles in the Southwest, but they could not reach enemy targets directly because of their distance. Just as in World War II, when American bombers struck enemy targets in Germany and Japan only from forward bases in England and the Marianas, the early SAC bombers had to deploy to foreign bases before launching possible strikes against the Soviet Union. During the1948–1949 Berlin Airlift, the Air Force deployed sixty B–29s of two bombardment groups from Rapid City AFB in South Dakota and from MacDill AFB in Florida to England. Until 1954, SAC rotated medium-range bombardment units to forward bases in England generally for ninety-day periods. SAC utilized bases for deployment and recovery of bombers in England and also other parts of Europe and northern Africa for missions eastward, and in Guam for missions westward. In the early 1950s, SAC developed a "reflex" operation, shuttling bombers between its southern CONUS bases and Morocco in North Africa. Certain bases in the CONUS, therefore, were designed more to facilitate deployments than direct missions to the Soviet Union. Examples were Hunter AFB, Georgia, and MacDill AFB, Florida, locations better suited to supporting deployments to forward bases in Europe and North Africa than for supporting flights over the Arctic. The first key SAC bases were in the Southwest, West, South, and lower Midwest.[15]

Direct attacks on Soviet targets from bases in the United States became possible with the advent of long-range bombers. As early as 1948, SAC had begun to acquire the huge, six-engine Peacemaker, whose 10,000-mile unrefueled range made it the first intercontinental bomber. At first, all B–36 bombers were based at Carswell, Texas, near the Consolidated-Vultee plant where they were built and repaired. A sudden storm with winds of 100 miles per hour struck Carswell in September 1952 and damaged or destroyed more than seventy B–36s. SAC subse-

A B–36 hangar under construction in 1948 at Limestone (later, Loring) Air Force Base, Maine, the first new Strategic Air Command base.

quently dispersed its B–36s on additional bases in the Southwest. Even with their very long range, B–36s would have difficulty reaching all key Soviet targets because they lacked an in-flight refueling capability. To make attacks from the United States more practical, SAC at first relied on staging bases in northeastern Canada. The command built Limestone (later, Loring) AFB in Maine in the early 1950s as its first bomber base constructed from scratch. SAC planned to station no less than sixty B–36s there and to use the installation for staging B–36s flying eastward from other bases in the Southwest.[16]

Beginning in 1948, SAC supplemented its B–29s with improved versions, designated B–50s, capable of in-flight refueling. In 1949, a B–50, *Lucky Lady II,* demonstrated that a medium bomber could fly nonstop around the world aided by tankers. Though aerial refueling could enable a B–50 to reach Soviet targets from any of its bases in the CONUS, such refueling in the early 1950s was still an imperfect science, and SAC was reluctant to abandon its medium bomber bases overseas. SAC B–50s rotated to European bases for ninety-day periods, just as the B–29s had done earlier.[17]

Both the B–50 and the B–36 were propeller-driven bombers, considerably slower than the Soviet MiG–15 fighters that proved so lethal against B–29s during the

Korean War. To maintain the deterrent capability of the B–36, SAC stationed escort fighters at Dow AFB, Maine, and added two paired jet engines to each end of the B–36's wings. The supplemental engines gave the Peacemaker greater speed, but they reduced its range. A better solution was to develop faster, all-jet bombers, such as the six-engine air-refuelable B–47 Stratojet, which became operational in 1951.[18]

While the B–47 was faster than the B–36, it lacked the Peacemaker's range and payload. Sheer numbers and in-flight refueling more than compensated for these deficiencies. By 1954, 795 B–47 bombers were operational, compared to 209 Peacemakers. B–36 force strength peaked that year, but SAC would ultimately accept more than 2,000 of the all-jet medium bombers for operational use in strategic bombardment or strategic reconnaissance roles. During 1954, SAC perfected its in-flight refueling techniques, tactics, and doctrine, accomplishing more than 142,000 hookups. Most paired the B–47 bomber with the propeller-driven KC–97 tanker aircraft. Reliable aerial refueling allowed SAC to treat the B–47s as intercontinental bombers.[19]

A RAND study published in 1953 concluded that SAC bases in Europe were vulnerable to light bombers stationed in the satellite nations of Eastern Europe. The SAC "advance guard" could be eliminated by enemy tactical aircraft, while Soviet long-range bombers remained ready to attack the United States. The alternative was to base more SAC bombers within the CONUS.[20]

Accordingly, SAC fundamentally altered its basing policies to exploit the capabilities of its new bomber-tanker team. Abandoning the policy of launching initial raids from overseas bases, the command determined to station its bombers within the CONUS for missions directly to the Soviet Union. The new concept was called Full House. Basing tankers in the northeastern United States would make such missions more practical. The slower, propeller-driven tankers would have a head start on the faster jet bombers coming from other parts of the country. In fact, the farther northeast the tankers were based, the less fuel they would need to consume and the more they could deliver to the bombers. Stationing some of the B–47 bombers themselves in the Northeast would place them closer to their targets, reducing the time between a Soviet attack and a U.S. counterattack, allowing possible destruction of Soviet offensive resources before they could be unleashed completely. These B–47s could be refueled in flight by tankers based in Canada, Bermuda, or Greenland. Overseas bases in Europe and North Africa would still be required, but only to recover bombers after their initial raids and to prepare them for subsequent missions.[21]

As a result of the Full House concept, the USAF Directorate for Real Property in 1954 called for permanent SAC bases to be located "north of a line extending from Cutbank, Montana, through Miles City, Montana; Sioux Falls, South Dakota; Rock Island, Illinois; Columbus, Ohio; to Washington, D.C." Launching and staging bases were to be "as far northeast as possible and, in any event, north of the 40 degree north latitude." The Directorate also issued survivability guidance that

severely restricted the number of northeastern locations available to SAC. Permanent SAC bases were to be located at least 250 nautical miles from seacoasts to reduce their vulnerability to Soviet sea-launched missiles. Bases were also to be located "outside of atomic radiation fallout patterns of large industrial targets of over 100,000 population" and "at right angles to the prevailing winds." This was to avoid fallout from Soviet atomic attacks against likely potential targets in the Northeast. If SAC had followed the 1954 guidance completely, it would have chosen bomber bases only in the north-central United States.[22]

Its choices limited by survivability requirements, SAC searched for desirable northeastern locations for its tankers and bombers. In 1955 the command created two KC–97 aerial refueling wings and based them at Dow AFB in Maine and Westover AFB in Massachusetts. The latter base, which SAC obtained from MATS, became the home of a B–36 wing in 1956. Limestone (later, Loring) AFB in Maine, already hosting B–36s, added KC–97s to its aircraft inventory. In 1955 and 1956 the Air Force obtained two northeastern bases for SAC: Plattsburgh AFB, New York, and Portsmouth (later, Pease) AFB, New Hampshire. At both, SAC stationed KC–97s and B–47s. To refuel the B–47s taking off from Plattsburgh and Portsmouth, SAC arranged to base KC–97 tankers at Goose AB, Labrador, and Ernest Harmon AFB, Newfoundland. SAC acquired these bases from Northeast Air Command in 1957.[23]

Later, the entry of larger, longer-range, more reliable bombers and tankers into the SAC deterrent force reduced the importance of the northern bases in general. During the mid-1950s, Boeing began building large numbers of the eight-jet B–52 Stratofortress, and SAC began placing them on the former B–36 bases in the South and West. A few years later, SAC began acquiring the supersonic B–58 Hustler. Like the B–36, this bomber's first base was at Carswell AFB, located for logistical reasons near the Convair plant in Texas where it was produced. These faster, higher-flying bombers did not require fighter escorts. By 1957, SAC could discard its fighters, some of which were stationed in the North. Finally, new jet-propelled long-range KC–135 tankers, fast enough to refuel the B–52s and B–58s, could be based at southern and western installations. They did not need northern basing to achieve a head start.[24]

By the latter half of the 1950s, SAC bases were overcrowded (see Table 2.2). Testifying before Congress in 1956, General LeMay remarked, "The building of bases has lagged behind the production of airplanes to form wings; this has resulted in a shortage of bases and a crowding up of units and aircraft on bases." Between 1957 and 1960, the number of SAC heavy bombers and tankers rose: B–52s rose from 243 to 538, and KC–135s, from 24 to more than 400. Although the number of B–47s declined from a peak of more than 1,300 in 1956, the inventory still exceeded 1,000. SAC recycled its bases, usually placing newer generations of bombers on the same bases that had hosted the older types. For example, between 1951 and 1955, MacDill, Hunter, Davis-Monthan, Castle, and Biggs AFBs traded their propeller-driven B–50s for B–47s. Loring, Walker, Fairchild,

Table 2.2: Strategic Air Command Bases and Combat Aircraft Number in 1948–1960

Year	Number of combat aircraft	Number of CONUS bases
1948	837	21
1949	868	17
1950	962	19
1951	1,186	22
1952	1,638	26
1953	1,830	29
1954	2,640	30
1955	3,068	37
1956	3,188	36
1957	2,711	38
1958	3,031	39
1959	3,207	40
1960	2,992	46

Source: J.C. Hopkins and Sheldon A. Goldberg, *The Development of Strategic Air Command, 1946–1986* (Offutt AFB, Nebr.: Strategic Air Command History Office, 1986).

Carswell, Travis, and Biggs exchanged their B–36s for all-jet B–52s between 1956 and 1959. In the same period, Castle, Altus, and Biggs discarded medium B–47s for heavy B–52s. Although older bomber and tanker types were phased out as new ones entered the inventory, the new ones were generally larger and faster, requiring more space for takeoff, landing, and parking.[25]

Both LeMay and Gen. Nathan F. Twining, Air Force Chief of Staff, feared that the overcrowded bases provided lucrative and vulnerable targets for the Soviet strategic forces. Both generals advocated dispersing the deterrent force throughout the United States to create more targets than the Soviets had the means to destroy. Dispersal created the need for a "substantial increase" in the number of active air bases. The Air Force examined all of its installations to determine their multimission capability, and it initiated engineering feasibility studies at certain sites. The goal was to station no more than one 45-plane B–47 wing or one 15-plane B–52 wing on any given base. Strategic wings, containing both B–52 bombers and KC–135 tankers, shared certain bases. Reduced numbers of B–47s in the later 1950s allowed SAC to decrease the average number of B–47 wings per base from two to one, but for the dispersal of B–52s, SAC had to gain bases from other commands. Eventually SAC required thirty-eight bases to disperse its B–52 fleet. During 1947–1960, SAC obtained twenty-three bases from other commands, including seven from Tactical Air Command (TAC), five from ATC, four from MATS, three from ADC, three from CONAC, and one from ARDC.[26]

SAC valued dispersal highly enough to station certain of its units on bases under the control of other commands. Seymour Johnson in North Carolina, for example, remained under TAC control, but in 1958 it also became the home of a strategic wing and an air refueling squadron. In June 1960, SAC announced that B–47 units would deploy periodically from their home bases to the bases of other commands or to civilian airports to satisfy the dispersal imperative.[27]

During Eisenhower's second term, SAC leaders sought an alternative to dispersal because of the financial and logistical burden of maintaining, controlling, supporting, and protecting so many bases. One such alternative was an "alert" system that would allow bombers to be airborne within minutes of a detected Soviet first strike. By the mid-1960, SAC maintained one-third of its bombers and tankers on fifteen-minute ground alert.[28]

In the late 1950s, the United States and the Soviet Union added strategic nuclear armed missiles to their arsenals. In 1955, DOD assigned primary responsibility for U.S. intercontinental ballistic missiles (ICBMs) to the Air Force. While the new missiles were in development, the Air Force considered ICBM basing requirements. In 1955, ARDC commissioned a study that recommended such bases be located north of a line running from Seattle, Washington, to Norfolk, Virginia. This would limit the trajectory distance to key Soviet targets on the far side of the Arctic Ocean.[29]

Gen. Thomas S. Power, who became SAC commander in 1957, listed his own criteria for the new missile bases: remote, isolated locations for security and safety; proximity to active military installations for administrative and logistical support; suitable geological characteristics; a climate conducive to all-weather operations; and a minimum of electrical interference. General Power also wanted the missile sites to be sufficiently dispersed to prevent their easy destruction by a surprise enemy attack. The Air Force supervised a series of surveys in 1957 for siting several types of missiles, including the intercontinental guided-cruise missile Snark and the ICBMs, the Atlas, Titan, and Minuteman.[30]

Despite its coastal vulnerability, Presque Isle AFB, Maine, served as the first Snark base because its extreme northeast location allowed intercontinental cruise missiles to reach a wide range of targets in the Soviet Union. (Snark, an unmanned aircraft with a primitive guidance system, was operational for only a few months.) ICBMs such as Atlas and Titan had a much longer range than Snark; they therefore did not require such an extreme northeastern location. On 9 September 1959, SAC launched its first ICBM, an Atlas, from Vandenberg AFB in California. Although vulnerable to attack by sea, Vandenberg was a good location for training missile crews because its location on the Pacific Coast allowed practice overwater launches for thousands of miles.[31]

Construction of new ICBM bases called for an Air Force engineering function less dependent on the U.S. Army Corps of Engineers to manage contracts with private builders. In 1959, the Air Force Directorate of Civil Engineering replaced the Directorate of Installations. It required ICBM sites to be located at specified dis-

tances from cities, highways, and railroads. An Atlas launch site, for example, had to be at least 1,875 feet from inhabited buildings. Each missile launch site within a given complex also had to be a prescribed distance from the others. Consequently, the Air Force needed bases with open space for its missile sites. The Air Force chose Francis E. Warren AFB in remote and sparsely populated Wyoming to be its first Atlas missile installation. To prepare an adequately sized site, the Air Force acquired 9,000 additional acres. The Air Force Ballistic Missile Center recommended Lowry AFB in Colorado as the location for the first Titan sites, partly because the federal government already owned, and the Air Force already controlled, the vast Lowry bombing range, and partly because the Martin Company missile plant was located in the Denver area. By the end of 1960, the Air Force and SAC had selected twenty-two bases in the United States for ICBMs: ten were for Atlas, eight for Titan, two for Minuteman, one for both Titan and Minuteman, and one for all three (see Table 2.3). Generally, the ICBM bases were former SAC bomber installations. Nine were located between the Rocky Mountains and the Mississippi River; seven were in Rocky Mountain States. Of the four in states bordering the Pacific Coast, two were east of the Cascade Mountains. Of the projected ICBM bases, only two, Griffiss and Plattsburgh in New York, were east of the Mississippi River.[32]

Although the solid-fueled Minuteman could be launched more rapidly and stored more easily in underground silos than the Atlas and Titan could, its initial effective range was approximately only 5,500 nautical miles. To allow the newest missile to hit more key targets within the Soviet Union, the Air Force wanted to base the Minuteman as far north as possible, but not in the Northeast because of its

Table 2.3: Bases Selected for SAC ICBMs, End of 1960

SM-65 *Atlas*	SM-68 *Titan*	SM-80 *Minuteman*
Altus AFB, Okla.	Beale AFB, Calif.	Ellsworth AFB, S. Dak. *
Dyess AFB, Tex.	Davis-Monthan AFB, Ariz.	Hill AFB, Utah (mobile)
Fairchild AFB, Wash.	Ellsworth AFB, S.Dak. *	Malmstrom AFB, Mont.
Forbes AFB, Kans.	Griffiss AFB, N.Y.	Vandenberg AFB, Calif. *
Francis E. Warren AFB, Wyo.	Larson AFB, Wash.	
Lincoln AFB, Nebr.	Little Rock AFB, Ark.	
Offutt AFB, Nebr.	Lowry AFB, Colo.	
Plattsburgh AFB, N.Y.	McConnell AFB, Kans.	
Schilling AFB, Kans.	Mountain Home AFB, Idaho	
Vandenberg AFB, Calif.*	Vandenberg AFB, Calif.*	
Walker AFB, N. Mex.		

Sources: History of Strategic Air Command, Jul–Dec 1960, vol. I, Historical Study Number 83, AFHRA K416.01–83, 164–167; Gen. Thomas S. Power, "Strategic Air Command," *Air Force Magazine* 43:9 (Sep 1960) 68.

* Selected for more than one ICBM type.

cities, industrial concentrations, and proximity to the ocean. The Air Force decided that Minuteman bases should be located within a reasonable distance from missile production facilities, such as in the Ogden area of Utah and the Hastings area of Nebraska. This would allow specialists to visit the operational sites more easily should problems arise. The Air Force wanted its Minuteman bases to be far away from population and industrial centers and to be placed in sunken silos more likely to survive a Soviet attack. To save DOD dollars, the Air Force looked at existing USAF bases for its newest ICBMs. SAC chose Malmstrom AFB in Montana as its first Minuteman base. Remotely sited bases also preserved Minuteman as a viable alternative to the U.S. Navy's new Polaris submarine-launched ballistic missile, which became operational in 1960. Although a Minuteman site provided an easier target than a moving submarine did, a Soviet attack on it was unlikely to produce massive civilian casualties if it was located far from population centers.[33]

In 1958, the Air Force specified that ICBM bases be built in the north-central United States to minimize their distance to enemy targets, provide them the protection of surrounding defensive systems, distance them from heavily populated areas, and utilize suitable geological features. In early 1959, SAC recommended that the geographic limits established by the Air Force for ICBM bases be expanded to the borders of the CONUS, including East and West Coast sites and those in the South. SAC believed that suitable geologic characteristics for missile bases were available in all regions of the country, that dispersal of ICBM bases all over the nation would complicate the enemy's targeting problem, and that existing SAC B–47 bases were appropriate for conversion to ICBM bases. SAC leaders argued that if the Air Force attempted to squeeze increasing numbers of ICBMs into the same geographic region, it would allow the enemy to target more successfully the retaliatory capacity of the United States; thus SAC proposed dispersing ICBM bases all over the country, just as bomber bases had already been dispersed.[34]

Although SAC bases were scattered in all geographic regions of the United States by the end of 1960, more than half remained in the South or West (see Table 2.4). Despite efforts to acquire or build more SAC bases in the Northeast and Midwest, the total for these two regions only equaled the South's. The South had 17 SAC bases, the West had 12, the Northeast had 6, and the Midwest had 11.

As the number of major Air Force bases declined from a peak of 162 in 1956 to 155 in 1960, the number of SAC bases rose from 36 to 46, increasing the command's percentage of air bases owned through the end of the Eisenhower administration. In terms of base infrastructure, as the Air Force had begun to decline in the late 1950s, SAC enjoyed a growth spurt. While SAC controlled some 14 bases continuously from 1947 to 1960, it acquired or regained approximately 30 more during the same years (see Table 2.5). By 1960, SAC maintained strategic bombers dispersed over all of the United States just as its ICBM forces were rising in the central and western parts of the country to offer another strategic alternative. Perhaps the time for increasing the number of SAC bombers and bases was over.[35]

Table 2.4: Geographic Distribution of Strategic Air Command Bases, End of 1960

Geographic Region	SAC bases at the end of 1960	
Northeast (6 bases)	Dow, Maine	Pease, N. H.
	Loring, Maine	Westover, Mass.
	Presque Isle, Maine	Plattsburgh, N.Y.
Midwest (11 bases)	Clinton County, Ohio	Lincoln, Nebr.
	Lockbourne, Ohio	Offutt, Nebr.
	Bunker Hill, Ind.	Forbes, Kans.
	Wurtsmith, Mich.	McConnell, Kans.
	Whiteman, MO	Schilling, Kans.
	Ellsworth, S. Dak.	
South (17 bases)	Bergstrom, Tex.	Homestead, Fla.
	Biggs, Tex.	MacDill, Fla.
	Carswell, Tex.	McCoy, Fla.
	Dyess, Tex.	Barksdale, La.
	Laughlin, Tex.	Chennault, La.
	Altus, Okla.	Hunter, Ga.
	Clinton-Sherman, Okla.	Turner, Ga.
	Blytheville, Ark.	Columbus, Miss.
	Little Rock (Ark.)	
West (12 bases)	Francis E. Warren, Wyo.	Beale, Calif.
	Glasgow, Mont.	Castle, Calif.
	Malmstrom, Mont.	March, Calif.
	Larson, Wash.	Vandenberg, Calif.
	Fairchild, Wash.	Davis-Monthan, Ariz.
	Mountain Home, Idaho	Walker, N. Mex.

Sources: Robert Mueller, *Air Force Bases*, vol. I, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982) and Robert Mueller, *Air Force Bases*, vol. I, *Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, D.C.: Office of Air Force History, 1989); Base files at Air Force Historical Research Agency; Directories of USAF Organizations, 1950s, AFHRA K134.45–1–1; *Air Force Magazine*, almanac issue, 1960.

Aerial view of Glasgow Air Force Base, Montana, originally constructed from scratch as an ADC base in the northern tier states during the 1950s, which eventually served as a major SAC base in the 1960s.

Air Force Bases

Table 2.5: Major Strategic Air Command Bases, 1947–1960

Base	Years under SAC	Action
Abilene (Dyess) AFB, Tex. *	1955-	Inactive 1946-1955
Altus AFB, Okla. *	1954-	Transferred from TAC
Barksdale AFB, La *.	1949-	Transferred from ATC
Beale AFB, Calif. *	1956-	Transferred from CONAC
Bergstrom AFB, Tex. *	1949-1957, 1958-	Transferred from CONAC, 1949; transferred to TAC, 1957; transferred from TAC, 1958
Biggs AFB, Tex. *	Entire period	
Blytheville (Eaker) AFB, Ark. *	1958-	Transferred from TAC
Bunker Hill (Grissom) AFB, Ind. *	1957-	Transferred from TAC
Campbell AFB, Ky.	1954-1959.	Transferred from TAC in 1954; transferred to Army in 1959
Carswell AFB, Tex. *	Entire period	
Castle AFB, Calif. *	Entire period	
Chatham AFB, Ga.	-1950	Traded for Hunter AFB
Clinton County AFB, Ohio *	1960-	Transferred from CONAC
Clinton-Sherman AFB, Okla.*	1954-	Transferred from U.S. Navy
Clovis (Cannon) AFB, N. Mex.	-1950	Transferred to ATC
Columbus AFB, Miss. *	1955-	Transferred from ATC
Cooke (Vandenberg) AFB, Calif. *	1958-	Transferred from ARDC
Davis-Monthan AFB, Ariz. *	Entire period	
Dow AFB, Maine *	1951-1952; 1952-	Inactive 1949-1951; transferred to TAC briefly in 1952 but returned to SAC
Ent AFB, Colo.	-1949	Inactivated temporarily in 1949
Fairfield-Suisun (Travis) AFB, Calif.	1949-1958	Transferred from MATS in 1949 and to MATS in 1958
Francis E. Warren AFB, Wyo. *	1958-	Transferred from ATC
Glasgow AFB, Mont. *	1960-	Transferred from ADC
Gray AFB, Tex.	-1957.	Transferred to AMC
Great Falls (Malmstrom) AFB, Mont. *	1954-	Transferred from MATS
Homestead AFB, Fla. *	1953-	Inactive 1945-1953
Hunter AFB, Ga. *	1950-	Acquired from Savannah
Laughlin AFB, Tex. *	1957-	Transferred from ATC
Lake Charles (Chennault) AFB, La. *	1951-	Transferred from TAC

* Active in 1960.

Limestone (Loring) AFB, Maine *	1953-	New
Lincoln AFB, Nebr. *	1952-	Inactive 1945-1952
Little Rock AFB, Ark. *	1955-	New
Lockbourne (Rickenbacker) AFB, Ohio *	1951-	Inactive 1949-1951
MacDill AFB, Fla. *	Entire period	
March AFB, Calif. *	1948-	Transferred from CONAC
McGuire AFB, N.J.	1948-1949	Inactive 1946-1948; transferred to CONAC in 1949
Moses Lake (Larson) AFB, Wash. *	1960-	Transferred from MATS
Mountain Home AFB, Idaho *	1948-1950. 1953-	Inactive 1945-1948. Inactivated in 1950. Transferred from MATS in 1953
Offutt AFB, Nebr. *	1948-	Transferred from ADC
Oscoda (Wurtsmith) AFB, Mich. *	-1949. 1960-	Transferred to CONAC in 1949. Transferred from ADC in 1960.
Pinecastle (McCoy) AFB, Fla. *	1954-	Transferred from ATC
Portsmouth (Pease) AFB, N.H. *	1956-	Transferred from U.S. Navy
Plattsburgh AFB, N.Y. *	1955-	Inactive 1946-1955
Presque Isle AFB, Maine *	1959-	Transferred from ADC
Rapid City (Ellsworth) AFB, S. Dak. *	Entire period	
Roswell (Walker) AFB, N. Mex. *	Entire period	
Sedalia (Whiteman) AFB, Mo. *	1951-	Inactive 1946-1951.
Smokey Hill (Schilling) AFB, Kans. *	Entire period	
Spokane (Fairchild) AFB, Wash. *	Entire period	
Topeka (Forbes) AFB, Kans. *	Entire period	
Turner AFB, Ga. *	1950-1957. 1959-	Transferred from CONAC in 1950; transferred to TAC in 1957 but returned to SAC in 1959.
Westover AFB, Mass. *	1955-	Transferred from MATS
Wichita (McConnell) AFB, Kans. *	1958-	Transferred from ATC

Sources: Directories of USAF Organizations, 1950s, AFHRA K134.45–1; Robert Mueller, *Air Force Bases*, vol. I, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982); Robert Mueller, *Air Force Bases*, vol. I, *Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, D.C.: Office of Air Force History, 1989); Base binders and files in the working papers of the Research Division of the Air Force Historical Research Agency; *Air Force Magazine,* almanac issues, 1950s.

Air Defense Bases

When the Air Force became independent from the Army in 1947, active fighter units and their bases belonged to three commands: SAC, with escort fighters; ADC, with interceptors; and TAC, with fighter-bombers. Between 1948 and 1950, ADC and TAC served only as operational headquarters under CONAC, which controlled all nonescort fighters and their bases. During the Korean War, the Air Force returned aircraft and bases to ADC and TAC, which reverted to major commands, while CONAC remained to administer reserve units. During the 1950s, ADC and TAC became more specialized in terms of their missions, aircraft, and bases.[36]

The ADC mission throughout the period was to detect, identify, intercept, and destroy incoming enemy aircraft as far from their targets as possible. During the 1950s, ADC acquired "century series" interceptor aircraft: F–102s, F–104s, and F–106s. Designed for point interception of bombers, the new fighters could fly very fast in a straight line, but they were not designed for maneuverability, interdiction, or close air support. By the middle of 1954, the Air Force had deployed some 1,200 fighter-interceptors on forty-one bases in the Northwest, Northeast, and Southwest.[37]

An increasingly complex command and control system linked the fighter-interceptors and later surface-to-air missiles with radar sites. In April 1948, Headquarters USAF directed that ADC establish an air control and warning system, largely to protect three regions of the country: the Northwest because of its proximity to Siberia; the Northeast because of its population and industrial concentrations; and the New Mexico area because of its atomic energy resources. When the Air Force established a provisional air control and warning network, called Lashup, by the end of 1952, the service focused its attention on these three areas. Although other Lashup sites were located in California and around the Great Lakes, none was located in the Southeast or between the Mississippi River and the Rocky Mountains.[38]

The locations of interceptor bases and radar sites were directly related. The Air Force site selection criteria of October 1954 noted that fighter-interceptor bases should be "within satisfactory operational distance of controlling radar." During the 1950s, ADC constructed three major lines of radar installations across northern North America for defense in depth: the Distant Early Warning Line in northern Alaska and Canada, the Mid-Canada Line across central Canada, and the Pinetree Line in southeastern Canada. The Distant Early Warning Line provided the first warning, the Mid-Canada Line offered tracking opportunities, and the Pinetree Line provided a zone of advanced interception. During the 1950s, the Air Force also built radar sites off the northeastern Atlantic Coast on three artificial platforms referred to as Texas Towers (they resembled offshore oil rigs). Radar-equipped picket ships and patrolling EC–121 aircraft also provided supplemental warning off the Atlantic and Pacific Coasts if the enemy should try to slip around the northern network. When the radar sites detected the approach of enemy formations,

fighter aircraft were expected to scramble and destroy the bombers before they could reach their targets farther south. As a result, ADC fighter bases were located primarily in the northern part of the United States, particularly in the Northeast where the largest cities were.[39]

During the mid-1950s, two of the most important ADC bases were Otis AFB, Massachusetts, and Ent AFB, Colorado. Despite its vulnerability in a coastal state, Otis served as a regional information clearinghouse for data incoming from various radar stations around New England, including the offshore Texas Towers. Ent, which also served as ADC headquarters, collected regional clearinghouse data and integrated it for marking a large aircraft-movement plotting board. These bases, among others, served as links between the radar sites and fighter-interceptor bases.[40]

Eventually, ADC developed the Semi-Automatic Ground Environment (SAGE) network scattered across the country to link radar sites, computers, fighter-interceptors, and surface-to-air missiles. SAGE was the largest research and development project since the Manhattan Project, which had produced the first atomic bomb. In 1958, the first SAGE center opened at McGuire AFB, New Jersey. Within five years, the system included 142 primary and 96 minor radar stations in the United States and Canada. They complemented the warning lines in Canada. The radars and computers guided interceptors such as F–102s and F–106s from more than forty squadrons based across the United States.[41]

Many of the ADC fighter-interceptor units were stationed at airports, where they shared facilities with civil aviation organizations. These airports included Burlington in Vermont, Duluth and Minneapolis–St. Paul in Minnesota, Greater Pittsburgh in Pennsylvania, McGhee-Tyson in Tennessee, New Castle County in Delaware, Niagara Falls in New York, O'Hare at Chicago in Illinois, Portland in Oregon, and Sioux City in Iowa. ADC air division headquarters were sometimes located at minor Air Force installations that shared runways with civilian airports, such as Hancock Field, New York, and Truax Field, Wisconsin. A SAC base, Malmstrom in Montana, housed the ADC's 22d Air Division in 1960.[42]

During the late 1950s, ADC also added BOMARC long-range unmanned interceptors to its inventory, locating them primarily around cities and industrial facilities of the North. BOMARC units by 1960 were stationed at Dow AFB in Maine, Suffolk AFB in New York, McGuire AFB in New Jersey, Otis AFB in Massachusetts, Langley AFB in Virginia, and Duluth International Airport in Minnesota.[43]

In the second half of the 1950s, as the threat of Soviet bombers and ICBMs arriving from over the Arctic and the danger of Soviet sea-launched ballistic missiles entering the CONUS increased, ADC shifted its attention to the north-central United States, a region it had neglected earlier. The Air Force built four ADC bases in this area in 1956 and 1957: Grand Forks and Minot in North Dakota, K.I. Sawyer in Michigan, and Glasgow in Montana (see Tables 2.5 and 2.6). Connected with the early warning network radar lines and equipped with SAGE facilities, the new bases provided interception capability due to their location just south of Canada.[44]

Table 2.6: Geographic Distribution of Air Defense Command Bases, End of 1960

Geographic Region	ADC bases at end of 1960	
Northeast (4 bases)	Otis, Mass. Stewart, N. Y.	Suffolk County, N.Y. Syracuse, N. Y.
Midwest (7 bases)	Selfridge, Mich. Grand Forks, N.Dak. Minot, N. Dak. Richards-Gebaur, Mo.	Kincheloe, Mich. K. I. Sawyer, Mich. Truax Field, Wis.
South (2 bases)	Eglin Aux Field #9, Fla.	Tyndall, Fla.
West (8 bases)	Geiger Field,Wash. McChord, Wash. Paine, Wash. Kingsley Field, Oreg.	Ent, Colo. Peterson Field, Colo. Hamilton, Calif. Oxnard, Calif.

Sources: Robert Mueller, *Air Force Bases,* vol. I, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982); and Robert Mueller, *Air Force Bases,* vol. I*, Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, D.C.: Office of Air Force History, 1989); Base files at Air Force Historical Research Agency; Directories of USAF Organizations, 1950s, AFHRA K134.45–1–1; *Air Force Magazine* 43:9 (Sep 1960), 223–231.

By the end of 1960, no less than seventeen of twenty-one major ADC bases were located in perimeter states either just south of Canada or in states on the Atlantic or Pacific Coasts. The only exceptions were two bases in Colorado and one each in Wisconsin and Missouri. More than half the ADC bases were located in the Northeast or Midwest. Eleven were in the northernmost tier of states. Regionally, eight ADC bases were located in the West; seven, in the Midwest; four, in the Northeast; and only two, in the South, both in Florida (see Table 2.6).

In 1958, the Air Force established a Ballistic Missile Early Warning System Project Office in New York to begin development of a radar system to detect and track enemy ICBMs that might be launched against the United States. The system was not yet fully operational by 1960, but construction initiated by the Air Force in Alaska, Greenland, and Great Britain demonstrated the service's awareness that missiles would pose as great a threat as bombers to the nation's security.[45]

The ADC force peaked in 1955, when the command possessed 1,487 fighters. Interceptors and surface-to-air missiles could not easily stop Soviet ICBMs, which became an increasing threat as the decade proceeded. By 1960, the number of ADC fighters had decreased to less than 800. Fewer interceptors meant fewer bases, and between 1953 and 1960 the number of major ADC bases declined from twenty-nine to twenty-one (see Table 2.7). By the end of the Eisenhower administration in early 1961, the Air Force was ready to shift its attention away from SAC and ADC toward TAC, especially since DOD was showing renewed interest in limited war.[46]

Table 2.7: Major Air Defense Command Installations, 1947–1960

Base	Years under ADC	Action
Brooks AFB, Tex.	-1959	Transferred to ATC
Dobbins AFB, Ga.	-1949	Transferred to CONAC
Dover AFB, Del.	1951-1952	Transferred from CONAC in 1951; transferred to MATS in 1952
Dow AFB, Maine	-1949	Inactivated temporarily in 1949
Eglin Aux Field #9 (Hurlburt Field), Fla. *	1958-	Transferred from TAC
Ent AFB, Colo. *	1951-	Inactive 1949-1951
Ethan Allen AFB, Vt.	1951-1960	New in 1951; inactivated in 1960
Geiger Field, Wash. *	1951-	Inactive 1947-1951
Glasgow AFB, Mont.	1957-1960	New in 1957; transferred to SAC in 1960
Grand Forks AFB, N. Dak. *	1957-	New
Grandview (Richards-Gebaur) AFB, Mo. *	1954-	Inactive 1945-1954
Grenier AFB, N.H.	1951-1953	Transferred from CONAC in 1951; transferred to MATS in 1953
Hamilton AFB, Calif. *	1951-	Transferred from CONAC
Kinross (Kincheloe) AFB, Mich. *	1952-	Inactive 1945-1952
Klamath Falls (Kingsley Field), Oreg. *	1956-	New
K. I. Sawyer AFB, Mich. *	1956-	New
McChord AFB, Wash. *	1951-	Transferred from CONAC
McGuire AFB, N.J.	1951-1954	Transferred from CONAC in 1951; transferred to MATS in 1954.
Minot AFB, N.Dak. *	1959-	New
Moses Lake (Larson) AFB, Wash. *	1951-1952	Transferred from CONAC, transferred to TAC in 1952
Offutt AFB, Nebr.	-1948	Transferred to SAC
Oscoda (Wurtsmith) AFB, Mich.	1951-1960	Transferred from CONAC in 1951; transferred to SAC in 1960
Otis AFB, Mass. *	1948-	Inactive 1945-1948
Oxnard AFB, Calif. *	1952-	Inactive 1944-1952
Paine AFB, Wash. *	1951-	Inactive 1945-1951
Peterson Field (Peterson AFB), Colo. *	1951-	Transferred from SAC
Presque Isle AFB, Maine	1951-1959	Transferred from CONAC in 1951; transferred to SAC

Sources: Robert Mueller, *Air Force Bases,* vol. I, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982); Robert Mueller, *Air Force Bases,* vol. I, *Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, D.C.: Office of Air Force History, 1989); Base files at Air Force Historical Research Agency; Directories of USAF Organizations, 1950s, AFHRA K134.45–1–1; *Air Force Magazine*, almanac issues, 1951, 1955, 1959.

* Under ADC at the end of 1960.

Tactical Forces Bases

The primary purpose of TAC was to provide air power support for ground forces in a combat theater. These aircraft included fighter-bombers for interdiction and close air support, tactical reconnaissance airplanes, tactical airlift aircraft, and aerial combat fighters. In times of peace, TAC would train using air-to-ground and air-to-air ranges. It would also participate with Army forces in joint exercises which included airdrops. In times of war, the crews and aircraft would be available for overseas deployments. All these factors influenced the location of TAC bases.[47]

Unlike the ADC units, which were stationed primarily in the Northwest and Northeast and subsequently around the nation's perimeter, most TAC wings during the 1950s were located in the South. Of the twelve bases TAC controlled for at least five years between 1947 and 1960, eight were in the South, three were in the Southwest, and one was in the Northwest. None was in the Northeast, Midwest, or northern Great Plains. Most northern bases were already occupied by other commands. According to the 1954 site selection criteria, TAC fighter-bomber bases were to be located within fifty nautical miles of bombing and gunnery ranges, ranges mostly located in the South. Such ranges required large amounts of undeveloped real estate in areas where noise and aircraft accidents would not endanger a populace concentrated in large cities. Such property was more readily available in the South and West than it was in the Northeast.[48]

Tactical airlift bases were also ideally located near Army installations, also concentrated in the South. For example, Pope AFB was next to Fort Bragg, North Carolina, and Lawson AFB was adjacent to Fort Benning, Georgia. Other TAC troop carrier bases included Ardmore in Oklahoma, Greenville (later, Donaldson) in South Carolina, Moses Lake (later, Larson) in Washington, and Smyrna (later, Sewart) in Tennessee. Although not always immediately adjacent to Army posts, tactical air bases were near enough to provide ready aerial transportation for ground troops participating in combat exercises.[49]

Almost thirty USAF bases across the United States belonged to TAC for some period between 1947 and 1960, but some belonged only briefly. TAC controlled five bases continuously throughout the period, except between 1948 and 1950 when it was under CONAC. The five TAC-controlled bases were Alexandria (later, England), Langley, Mather, Pope, and Shaw. Certain major Air Force bases, such as Dover, March, McChord, and Moody, went from TAC to CONAC in 1948 and never returned.[50]

At the end of the Korean War, the number of TAC bases increased because of USAF expansion and the return of units from the Far East. New tactical fighters capable of in-flight refueling and troop carrier aircraft, including the C–119 Flying Boxcar and C–130 Hercules, entered the Air Force inventory. New wings and aircraft sometimes required additional bases. During the 1950s, the Air Force occasionally transferred bases from SAC to TAC although it was usually the other way around. In 1951, SAC relinquished two fighter bases to TAC: George in California

and (very briefly) Dow in Maine. When SAC gave up all of its escort fighters in 1957, it turned over two more bases to TAC, Turner in Georgia and Bergstrom in Texas, but only temporarily.[51]

During the 1950s, TAC acquired more than twenty bases, but it kept less than half of these for five years or more, primarily because of the other commands' needs (see Table 2.8). By 1960 only seven of the twenty still belonged to TAC: Clovis (later, Cannon), George, Luke, Myrtle Beach, Nellis, Seymour Johnson, and Smyrna (later, Sewart). SAC regained Dow, Bergstrom, and Turner within two years of relinquishing them to TAC. During the same decade, the Air Force transferred other bases from TAC to SAC; these included Altus, Blytheville (later, Eaker), Bunker Hill (later, Grissom), Campbell, and Lake Charles (later, Chennault). In the 1947–1960 period, TAC gave more than twice as many bases to SAC as SAC gave to TAC. These base transfers demonstrated that SAC remained the dominant combat command of the Air Force before 1961. During the Eisenhower administration, new bases were built for SAC and ADC, but none for TAC. Compared to SAC and ADC, TAC remained least favored among the Air Force combat commands because, until 1961, leaders of the Air Force and DOD considered limited war unlikely. The election of President John F. Kennedy in 1960 changed the paradigm.[52]

Table 2.8: Tactical Air Command Bases, 1947–1960

Base	Years under TAC	Action
Alexandria (England) AFB, La. *	1950-	Inactive 1945-1950
Altus AFB, Okla.	1953-1954	Inactive 1945-1953; transferred to SAC in 1954
Ardmore AFB, Okla.	1953-1959	Inactive 1947-1953; inactivated in 1959
Bergstrom AFB, Tex.	-1948. 1957-1958.	Transferred to CONAC in 1948; transferred from SAC in 1957; transferred to SAC in 1958
Blytheville (Eaker) AFB, Ark.	1955-1958	Inactive 1946-1955; transferred to SAC in 1958
Bunker Hill (Grissom) AFB, Ind.	1955-1957	Transferred from U.S. Navy in 1955; transferred to SAC in 1957
Charleston AFB, S.C.	1953-1955	Inactive 1946-1953; transferred to MATS in 1955
Clovis (Cannon) AFB, N. Mex. *	1951-	Transferred from ATC
Dover AFB, Del.	-1948.	Transferred to CONAC
Dow AFB, Maine	1952	Transferred from SAC and back to SAC in 1952
Eglin Aux Field # 9 (Hurlburt Field)	1955-1958	Inactive 1946-1955; transferred to ADC
Foster AFB, Tex.	1954-1959	Transferred from ATC; inactivated in 1959
George AFB, Calif. *	1951-	Transferred from SAC
Godman AFB, Ky.	1950-1953	Transferred from CONAC; inactivated in 1953
Greenville (Donaldson) AFB, S.C.	1950-1957	Transferred from CONAC in 1950; transferred to MATS in 1957
Langley AFB, Va. *	Entire period	
Lawson AFB, Ga.	1950-1955	Transferred from CONAC in 1950; transferred to Army in 1955
Luke AFB, Ariz. *	1958-	Transferred from ATC
March AFB, Calif.	-1948.	Transferred to CONAC
McChord AFB, Wash.	-1948.	Transferred to CONAC
Moody AFB, Ga.	-1948.	Transferred to CONAC
Moses Lake (Larson) AFB, Wash.	1952-1957	Transferred from ADC in 1952; transferred to MATS in 1957
Myrtle Beach AFB, S.C. *	1956-	Inactive 1947-1956
Nellis AFB, Nev. *	1958-	Transferred from ATC
Pope AFB, N.C. *	Entire period	
Seymour Johnson AFB, N.C. *	1956-	Inactive 1946-1956
Shaw AFB, S.C. *	Entire period	
Smyrna (Sewart) AFB, Tenn. *	1950-	Transferred from CONAC
Turner AFB, Ga.	1947-1950. 1957-1959.	Inactive 1946-1947; transferred to SAC in 1950; transferred from SAC in 1957; transferred to SAC in 1959
Wendover AFB, Utah	1954-1958	Transferred from and to AMC.
Williams AFB, Ariz.	1958-1960	Transferred from ATC in 1958 and to ATC in 1960

Sources: Base binders and folders in Research Division of AFHRA; Directories of USAF Organizations for 1950s, AFHRA K134.45–1; Robert Mueller, *Air Force Bases* (Washington, D.C.: Office of Air Force History, 1989); *Air Force Magazine,* almanac issues, 1950s.

*Active TAC bases at the end of 1960

Intertheater Airlift Bases

In 1948, MATS replaced what had been the Army Air Forces' Air Transport Command and the Navy's Air Transport Service, inheriting airlift aircraft and bases from both organizations and assuming the long-range airlift mission. From then until 1960, MATS did not grow nearly as much as SAC or ADC did. Business interests urged a receptive President Eisenhower to depend on the resources of the commercial airlines as much as possible for DOD transportation. MATS administered some fifteen USAF bases across the United States at one time or another between 1948 and 1960, but in any one year, the command controlled a maximum of eight. Typically, only one MATS wing was present per base, so the number of MATS wings and bases in the CONUS generally corresponded. Although the number of MATS airlift wings and bases did not significantly increase during the decade, its bases often changed from one command to another. In fact, of its major facilities in 1948, MATS retained only one in 1960, and even that one (Travis) had belonged to SAC during most of the intervening years.[53]

During 1948–1960, technology was one factor that determined which bases MATS kept, gained, or transferred. In the late 1940s, the most important Air Force transport aircraft were the World War II–vintage C–47s, C–46s, and C–54s. The newest transports in the MATS inventory were C–118s, essentially modified DC–6 airliners. The Berlin Airlift of 1948–1949 convinced MATS to adopt larger transports capable of carrying more cargo. The most important new aircraft were the C–97 Stratofreighter and the C–124 Globemaster II. Because they were much larger than previous USAF cargo airplanes, they required larger bases with ample runways for landings and takeoffs, plus expansive parking areas.[54]

The increased range of the larger transports also affected MATS basing. A loaded C–97 or C–124 aircraft could fly more than 4,000 miles without refueling, a range more than twice that of World War II–era C–46 and C–47 transports. After the Korean War, MATS no longer needed Great Falls AFB, Montana, which had been a staging base to ferry airplanes and to transport personnel and materiel through other staging bases in Canada to Alaska during World War II. MATS chose instead McChord AFB in Washington for direct flights to Alaska along the Pacific Coast.[55]

The command preferred coastal bases for its transoceanic and intercontinental missions. By 1952, MATS wanted 70 percent of its air transport resources on the East Coast and 30 percent on the West Coast. Between 1951 and 1957, MATS acquired five important bases in states along the Atlantic Coast: Dover in Delaware, McGuire in New Jersey, Charleston and Greenville (later, Donaldson) in South Carolina, and Palm Beach in Florida (see Table 2.9). By the end of the decade, MATS regained from SAC Travis in California for its most important West Coast air terminal. Important MATS units were stationed at two bases in the state of Washington, McChord and Larson, but neither was under MATS control. MATS also stationed important airlift units at other multifunction bases including

Andrews in Maryland, Hunter in Georgia, and Brookley in Alabama, all of which were administered by other commands. Certain important airports hosted MATS units as well. Among them was Washington National Airport in the District of Columbia. All of these installations were located in coastal states. The only major installation MATS acquired from another command in the 1950s that was not located in a state on the Atlantic or Pacific Coast was Scott AFB, Illinois. Partly determining its choice was its location as a centrally located command headquarters.[56]

Table 2.9: Major Military Air Transport Service Bases, 1947–1960

Base	Years under MATS	Action
Andrews AFB, Md.	1948-1949, 1952-1957	Transferred from SAC 1948; transferred to Bolling Field Command (BFC) 1949; transferred from BFC 1952 and to BFC 1957
Bolling AFB, D.C.	1952-1957	Transferred from BFC 1952; transferred to BFC 1957
Charleston AFB, S.C. *	1955-	Transferred from TAC
Dover AFB, Del. *	1952-	Transferred from ADC
Fairfield-Suisun (Travis) AFB, Calif. *	-1949. 1958-	Transferred to SAC 1949; transferred from SAC 1958
Great Falls (Malmstrom) AFB, Mont.	-1954.	Transferred to SAC
Greenville (Donaldson) AFB, S.C. *	1957-	Transferred from TAC
Grenier AFB, N.H.	1953-1958	Transferred from ADC in 1953; transferred to CONAC in 1958
Moses Lake (Larson) AFB, Wash.	1957-1960	Transferred from TAC in 1957; transferred to SAC in 1960
McGuire AFB, N.J. *	1954-	Transferred from ADC
Mountain Home AFB, Idaho	1951-1953	Inactive 1950-1951; transferred to SAC 1953
Orlando AFB, Fla.	1953-	Transferred from CONAC
Palm Beach AFB, Fla.	1951-1959	Inactive 1947-1951; inactivated in 1959
Scott AFB, Ill. *	1957-	Transferred from ATC
Westover AFB, Mass.	-1955.	Transferred to SAC

Sources: Dick Burkard, *Military Airlift Command Historical Handbook, 1941–1984* (Scott AFB, Ill.: Military Airlift Command History Office, 1984) 106–114; Jay H. Smith, ed., *Anything, Anywhere, Anytime: An Illustrated History of the Military Airlift Command, 1941–1991* (Scott AFB, Ill.: Military Airlift Command History Office, 1991) 94; Robert Mueller, *Air Force Bases* (Washington, D.C.: Office of Air Force History, 1989); Base binders at AFHRA.

*MATS bases at the end of 1960.

Flying Training Bases

In the post–World War II contraction, most flying training bases across the country closed. Only a handful, because of their size and the quality of their facilities, remained active from World War II into the 1950s. They were Randolph in Texas, Mather in California, and Williams in Arizona. As the need for trained pilots increased during the Korean War, the number of ATC pilot and crew training bases skyrocketed. ATC reactivated or acquired from other commands fifteen such bases between 1950 and 1953 (see Table 2.10). In 1951, for example, ATC reactivated San Marcos AFB, Texas, for helicopter and liaison aircraft training because its terrain was similar to that of Korea. During the same decade, the transition from propeller-driven to jet aircraft, some of them supersonic, created a need for more pilot training. In 1955, the number of ATC flying and crew training bases totaled twenty-three.[57]

The Air Force in its site selection criteria specified that flying training bases should be located in "good weather areas" and "outside designated Air Defense Identification Zones." Fighter training bases were also to be within fifty nautical miles of gunnery ranges. The dryer, warmer weather in the South and Southwest allowed flying in all months. Air Defense Identification Zones were common in the North and Northeast but were rare in the South and West. Most of the gunnery ranges were also located in the southern and western states. Not surprisingly, of the twenty-seven USAF bases across the CONUS that were ATC flying or crew training bases at least part of the time between 1947 and 1960, all but one, Wichita (later, McConnell), were in the South and West. Of the southwestern states, Texas had the most available flat land. Consequently, half of the flying training bases were located in that one state.[58]

The most important flying training bases in the 1947–1960 period were Randolph, Big Spring (later, Webb), Harlingen, Waco (later, James Connally), Laredo, Perrin, and Reese in Texas; Enid (later, Vance) in Oklahoma; Greenville, Mississippi; Craig, Alabama; Moody, Georgia; and Mather, California. These bases trained pilots and aircrews for most if not all of that period. A number of civilian installations, also primarily in the South and West, conducted pilot training on a contractual basis.[59]

During the second half of the 1950s, as the Korean War receded and jet fighters became the norm, the need for pilot and crew training declined. Only six of the bases acquired during the Korean War still served ATC in the same capacity by the end of 1960; others transferred to a different command or closed. In 1960, the number of flying and crew training bases had declined to thirteen. The number of other bases conducting contract pilot training for ATC also decreased from nine in 1955 to five in 1960.[60]

Table 2.10: Major Air Training Command Flying Training Bases, 1947–1960

Base	Years under ATC as flying training base	Action
Barksdale AFB, La.	-1949	Transferred to SAC
Big Spring (Webb) AFB, Tex. *	1952-	Inactive 1945-1952
Bryan AFB, Tex.	1951-1958	Inactive 1945-1951; inactivated in 1958
Columbus AFB, Miss.	1953-1955	From contract field in 1953; transferred to SAC in 1955
Craig AFB, Ala. *	1950-	Transferred from AU
Ellington AFB, Tex.	1949-1958	Inactive 1946-1949; transferred to CONAC in 1958
Enid (Vance) AFB, Okla. *	1948-	Inactive 1947-1948
Foster AFB, Tex.	1952-1954	Inactive 1945-1952; transferred to TAC in 1954
Goodfellow AFB, Tex.	-1947. 1947-1958	Inactive briefly in 1947; transferred to USAF Security Service in 1958
Greenville AFB, Miss.	1951-1960	Transferred from TAC; became technical training base in 1960
Harlingen AFB, Tex. *	1952-	Inactive 1944-1952
Laredo AFB, Tex. *	1952-	Inactive 1945-1952
Las Vegas (Nellis) AFB, Nev.	1948-1958	Inactive 1946-1948; transferred to TAC in 1958
Laughlin AFB, Tex.	1951-1957	Transferred from AMC in 1951; transferred to SAC in 1957
Luke AFB, Ariz.	1951-1958	Inactive 1946-1951; transferred to TAC in 1958
Mather AFB, Calif. *	Entire period	-
Moody AFB, Ga. *	1951-	Inactive 1946-1951
Perrin AFB, Tex. *	1948-	Inactive 1946-1948
Pinecastle (McCoy) AFB, Fla.	1951-1954	Inactive 1946-1951; transferred to SAC in 1954
Randolph AFB, Tex. *	Entire period	-
Reese AFB, Tex. *	1949-	Inactive 1947-1949
San Marcos (Gary) (Edward Gary) AFB, Tex.	-1949. 1951-1956.	Inactive 1949-1951; inactivated again in 1956
Stead AFB, Nev. *	1954-	Transferred from SAC
Tyndall AFB, Fla.	1950-1957	Transferred from AU in 1950; transferred to ADC in 1957
Waco (James Connally) AFB, Tex. *	1948-	Inactive 1945-1948
Wichita (McConnell) AFB, Kans.	1951-1958	Inactive 1946-1951; transferred to SAC in 1958
Williams AFB, Ariz. *	-1958. 1960-	Transferred to TAC, 1958; transferred from TAC, 1960

Sources: Thomas A. Manning, ed., *History of Air Training Command, 1943–1993* (Randolph AFB, Tex.: Office of History and Research, AETC, 1993) 47–136; Base binders and folders at AFHRA Research Division; Robert Mueller, *Air Force Bases,* vol. I, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982); Robert Mueller, *Air Force Bases,* vol. I, *Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, D.C.: Office of Air Force History, 1989); *Air Force Magazine*, almanac issues, 1950s.

*Active flying training ATC bases at the end of 1960

Basic and Technical Training Bases

At the end of 1947, the Air Force operated six major bases for nonflying training. Lackland AFB, Texas, conducted basic training, and Chanute AFB, Illinois, trained aircraft and engine maintenance personnel. In Mississippi, Keesler AFB provided communications and electronics training, and in Colorado, Lowry AFB trained personnel in photography, armament, rocket propulsion, missile guidance, computers, and radar-operated fire control. Francis E. Warren AFB, Wyoming, offered aircraft and engine maintenance, communications operations, and administration and supply training courses. In Illinois, Scott AFB trained personnel in cryptology and personnel operations and also served as ATC headquarters.[61]

Between 1948 and 1951, the Air Force added four more basic and technical training bases to the ATC inventory. It reactivated two bases in Texas that had closed in 1946, Sheppard and Amarillo, to establish training programs for airplane mechanics. In 1951, to accommodate increased numbers of Air Force recruits during the Korean War, the Air Force acquired two additional basic training bases: Parks AFB, California, from the Army, and Sampson AFB, New York, from the Navy. By 1952, ATC had ten major nonflying training bases (see Table 2.11).[62]

After the war, as Air Force basic and technical training needs declined, ATC relinquished four of its nonflying training bases: Parks, Sampson, Scott, and Francis E. Warren. It inactivated Parks and Sampson in 1956, leaving Lackland as its only basic training center. In 1956 and 1957, ATC sought to move its headquarters from Scott AFB in Illinois to Randolph AFB in Texas to place it closer to other major ATC installations and reduce the likelihood that SAC would take over Randolph, the venerable flying training base, the West Point of the Air. ATC commander Lt. Gen. Charles T. Myers and his director of operations Maj. Gen. Thomas E. Moore briefed their plan to Air Force Chief of Staff Gen. Nathan F. Twining. He agreed in 1957 to move ATC headquarters to Randolph from Scott, MATS headquarters to Scott from Andrews AFB, and ARDC headquarters from Baltimore to Andrews. Personnel and cryptology training courses moved from Scott to Lackland the same year. In 1958, ATC surrendered Francis E. Warren AFB to SAC to serve as a bomber base. Its technical training was divided among other ATC bases: aircraft and engine maintenance training went to Chanute; communications operations, wire maintenance, and utilities courses went to Sheppard; and administration and supply training went to Amarillo.[63]

Concentrating its resources in the south-central part of the country allowed ATC to simplify command and control, support, and logistics. By 1960, half of the Air Force's basic and technical training bases were in Texas, where so many flying training bases already existed. In fact, by then Texas was the home of no less than twelve ATC bases. Graduates of basic training at Lackland could often relocate to a flying training or a technical training installation in the same state. Powerful Texas congressmen, including Senate Majority Leader Lyndon B. Johnson and Speaker of the House Sam Rayburn, also encouraged the Air Force to maintain ATC bases in their state.[64]

Education Bases

In 1947, Air University (AU) maintained four bases: Maxwell, Gunter, and Craig in Alabama, and Tyndall in Florida. During the Korean War, AU transferred Craig and Tyndall to ATC to satisfy increased flying training needs, and the bases never returned. Maxwell and Gunter, both in Montgomery, remained the only AU bases (see Table 2.11) where the Air Force consolidated professional military education. During the 1950s, AU constructed an "academic circle" at Maxwell to house such components as the Air War College, Air Command and Staff School, and Squadron Officers School. At the center of the circle stood the AU library and the Air Force historical document collection, which moved to Maxwell in 1949. Long-serving Air Force officers served at Maxwell or Gunter at one time or another, often more than once.[65] In August 1952, the Air Force organized Headquarters Air Force Reserve Officer Training Corps at Maxwell and assigned it to AU. This headquarters at AU managed the reserve officer training corps detachments and commissioned new officers at universities across the CONUS.

Table 2.11: Major USAF Installations for Nonflying Training and Education, 1947–1960

Base	Years	Action
Air Force Academy, Colo. *	1959-	New
Amarillo AFB, Tex. *	1951-	Inactive 1946-1951
Brooks AFB, Tex. *	1959-	Transferred from CONAC
Chanute AFB, Ill. *	Entire period	Technical training base
Francis E. Warren AFB, Wyo.	1947-1958	Transferred from Army in 1947; transferred to SAC in 1958
Goodfellow AFB, Tex. *	1958-	Had been ATC flying training base
Greenville AFB, Miss. *	1960-	Had been ATC flying training base
Gunter AFB, Ala. *	Entire period	Air University base
Keesler AFB, Miss. *	Entire period	Technical training base
Lackland AFB, Tex. *	Entire period	Basic training base
Lowry AFB, Colo. *	Entire period	Technical training base
Maxwell AFB, Ala. *	Entire period	Air University base
Parks AFB, Calif.	1951-1956	Transferred from Army in 1951 for basic training; inactivated in 1956
Sampson AFB, N.Y.	1950-1956	Transferred from Navy in 1950 for basic training; transferred to AMC in 1956
Scott AFB, Ill.	-1957	Transferred to MATS
Sheppard *	1948-	Inactive 1946-1948

Source: Thomas A. Manning, ed., *History of Air Training Command, 1943–1993* (Randolph AFB, Tex.: Office of History and Research, AETC, 1993).

*Active in 1960.

Air University's academic circle at Maxwell Air Force Base, Alabama, shortly after construction was completed in 1955.

The Air Force also sought its own academy to match the Army's at West Point and the Navy's at Annapolis. Between 1949 and 1952, a Site Selection Board met and considered 354 locations. Gen. Carl A. Spaatz served as the board's chairman, in part because of his prestige as the first Air Force Chief of Staff. Other board members included Lt. Gen. Hubert R. Harmon, who would later serve as the academy's first superintendent, and Lt. Col. Arthur E. Boudreau, who served as board secretary. The board recommended a site just north of Colorado Springs, partly on the basis of its beautiful natural setting, an abundance of undeveloped land, and relatively good flying weather. With the ongoing Korean War, the Air Force took no immediate action.[66]

After President Eisenhower signed the Air Force Academy Act in April 1954, Secretary of the Air Force Harold E. Talbott appointed a Site Selection Commission that included Spaatz, Harmon, and Boudreau, among others. Brig. Gen. Charles A. Lindbergh, Air Force Reserve, who had not been on the previous board, also served, bringing his prestige and aviation experience. Commission members considered 582 sites, including 57 in California and 51 in Texas. During 1954, Site Selection Commission members examined the proposed locations on six wide-ranging trips around the country. The site selection criteria included good water

The Air Force Academy's distinctive chapel was constructed between the years 1960 and 1963.

supply, abundant open (at least 12,000 acres) and cheap land, temperate climate suitable for flying training, good power and fuel supply, a nearby city for recreation and services, level land, natural beauty, good transportation, little interference from civil aviation, and a healthy environment. Lindbergh would sometimes fly over the site in a rented or borrowed aircraft to confirm its suitability. Among the Air Force base contenders were Hamilton and Beale in California and Randolph in Texas. Randolph was already a flying training base destined to become ATC headquarters; its occupied buildings could not be vacated easily. The commission agreed that Colorado Springs remained the best option, not surprisingly since three of the commissioners had served on the board that had previously recommended the same site. Despite their preference, they offered the Secretary of the Air Force their top three choices — Alton, Illinois, and Lake Geneva, Wisconsin, both of which had inferior winter flying weather, and the Colorado location. On 24 June 1954, Talbott ratified the commission's preference for Colorado Springs. President Eisenhower must have been pleased with the decision because his wife was from Colorado and he often visited the state for recreational purposes, but there is no evidence he pressured the Site Selection Commission or Secretary Talbott to choose it. Aware of the decision, the Colorado legislature appropriated $1 million to acquire land for the new academy. Later the same year, the United States Air Force Academy was acti-

vated provisionally at Lowry AFB (near Denver, Colorado) before moving to its permanent location in 1959.[67]

Air Materiel Bases

Air Materiel Command (AMC) administered nine important Air Force bases continuously throughout 1947–1960: Brookley, Alabama; Kelly, Texas; McClellan and Norton, California; Middletown (later, Olmsted), Pennsylvania; Ogden (later, Hill), Utah; Robins, Georgia; Tinker, Oklahoma; and Wright-Patterson, Ohio, the command headquarters. Griffiss in New York belonged to AMC for most of the period, but it belonged to ARDC for the three years between 1951 and 1954 (see pp 84–85 for more information on Griffiss as an ARDC base). Except for Wright-Patterson, each of these major AMC bases also administered an air materiel area.[68]

Gen. Edwin W. Rawlings, commander of AMC from July 1951 until his retirement in February 1959, presided over the Air Force's decentralization of logistical operations. His command assigned each of the nine air materiel areas primary responsibility for certain weapon systems and liaison relationships with private corporations responsible for the production and modification of those systems (see Table 2.12).[69]

Table 2.12: Air Materiel Areas and Weapon System Specialties, 1959

Base	Air Materiel Area (AMA)	Code	Weapon System Responsibility
Brookley AFB, Ala.	Mobile AMA	MOAMA	F-84, F-105 fighters; Jupiter missile
Griffiss AFB, N.Y.	Rome AMA	ROAMA	Electronics, communications
Hill AFB, Utah	Ogden AMA	OOAMA	F-101 fighter; Snark and Minuteman missiles
Kelly AFB, Tex.	San Antonio AMA	SAAMA	B-36, B-58, B-70 bombers; F-102, F-106 interceptors
McClellan AFB, Calif.	Sacramento AMA	SMAMA	F-80, F-86, F-100, F-104 fighters; T-33 trainer
Norton AFB, Calif.	San Bernardino AMA	SBAMA	C-124, C-133 transports; Atlas, Titan, and Thor missiles
Olmsted AFB, Pa.	Middletown AMA	MAAMA	C-119, C-123 transports; helicopters
Robins AFB, Ga.	Warner Robins AMA	WRAMA	C-47, C-54, C-118, C-130 transports
Tinker AFB, Okla.	Oklahoma City AMA	OCAMA	B-29, B-50, B-47, B-52 bombers; KC-97, KC-135 tankers; Quail and Hound Dog missiles

Source: History of the Air Materiel Command, Jan–Jun 1959, vol. I, appendices 1 and 5, AFHRA K200–20.

Air Force Bases

By the late 1950s, each air materiel area, headquartered at a specific base, managed a set of weapon systems or components after it had completed an ARDC testing cycle. Locations of manufacturers influenced AMC assignments of weapon systems to certain AMC bases. The San Antonio Air Materiel Area (AMA) at Kelly AFB, Texas, was responsible for B–36s and later B–58s as well as F–102 and F–106 interceptors. All of these aircraft were products of the Convair Corporation which maintained a large production facility at nearby Fort Worth. Oklahoma City AMA at Tinker AFB, Oklahoma, managed B–47 and B–52 bombers and the KC–97 and KC–135 tankers that refueled them. Many of these Boeing aircraft were built at a large plant in Wichita in the adjacent state of Kansas. The Sacramento AMA at McClellan AFB in California handled F–80s and later F–104s, products of Lockheed, and F–86s and later F–100s, produced by North American. Both Lockheed and North American maintained production facilities in California. The Warner Robins AMA at Robins AFB in Georgia handled the C–130s that another Lockheed plant produced in the same state, and Middletown AMA (later, Olmsted AFB) in Pennsylvania administered helicopter systems partly because it was not too far from the Sikorsky and Vertol factories that produced the H–19 and H–21. The San Bernardino AMA at Norton AFB in California administered the C–124 and C–133 systems in the 1950s, aircraft produced by the Douglas Aircraft Corporation located in the same state. San Bernardino also assumed responsibility for ballistic missiles such as Thor, Atlas, and Titan by 1960. In early 1959, AMC selected Ogden (later, Hill AFB) in Utah to manage Snark and Minuteman, partly because the Hercules and Thiokol plants that manufactured some of the missiles' rocket engines were located in the same state. Griffiss AFB, New York, home of the Rome AMC, specialized in Air Force electronics like the kind used in early warning radar. Rome was located in an area known for its electronics industry and nearby universities (Cornell, Rochester, and Syracuse) whose research resources were readily available.[70]

Other AMC bases were less important. During the 1950s, AMC gave up one base and accepted another in Texas. In 1954, the Air Force inactivated Pyote AFB because it no longer needed the World War II–vintage aircraft such as the B–29s stored there. Three years later, SAC transferred Gray AFB to AMC, but its atomic weapons loading mission remained unchanged. Gray was selected partly because of its semi-isolated location and the security that adjacent Fort Hood could provide. The command controlled Wendover AFB in Utah from 1950 to 1954, but it stationed only a few caretaker personnel there. During at least some of the 1947–1960 period, AMC also controlled the following air force stations as depots: Cheli in California, Gadsden in Alabama, Gentile in Ohio, Mallory in Tennessee, Topeka in Kansas, and Wilkins in Ohio. The tremendous growth of the Air Force during and just after the Korean War did not significantly affect either the number or choice of logistics bases (see Table 2.13).[71]

Table 2.13: Major Air Materiel Command (Logistics) Bases, 1947–1960

Base	Years under AMC	Action
Brookley AFB, Ala. *	Entire period	-
Gray AFB, Tex. *	1957-	Transferred from SAC
Griffiss AFB, N.Y.*	-1951. 1954-	Transferred to ARDC in 1951; transferred from ARDC in 1954
Ogden (Hill) AFB, Utah *	Entire period	-
Kelly AFB, Tex. *	Entire period	-
McClellan AFB, Calif. *	Entire period	-
Norton AFB, Calif. *	Entire period	-
Middletown (Olmsted) AFB, Pa. *	Entire period	-
Pyote AFB, Tex.	-1954	Inactivated
Robins AFB, Ga. *	Entire period	-
Tinker AFB, Okla. *	Entire period	-
Wright-Patterson AFB, Ohio *	Entire period	-

Sources: Base binders and folders in the AFHRA Research Division files; Robert Mueller, *Air Force Bases* (Washington, D.C.: Office of Air Force History, 1989); *Air Force Magazine* almanac issues, 1950s.

*Active in 1960. Gray was not an air materiel area.

Research and Development Bases

The Air Force established the ARDC in 1950 to develop new weapon systems or improve old ones. Designing and testing such systems required specialized facilities where classified procedures could be safeguarded. Between 1947 and 1960, ARDC controlled, at least for a time, ten major installations in the CONUS (see Table 2.14). In 1951 and 1952 the command gained eight bases, but it transferred one back to AMC in 1954. In 1957, AMC gained two more installations, although it transferred one of them to SAC the very next year. At the end of the decade, ARDC again administered eight installations.[72]

The Air Force built one of its ARDC bases, Arnold Engineering Development Center, from scratch. In October 1949, Congress passed an act that authorized the Air Force to build an Air Engineering Development Center with new wind tunnels and other facilities to test transonic jet and missile designs. Engineers surveyed several sites and selected one near Tullahoma, Tennessee, that offered a plentiful and steady supply of electricity (from the Tennessee Valley Authority), 40,000 acres donated by Tennessee (sufficient land to buffer the noise of testing propulsion systems), and an ample supply of water for cooling test equipment (available from the damming of a local river). The Air Force activated the new installation on 14 November 1950, and the Air Engineering Development Division moved there from Wright-Patterson AFB, Ohio. In 1950, the Air Force renamed the installation Arnold Engineering Development Center, and the next year assigned it to ARDC. Eventually it was redesignated Arnold AFB.[73]

Table 2.14: Major Air Research and Development Command Bases 1947–1960

Base	Years under ARDC	Action
Arnold Engineering Development Center (Arnold AFS, Arnold AFB), Tenn. *	1951-	Transferred from Air Engineering and Development Division
Cooke (Vandenberg) AFB, Calif.	1957-1958	Transferred from U.S. Army in 1957; transferred to SAC in 1958
Edwards AFB, Calif. *	1951-	Transferred from AMC
Eglin AFB, Fla. *	1957-	Transferred from Air Proving Ground Command
Griffiss AFB, N.Y.	1951-1954	Transferred from AMC in 1951; transferred to AMC in 1954
Holloman AFB, N. Mex. *	1951-	Transferred from AMC
Indian Springs AFB, Nev. *	1952-	Transferred from ATC
Kirtland AFB, N. Mex. *	1952-	Transferred from Special Weapons Command
Laurence G. Hanscom Field, Mass. (Air Force Cambridge Research Center) *	1952-	Inactive 1946-1952
Patrick AFB, Fla. *	1951-	Transferred from Air Proving Ground Command

Sources: Base files in the Research Division of AFHRA; Directories of Air Force Organizations, 1950s, AFHRA K134.45–1; Robert Mueller, *Air Force Bases* (Washington, D.C.: Office of Air Force History, 1989); *Air Force Magazine*, almanac issues, 1950s.

*Active in 1960.

ARDC relied on coastal bases for missile testing because large areas of ocean could serve as relatively safe launching ranges. Patrick and Eglin AFBs in Florida, adjacent respectively to the Atlantic Ocean and Gulf of Mexico, were among them. ARDC obtained both bases from the Air Proving Ground Command during the 1950s. Another excellent location for missile launches was Cooke (later, Vandenberg) AFB in California because it sat on the coast of the world's largest ocean. If a missile malfunctioned along its flight path, it would probably endanger no one by crashing into the sea. The Air Force also transferred two bases from AMC to ARDC because they contained large areas of unoccupied desert suitable for testing: Muroc (later, Edwards) in California became the home of the Air Force Flight Test Center, and Alamogordo (later, Holloman) in New Mexico became the major site for testing pilotless aircraft and guided missiles. Other bases useful to ARDC for special weapons tests because of their southwestern desert locations near atomic resources were Indian Springs AFB, near the Nevada nuclear test site, and Kirtland AFB, New Mexico. ARDC bases in the Northeast served as sites for elec-

tronics research laboratories. Griffiss AFB in New York, home of the Watson Laboratory, transferred to AMC in 1954. It continued research and development of electronics systems for the Air Force in collaboration with local electronics companies and universities. Laurence G. Hanscom Field in Massachusetts was the home of the Cambridge Research Center and the Lincoln Laboratory of the Massachusetts Institute of Technology, the latter of which was instrumental in developing the SAGE system for ADC.[74]

Summary

The total number of active Air Force wings in the CONUS grew from 67 (55 combat) in 1947 to 183 (143 combat) in 1956. The number of major USAF installations in the same years increased from 115 to 162. Almost 100 USAF bases remained active throughout the period 1947–1960, but during those years the service developed sixty-eight bases to accommodate its expansion (see Table 2.15). The great majority (forty-seven) were reactivated World War II airfields. Eleven of the additional bases came from the Army or Navy; eight were built from scratch. Two were reactivated in 1951 after having been inactivated in 1949.[75]

During 1947 to 1960 the Air Force activated or received from another service nearly five times more continental bases than it inactivated or transferred. From the birth of the Air Force until the end of the Eisenhower administration, the service inactivated or transferred to another service only fourteen major bases (see Table 2.16). On 29 November 1960, the Air Force announced that Mitchel AFB, New York would close the next year because CONAC headquarters was moving from there to better facilities at Robins AFB in Georgia. It proved a harbinger. After 1960, the Air Force, realizing it had too many installations, prepared for the first of a series of base closings.[76]

Military reasoning primarily determined the location of Air Force resources and their bases. For survival in case of a Soviet first strike, SAC scattered its bomber and tanker units at bases all over the CONUS. It placed most of its early ICBM units in remote areas in the central part of the country. ADC located most of its interceptors in the North and Northeast to shield the country against a Soviet strike incoming from that direction, whereas TAC placed its fighter-bombers and troop transports in the South, near the gunnery ranges and Army posts it used for training exercises. MATS stationed its transports at bases on the Atlantic and Pacific Coasts to facilitate overseas airlift, and ATC concentrated many of its training organizations at Texas installations where flying weather was relatively good year-round. AMC assigned to its air materiel areas weapon systems produced in factories nearby, and ARDC stationed its research organizations at installations near open water or desert, or in areas proximate to local industries or research facilities of major academic institutions. The Air Force still funded SAC and ADC more than it funded the other commands, but that era would soon end. The time of rapid force expansion and new bases was over.

Table 2.15: Major USAF Bases Activated, 1948–1960

Year	#	Bases	Remarks	First Command
1948	10	Beale AFB, Calif.	transferred from U.S. Army	ATC
		Enid (Vance) AFB, Okla.	inactive since 1947	ATC
		Las Vegas (Nellis) AFB, Nev.	inactive since 1946	ATC
		Perrin AFB, Tex.	inactive since 1946	ATC
		Sheppard AFB, Tex.	inactive since 1946	ATC
		Waco (James Connally) AFB, Tex	inactive since 1945	ATC
		Otis AFB, Mass.	inactive since 1945	ADC
		Patrick AFB, Fla.	transferred from U.S. Navy	Air Proving Ground
		McGuire AFB, N.J.	inactive since 1946	SAC
		Mountain Home AFB, Idaho	inactive since 1945	SAC
1949	2	Ellington AFB, Tex.	inactive since 1946	ATC
		Reese AFB, Tex.	inactive since 1945	ATC
1950	5	Alexandria (England) AFB, La.	inactive since 1945	TAC
		Dover AFB, Del.	inactive since 1946	CONAC
		George AFB, Calif.	inactive since 1945	CONAC
		Patrick AFB, Fla.	transferred from U.S. Navy	Air Proving Ground
		Arnold Engineering Development Center (Arnold AFB), Tenn.	new	AEDD*
1951	19	Amarillo AFB, Tex.	inactive since 1946	ATC
		Bryan AFB, Tex.	inactive since 1945	ATC
		Luke AFB, Ariz.	inactive since 1946	ATC
		Moody AFB, Ga.	inactive since 1946	ATC
		Parks AFB, Calif.	transferred from U.S. Army	ATC
		Pinecastle (McCoy) AFB, Fla.	inactive since 1946	ATC
		San Marcos (Gary; Edward Gary) AFB, Tex.	inactive since 1949	ATC
		Sampson AFB, N.Y.	transferred from U.S. Navy	ATC
		Wichita (McConnell) AFB, Kans.	inactive since 1946	ATC
		Ent AFB, Colo.	inactive since 1949	ADC
		Ethan Allen AFB, Vt.	transferred from U.S. Army	ADC
		Geiger AFB, Wash.	inactive since 1947	ADC
		Paine AFB, Wash.	inactive since 1945	ADC
		Suffolk County AFB, N.Y.	inactive since 1946	ADC
		Palm Beach AFB, Fla.	inactive since 1947	MATS
		Lockbourne (Rickenbacker) AFB, Ohio	inactive since 1949	SAC
		Sedalia (Whiteman) AFB, Mo.	inactive since 1946	SAC
		Clovis (Cannon) AFB, N.Mex.	inactive since 1947	TAC
		Wolters AFB, Tex.	transferred from Army	CONAC
1952	8	Big Spring (Webb) AFB, Tex.	inactive since 1945	ATC
		Foster AFB, Tex.	inactive since 1945	ATC
		Harlingen AFB, Tex.	inactive since 1944	ATC
		Laredo AFB, Tex.	inactive since 1945	ATC
		Laughlin AFB, Tex.	inactive since 1945	ATC
		Kinross (Kincheloe) AFB, Mich.	inactive since 1945	ADC
		Oxnard AFB, Calif.	inactive since 1944	ADC
		Lincoln AFB, Nebr.	inactive since 1945	SAC

1953	7	Columbus AFB, Miss. Greenville AFB, Miss. Homestead AFB, Fla. Limestone (Loring) AFB, Maine Altus AFB, Okla. Ardmore AFB, Okla. Charleston AFB, S.C.	converted from contract field converted from contract field inactive since 1945 new inactive since 1945 inactive since 1947 inactive since 1946	ATC ATC SAC SAC TAC TAC TAC
1954	2	Clinton-Sherman AFB, Okla. Grandview (Richards-Gebaur) AFB, Mo.	transferred from Navy inactive since 1945	SAC ADC
1955	6	Abilene (Dyess) AFB, Tex. Little Rock AFB, Ark. Plattsburgh AFB, N.Y. Blytheville (Eaker) AFB, Ark. Bunker Hill (Grissom) AFB, Ind. Eglin Aux Field #9 (Hurlburt), Fla.	inactive since 1946 new inactive since 1946 inactive since 1945 transferred from U.S. Navy inactive since 1946	SAC SAC SAC TAC TAC TAC
1956	4	K.I. Sawyer AFB, Mich. Portsmouth (Pease) AFB, N.H. Seymour Johnson AFB, N.C. Myrtle Beach AFB, S.C.	new transferred from U.S. Navy inactive since 1946 inactive since 1947	ADC SAC TAC TAC
1957	3	Glasgow AFB, Mont. Grand Forks AFB, N.D. Cooke (Vandenberg) AFB, Calif.	new new transferred from U.S. Army	ADC ADC ARDC
1959	2	Minot AFB, N.D. Air Force Academy	new new	ADC USAF
totals	68	47 bases reactivated from immediate postwar period; 11 bases transferred from other services; 8 bases new; 2 bases reactivated after brief inactivation in 1949	For ATC: 24 For ADC: 13 For SAC: 12 For TAC: 10 For other: 9	

Sources: Base files at AFHRA Research Division; Directories of USAF Organizations, AFHRA 134.45–1 and K134.45–1; Robert Mueller, *Air Force Bases,* vol. I, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982) and Robert Mueller, *Air Force Bases,* vol. I*, Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, D.C.: Office of Air Force History, 1989); *Air Force Magazine*, almanac issues, 1950s.

* Air Engineering Development Division.

Table 2.16: USAF Bases in the Continental United States Inactivated or Transferred, 1947–1960

Base	Year	Action
Ardmore AFB, Okla.	1959	Inactivated
Bryan AFB, Tex.	1958	Inactivated
Campbell AFB, Ky.	1959	Transferred to U.S. Army
Edward Gary AFB, Tex.	1956	Transferred to U.S. Army
Ethan Allen AFB, Vt.	1960	Inactivated
Foster AFB, Tex.	1958	Inactivated
Godman AFB, Ky.	1954	Inactivated
Grenier AFB, N.H.	1958	Inactivated
Lawson AFB, Ga.	1955	Transferred to U.S. Army
Palm Beach AFB, Fla.	1959	Inactivated
Parks AFB, Calif.	1958	Inactivated
Pyote AFB, Tex.	1953	Inactivated
Sampson AFB, N.Y.	1956	Inactivated
Wolters AFB, Tex.	1956	Transferred to U.S. Army

Sources: Base files in the Research Division of AFHRA; Directories of Air Force Organizations, 1950s, AFHRA K134.45–1; Robert Mueller, *Air Force Bases* (Washington, D.C.: Office of Air Force History, 1989); *Air Force Magazine*, almanac issues, 1950s.

NOTES

1. Force Structure, United States Army Air Forces and United States Air Force, from Air Force Historical Research Agency, Maxwell AFB, Ala., http://afhra.maxwell.af.mil/wwwroot/usaf_wingforce_structure/force_structure.htm; George M. Watson, Jr., *The Office of the Secretary of the Air Force, 1947–1965* (Washington, D.C.: Office of Air Force History, 1993), (hereafter Watson) 103; United States Air Force Statistical Digest, 1947 and FY 1951–1960, AFHRA K134.11–6. Early in its history, the Air Force chose the wing rather than the group to be its primary organization. Groups continued to exist as subordinate organizations in the wings.
2. Thomas K. Finletter, George P. Baker, Palmer Hoyt, John A. McCone, and Arthur D. Whiteside, *Survival in the Air Age: A Report by the President's Air Policy Commission* (Washington, D.C.: U.S. Government Printing Office, 1948), 24–25, 31; Watson, 100.
3. Stephen E. Ambrose, *Rise to Globalism: American Foreign Policy Since 1938* (London: Allen Lane Penguin Press, 1971), 188–189; Robert Frank Futrell, *Ideas, Concepts, and Doctrine: A History of Basic Thinking in the United States Air Force, 1907–1964* (Maxwell AFB, Ala.: Air University, 1974), 160; Watson, 101–103, 121–122, 133; Bernard C. Nalty, *Winged Shield, Winged Sword: A History of the United States Air Force,* vol. 2, 1950–1997 (Washington, D.C.: Air Force History and Museums Program, 1997), (hereafter, Nalty) 111.
4. Dwight D. Eisenhower, *Mandate for Change, 1953–1956* (Garden City, N.Y.: Doubleday, 1963), 452.
5. Memo, Lt. Gen. L. S. Kuter, Actg Chmn, AF Council, to CSAF, subj: Procedures for Approving Additions to the Permanent Base Structure of the Air Force, n.d. [Dec 1952], with atchs, Twining Coll, AFCVC Reading File, Dec 1952 (2), Box 58, Manuscript Division, Library of Congress; Office of the Secretary of the Air Force, *Base Posture Study,* submitted to the Secretary of Defense, 1 October 1964.
6. History, Directorate of Installations, Jan–Jun 1953, vol. 6, section II, 1–3, 11–13, AFHRA K143.01; Air Force Regulation (AFR) 87–5, 23 Sep 1955; George F. Lemmer, "Bases," in ed. Alfred Goldberg, 190, *A History of the United States Air Force* (New York: Arno Press, 1974) (hereafter, Lemmer).
7. Lemmer, 190–191; History, Assistant Chief of Staff, Installations, Jan–Jun 1955, vol. 6, 10, AFHRA K143.01.
8. History, Directorate of Installations, Jan–Jun 1953, vol. 6, section II, 1–3, 11–13, AFHRA K143.01; History of the Secretary of the Air Force, Jan–Jun 1952, vol. I, 351, AFHRA K168.02; "Site Selection Criteria," Directorate of Real Property, ACS/Installations, Air Base Planning Division, Base Selection Branch, 4 October 1954, AFHRA K143.510–5.
9. "Little Rock Air Force Base: Silver Anniversary Review, 1955–1980," exhibit 52 in History of the 314th Tactical Airlift Wing, Oct–Dec 1980, vol. 4, AFHRA K–WG–314–HI.
10. Betty R. Kennedy, *An Illustrated History of Scott Air Force Base, 1917–1987* (Scott AFB, Ill.: Military Airlift Command Historical Office, 1987), (hereafter, Kennedy) 108; Air Education and Training Command lineage and honors history, Research Division, AFHRA; USAF Oral History Interview of Maj. Gen. Thomas E. Moore, AFHRA K239.0512–1749, 114–116.
11. Walton S. Moody, *Building a Strategic Air Force* (Washington: Air Force History and Museums Program, 1996), (hereafter, Moody) 63–65.
12. History of Strategic Air Command, 1948, vol. I, 388–390, AFHRA 416.01.
13. Moody, 426; History of Strategic Air Command, 1949, vol. I, 243, AFHRA 416.01.
14. "Little Rock Air Force Base: Silver Anniversary Review, 1955–1980," exhibit 52 in

History of 314th Tactical Airlift Wing, Oct–Dec 1980, vol. 4, AFHRA K–WG–314–HI.

15. Robert Mueller, *Air Force Bases* (Washington, DC: Office of Air Force History, 1989) (Hereafter, Mueller, 1989 edition). *Air Force Magazine,* vols. 33–38 (September almanac issues, 1950–1955). Moody, *Building a Strategic Air Force,* 60. Roger G. Miller, *To Save a City: The Berlin Airlift, 1948–1949* (College Station: Texas A&M University Press, 2000), 45–48. J.C. Hopkins and Sheldon A. Goldberg, *The Development of Strategic Air Command, 1946–1986* (Offutt Air Force Base, Nebr.: Office of the Historian, Strategic Air Command, 1986), (hereafter, Hopkins and Goldberg) 45. Karen J. Weitze, *Cold War Infrastructure for Air Defense: The Fighter and Command Missions* (Langley AFB, Va.: Air Combat Command, 1999), (hereafter, Weitze) 11.
16. Marcelle S. Knaack, *Post–World War II Bombers* (Washington, D.C.: Office of Air Force History, 1988), (hereafter, Knaack) 6, 8; Hopkins and Goldberg, 13; Diana G. Cornelisse, *Splendid Vision, Unswerving Purpose* (Wright-Patterson AFB, Ohio: Aeronautical Systems Center History Office, 2002), 191–195; History of 19th Air Division, Sep 1952 , AFHRA K–DIV–19–HI; Moody, 271.
17. James N. Eastman, Jr., "Flight of the Lucky Lady II," *Aerospace Historian,* Winter 1969, 9–11.
18. Knaack, 31; Dow AFB folder in Research Division, AFHRA.
19. Hopkins and Goldberg, 49–50.
20. Nalty, vol. 2, 77.
21. Select Operational Exercises of Strategic Air Command, 1954–1956, AFHRA K416.01–66, 1954–1956; History of the Strategic Air Command, Jul–Dec 1957, vol. I, 139–140, AFHRA K416.01–69; Department of the Air Force Base Posture Study, submitted to the Secretary of Defense on 1 Oct 1964, document from Library of Congress by Collection.
22. Site Selection Criteria, AFHRA K143.510–5.
23. Hopkins and Goldberg, 54; Dow Air Force Base folder, Research Division, AFHRA; Mueller, 1989 edition, 577–582; Charles A. Ravenstein, *Air Force Combat Wings* (Washington, D.C.: Office of Air Force History, 1984), (hereafter, Ravenstein) 141–142; Mueller, 1989 edition, 467–468, 475–476; History of the Canadian Refueling Base Program, SAC Historical Study no. 87, 2–3, AFHRA K416.01–87, 1954–1960, vol. I; Nalty, vol. 2, 78.
24. Knaack, 236, 351–353; Base Posture Study, 1 Oct 1964.
25. United States Senate, Committee on Armed Services, 84th Congress, *Hearings Before the Subcommittee on the Air Force,* April 16 and 20, 1956 (Washington, D.C.: Government Printing Office, 1956), 104–105; Hopkins and Goldberg, 63–89. Ravenstein, author checked aircraft types and bases under each bombardment and strategic wing; Knaack, 156, 200–201, 292–293.
26. Lemmer, 194. History, Assistant Chief of Staff, Installations, Jul–Dec 1954, vol. 6, 19, AFHRA K143.01; Gen. Thomas S. Power, "Strategic Air Command," *Air Force Magazine,* 43:9 (Sep 1960) 67; Base Posture Study, 2; History, Directorate of Civil Engineering, Jul–Dec 1960, vol. 8, 25, AFHRA K143.01; Base files in Research Division of AFHRA.
27. History of Air Defense Command, Jul–Dec 1957, vol. I, 91, AFHRA K410.01–8; Mueller, *Air Force Bases,* 1989 edition, 521–525; Gen. Thomas S. Power, "Strategic Air Command," *Air Force Magazine,* 43:9 (Sep 1960) 67.
28. Strategic Air Command Historical Study 81, vol. I, 82–85, AFHRA K416.01–81, Jul–Dec 1959; Hopkins and Goldberg, 92.
29. Neufeld, *Development of Ballistic Missiles* (Washington, D.C.: Office of Air Force History, 1990), 274–275; Holmes and Narver, Incorporated, *WS 107A Base Design Study* (Los Angeles, 27 Sep 1955) study prepared for Western Development Division, Air Research and Development Command, AFHRA K243.0471–25, 27 Sep 1955.

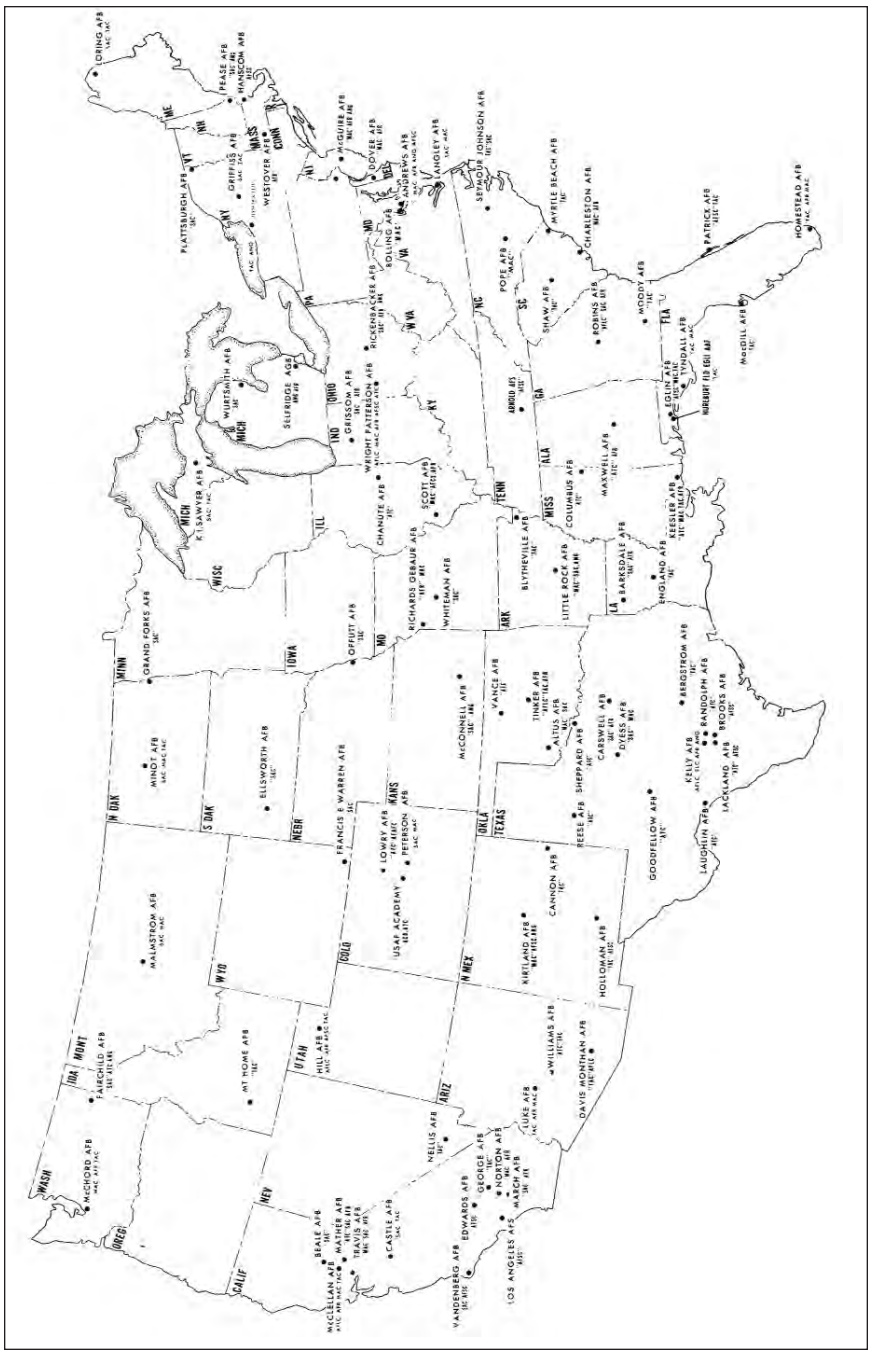
30. Thomas S. Power, "SAC and the Ballistic Missile," chapter 12 in Lt. Col. Kenneth F. Gantz, editor, *The United States Air Force Report on the Ballistic Missile* (Garden City, N.Y.: Doubleday, 1958), 195.
31. History, Directorate of Installations, Jul–Dec 1957, vol. 6, 19–20, AFHRA K143.01; Gen. Thomas S. Power, "Strategic Air Command," *Air Force Magazine,* 43:9 (Sep 1960), 68.
32. Weitze, 7; History, Directorate of Civil Engineering, Jul–Dec 1960, vol. 8, 34, AFHRA K143.01; Mueller, 1989 edition, 183; Iola M. Sayers, "History of the Site Activation Task Force (Lowry)," 6, AFHRA K243.0121–11, Mar 1958–Dec 1960; History of Strategic Air Command, Jul–Dec 1960, SAC Historical Study 83, AFHRA K416.01–83, Jul–Dec 1960, v. I, 164–167; Thomas S. Power, "Strategic Air Command," Air Force Magazine, 42:9 (Sep 1959), 115; Gen. Thomas S. Power, "Strategic Air Command," *Air Force Magazine,* 43:9 (Sep 1960), 68.
33. History of Strategic Air Command, Jul–Dec 1959, Historical Study no. 81, vol. II, 290, AFHRA K416.01–81; History of Strategic Air Command, Jul–Dec 1959, Historical Study no. 81, vol. 2, 306–307, AFHRA K416.01–81.
34. "ICBM Siting Criteria," History of Strategic Air Command, SAC historical study 76, AFHRA K416.01, Jan 1958–Jul 1959, vol. VII, exhibit 7.
35. Directories of USAF Organizations, 1950s, AFHRA K134.45–1; Robert Mueller, *Air Force Bases,* vol. I, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982) (hereafter, Mueller, 1974 edition) and Mueller, 1989 edition; Base binders and files in the working papers of the Research Division of the Air Force Historical Research Agency; *Air Force Magazine,* almanac issues from the 1950s (vols. 33–42); United States Air Force Statistical Digest, FY 1956–FY 1960, AFHRA K134.11–6; Hopkins and Goldberg, 58–89.
36. Charles A. Ravenstein, *The Organization and Lineage of the United States Air Force* (Washington, D.C.: Office of Air Force History, 1986), 16.
37. USAF Historical Study no. 126, "The Development of Continental Air Defense to 1 September 1954," 20–27, AFHRA 101–126.
38. Ibid.
39. "Site Selection Criteria," AFHRA K143.510–5; Thomas W. Ray, *A History of Texas Towers in Air Defense, 1952–1964,* ADC Historical Study 29, AFHRA K410.141–69; Weitze, 9; David F. Winkler, *Searching the Skies* (Langley AFB, Va.: Air Combat Command, 1997), (hereafter, Winkler) 38.
40. Ibid., 29.
41. Winkler, 32, 37.
42. Directories of USAF Organizations, 1950s; *Air Force Magazine,* almanac issues, 1950s; Mueller, 1989 edition, 359–362.
43. Lt. Gen. Joseph H. Atkinson, "Air Defense Command," *Air Force Magazine,* 43:9 (Sep 1960), 130; BOMARC Missile Sites, http://www.radomes.org/museum/bomarc.html. BOMARC missiles were produced by the Boeing-Michigan Aeronautical Research Center.
44. Robert Mueller, 1989 edition, 199–203, 295–296, 417–421; Base files in Research Division of AFHRA.
45. Doris L. Miller, *Directorate, Procurement and Production, AMC, Problems and Accomplishments, Fiscal Year 1958* (Wright-Patterson AFB, Ohio: Air Materiel Command Historical Division, 1959), vol. I, 17, AFHRA K201–323, 1958; Weitze, 11.
46. Grant Hales, editor, Air Combat Command anniversary booklet commemorating the 5th anniversary of the Air Combat Command and the 50th anniversary of the USAF (Langley AFB, Va.: Air Combat Command History Office, 1997), 128; United States Air

Force Statistical Digests, FY 1956–FY 1960, AFHRA K134.11–6. The 1960 digest notes 22 major ADC bases in 1960, but Ethan Allen AFB in Vermont inactivated that year.

47. Histories of Tactical Air Command, 1950s, AFHRA K417.01.
48. Base binders and folders in Research Division of AFHRA; Directories of USAF Organizations for 1950s, AFHRA K134.45–1; Mueller, 1989 edition; *Air Force Magazine,* almanac issues for 1950s (vols. 33–42); see also History, Tactical Air Command, Jan–Jun 1954, vol. I 5 in statistical summary, AFHRA K417.01; "Site Selection Criteria," AFHRA K143.510–5.
49. Mueller, 1989 edition, 483; Base folders in Research Division, AFHRA; Directories of USAF Organizations, 1950s, AFHRA K134.45–1.
50. Base files at Research Division, AFHRA.
51. History of Tactical Air Command, Jul–Dec 1954, vol. I, 19, 58–59, AFHRA K417.01; History of Tactical Air Command, Jul–Dec 1951, vol. I, AFHRA K417.01; Hopkins and Goldberg, 68.
52. History of Second Air Force, Jan–Jun 1957, vol. II; Mueller, 1989 edition in toto. Author checked commands to which each base was assigned.
53. Charles A. Ravenstein, *Organization and Lineage of the United States Air Force,* 17–18; Jay H. Smith, editor, *Anything, Anywhere, Anytime: An Illustrated History of the Military Airlift Command, 1941–1991* (Scott Air Force Base, Ill.: Military Airlift Command History Office, 1991), 90–91; United States Air Force Statistical Digest, fiscal years 1953–1960, AFHRA K134.11–6; "Delivering People, Goods," *Air Force Magazine* 41:8 (Aug 1958), 156; Mueller, 1989 edition, 555–556.
54. A. Timothy Warnock, editor, *Short of War: Major USAF Contingency Operations, 1947–1997* (Washington, D.C.: Air Force History and Museums Program, 2000), 8.
55. Marcella and Gladys Thum, *Airlift: The Story of the Military Airlift Command* (New York: Dodd, Mead, and Company, 1986), 126–134; History of the Directorate of Operations, DCS/O, Jan–Jun 1952, vol. 8, 76, AFHRA K143.01.
56. Ibid; Base files in AFHRA Research Division; Mueller, 1989 edition, 395; "Delivering People, Goods," *Air Force Magazine* 41:8 (Aug 1958), 156; Base binders and folders at AFHRA Research Division; Dick Burkard, *Military Airlift Command Historical Handbook, 1941–1984* (Scott AFB, Ill: Military Airlift Command History Office, 1984), 113; Kennedy, 108.
57. Thomas A. Manning, editor, *History of Air Training Command, 1943–1993* (Randolph AFB, Tex.: AETC Office of History and Research, 1993), (hereafter, Manning) 47–74, 80, 101–102; Mueller, 1982 edition.
58. "Site Selection Criteria," AFHRA K143.510–5.
59. Manning, 47–136; Base binders and folders at AFHRA Research Division; Mueller, 1982 and 1989 editions; *Air Force Magazine,* almanac issues from 1950s.
60. Manning, 64, 101–102, 132.
61. Ibid. 64–132; Base folders in the AFHRA Research Division; Michael H. Levy and Patrick M. Scanlan, *Pursuit of Excellence: A History of Lowry Air Force Base, 1937–1987* (Lowry AFB: Lowry Technical Training Center History Office, 1987), 35.
62. Manning, 47–80.
63. Ibid., 106–107; Base folders in the AFHRA Research Division; U.S. Air Force Oral History Interview of Maj. Gen. Thomas E. Moore, AFHRA K239.0512–1749, 114–118; Manning, 113, 118–119; Kennedy, 94.
64. Manning, 132; Oral history interview of Gen William F. McKee by Dr. George Watson, 12–14, AFHRA K239.0512–1588; Frank Freidel, *America in the Twentieth Century* (New York: Alfred A. Knopf, 1976), 340.

65. Jerome A. Ennels and Wesley Phillips Newton, *The Wisdom of Eagles: A History of Maxwell Air Force Base* (Montgomery, Ala.: Black Belt Press, 1997), 119, 139, 142; Charles Ravenstein, *Organization and Lineage of the United States Air Force,* 15.
66. History of the Air Force Academy, 27 Jul 1954–12 Jun 1956, v. I , 141–172, AFHRA K273.01; History, Assistant Chief of Staff, Installations, Jul–Dec 1954, v. 6, 5, AFHRA K143.01.
67. History of the Air Force Academy, 27 Jul 1954–12 Jun 1956, vol. I, 141–172, AFHRA K273.01; Kenneth T. Walsh, *Air Force One* (New York: Hyperion, 2003), 53–54; History of the Air Force Academy, 27 Jul 1954–12 Jun 1956, vol. I, 141–172, AFHRA K273.01; Air Force Academy lineage and honors history and organization record card, Research Division, AFHRA.
68. Base folders in AFHRA Research Division; Mueller, 1989 edition, 205–208; *Air Force Magazine,* almanac issues, 1950s; Gen. Samuel E. Anderson, "Air Materiel Command," *Air Force Magazine* 43:9 (Sep 1960), 156–162.
69. History of Air Materiel Command, Jan–Jun 1959, vol. 4 (AMC Historical study no. 331: Development of Air Materiel Command, 1951–1959), 35, 38; AFHRA K200–20; AMC general order 20, 25 Feb 1959, AFHRA K200–20, vol. 4.
70. History of Air Materiel Command, Jan–Jun 1959, vol. 4 (AMC Historical study no. 331: Development of Air Materiel Command, 1951–1959), 78; Oklahoma City Air Materiel Area, B–52 Aircraft Management Program, vol. I, AFHRA K205.0704–7; *A Pictorial History of Kelly Air Force Base* (Kelly AFB, Tex.: San Antonio Air Logistics Center Office of History, 1981), 203, 232; History of Air Materiel Command, Jan–Jun 1959, vol. I, appendices 1 and 5, AFHRA K200–20; Maurice A. Miller, editor, *McClellan Air Force Base, 1936–1982* (McClellan AFB, Calif.: Sacramento Air Logistics Center Office of History, 1982), 77–78, 81; Frank E. Moore, *The Saga of Norton Air Force Base,* AFHRA K256.7101; History, San Bernardino Air Materiel Area, Jul 1961–Jun 1962, vol. 4, AFHRA K205.12–38; Mueller, 1989 edition; *History of Hill Air Force Base* (Hill AFB, Utah: Ogden Air Logistics Center, 1981), 180–182; Knachel, P. A., *An Unclassified History of Rome Air Development Center* (Griffiss Air Force Base: Rome Air Development Center Office of History, 1959).
71. Histories of Air Materiel Command, 1950s, AFHRA, K200–11 through K200–15; Handbook of Texas Online: Pyote Air Force Station: http://www.tsha.utexas.edu/handbook/online/articles/view/PP/qbp2.html; History of 2801 Air Base Squadron, Jul–Dec 1957, AFHRA K–SQ–AB–2801–HI.
72. Base files in AFHRA Research Division; Directories of Air Force Organizations, 1950s, AFHRA K135.45–1; Mueller, 1989 edition; *Air Force Magazine,* almanac issues for 1950s.
73. Lineage and honors history of the Arnold Engineering Development Center, AFHRA Research Division; Watson, 66–67; Ralph Villers, "The Tullahoma Testers," *United Aircraft Bee-Hive* (Summer 1972), 2–7.
74. Base folders in the Research Division, AFHRA; Mueller, 1989 edition; Holloman AFB History website: http://www.holloman.af.mil/hafb/basehistory.html; Kirtland AFB History website: http://www.kirtland.af.mil/History/Kirtland_history.htm; History of Hanscom Air Force Base website: http://esc.hanscom.af.mil/ESC-HO/; Thomas W. Thompson, *Rome Laboratory: A Brief History,* http://www.rl.af.mil/History/rl-brief-history.html.
75. Force structure tables on Air Force Historical Research Agency home page: http://afhra.maxwell.af.mil/wwwroot/usaf_wingforce_structure/force_structure.htm. United States Air Force Statistical Digest, 1947, 185, AFHRA 134.11–6; United States Air Force Statistical Digest, Fiscal Year 1956, 200, AFHRA K134.11–6; Directories of USAF Organizations, 1950s , AFHRA K134.45–1; Mueller, 1982 and 1989 editions; Directories of USAF Organizations, 1950–1959, AFHRA K134.45–1; *Air Force Magazine,* almanac issues 1951, 1955, 1959, 2003.

76. History, Directorate of Civil Engineering, Jul–Dec 1960, vol. 8, 35, AFHRA K143.01; Continental Air Command orders, microfilm only, roll 23471, AFHRA.



USAF Major Active Installations, May 1980

3

Retrenchment, Consolidation, and Stabilization 1961–1987

Robert S. McNamara, Secretary of Defense from 1961 to 1968, dominated the first decade of this period. He emphasized efficiency and cutting waste in the defense establishment. Coupled with changing defense needs based on technological developments in weapon systems and a new strategic focus under President John F. Kennedy, this emphasis led to massive base closures not seen since the end of World War II. Although Secretary McNamara generally followed the closure recommendations of the Secretary of the Air Force, he occasionally acted entirely on his own initiative, to the dismay of Air Force leaders. In the McNamara era, base closures could proceed from announcement to shutdown within a few months. As a result, the number of major active USAF installations in the continental United States (CONUS) declined from 152 in fiscal year (FY) 1961 to 112 in FY 1972.[1]

By the late 1970s, however, long annoyed with a Pentagon that could announce base closures without consulting legislators whose districts would be affected, Congress mandated that the Department of Defense (DOD) comply with the requirements of the National Environmental Policy Act (NEPA) of 1969 before closings could occur. This requirement made the base closure process far more complex, and each case required a year or more to conclude. Indeed, in 1988, Secretary of Defense Frank C. Carlucci's Commission on Base Realignments and Closures (BRAC) argued that the new rules had by the late 1970s "effectively brought base closures to a halt." The statistics supported this claim: between 1980 and 1987, the total number of major active USAF installations in the CONUS declined only slightly, from 107 to 104. The three installations affected were Duluth International Airport (IAP), Minnesota; Fort Lee, Virginia; and Hancock Field, New York (Table 3.1).[2]

Table 3.1: Number of USAF Major Active Installations Continental United States, FYs 1961–1980

Command	FY1961	FY1966	FY1968	FY1972	FY1977, FY1980^
ADC/ADCOM	23	24	23	8	
AFLC	11	10	8	6	
ATC	21	16	16	16	
MATS/MAC	8	7	6	8	
SAC	46	38	30	28	
TAC	12	18	18	19	
ARDC/AFSC	7	9	9	8	
DRUs, Others	24	23	19	19	
Total	152	145	129	112	107*

Source: USAF Statistical Digest, Fiscal Years 1961, 1966, 1968, 1972, 1977, 1980.

Note: The number of bases in both 1986 and 1987 was listed at 104; These numbers are estimates. *United States Air Force Summary 1986,* (Washington, March 7, 1986), Table D–17, AFHRA K131.199

^ In 1977 and 1980, the digest did not list installations by command.

* Includes Alaska, Hawaii, and the U.S. possessions.

In 1961, Secretary McNamara expressed the view that would contribute to hundreds of base closures and realignments in the coming years:

> Technological progress causes obsolescence not only in weapon systems, but also in the often highly specialized facilities constructed for their deployment and maintenance. Just as we continually measure our weapon system development and procurement programs against the ever-changing yardstick of military need, so too must we review our worldwide complex of installations in light of our present and future requirements. Facilities and installations, which fail this test of true need, only encumber the national security effort and waste resources.[3]

In 1961, of 152 major active USAF installations in the CONUS, almost one-third belonged to the Strategic Air Command (SAC). Together, SAC and the Air Defense Command (ADC) accounted for nearly one-half of all major USAF bases. This soon changed due to technology, strategic decisions, and the quest for efficiency. Rapidly improving missile technology in both the Soviet Union and United States led American defense leaders to conclude that the major Soviet threat soon would be from missiles rather than from manned bombers, providing the impetus to reduce the fleet of ADC fighter-interceptors. After a lengthy decline, in 1979 ADC lost its remaining units, and its missions transferred to several commands. Also by 1960–1961, American officials viewed U.S. manned aircraft as becoming less survivable than the developing Polaris and Minuteman missiles, thereby contributing to the phaseout of B–47s and older B–52s. Over the next two

decades the number of SAC bases was nearly halved. Furthermore, under President Kennedy, "flexible response" to conventional conflicts and insurgencies around the world emphasized USAF tactical and airlift forces. The Tactical Air Command (TAC) grew from just twelve bases in 1961 to nineteen bases a decade later. In 1961, the Military Air Transport Service (MATS) owned eight bases in the CONUS; in 1974, the Military Airlift Command (MAC) controlled ten bases, but its airlift capacity increased even more than is suggested by its number of bases as a result of the greater cargo-carrying capacities of its C–135s, C–141s, and C–5s. By the early 1980s, MAC commanded fourteen CONUS bases, evidence of increased U.S. reliance upon airlift to carry conventional forces quickly to any part of the globe.[4]

USAF forces decreased during the 1960s and 1970s but grew during the 1980s under the administration of President Ronald W. Reagan. From 193 active wing or wing equivalents at the end of 1962, by 1970 USAF counted 156 "wings." At the end of the decade, after the Southeast Asia drawdown, the Air Force stood at 140 wings. By 1987, after Reagan's buildup, USAF wings numbered 150. Between 1962 and 1987, the number of bomber wings declined from forty-eight to seventeen; in contrast, the number of fighter wings increased slightly from forty-four to forty-six, and airlift wings slipped a bit from thirty-six to thirty-three.[5]

In the 1960s and 1970s, several DOD reports addressed the considerations and criteria to be used in base realignment and closure decisions. By far, the most comprehensive report was the June 1963 "Ideal Base Study" that the Air Force produced in response to a request from Secretary of Defense McNamara. Perhaps the most important point was that the Air Force already possessed a strong base structure. The USAF "submitted that the major proportion of Air Force forces are currently accommodated at locations closely approximating the ideal." The study discussed criteria that had been used in prior years and validated them. Despite changes in technology over the years, the basing criteria and considerations demonstrated a high degree of stability in Air Force thinking on the subject. Essentially, what made for a well-situated Air Force base by 1960 remained valid in the late 1980s. The fact that the Air Force built only one new major installation, Falcon AFB, Colorado, in the CONUS after the 1950s may say nearly as much about the stability of basing criteria as it does about the thinking of McNamara and his successors at the Pentagon.[6]

"Ideal Base Study" described geophysical and other characteristics for strategic air bases. SAC needed large areas of flat terrain to facilitate runway development and safe approach and departure routes; other considerations were soil stability, drainage, and prevailing wind. Geophysical criteria were even more important for missile bases than for flying bases by reason of the "suitability of terrain for system command, control, and communications…soil composition for support of desired hardening of missile sites, location of water tables, and the availability of suitable individual sites within a required dispersal pattern." Nuclear weapons influenced the selection of SAC bases: they were to be located away from govern-

ment, population, and industrial centers that would provide any "bonus effects" to an enemy targeting bases in such areas. A number of central plains and northern tier bases met most such criteria, although several Intercontinental Ballistic Missile (ICBM) bases later experienced water drainage problems. Other factors, however, were contrary to the advantages of remoteness. SAC sought "suitable personnel support [especially family housing] and recreational facilities" as well as local communications and logistic networks to which the Air Force could add as needed.[7]

Probably the single significant difference in basing before and after 1960 was that the introduction of Soviet ICBMs influenced SAC to shift to "a more rearward basing concept as a means of maximizing warning time and force survivability." SAC closed several northern bases on the basis of this reasoning.[8]

Compared to SAC, the other major commands had somewhat simpler basing requirements. Major mobility/airlift bases needed to be near the Army's airborne centers. Though the Air Force lost three bases in the Southeast well located for the Army airlift mission, it gained two others that became critical in that role. Additionally, East and West Coast air terminals "to facilitate inter-theater airlift [were] essential." By 1968 MAC possessed three major air terminal bases near each coast.[9]

Tactical bases required good year-round flying weather for training effectiveness and air-to-ground and air-to-air ranges within reasonable distances. The Air Force considered ranges 100 to 200 miles from home base to be the maximum acceptable distance, but it actively sought them closer than that. Especially along the highly populated East Coast, finding adequate ranges was a problem. Moreover, according to "Ideal Base Study," the USAF needed to maintain at least one East Coast tactical base and one West Coast tactical base "to facilitate rapid deployment for contingency operations."[10]

To provide timely warning of attack and quick response, the Air Force desired that its air/aerospace defense bases be "dispersed along the northern, eastern, western and southeastern borders of the CONUS." Air Force leaders considered any increase in the stationing of fighter-interceptors at strategic bases "operationally unacceptable" because it threatened the survivability of the ADC force. However with the shift in emphasis from bombers to missiles, the 1960s and 1970s witnessed the steady decline and eventual demise of ADC. By the early 1970s, most remaining interceptors were in Air Force Reserve or Air National Guard units.[11]

The requirements for flying training bases were more specific than they were for other types of installations. Such bases needed good flying weather, specifically an average of 300 days per year with ceilings of at least 2,500 feet and visibility of 3 miles. Such bases also required unrestricted airspace from the surface to 24,000 feet within a 50- to 75-mile surface radius. Furthermore, parallel runways were essential, and auxiliary airfields were required within 40 miles of the main base. Given these requirements, most Air Training Command (ATC) flying bases remained in the South and Southwest.[12]

Regarding USAF logistics bases and systems/product centers, heavy fixed capital investments and civilian workers possessing specialized skills argued strongly

for base stability, which was borne out during the 1960s to 1980s. Air Force Logistics Command (AFLC) installations required proximity to transportation facilities "to enable rapid logistic support." Depending on the specific mission of an Air Force Systems Command (AFSC) installation, the base might require long runways with large areas of unrestricted airspace, test facilities, or extensive administrative facilities to support the installation's test programs and correlate basic and/or applied research to weapons development.[13]

In 1978, the report of a congressional hearing on military construction included an extract from an earlier report. In 1974, a DOD official had testified that multimission bases "will be used to the maximum extent possible" and that the base structure should remain flexible enough to respond to unprogramed changes in such areas as forces, operating concepts, and technology. Thus, multimission bases were the most likely to survive closures, as were bases with the potential to assume new or additional missions. The 1974 report listed criteria for closure or realignment decisions, presumably in order of priority: geographic location; facility availability; community support, particularly family housing in the community; flexibility; encroachment, especially the potential for midair collisions; budget; environment; and mission degradation. Among the criteria, geographic location was the only one possessing "hard" requirements. Undergraduate pilot training (UPT) bases demanded 216 good weather flying days per year to maintain course schedules, and tactical fighters needed air-to-ground and air-to-air ranges located within 200 miles of the base. Overall, the consistency of USAF basing requirements and considerations between 1961 and 1987 went hand-in-hand with a period of "retrenchment, consolidation, and stabilization."[14]

Strategic Bases

In the early 1960s, SAC represented America's "cornerstone of national defense." SAC possessed some 1,500 jet bombers, Thor and Jupiter Intermediate Range Ballistic Missiles, and a small number of Atlas and Titan I first-generation ICBMs. Noted military historian Earl H. Tilford, Jr., writes that, in 1962, SAC controlled approximately "90 percent of the free world's total nuclear striking power" and consumed 20 percent of the U.S. defense budget. Its dominance was reflected also in terms of major USAF installations. At the end of FY 1961, SAC exercised command jurisdiction over 46 of the 152 major USAF bases in the CONUS, nearly one-third. Thus, the strategic changes initiated by President Kennedy were bound to have a major impact not only on SAC, but also on the rest of the Air Force. Indeed, for a decade after 1961, the shift in the focus of U.S. strategic deterrence from bombers to missiles and the introduction of improved ICBMs were the most significant influences not only on the base structure of the command, but also on the overall basing complex of the Air Force.[15]

Though SAC's CONUS base structure contracted from 1961 to 1987, in the early 1960s the command gained four newly built bases located on the U.S. north-

ern perimeter that had originally been intended as ADC installations. Having the preponderance of forces at ADC fighter-interceptor bases such as Glasgow in Montana, Minot and Grand Forks in North Dakota, and K.I. Sawyer in Michigan, SAC gained command jurisdiction over all four bases between April 1960 and January 1964. Of these, Minot and Grand Forks became particularly important to the SAC strategic deterrent, due to Minuteman I ICBMs at Minot and Minuteman II ICBMs at Grand Forks. Minot attained operational status in late 1964. By that time the number of ICBMs on alert exceeded the number of bombers on ground alert. In 1965, Grand Forks became the first Minuteman II base.[16]

Although President Kennedy had been elected partly because he insisted that the Eisenhower administration had permitted a "missile gap." he broadened the scope of U.S. military dependence beyond what SAC and the Air Force could provide. Preferring a military that could respond quickly to limited, conventional conflicts around the world, he devoted more resources to the Army, Navy, and Marine Corps. He even directed the placement of strategic missiles on submarines. Concerned with a federal deficit, Kennedy also wanted to redirect defense spending by closing some bases and phasing out some older weapon systems not only in the Air Force, but in all the services. After Kennedy's assassination in 1963, the expenses of the Vietnam War as well as domestic programs encouraged President Lyndon B.

A 1977 flight line display at Minot Air Force Base, North Dakota, illustrates the elevation of the base.

Johnson to divert more resources from SAC. Between 1961, shortly after Kennedy took office, and 1969, when Johnson left office, the number of major SAC bases in the CONUS declined from forty-six to twenty-eight.[17]

That process began early in the Kennedy administration. In a major defense speech in March 1961, the President announced his plan to reshape the Air Force weapon programs by speeding up or expanding Minuteman, Skybolt, air and ground alert, and other programs while cutting back those he deemed obsolete. SAC for its part was receptive to this policy, accepting that its dispersed force was expensive and difficult to command and control.[18] For this reason, SAC welcomed the decision to expand the percentage of bombers on ground alert from thirty-three to fifty, some of which began flying airborne alert in 1961. Maintaining 50 percent of SAC's bombers on fifteen-minute ground alert was a favorable alternative to dispersal. In order "to provide promptly the trained crews required for the expanded ground alert," Kennedy accelerated the phaseout of B–47s begun under President Dwight Eisenhower in 1960, and of older B–52s. The 1961 Berlin Crisis, however, led Kennedy to retain temporarily some B–47 units for strategic deterrence. As tensions eased over Berlin, in the next five years SAC lost nine B–47 bases. Between 1966 and 1968, SAC lost nine B–52 bases to either shutdown or transfer (Table 3.2).[19]

In addition to the loss of hundreds of B–47 and older B–52 bombers, Secretary McNamara's desire to consolidate B–52s at fewer bases affected SAC's CONUS basing. In July 1963, McNamara requested a cost-effectiveness study that assumed the placing of thirty B–52 and thirty KC–135 aircraft at each installation rather than the current 15-and-15 arrangement. A SAC study, submitted in August, opposed the plan. It would increase vulnerability to attack "to an unacceptable point." Not only would it simplify the enemy's targeting problems "without any effort on his part," it would also increase the required launch time for SAC aircraft at a given base. In 1964, SAC stated the horrific possibilities. "Under the 30/30 plan only a very small percent of the B–52 force was expected to survive for a second strike. The proposed program would sacrifice the tanker force, two-thirds of the B–52s during launch, and all of the B–58s." Presumably, that portion of the bombers on airborne alert was included in the one-third that was expected to survive a first strike.[20]

The DOD plan in FY 1964 would force consolidation on only twenty-two of the thirty-eight B–52/KC–135 bases. Gen. Thomas S. Power, SAC commander, continued to oppose consolidation, viewing an adequate number of bases for the strategic force as "of paramount importance" to the nation's security. Attempting to compromise with the Pentagon, in October 1964 the Air Force proposed a partial consolidation of forty squadrons of B–52s, C through H models, on thirty-four bases.[21]

Finally deciding on a partial bomber consolidation, in November 1964 Secretary McNamara announced the closure of eighty major defense installations in the CONUS. SAC was to lose Dow, Glasgow, Larson, Lincoln, and Schilling, all of which would inactivate. Loring AFB, however, in extreme northern Maine and

Table 3.2: Major Strategic Bases, 1961–1987

Name	Years under SAC	Primary Weapon System(s) When Closed/Transferred by SAC	Remarks
Altus	-1968	B-52	Transferred to MAC
Barksdale	Entire period		
Beale	Entire period		
Bergstrom	-1966	B-52	Transferred to TAC
Biggs	-1966	B-52	Transferred to Army
Blytheville	Entire period		
Carswell	Entire period		
Castle	Entire period		
Chennault	-1963	B-47	Closed
Clinton County	-1961	None	Transferred to CONAC; 4090th Air Refueling Wing discontinued in 1960
Clinton-Sherman	-1970	B-52	In 1972, base transferred to city of Clinton, Okla.
Columbus	-1969	B-52	Transferred to ATC
Davis-Monthan	-1976	U-2	Transferred to TAC
Dow	-1968	B-52	Closed
[illegible]	[illegible]		
[illegible]	[illegible]		
[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		[illegible]
[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]			[illegible]
[illegible]	[illegible]	[illegible]	

Lincoln	-1966	B-47, Atlas	Closed
Little Rock	-1970	B-58	Transferred to TAC
Lockbourne (Rickenbacker)	1951-1965; 1971-1980	EB-47 (in 1965) KC-135 (in 1980)	Transferred to TAC in 1965; from TAC in 1971; to ANG in 1980
Loring	Entire period		
MacDill	-1962	B-47	Transferred to TAC
Malmstrom	Entire period		
March	Entire period		
McConnell	-1963; 1972-	B-47 (in 1963)	Transferred to TAC in 1963; from TAC in 1972
McCoy	-1974	B-52	Closed
Minot	1962-		Transferred from ADC
Mountain Home	-1966	B-47, Titan I	Transferred to TAC
Offutt	Entire period		
Pease	Entire period		
Peterson	1979-1982	Space surveillance and missile warning systems	Transferred from ADCOM in 1979; to SPACECOM in 1982
Plattsburgh	Entire period		
Presque Isle	-1961	Snark	Closed
Schilling	-1965	B-47, Atlas	Closed
Turner	-1967	B-52	Transferred to Navy
Vandenberg	Entire period		
Walker	-1967	B-52	Closed
Westover	-1974	B-52	Transferred to AFRES
Whiteman	Entire period		
Wurtsmith	Entire period		

Sources: SAC command histories and unit histories, AFHRA; *Air Force Magazine*, 1961–1987; Robert Mueller, *Air Force Bases*, vol. 1, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982); Robert Mueller, *Air Force Bases*, vol. 1, *Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, D.C.: Office of Air Force History, 1989); "AFHRA Base Books," AFHRA; "AFHRA Base Folders," AFHRA; date for Presque Isle derived from *From Snark to Peacekeeper: A Pictorial History of Strategic Air Command Missiles* (Offutt AFB, Neb., 1990), 5; location of Clinton-Sherman AFB, near Clinton, Okla., extracted from www.clintonok.org/ home.html; for aircraft at Glasgow, see History, 4300 Air Base Squadron, Oct.–Dec. 1973, 6–8, AFHRA K-SQ-AB-4300-HI; for aircraft at Laughlin, see History, 4080 Strategic Wing and 4080 Combat Support Group, Mar. 1962, 22, AFHRA K-WG-4080-HI, for aircraft at Lockbourne (Rickenbacker), see History, 376 BW, Jul.–Sep. 1964, vol. I, 2–4, AFHRA K-WG-376-HI; History, 301 Air Refueling Wing, Jan.–Mar. 1965, vol. I, 25, AFHRA K-WG-REF-301-HI; for Atlas and Titan I, see "Eighty Base Closures in U.S. Named by McNamara," *Defense Department Digest* 1 (15 Dec. 1964).

consequently possessing minimal warning time, was not on the closure list. It was the only SAC base to have failed a recent test of launching the alert force within the requisite time limit. Increasing the seeming irony over Loring was the Penta-

gon's decision to use generally southern bases, where warning times were longer, for stationing thirty B–52s on each. The Pentagon announced five such bases: Barksdale in Louisiana, Carswell in Texas, March in southern California, Walker in New Mexico, and Westover in Massachusetts. Except for Westover, the five bases were the ones SAC had chosen recently in preparation for partial consolidation. SAC's choices amounted to a tradeoff. To SAC's advantage, southern basing added to the warning time in the event of a Soviet attack; to its disadvantage, such basing added distance to the targets in the Soviet Union (Table 3.3).[22]

McNamara's public announcement had emphasized financial savings and efficiency as reasons for the shutdowns. Bases considered for reduction and closure also were those with limited warning time, poorly maintained facilities, limited potential to expand and/or accommodate additional missions, and weather-induced poor working and living conditions. These criteria, based on valid operational and economic factors, led to identifying the most northerly bases, Dow, Glasgow, and Larson, as prime candidates for possible closure. A number of northern bases had to be retained because other missions could not be eliminated or relocated to permit total base closure.[23]

One result of McNamara's partial consolidation was the appearance of the so-called super-wing in SAC. By 1968, Barksdale and March each became home to two B–52 and two KC–135 squadrons. SAC had concluded that the southern locations of the super-wings would allow launching a greater portion of the alert force than the more northern bases would in the event of a surprise Soviet attack. Moreover, between FYs 1966 and 1968, SAC relocated most B–52 units from northern to southern bases. In FY 1966, B–52s moved from Larson to March, and in FY 1968, B–52s moved from Dow to Barksdale and from Glasgow to March. Tanker units generally moved in conjunction with their B–52 counterparts to maintain, as much as practicable, one tanker for each bomber at a given base. In 1968, SAC revived and expanded its bomber/tanker dispersal program dating from the late 1950s and early 1960s. The program included both military and civilian installations intended for use during periods of increased international tension. Offering another means to enhance the survivability of B–52 and KC–135 strategic aircraft, dispersal was a logical result of partial consolidation and the super-wing phenomenon.[24]

In December 1965 the Pentagon announced the next round of DOD base closures, of which 126 were CONUS installations. During congressional testimony in January 1966, Paul R. Ignatius, Assistant Secretary of Defense for Installations, provided the rationale for some of the realignments and closures. For example, Ignatius stated that SAC units at Biggs AFB, in El Paso, Texas, were being relocated because

> The operational environment at Biggs poses serious problems. Such factors as the proximity of El Paso International Airport, the suburbs of El Paso, and mountainous areas adjacent to Biggs…weapons test-

ing areas to the north and the convergence of civil airways carrying heavy…traffic combine to create serious safety and traffic control problems.[25]

Table 3.3: Announcements of USAF/DOD Installation Closures/Realignments, 1961–1976

Month announced	Projected number (USAF / DoD)	Major USAF closures in CONUS#	Remarks
Mar.-Apr. 1961	14 / 73 (52 in CONUS)	Harlingen, Presque Isle, Kirtland, Laughlin	Neither Kirtland nor Laughlin closed as projected
Dec. 1963	3 / 33 (26 in CONUS)	Greenville (Miss.), Rome AMA, *Stead	Rome AMA closed but the parent base (Griffiss) remained active under AFLC
Nov. 1964	13 / 95 (80 in CONUS)	Amarillo, Brookley (Mobile AMA), Dow, Glasgow, Hunter, James Connally, Larson, Lincoln, Olmstead (Middletown AMA), Orlando, San Bernardino AMA, Schilling, *Stead	San Bernardino AMA closed but the parent base (Norton) transferred from AFLC to MAC
Dec. 1965	11 / 149 (126 in CONUS)	Bakalar, Biggs, Clinton-Sherman, Ellington, Kincheloe, Sewart, Turner, Walker; Twelfth Air Force Headquarters (Waco, Tex.)	Kincheloe did not close as projected (see table entry for Mar. 1976); 2 of the 11 USAF installations announced by DoD were commercial airports used by ANG/Reserve units
Apr. 1973	40 / 274 (all in CONUS, Puerto Rico)	Forbes, Hamilton, Laredo, McCoy, Otis, Westover	
Nov. 1974	76 / 111 (all in CONUS)	--	
Mar. 1976	51 (USAF only)	Craig, Kincheloe, Webb	Closures subject to National Environmental Policy Act of 1969

Sources: Air Force Times, 1961–1976; Various command histories and supporting documents, 1961–1976, AFHRA; "Eighty Base Closures in U.S. Named by McNamara," *Defense Department Digest* 1 (15 Dec. 1964).

In this table, transfer of an active USAF base to another service, to the ANG, or to a municipal authority (e.g., a city airport) is considered a closure.
* Stead AFB was included in both the 1963 and 1964 announcements.

Retrenchment, Consolidation, and Stabilization

Secretary McNamara's decision to begin retiring older-model B–52s (C through F models) was an integral part of the reasoning Ignatius described. Another B–52 base, Walker in Roswell, New Mexico, was being closed because "the altitude (3,666 feet) and relatively high summer temperatures adversely [affected] employment of strategic forces." Ignatius noted that, at Walker, KC–135 "gross weights [were] degraded by as much as 45,000 pounds to compensate for altitude/temperature factors." The decision on Walker came in spite of its "large facility capacity" and structures in generally good condition.[26]

At the start of the 1960s, SAC had sought the B–70 as its Advanced Manned Strategic Aircraft, the planned follow-on to the B–52. In 1961, however, President Kennedy scaled back the B–70 program. By the mid-1960s, SAC was increasingly anxious for approval of the advanced manned aircraft. In the meantime, striving for efficiency, Secretary of Defense McNamara had approved the Tactical Fighter-Experimental for use by both USAF and the U.S. Navy, although neither service wanted it. Nevertheless, SAC was to receive the Air Force's version of the experimental tactical aircraft, the FB–111, which it viewed as an "interim" bomber. SAC expected it would fill the gap between the B–52 and the advanced strategic aircraft, later known as the B–1 Lancer. The FB–111 program, beset with problems, was scaled back to produce less than eighty aircraft for SAC. Finally, in 1971, the FB–111 became operational.[27]

To enhance the survivability of its now partly consolidated force, particularly against the threat of Soviet sea-launched ballistic missiles, SAC in early 1969 introduced satellite basing for alert aircraft. This initiative, a variant of dispersal basing, reduced the time required to launch the force, plus it complicated the enemy's targeting problems. The first satellite base was Homestead AFB, Florida, where two B–52s and two KC–135s were positioned on alert. After a successful three-month test, SAC expanded the program. By mid-1970, satellite bases included Whiteman AFB, Missouri; Albany Naval Air Station, Georgia; Bergstrom AFB, Texas; Columbus AFB, Mississippi; MacDill AFB, Florida; Mountain Home AFB, Idaho; Otis AFB, Massachusetts; Sheppard AFB, Texas; McGuire AFB, New Jersey; and Little Rock AFB, Arkansas. The satellite program did not involve the development of new installations; rather, it used existing bases. One former SAC B–52 base, Glasgow, did reopen in 1972 as a satellite base for Fairchild AFB, but it closed again in 1976.[28]

In the next brief period of base realignments and closures that occurred between July 1969 and April 1970, SAC lost three more bomber bases, and it expected to lose Dyess but it did not, in part because of Southeast Asia commitments.[29] Columbus, a B–52 base, transferred to ATC. Clinton-Sherman AFB, home to a B–52 wing, closed, and Little Rock, a B–58 base, went to TAC. With the scheduled phaseout of older B–52s, SAC evaluated Clinton-Sherman as a potential FB–111 installation. In his early 1966 congressional testimony, Assistant Secretary Ignatius viewed its geographical location in Oklahoma as unsatisfactory for the FB–111. For the FB–111's limited range, the U.S. heartland was too far from potential tar-

Construction site, early 1960s, for the Series F Atlas ICBM "silo-lift" launcher at Plattsburgh Air Force Base, New York. On a "silo-lift" launcher, the missile is stored vertically within a hardened, underground silo.

gets in the Soviet Union. Instead, SAC selected two northeastern bases, Pease and Plattsburgh. Little Rock and Grissom operated the B–58, although all of SAC's nearly eighty Hustlers were scheduled for rapid phaseout. By July 1970, SAC's bomber force consisted of 458 B–52s. Beset with problems, the FB–111s were not yet operational.[30]

Although bombers remained the preferred weapon system for SAC, the introduction between 1958 and 1961 of the first-generation ICBMs — Atlas and Titan I — initiated the trend toward reliance upon missiles for strategic deterrence. The early 1960s, an extremely active period regarding ICBMs, saw much overlap between first- and second-generation missiles—Titan II and Minuteman—and among the second-generation missiles—Minuteman I and II. For example in 1962, the first Titan II and Minuteman I units were activated before the first Titan I unit achieved alert status. In 1963, Secretary McNamara approved the Minuteman Force Modernization Program to replace the entire Minuteman I force with Minuteman IIs (later, IIs or IIIs) before the last Minuteman I unit was activated. The first-generation missiles had been essentially a stopgap measure. In 1965, the phaseout of Atlas and Titan I missiles resulted in land becoming available for disposal. The sale of numerous former missile sites netted "over $5.5 billion, and represented probably the largest real estate disposal in U.S. military history." Although second-generation missiles generally were more economical, reliable, and surviv-

Table 3.4: Operational Titan ICBM* Bases
Year of Squadron Activation

Base	Titan I	Titan II	Squadron(s)
Beale	1 squadron, 1961		851 SMS
Davis-Monthan		2 squadrons, 1962	570 SMS, 571 SMS
Ellsworth	1 squadron, 1960		850 SMS
Larson	1 squadron, 1961		568 SMS
Little Rock		2 squadrons, 1962	373 SMS, 374 SMS
Lowry	2 squadrons, 1960		848 SMS, 849 SMS
McConnell		2 squadrons, 1962	532 SMS, 533 SMS
Mountain Home	1 squadron, 1961		569 SMS

Sources: From Snark to Peacekeeper: A Pictorial History of Strategic Air Command Missiles (Offutt AFB, Neb., 1990), 13–25; *SAC Missile Chronology 1939–1988* (Offutt AFB, Neb., 1990), 25–36; Robert Mueller, *Air Force Bases*, vol. 1, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982); Robert Mueller, *Air Force Bases*, vol. 1, *Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, D.C.: Office of Air Force History, 1989); Various strategic missile wing histories, AFHRA.

Note: Vandenberg AFB was used for training, testing, and evaluation of intermediate and intercontinental range missiles and so was omitted from the table.
* Authorized nine missiles per Titan squadron.

able than their antecedents, Titan II had the same effective range as its antecedent, some 5,500 nautical miles (Table 3.4).[31]

In contrast with the two-stage, liquid-fueled Titan II, the Minuteman was a three-stage, solid propellant ICBM with the same effective range as the Titan types. Of the six bases selected for Minuteman, Whiteman was the only one located outside the north-central United States. Although Whiteman was located only sixty miles from a major population center, Kansas City, the Air Force selected it in 1961 and developed it to support Minuteman operations. In 1959, SAC had concluded, "[e]xperience in the siting of the TITAN indicated that geological factors could — in some cases — become overriding." This probably was the case with Whiteman AFB and, perhaps, also with the selection of the extreme southern Titan II bases, Davis-Monthan and Little Rock. Other Minuteman bases also possessed the advantage of vast amounts of open land for adequately spaced missile silos and, unlike Whiteman, were situated in lightly populated areas. In late 1964 Secretary McNamara had set the final total of all Minuteman missiles at 1,000. That decision meant that as SAC developed the Minuteman III and as ICBM modernization proceeded, the IIIs would replace older Minuteman missiles in the same silos. By mid-1975, the SAC ICBM force consisted of 450 Minuteman IIs, 550 Minuteman IIIs, and 54 Titan IIs (Table 3.5).[32]

Although second-generation ICBMs provided increased missile capability, the Minuteman and Titan II programs had problems. One issue concerned water

Table 3.5: Operational Minuteman ICBM Bases Year of Squadron Activation*

Base	MM I	MM II	MM III	Wing
Ellsworth	3 squadrons, 1962	3 squadrons		44 SMW
F.E. Warren	4 squadrons, 1963		4 squadrons	90 SMW
Grand Forks		3 squadrons, 1965	3 squadrons	321 SMW
Malmstrom	3 squadrons, 1961	3 squadrons	1 squadron^	341 SMW
Minot	3 squadrons, 1962		3 squadrons	455 SMW (MM I); 91 SMW (MM III)
Whiteman	3 squadrons, 1963	3 squadrons		351 SMW

Sources: From Snark to Peacekeeper: A Pictorial History of Strategic Air Command Missiles (Offutt AFB, Neb., 1990), 13–25; *SAC Missile Chronology 1939–1988* (Offutt AFB, Neb., 1990), 25–36; Robert Mueller, *Air Force Bases*, vol. 1, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982); Robert Mueller, *Air Force Bases*, vol. 1 *Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, DC: Office of Air Force History, 1989); Various strategic missile wing histories, AFHRA.

Note: Vandenberg AFB was used for training, testing, and evaluation of intermediate and intercontinental range missiles and so was omitted from the table.

* Authorized fifty missiles per Minuteman squadron. For each Minuteman support base, only the year of the first missile squadron's activation is listed.

^ In 1966, the 564th Strategic Missile Squadron was activated as a Minuteman II unit. Later, it converted from Minuteman II to Minuteman III. Malmstrom AFB had a total of four missile squadrons.

drainage at the sites. In 1966, SAC noted, "Inadequate drainage systems had plagued many of the launch and launch control facilities for some time," especially during spring thaws. At Minot in 1966, a $1.6 million Minuteman drainage correction program served as a model for similar programs at Francis E. Warren, Ellsworth, and Grand Forks. The Titan II had its own troubles as the weapon system approached twenty years of age, well beyond its expected service life. Highly publicized fatal accidents at McConnell AFB in 1978 and Little Rock AFB in 1980 contributed in 1981 to President Reagan's decision to cease Titan II operations.[33]

During the 1970s and 1980s, the Air Force continued to modernize its ICBM force, an effort culminating in the third-generation Missile-X (M-X; later, Peacekeeper) program. The Air Force viewed fixed missile site survivability and the best mode of basing as critical questions. By the early 1970s, the increased accuracy of Soviet ICBMs led some American planners to view a mobile basing system as more survivable than hardened, fixed silos. DOD pursued some forty basing options before President Jimmy Carter in 1979 directed full-scale engineering

development of the M-X and selected a "horizontal multiple protective shelter basing plan," also known as "cluster" or "racetrack," for the missile.[34]

In 1981, however, President Reagan canceled the horizontal shelter plan and decided to deploy M-X in super-hardened Titan II or Minuteman silos to achieve operational capability more quickly. Opposition in potential M-X locales, especially Nevada and Utah, as well as stringent requirements of NEPA and the Clean Air Acts probably influenced Reagan's decision to use existing silos rather than pursue new installations. Some communities feared the M-X system would require huge amounts of land, destroy pristine areas, deplete groundwater supplies, deplete local labor markets, and introduce immorality because of construction workers' salaciousness. A draft environmental impact statement concluded that M-X would increase competition for limited resources. For such reasons, the option of building M-X facilities "from scratch," even on government land, faced formidable obstacles.[35]

Congress, however, refused funding for the deployment of the M-X in existing silos. In 1982 Reagan refined his decision, selecting closely spaced basing, called dense pack, for the missile he now termed the Peacekeeper. Neither Congress nor the Joint Chiefs of Staff favored the plan. In 1983, a presidential commission led by Lt. Gen. Brent Scowcroft, USAF (Ret.), recommended development of a small, single-warhead ICBM to counter the long-range Soviet threat. The Scowcroft Commission also recommended the immediate deployment of 100 Peacekeeper missiles in existing Minuteman silos to demonstrate national resolve and compensate for the retirement of Titan IIs. The President and Congress concurred, and in August 1983 the Secretary of Defense directed the Air Force to deploy 100 Peacekeepers in existing Minuteman silos at Francis E. Warren AFB. He also directed the Air Force to begin designing a small, single-warhead ICBM. In 1985 Congress restricted Peacekeeper's deployment to fifty missiles; the first ten assumed strategic alert in December 1986.[36]

In the late 1960s, while SAC modernized its ICBM arsenal for strategic deterrence, the command increasingly committed its aircraft and crews to the escalating air war over Southeast Asia. By the fall of 1972, SAC bombing operations in Southeast Asia, at their highest level since the start of the war, required one-third of the B–52 force, including all the B–52Ds and a sizable portion of B–52Gs. In April 1973, after the cease-fire agreement with North Vietnam and its return of Americans held prisoner, Secretary of Defense Elliot L. Richardson announced the closure of forty more USAF bases, including the major SAC installations at McCoy AFB, Florida, and Westover AFB, Massachusetts. In 1970, SAC closed Headquarters Eighth Air Force at Westover to reduce its presence on the base. Moreover, both bases were home to B–52D wings. SAC had delayed the retirement of all B–52Ds due to their service in Southeast Asia. In his announcement, Defense Secretary Richardson noted that both bases were near the East Coast and therefore "subject to short warning time attacks by submarine-launched ballistic missiles." His decision was consistent with USAF guidance, issued in 1954, to avoid basing

strategic forces within 250 miles of the Atlantic or Gulf Coasts. With the loss of McCoy and Westover, SAC had given up thirteen B–52 bases between 1966 and 1974. During those years, the number of B–52s decreased from 591 to 422, but more reductions would come.[37]

In 1976–1977, B–52 operations ceased at two extreme northern bases, Glasgow and Kincheloe, where severe weather was the norm; consequently, both bases closed. Kincheloe had survived an earlier attempt to shut it down in 1966 when Assistant Secretary Ignatius described its facilities as unable to accommodate the planned force of thirty FB–111 and thirty KC–135 aircraft "at a reasonable cost compared to other bases which are available." Other USAF flying missions were considered for Kincheloe, but "location, the operating costs, severe weather, and the lack of necessary training facilities" argued against retaining this northern Michigan installation. Also in 1976, SAC relinquished control of Davis-Monthan AFB when the U–2 unit there relocated to Beale AFB, already the home of the SR–71. The eighteen Titan IIs at Davis-Monthan remained operational. These were among the last of SAC's losses during the period. By 1983, SAC maintained twenty-four major bases in CONUS, barely one-half the number in its domain two decades earlier. In contrast with the 1,500 bombers under its control in the early 1960s, SAC possessed only 323 bombers by 1983, 262 B–52s and 61 FB–111s, less than one-fourth its holdings two decades earlier.[38]

Mobility/Airlift Bases

During the late 1950s, the Eisenhower administration emphasized nuclear retaliation to a possible Soviet attack; thus, USAF mobility/airlift forces received relatively little attention. During those lean years, certain congressmen perceived that DOD and the Air Force were neglecting airlift modernization. Led by Rep. L. Mendel Rivers of South Carolina, in 1960 Congress passed a special section entitled "Airlift Modernization" as part of the DOD Appropriation Act of 1961. The act appropriated some $300 million for USAF to develop transport aircraft as long as they were not used for scheduled passenger service. Building upon this watershed legislation, in November 1960 the Air Force authorized development of a new cargo jet. Lockheed Aircraft Corporation won the contract for 132 cargo aircraft specifically designed for global airlift. The C–141, however, was not expected to enter the inventory until the mid-1960s. As a gap-filler, the Rivers Committee recommended that DOD purchase 100 off-the-shelf aircraft. The Military Air Transport Service (MATS) chose the longer-range version of the Lockheed Hercules, the C–130E, and the Boeing C–135 jet transport. Thus, even before 1961 when incoming President Kennedy shifted U.S. defense policy to one featuring flexible response, the USAF began to rebuild its mobility/airlift forces.[39]

In his February 1961 State of the Union address, President Kennedy directed quick action to increase the nation's airlift capability to ensure that U.S. conventional forces could respond speedily to a crisis anywhere in the world. Secretary of

Retrenchment, Consolidation, and Stabilization

Defense McNamara followed the President's directive with an announcement that, beginning in June 1961, DOD would procure thirty, which was later increased to forty-five, C–135s, expand C–130 production from four to eight aircraft per month, and transition from the C–130B to the C–130E. The increased cargo capacity of the C–135 and the extended range of the C–130E would considerably boost MATS's airlift capability, a noteworthy fact in light of the stable number of CONUS airlift bases during the 1960s and early 1970s.[40]

At the start of 1961, MATS operated only ten bases worldwide, and seven were in the CONUS.[41] Five of the stateside bases — Charleston, Dover, McGuire, Scott, and Travis — represented the core of the airlift base structure and have continued to serve as major airlift bases to the present. Reflecting the increased emphasis on airlift capability, between 1966 and 1968 MAC (formerly, MATS) gained three key bases — Norton, Altus, and McChord — although it lost three others — Donaldson, Hunter, and Orlando.[42] Orlando AFB was home to two MATS/MAC technical services — the Air Photographic and Charting Service (APCS) and the Air Rescue Service — but it had no airlift units; consequently, its loss did not represent a loss of airlift capability. Significantly, in light of the Southeast Asia conflict, all three relinquished bases were East Coast installations. The acquisition of Norton AFB, California, and McChord AFB, Washington, reflected a need for West Coast aerial port bases during the buildup for the war in Southeast Asia. For years, the Eastern Transport Air Force had possessed the bulk of MATS transport capability, residing mainly in its fleet of C–124 Globemasters. Due to the growing requirements in Southeast Asia, MATS sought as early as FY 1965 to balance the capability between the Eastern Transport Air Force and the Western Transport Air Force in Project 50-50 (Table 3.6).[43]

MAC also acquired Altus AFB from SAC. In late 1964, Secretary McNamara announced the inactivation of the Atlas F missile squadron there. One year later, the B–52s at Altus were among those McNamara announced would be phased out between 1967 and 1971. As SAC operations diminished at Altus, the Pentagon planned that the base "would receive a comparable successor mission." However, details of the planned change were not made public until May 1967, only shortly after Headquarters MAC learned that the base would be made available for its formal training unit for the new C–141 and C–5A airlifters. MAC had been planning to locate the 443d Military Airlift Wing at Tinker, but it had discovered a "lack of adequate facilities" there. The sudden availability of Altus, located only 100 miles from Tinker, an AFLC base, allowed MAC to take advantage of better facilities there even as it gained control of another airlift base.[44]

McNamara closed hundreds of military installations from 1961 to 1968 in an effort to cut waste and increase efficiency throughout DOD. According to the MATS historian, a November 1964 announcement of closing Hunter AFB in Georgia held "a real wallop for MATS" because the command had counted on maintaining Hunter, a base only recently acquired from SAC. Moreover, Hunter AFB was home to no less than six MATS flying units.[45]

Table 3.6: Major Mobility/Airlift Bases, 1961–1987

Name	Years under MATS/MAC	Remarks
Altus	1968-	Transferred from SAC
Andrews	1976-	Transferred from Headquarters Command (HEDCOM)
Bolling	1976-	Transferred from HEDCOM; no active runway by 1980s
Charleston	Entire period	
Donaldson	-1963	Closed
Dover	Entire period	
Hunter	1963-1967	Transferred from SAC in 1963; transferred to Army in 1967
Hurlburt	1983-	Transferred from TAC
Kirtland	1977-	Transferred from AFSC
Little Rock	1974-	Transferred from TAC
McChord	1968-	Transferred from ADC
McGuire	Entire period	
Norton	1966-	Transferred from AFLC
Orlando	-1968	Transferred to Navy; no airfield
Pope	1974-	Transferred from TAC
Scott	Entire period	
Travis	Entire period	

Sources: MATS/MAC command histories, AFHRA; *Air Force Magazine*, 1961–1987; Robert Mueller, *Air Force Bases*, vol. 1, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Alfred F. Simpson Historical Research Center, 1982); Robert Mueller, *Air Force Bases*, vol. 1, *Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, D.C.: Office of Air Force History, 1989); Dates for Donaldson and Hunter extracted from "AFHRA Base Books," AFHRA.

The same was true for the civilian community of Savannah. Initially, some Georgians reacted bitterly and leveled charges of political recrimination by the Johnson administration against a community that had voted for Barry Goldwater in the recent presidential election. But the facts concerning airlift modernization and Hunter's shortcomings demonstrated that the Pentagon had based its closure decision upon sound technical criteria. In a 1966 report, the MAC historian stated that the modernization of airlift operations with C–130E and C–141 aircraft "achieved a major increase in capability with a reduced number of squadrons," resulting in excess installations. Moreover, Hunter possessed the highest percentage of temporary construction of any MAC base and "lacked the necessary billeting accommodations to support troop movements on MAC aircraft."[46]

In any case, the transfer of bases resulting from McNamara's 1964 decision

served as an example of USAF ability to make the best of an undesired and unanticipated base closure. In addition to the Air Force closing Hunter, the Secretary of Defense directed MATS to turn over Orlando AFB to the Navy and move the APCS headquarters to Norton.[47] McNamara also ordered MATS to move its photographic activities from Lookout Mountain AFS, California, to nearby Norton as well. Norton was to have plenty of space because the Defense Secretary had also directed closure of the San Bernardino Air Materiel Area (AMA) located there.[48] While in many cases McNamara directed exactly where units at soon-to-close installations were to relocate, he apparently failed to do so in this instance. Because Norton was under the jurisdiction of AFLC, when the AMA ceased operation, the base would be available for another command to "move in." Already, APCS and its photographic missions at Lookout Mountain were slated to move there. Less than two months later, in January 1965, Headquarters USAF directed that Norton was to transfer to MATS, implying that it was the Air Force rather than the Secretary of Defense that had decided the future of the base. Not only did the decision solve the problem of relocating Hunter-based MATS units, it also provided the command with a third West Coast aerial port at the very time it needed one to support the U.S. military buildup in Southeast Asia. In short, the transfer of Norton to MAC and concurrent relocation of the 63d Military Airlift Wing, which was to operate the new C–141, from Hunter to Norton was the perfect solution to McNamara's "wallop" in closing Hunter.[49]

In 1974, DOD decided to consolidate strategic and tactical airlift under MAC as the single manager, which significantly affected the command base structure. The Air Force expected the consolidation to produce several benefits, especially in providing an increase in efficiency and giving theater commanders greater flexibility to meet airlift requirements. In December 1974, Headquarters USAF transferred two tactical airlift bases, Little Rock and Pope, from TAC to MAC. Each base operated a C–130 tactical airlift wing. The shifting of tactical airlift assets from TAC to MAC increased the number of MAC CONUS bases to ten in FY 1975, two more than it had in FY 1961. By contrast, during the same period the number of USAF CONUS bases had decreased by more than 25 percent, from 152 to about 110. In 1983, Hurlburt Field, Florida, the traditional home of USAF special operations, transferred from TAC to MAC in conjunction with the creation of Twenty-Third Air Force. (Twenty-Third was the forerunner to Air Force Special Operations Command.) By FY 1985, MAC owned 14 CONUS bases while the number of USAF major installations had decreased to about 105. Clearly, MAC base structure by the 1980s reflected the growing importance of airlift within the DOD.[50]

Tactical Bases

From the end of the fighting in Korea through the 1950s, TAC occupied a relatively low priority within the USAF. Although TAC had been restored to major command status after the outbreak of hostilities in Korea in 1950, SAC dominated the USAF in the 1950s to such extent that, in the words of military historian Earl Tilford, TAC came to view itself as something of a "junior SAC." The tactical command's low priority was reflected in the relatively few bases it possessed. In October 1960, of the 152 major installations in the USAF complex, TAC owned only 12 (8 percent). One of those, Williams AFB, transferred from TAC to ATC before the end of the year. But President Kennedy's shift of U.S. policy from massive retaliation to flexible response, coupled with the exigencies of the Southeast Asia conflict, boosted USAF's emphasis on tactical air power dramatically. By FY 1972, TAC claimed 19 bases in comparison with 28 for SAC. By this time, the USAF had declined to a total of 112 major installations, fewer by 40 than a decade before. With the shift away from bombers and toward missiles, SAC lost older B–52s at Bergstrom and B–47s at Forbes, Lockbourne, and Mountain Home, among others, and these losses allowed TAC to gain needed bases.[51]

In 1960, the Air Force proposed that a review board representing the major commands study the base structure and recommend a "hardcore base" list for the next decade. TAC was receptive, agreeing with the need for "establishing a long-range base program that is stable, economical and operationally sound." The command viewed long-range base programming as "vital" to TAC because "improvement of its combat potential depended on improved facilities." TAC assessed aircraft maintenance facilities at some of its eleven bases as "marginal" and declared an "urgent" need for modern bases. To the hardcore list, the command recommended the addition of the following eight bases, apparently in order of preference: Langley, Seymour Johnson, Nellis, Luke, Myrtle Beach, Cannon, England, and George. Furthermore, TAC proposed that it gain the bases at Hunter and Little Rock to balance the anticipated losses of Pope, Sewart, and Shaw, with Sewart and Shaw expected to close. TAC sought to move its airlift mission at Pope to Hunter and at Sewart to Little Rock. Shaw was the home of Ninth Air Force. That headquarters and Shaw's tactical reconnaissance mission were projected to move to Hunter and Langley, respectively. Although Sewart eventually shut down, with the unexpected loss of Hunter AFB in 1967, Shaw remained open, and its units did not move; neither did those at Pope.[52]

As TAC began to increase the number of its tactical wings under the favorable attention of the Kennedy administration, it still owned too few bases to comply with the USAF desire for locating only one wing per base in the CONUS. Seymour Johnson, for example, a TAC base, supported not only a tactical fighter wing but also a SAC B–52/KC–135 wing and an ADC fighter-interceptor squadron. Facing the disparity between wings and available bases, in April 1962 USAF stated its programming had waived "the single wing concept for tactical forces." Consequently,

The 1965 entrance sign at Seymour Johnson Air Force Base, North Carolina, depicts the tri-command mission of the base.

TAC planned to locate two tactical fighter wings, the 12th and 15th, at MacDill when it gained the base later that year. In 1963, even though MacDill was home to two wings plus the 4453d Combat Crew Training Squadron, TAC was uncertain about the future of the base, having received "no assurance that the base would be given permanent status." Such concerns illustrated challenges regarding TAC base structure in those years.[53]

Such projections clearly indicated the need for more basing. From 1962 to 1971, TAC gained nine bases. The Cuban Missile Crisis and its aftermath helped TAC to gain Homestead in south Florida. TAC operated two tactical fighter wings each at MacDill and McConnell and one each at Homestead and Holloman. Bergstrom and Mountain Home became tactical reconnaissance bases, while TAC used Forbes, Lockbourne, and Little Rock for tactical airlift. Except for Holloman, all TAC additions had come from SAC (Table 3.7).[54]

During the expansion, TAC sometimes had to make tough choices balancing the desirability of geographic location and the quality of facilities. Sewart and Forbes AFBs highlighted the challenges arising from these competing requirements. In 1960, Sewart, a tactical airlift base south of Nashville, Tennessee, was "scheduled for closing as a substandard facility." The poor condition of the base facilities out-

Table 3.7: Major Tactical Bases, 1961–1987

Name	Years under TAC	Remarks
Bergstrom	1966-	Transferred from SAC
Cannon	Entire period	
Davis-Monthan	1976-	Transferred from SAC
England	Entire period	
Forbes	1965-1973	Transferred from SAC in 1965; to ANG in 1973
George	Entire period	
Holloman	1971-	Transferred from AFSC
Homestead	1968-	Transferred from SAC
Hurlburt	1963-1983	TAC leased the base from AFSC
Langley	Entire period	
Little Rock	1970-1974	Transferred from SAC in 1970; to MAC in 1974
Lockbourne	1965-1971	Transferred from/to SAC
Luke	Entire period	
MacDill	1962-	Transferred from SAC
McConnell	1963-1972	Transferred from/to SAC
Moody	1975-	Transferred from ATC
Mountain Home	1966-	Transferred from SAC
Myrtle Beach	Entire period	
Nellis	Entire period	
Pope	-1974	Transferred to MAC
Sewart	-1970	Closed
Seymour Johnson	Entire period	
Shaw	Entire period	
Tyndall	1979-	Transferred from ADC

Sources: TAC command histories, AFHRA; *Air Force Magazine,* 1961–1987; Robert Mueller, *Air Force Bases,* vol. 1*, Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982); Robert Mueller, *Air Force Bases,* vol. 1, *Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, D.C.: Office of Air Force History, 1989); Date for Sewart extracted from "AFHRA Base Books," AFHRA; Forbes from "AFHRA Base Folders," AFHRA.

weighed its excellent location near Fort Campbell, Kentucky, whose soldiers it trained with and would transport in a contingency. As a replacement base for the Fort Campbell mission, TAC sought Little Rock AFB, Arkansas. Unfortunately for TAC, SAC argued successfully with the USAF for retaining Little Rock as a heavy bomber base, leaving TAC with a choice between holding on to Sewart or, as SAC offered, accepting "Forbes AFB, Kansas, as a home for the Sewart units." TAC viewed Forbes as too far from Fort Campbell and reaffirmed its desire for Little Rock. As an alternative, the command requested that USAF designate Sewart a "permanent" base and upgrade it to a hardcore facility. But USAF upheld SAC

control of Little Rock, and it declared the proposed upgrade of Sewart "infeasible" in light of the good bases expected to become available in FY 1965. Only "essential rehabilitation" would be allowed for Sewart because of scarce base construction funds.[55]

So TAC managed as best it could with Sewart. In FY 1961, additional maintenance was becoming necessary to keep the eighteen-year-old concrete runway serviceable. Despite the effort, in late 1963, concrete-related problems resulted in closing the primary runway for more than a month. During repairs, the secondary runway was used. In 1963, TAC still counted only three of its fourteen bases as having modern, permanent facilities and evaluated most bases as "in a questionable status for want of MCP [military construction program] support necessary to construct adequate facilities."[56]

The low priority of TAC in military construction program funding changed in FY 1964 when DOD began returning overseas units to the CONUS, with a view toward keeping more strike units combat ready at stateside bases. Nevertheless, a number of Sewart's facilities remained "substandard," largely because Sewart had never risen to the status of a permanent facility. Not surprisingly, in December 1965 the DOD announcement of 126 closures in the CONUS included Sewart. The main reasons were aging facilities and short runways. Planned for 1967, Sewart's closure was extended to 1970 when the C–130 training wing relocated to Little Rock AFB, which TAC finally obtained from SAC.[57]

Meanwhile, TAC had gained Forbes as a tactical airlift base in 1965. Like Sewart, the base possessed a number of World War II–era structures and also suffered from airfield pavement problems. Yet Forbes was more desirable in terms of facilities than Sewart was. As a SAC base between 1951 and 1965 and as the home of the only RB–47 wing in USAF, Forbes's access to construction funds in the 1950s and early 1960s was greater than Sewart's had been. In a 1971 evaluation of Forbes and Little Rock for the location of a tactical airlift squadron returning from overseas, TAC planners favored Little Rock because of its "more permanent facilities, closeness to a major consumer, better weather conditions" and encroachment issues. With the closure of Sewart, TAC lost a well-situated tactical airlift base even while it continued to use a poorly located one to perform the identical mission. In April 1973, when Secretary of Defense Richardson announced that Forbes would close, he stated it was "too far" from Army units in North Carolina, Georgia, and Kentucky. Moreover, in 1972 TAC rated Forbes last on its priority list among the four airlift bases it owned.[58]

TAC required ranges as well as bases. In the 1960s, air-to-ground ranges became more important because of increased emphasis on nonnuclear weapon delivery and tactical firepower for ground forces. This requirement increased with the conflict in Southeast Asia. Studies had identified the need for tactical ranges within 75 to 200 miles of TAC bases. Otherwise, fighters spent too much time flying to and from training areas, or else they had to be rotated through other bases within easier reach. But in the densely populated and urban eastern United States,

ranges were hard to come by. The lack of an East Coast range had hampered the combat training of fighter units at Seymour Johnson in North Carolina and Myrtle Beach in South Carolina. TAC considered that keeping the East Coast fighter units trained and combat ready was its primary weapons training problem. The Secretary of the Air Force concurred with this assessment. In the early 1960s the Air Force tried unsuccessfully to obtain a range near Pamlico Sound in North Carolina. Finally, in 1964, Congress approved funding for construction in Dare County, North Carolina, of an air-to-ground range that opened in late 1965. In the late 1960s, the other eastern air-to-ground ranges were at Avon Park and Eglin AFB, Florida. In the West, ranges were more numerous, including Ajo–Gila Bend, Arizona; Cuddeback Lake, California; Indian Springs, Nevada; Melrose and Oscura, New Mexico; Saylor Creek, Idaho; and Smoky Hill, Kansas. In addition, TAC had access to ten air-to-air ranges.[59]

In rare cases, the Air Force leased city buildings to serve as headquarters, evidence of the dearth of adequate military facilities in certain locales. West of the Mississippi River, TAC units were under the Twelfth Air Force, which in the mid-1960s was headquartered in "a complex of [leased] buildings in downtown Waco [Texas]." TAC had expected to relocate the headquarters to nearby James Connally AFB, but Secretary McNamara's 1964 decision to close the base dashed the plan. The situation was one of considerable concern to TAC, as the Twelfth was the only major subordinate headquarters not housed on an Air Force base. Fortunately, TAC gained Bergstrom in 1966 and relocated the headquarters there, a move that enhanced mission capability and at the same time eliminated an "extremely costly" lease arrangement.[60]

In the middle to late 1970s, as the U.S. military grew smaller in response to its withdrawal from Southeast Asia and the policies established by President Carter, the TAC base structure fluctuated somewhat, but the number of major installations it controlled remained stable. In 1974, TAC lost Little Rock and Pope when tactical airlift transferred to MAC, but between 1975 and 1979 it gained Moody, Davis-Monthan, and Tyndall, each from a different command. By 1980, of the 107 USAF major installations in the CONUS, TAC held 17, second in number only to SAC, and a dramatic improvement in its standing from two decades earlier.[61]

Air/Aerospace Defense Bases

At the start of the period, next to SAC, the ADC constituted the largest USAF command in terms of number of major installations (twenty-three). Soon, however, the Kennedy-Johnson administration initiated significant cuts to ADC because it believed that by the late 1960s the Soviet missile threat would exceed that posed by manned bombers. Applying the same thinking to the U.S. arsenal over the next several years, the administration began expanding the Minuteman missile program while accelerating the phaseout of B–47 bombers, older B–52s, and B–58s. In conjunction with the basic shift in national security planning, the United States transi-

tioned from an air "defense in depth" to a "perimeter defense" strategy against a potential Soviet attack. As a result, a number of ADC fighter-interceptor and radar units and combat centers were transferred or closed. With the termination of USAF interceptor aircraft production in 1961, the ADC peak of 1,490 tactical aircraft in 1957 declined to 805 aircraft at the end of 1961, and to 688 by mid-1964.[62]

Such attrition contributed to the SAC takeover of ADC bases in the 1960s. The general USAF policy was that command jurisdiction on a given base belonged to the command with the major activity there. As its interceptor force decreased, ADC became the junior partner at several bases. For that reason, Glasgow transferred from ADC to SAC in 1960. Between July 1962 and January 1964 ADC gave up to SAC three newly built northern bases, Minot and Grand Forks in North Dakota, and K.I. Sawyer in Michigan.[63]

Between 1969 and 1974, ADC lost nine bases, roughly half of its major installations from a decade earlier. Oxnard, Stewart, Suffolk County, and Perrin closed, the first three the result of part of the widespread closures called for in a September 1969 USAF Air Staff Program Change Decision. The directive called for inactivation of three F–101 squadrons and also of First and Tenth Air Force headquarters. By the late 1960s, the F–106 Delta Dart served as the primary ADC interceptor. Oxnard and Suffolk County, however, operated the F–101B Voodoo, an older, less advanced interceptor. Thus, Oxnard and Suffolk received the ax. Stewart AFB had no tactical aircraft, but it served as First Air Force headquarters, which was inactivated. The fourth base, Perrin, long in jeopardy owing to underutilization,

The entrance to K.I. Sawyer Air Force Base, Michigan, as seen in 1985.

was directed to further reduce its F–102 pilot training operation, thereby beginning its de facto closure one year before the formal decision came down.[64]

Five other bases transferred to various commands. ADC lost Richards-Gebaur to the Air Force Communications Service, Kincheloe to SAC, Selfridge and part of Otis to the Air National Guard, and Hamilton to the Air Force Reserve. At Richards-Gebaur, removal of an F–106 squadron in 1968 concerned the command because it left the base devoid of tactical forces. The ADC historian wrote, "Since Richards-Gebaur was a comparatively large base with extensive facilities and the focus of much public attention in the Kansas City area, it was imperative that its considerable support capability not remain idle." Although the crisis that followed the January 1968 North Korean seizure of the USS *Pueblo* allowed ADC to locate several federalized Air National Guard units at the Kansas City base, those units could not remain indefinitely. Moreover, the September 1969 decision by the Air Staff had included inactivation of Tenth Air Force headquarters located at Richards-Gebaur. Stripped of tactical aircraft and a headquarters, in 1970 the base went to the Communications Service.[65]

The December 1965 DOD base closure list included Kincheloe AFB, which surprised the Air Force because it was relatively new and possessed "fairly new Capehart housing." Despite adequate housing, the Pentagon cited "poor location and lack of facilities to support an FB–111 force" as the reason for its closure. In the end, it was spared as a B–52 base for several years beyond the originally announced closure date. But in 1971, after the loss of ADC F–106 interceptors there, Kincheloe transferred to SAC. Similarly, ADC lost Selfridge, Hamilton, and Otis, as most remaining interceptors were transferred from active duty units or dropped from the inventory. By June 1972, ADC interceptors in the regular force numbered 172; one year later it had dwindled to 134, almost all F–106s. By contrast, in June 1973 the Air National Guard possessed a total of 338 interceptors, a mix of F–101s, F–102s, and F–106s.[66]

In the mid-1970s, Ent AFB, headquarters for ADC, provided another example of the lack of adequate USAF facilities in certain locales. It actually was "a complex of buildings within Colorado Springs" and the nearby Chidlaw Building, an expensive rental arrangement that precluded mission expansion. In 1975, Ent was redesignated an annex subordinate to Peterson AFB (Table 3.8).[67]

Headquarters USAF had been considering reorganizing the service's aerospace defense and surveillance and warning assets since early 1977, but the changes did not occur until late 1979. On 1 October, some of ADC mission and units, including part of Otis AFB, and Tyndall AFB, transferred to TAC. Already, for several years, the Air National Guard had possessed most fighter-interceptors, mainly F–101s and F–106s stationed at airports near the perimeter of the CONUS. F–101s operated from Niagara Falls, New York; Portland, Oregon; and Ellington, Texas, while Guard F–106 locations included Otis, Massachusetts; Fresno, California; and Great Falls, Montana. Other ADC elements went to the Air Force Communications Service, and on 1 December 1979 the rest, including Peterson AFB, transferred to

Table 3.8: Major Air/Aerospace Defense Bases, 1961–1979

Name	Years under ADC/ADCOM	Remarks
Ent	-1975	Redesignated an annex to Peterson
Grand Forks	-1963	Transferred to SAC
Hamilton	-1973	Transferred to AFRES
K.I. Sawyer	-1964	Transferred to SAC
Kincheloe	-1971	Transferred to SAC
McChord	-1968	Transferred to MAC
Minot	-1962	Transferred to SAC
Otis	-1974*	Transferred to ANG
Oxnard	-1969	Closed
Perrin	-1971	Closed
Peterson	-1979	Transferred to SAC
Richards-Gebaur	-1970	Transferred to AFCS
Selfridge	-1971	Transferred to ANG
Stewart	-1969	Closed
Suffolk County	-1969	Closed
Tyndall	-1979	Transferred to TAC

Sources: ADC/ADCOM command histories, AFHRA; *Air Force Magazine*, 1961–1987; Robert Mueller, *Air Force Bases,* vol. 1*, Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982); Robert Mueller, *Air Force Bases,* vol. 1, *Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, D.C.: Office of Air Force History, 1989); Dates for Otis, Oxnard, Perrin, Stewart, and Suffolk County extracted from "AFHRA Base Books," AFHRA.

Note: Table 3.1 lists 23 major ADC installations in FY 1961. Several installations, however, such as Duluth IAP, Minnesota; Hancock Field, New York; and Portland IAP, Oregon, were not "Air Force bases" and so were omitted from the above table. In 1968, the Air Defense Command was redesignated Aerospace Defense Command, and both were known as ADC. In 1975, the major command also was designated a specified command, called ADCOM; History, ADCOM, Jul.–Dec. 1975, vol. I, 2, AFHRA K410.011; History, ADCOM/ADC, Jan.–Dec. 1979, vol. I, 1, AFHRA K410.011.
* On 1 Jan. 1974, part of Otis AFB transferred to ANG; in 1979, the remainder of the base transferred to TAC; History, ADC, Jul. 1972–Jun. 1973, vol. I, 109–110, AFHRA K410.01–21.

SAC. These assets formed the core of Space Command when it was established in 1982. In 1985, when it was redesignated Air Force Space Command, Falcon Air Force Station (AFS), located ten miles east of Peterson, began operations as a space systems control facility. Originally intended as a backup facility to Onizuka AFS, California, Falcon (later, Schriever AFB) instead absorbed Onizuka's functions.[68]

Training Bases

In 1961, ATC operated a total of twenty-one major bases; two-thirds conducted flying training and the remainder conducted basic and technical training. In the early 1960s, the Air Force had already entered a long period of pilot reductions, a trend

that, although temporarily halted by the conflict in Southeast Asia, continued through the 1970s. In 1961, USAF had over 52,000 pilots of whom 18,000 held the basic pilot rating.[69] By 1980, the number of USAF pilots totaled less than 26,000, half the earlier figure, and of these, only 10,500 were basic pilots. More than any other single factor, the downward trend in the number of Air Force pilots led to the reduction of major ATC bases to fourteen by 1975 and to thirteen by 1983.[70]

In the 1960s, ATC reduced its technical training base structure. Greenville AFB, Mississippi, was a flying-turned-technical-training base. The course of events leading to its shutdown suggested that although a congressman might delay a planned closure, he probably could not stop it. Greenville had long served as a flying training base, but with pilot production in decline, ATC planned to cease flying training there and close the base. Civic leaders, however, appealed to their congressmen, including Sen. John F. Stennis, a member of the Armed Services Committee. As the command historian noted, "ATC had no requirement for Greenville, but political pressure forced the command to continue using it." Consequently, in late 1960, ATC transferred several technical training courses to Greenville and kept the base open. But the measure was wasteful. "The entire technical mission was conducted," observed the ATC historian, "on an austere basis, yet costs were high because an entire installation had to be maintained for a few hundred students." In early 1961, ATC advised USAF that the cost of personnel and firefighter courses then conducted at Greenville had doubled since being moved from Lackland and Lowry. Nearly three years later, in December 1963, Secretary McNamara included Greenville as one of thirty-three planned shutdowns, and in 1965 the base finally closed (Table 3.9).[71]

In the late 1960s, Amarillo became the second ATC technical base to shut down. A USAF study indicated that one of the technical training centers could be phased out to provide "substantial economies without significant impact on Air Force capabilities." This assessment stemmed from ongoing reductions in the size of the Air Force, increased use of on-the-job training, and the phaseout of the B–47 and "certain highly complex weapons, such as the cryogenic missile systems (Atlas and Titan I)." Amarillo was "the prime training center for aircraft and engine maintenance, supply, administration, production management and air base facilities." In 1960, Amarillo had been ranked fifth of seven on a retention list of ATC technical bases and was later identified as the base whose closure "would bring the most substantial savings." As a result, its courses and some 3,000 manpower positions were to be transferred to Lowry, Chanute, Sheppard, and Lackland. Additionally, B–52 and KC–135 squadrons at Amarillo were to transfer to Pease AFB, New Hampshire, by July 1966.[72]

In the 1970s, the clearest trend in ATC was the loss of flying training bases. The command closed Laredo in 1973, lost Moody to TAC in 1975, and closed Craig and Webb in 1977. Despite the trend, the late 1970s saw ATC lay the groundwork for a new program known as Euro-NATO Joint Jet Pilot Training, which began at Sheppard AFB in 1981. During the 1970s, the number of pilots expected to grad-

Table 3.9: Major Technical Training Bases, 1961–1987

Name	Years under ATC	Technical Courses in 1961	Remarks
Amarillo	-1969	Guided missile systems, aircraft accessories/engine maintenance	Closed
Brooks	-1961	Medical/medical support, aeromedical, physiological	Transferred to AFSC
Chanute	Entire period	Guided missile systems, aircraft accessories/engine maintenance, weather, automotive maintenance, armament	
Goodfellow	1978-	Cryptologic	Transferred from Air Force Security Service
Greenville	-1965	Firefighting, personnel	Closed
Keesler	Entire period	Air traffic control/warning, communications-electronics, radio-radar systems, weapons control	
Lackland	Entire period	Basic military training	
Lowry	Entire period	Guided missile maintenance, armament systems, special/atomic weapons, munitions, photographic, safety	
Maxwell	1978-1983	Professional military education	Transferred from/to Air University
Sheppard	Entire period	Supported both flying/technical training; aircraft engine/missile maintenance, communications, intelligence, transportation, missile launch officer, comptroller, installation engineer	

Sources: ATC command histories, AFHRA; *Air Force Magazine*, 1961–1987; Robert Mueller, *Air Force Bases*, vol. 1, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Alfred F. Simpson Historical Research Agency, 1982); Robert Mueller, *Air Force Bases*, vol. 1, *Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, D.C.: Office of Air Force History, 1989); Date for Amarillo extracted from "AFHRA Base Books," AFHRA.

uate from UPT declined from more than 4,500 in FY 1972 to fewer than 2,400 in FY 1975, and the number was projected to dip even further before stabilizing. Rather than reducing student pilot loads at all UPT bases, ATC concluded that more efficiency would be gained by closing two of its basic flying training bases. In March 1977, Secretary of the Air Force Thomas C. Reed wrote that Craig was to close "primarily because of its limited, two-runway configuration, inefficiently located auxiliary field, and high weather loss (31 percent)." Such factors made

Craig's student pilot production capacity the lowest among UPT bases. Additionally, the location of the town of Selma, Alabama, in relation to the base was such that flight patterns required alteration, and noise pollution and accident potential were concerns. The lack of an instrument flight simulator at Craig and the substandard rating of 26 percent of the base's facilities contributed to the Air Force secretary's decision to close the base (Table 3.10).[73]

Secretary Reed based closure of Webb AFB on the same criteria he used to close Craig: operations, resources, and environmental-socioeconomic impact. His decision on Webb, however, was less clear-cut. For example, Webb enjoyed "favorable weather, airspace, and a good auxiliary field" and its student pilot production capacity was "within the ATC average." However, the base lacked "the optimal three-runway configuration which would provide maximum safety and operational flexibility." As at Craig, flight patterns had been altered to avoid nearby populated areas. Webb also lacked an instrument flight simulator, and its substandard facilities rating of 34 percent exceeded even Craig's. Although recent congressional action regarding DOD and environmental concerns did not prevent the closures of Craig and Webb, those were among the first Air Force bases to be affected by the legislation.[74]

Table 3.10: Major Flying Training Bases, 1961–1987

Name	Years under ATC	Remarks
Columbus	1969-	Transferred from SAC
Craig	-1977	Closed
Harlingen	-1962	Closed
James Connally	-1966	Transferred to TAC
Laredo	-1973	Closed
Laughlin	1962-	Transferred from SAC
Mather	Entire period	
Moody	-1975	Transferred to TAC
Perrin	-1962	Transferred to ADC
Randolph	Entire period	
Reese	Entire period	
Sheppard	Entire period	Supported both flying/technical training
Stead	-1966	Closed
Vance	Entire period	
Webb	-1977	Closed
Williams	Entire period	

Sources: ATC command histories, AFHRA; *Air Force Magazine*, 1961–1987; Robert Mueller, *Air Force Bases,* vol. 1, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982); Robert Mueller, *Air Force Bases*, vol. 1, *Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, D.C.: Office of Air Force History, 1989).

Retrenchment, Consolidation, and Stabilization

Congress had passed NEPA in 1969. In July 1976, Congress approved the Military Construction Appropriation Act, 1977, which provided that no funds could be obligated or spent until plans for DOD base closures or realignments complied with NEPA. Two months later, asserting its authority in the post-Watergate era, Congress went further, withholding funds unless legislators were notified in writing that a military installation was a candidate for closure; unless the House and Senate armed services committees were notified of the final decision to close an installation and detailed justification was provided; and until at least 60 days passed between congressional notification and the taking of any irrevocable closure actions. The only cases in which the requirements would not apply were if the President certified that a closure or realignment was needed for national security or if the action had been announced before 1 January 1976. In August 1977, Congress made these requirements permanent. In a May 1979 Senate hearing on the subject of base closures and realignments, Robert B. Pirie, Jr., Acting Assistant Secretary of Defense for Manpower, Reserve Affairs, and Logistics, explained the complex requirements of NEPA with respect to base closure and realignment:

> An environmental impact assessment is developed for each proposal. If a decision relates to a major action that could significantly affect the quality of the human environment, a more elaborate environmental impact statement (EIS) is prepared. [A] draft EIS is filed with the Environmental Protection Agency (EPA)…and is circulated to the public and to Federal, State, and local agencies.…[I]f the proposal is environmentally controversial, public hearings may be conducted…in the affected communities. Substantive comments received from the public and the State…are evaluated and…the results are reflected in the final EIS. That statement is filed with EPA.…The final statement accompanies the proposed action through the review process so that environmental factors are considered along with technical, operational, economic and other essential factors in making the final decision.[75]

Craig, Webb, and other ATC bases became entangled with the requirements of NEPA in 1976–1977, but the case of Goodfellow AFB, Texas, best illustrated the impact that environmental law could have upon the base closure process.[76] In April 1978 the Air Force announced that Goodfellow was a candidate for closure. The Air Force based its decision on personnel reductions from nearly 905,000 in 1968 to 569,000 a decade later as well as changes in training concepts such as self-paced training modules and fewer technical training students. By March 1979, the service concluded that Goodfellow should close by 1982. ATC had gained the base from the USAF Security Service in 1978; its sole function was to train cryptographers. Having closed Craig and Webb in 1977 under NEPA, USAF and ATC leaders knew that a closure "significantly" affecting the quality of the human environment required a complex, time-consuming EIS, including public hearings. But in Good-

fellow's case, Secretary of the Air Force John C. Stetson believed previous studies indicated that closing the base would not have a "significant" impact on the environment of nearby San Angelo, Texas. He therefore hoped to avoid an EIS.[77]

It was not to be. Rep. Tim Loeffler, a congressman from San Angelo, introduced an amendment to the FY 1980 Military Construction Authorization Bill requiring the Air Force to prepare a formal EIS on Goodfellow. In November 1979, Congress approved Loeffler's amendment. The Air Force sought to complete the draft EIS quickly by February 1980, but when Loeffler and the mayor of San Angelo charged USAF with using erroneous, outdated studies and not allowing sufficient time for a valid EIS, the ATC commander asked USAF for an extension until 31 October.[78]

The delay bought time for Goodfellow, and circumstances soon changed. In February, an ATC study on housing at technical training bases indicated the command faced an "acute" shortage of bed spaces, including at Keesler where Goodfellow's training functions had been projected to move. Moreover, training loads at the technical bases were now expected to increase over the next several years. The increased number of students would decrease the ATC pool of personnel available for wartime duty, since by 1979 the command owned only fourteen bases including Goodfellow. Furthermore, officials feared the increased potential for security violations at Keesler by collocating students with access to highly classified cryptology information with other, noncryptology students. For such reasons, in March 1980 ATC initiated a position paper arguing for Goodfellow's retention.[79]

By the fall, Goodfellow became caught up in election-year politics. Air Force historian Karl D. Hoover stated unequivocally, "Ronald Reagan had made a campaign promise in 1980 to keep Goodfellow open."[80] After Reagan's election, in 1981, the Air Force Secretary, Verne Orr, recommended retention of Goodfellow and its cryptology training functions. In the end, Goodfellow survived, in one sense due to the time required by the Air Force to prepare an EIS to comply with NEPA. The contrast between Goodfellow's story and that of Laredo AFB several years earlier highlights the impact of the environmental law. On 17 April 1973, Secretary of Defense Richardson had announced the closure of Laredo, a UPT base, as part of DOD realignment actions. Reduced pilot requirements at the termination of the Southeast Asia conflict necessitated closing one of the nine current pilot training bases. Richardson viewed Laredo as the "most expendable pilot training base because of marginally adequate facilities, increasing encroachment problems, and geographic limitations." Despite local opposition, the last class graduated at Laredo on 31 August, just four and a half months after the announcement. Such rapid closures were achievable in the pre-NEPA era, but experience in the late 1970s demonstrated that the congressionally mandated application of NEPA to DOD could, at the least, greatly extend the time required to close a base and, in some cases, halt the process entirely.[81]

Logistics Bases

On 1 April 1961, Air Materiel Command was redesignated AFLC. Concurrently, AFLC began the previously planned transfer to AFSC of its procurement centers, contract management regions, and more than sixty Air Force-owned industrial facilities and contractor test sites. As the Kennedy administration settled in during the spring of 1961, Secretary of Defense McNamara's quest for efficiency led to decisions that produced even more significant reductions in the AFLC complex. By the end of the decade, the Air Force had reduced the number of major logistics installations in the CONUS from eleven to six. After 1970, the AFLC complex remained stable for nearly twenty years before additional reductions occurred.[82]

In December 1963, Secretary McNamara announced the closure of twenty-six DOD installations or activities in the CONUS, one of which was the Rome AMA at Griffiss AFB, New York. After a Pentagon review of the existing base system, McNamara regarded his decisions as in keeping with President Johnson's goal of "economical operation of all agencies of the government." The closure of one of nine AMAs was bound to have a significant impact on the command as well as on the local community. Wisely, the Rome AMA phaseout was scheduled to proceed slowly over three and one-half years. By June 1967, Rome's supply mission was to be transferred to other AMAs. Furthermore, the gradual transfer allowed time for the government to assist civilian employees who wished to retrain or relocate, and to work with community leaders in easing the transition.[83]

The AFLC historian provided DOD's rationale for closing the Rome AMA:

> Since 1955 the Air Force logistics structure had been undergoing constant improvements, which had resulted in a continuing reduction of personnel, inventories, and facilities.…From 1955 until 1963 personnel had decreased by 35 percent, tonnage shipped decreased by 57 percent, and spare parts inventories had decreased in value 33 percent. These trends had accelerated since 1960 and were expected to continue.…Another result of these developments was an excess of 2.5 million square feet of covered storage space within the AMA system and the outlook was for future availability of storage space at all AMAs as the inventories continued to shrink.[84]

He continued with the reasons for Rome's selection, citing its lack of "major industrial overhaul and repair missions and a huge investment in such facilities." Furthermore, Rome managed ground communications and electronic systems "that could easily be transferred to other AMAs that had experience in managing such systems as well as [possessing] the required maintenance capacity" that Rome lacked. Also, some warehousing and administrative areas at Rome were deficient. Though Rome AMA ceased operation in 1967, the ground electronics research and development functions at Griffiss AFB allowed the base to remain under AFLC until 1970, when it finally transferred to SAC (Table 3.11).[85]

Table 3.11: Major Logistics Bases, 1961–1987

Name	Years under AFLC	Remarks
Brookley	-1969	Base closed following cessation of Mobile AMA
Griffiss	-1970	Rome AMA ceased in 1967; base remained under AFLC until transferred to SAC in 1970
Hill	Entire period	
Kelly	Entire period	
McClellan	Entire period	
Norton	-1966	Base transferred to MAC in conjunction with cessation of San Bernardino AMA
Olmsted	-1968	Base closed in conjunction with cessation of Middletown AMA
Robins	Entire period	
Tinker	Entire period	
Wright-Patterson	Entire period	

Sources: AFLC command histories, AFHRA; *Air Force Magazine*, 1961–1987; Robert Mueller, *Air Force Bases*, vol. 1, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982); Robert Mueller, *Air Force Bases,* vol. 1, *Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, D.C.: Office of Air Force History, 1989).

Note: In 1987, the Air Force redesignated Newark AFS, Ohio, as Newark AFB, a change in terminology and not an increase in Newark's mission. For that reason, Newark, home of the Aerospace Guidance and Metrology Center, was omitted from the above table. History, Aerospace Guidance and Metrology Center, Oct. 1986–Sep. 1987, vol.1, v, 9, AFHRA K215.102.

A year after Rome's announced closure in November 1964, McNamara followed suit on three more AMAs, a move that he projected would save $86 million annually. That amounted to about one-sixth of the Pentagon's overall anticipated yearly savings of $477 million as a result of eighty base closures. Middletown AMA at Olmsted AFB, Pennsylvania; Mobile AMA at Brookley AFB, Alabama; and San Bernardino AMA at Norton AFB, California were to close. The Defense Secretary noted that, in a study of its major depots, the Air Force "[found] substantial excess capacity in overhaul and repair facilities as well as in the supply areas." The closing of the three AMAs, whose functions would be transferred to the remaining five AMAs, would bring capacity into balance with the service's logistics requirements at considerable savings. To manage the work of the closed AMAs, AFLC decided the San Antonio and Oklahoma City AMAs would "[move] east to absorb areas formerly coming under Mobile and Middletown." In addition, logistical responsibility for several states was shifted from one AMA to another to balance workloads.[86]

In the cases of Middletown and Mobile, the cessation of the AMA meant closure of the parent base as well. All three of the closing AMAs were to be phased out and transferred to other logistics bases by July 1969, a goal that AFLC achieved. But the timeline for San Bernardino AMA was much shorter. The Air Force intended to transfer the parent base, Norton, to MATS/MAC, providing incentive for an early transfer of AMA functions. By June 1966, fully three years earlier than required by DOD, AFLC completed the transfer of the San Bernardino AMA logistics functions. Shortly after, MAC assumed jurisdiction over Norton AFB from AFLC. With the cessation of Mobile AMA in 1969, AFLC was left with five AMAs: Ogden (Hill AFB, Utah); Oklahoma City (Tinker AFB, Oklahoma); Sacramento (McClellan AFB, California); San Antonio (Kelly AFB, Texas); and Warner Robins (Robins AFB, Georgia). These five AMAs, the core of the AFLC complex, remained stable through 1987.[87]

Systems/Product Centers

In March 1961, Secretary of Defense McNamara announced a reorganization designed to "centralize direction of the ballistic missile programs and to insure the most effective discharge of those military space responsibilities assigned to the Air Force." The action was part of the emphasis by the Kennedy administration on eliminating a perceived missile gap vis-à-vis the Soviets and placing an American on the moon by the end of the decade. Previously, responsibility for aircraft and missile systems development and acquisition had been divided between the Air Research and Development Command and the Air Materiel Command. Those responsibilities were consolidated in a new command, the AFSC. Lt. Gen. (later, Gen.) Bernard A. Schriever, chief architect of the Air Force's ballistic missile programs as well as the Air Research and Development Command commander, was selected to command AFSC, a position he held until his retirement in 1966.[88]

Throughout the 1961–1987 period, the number of AFSC-owned major installations remained stable. A primary reason for this stability was the Air Force investment in fixed capital assets such as laboratories and test facilities. For instance, in 1962 when the U.S. defense budget was roughly $44 billion, AFSC estimated the replacement cost of its specialized facilities at $2.5 billion. The Air Force had invested more than $250 million at the Air Force Missile Test Center (Patrick AFB) and a like sum at the Arnold Engineering Development Center (Arnold AFS). The next highest fixed capital investments at AFSC-owned bases were at the Air Force Flight Test Center (Edwards AFB), the Air Proving Ground Center (Eglin AFB), and the Electronic Systems Division (Hanscom AFB), in the amounts of $170 million, $155 million, and $68 million, respectively. At Wright-Patterson AFB, where AFSC was a tenant, the command controlled assets of the Aeronautical Systems Division and the Foreign Technology Division valued at $123 million. By 1970, real property values at Patrick and Arnold had increased to $372 million and $350 million, respectively. Clearly, relocating such expensive centers was impractical, at best. Not surprisingly, the six bases retained their main functions, and all but

Wright-Patterson, an AFLC base, remained under AFSC jurisdiction through 1987.[89]

In FY 1961, the Air Research and Development Command had possessed seven major installations at the time of its 1 April 1961 redesignation as AFSC. In conjunction with that action, AFSC gained two more installations. In the 1970s, the command lost Holloman AFB to TAC (1971) and Kirtland AFB to MAC (1977), thereafter maintaining, with no fluctuation, seven major installations through 1987. The command, however, remained a tenant at both of the New Mexico bases. In 1976, AFSC completed a high-velocity test track at Holloman, which was administered by the 6585th Test Group stationed there. In the late 1970s, AFSC completed a trestle electromagnetic pulse simulator facility and an airborne radiation test facility at Kirtland, and in 1980 it added an armament research test facility. Thus, unlike the case with most other commands, the loss of jurisdiction over a base did not necessarily equate to a significant reduction in major activities. Among several other AFSC "tenant-bases" was Vandenberg AFB. Under SAC jurisdiction, Vandenberg was important as a missile test, launch, and evaluation facility. By 1970, it was the busiest aerospace launch site in the nation and "remained the only USAF installation from which polar-orbiting satellites and SAC operational ICBMs were launched" (Table 3.12).[90]

An account of the near closure of Los Angeles AFS in 1978 sheds more light on the reasons for the high degree of stability among AFSC installations by highlighting several factors relatively unique to "systems/product-centers." In 1978, Headquarters U.S. Air Force proposed to close the Los Angeles AFS and relocate the Space and Missile Systems Organization headquarters to Norton, Vandenberg, and Edwards AFBs. The initiative led to a detailed feasibility study. During May and June, a combined team gathered data, conducted interviews, and visited Edwards, Norton, and Vandenberg. It concluded that if Los Angeles were closed, the decision would probably lead to "serious adverse consequences, at least in the short run." A number of scientists and engineers, especially at The Aerospace Corporation, would refuse to move. The complex, technologically sophisticated nature of space and missile work predicated that the loss of experience and corporate memory would lead to risk avoidance, diminished goals, and inefficiencies, probably culminating in additional launch failures costing at least $200 million over a two-year period.[91]

AFSC concluded that "since there were no mission advantages, several disadvantages [concerning quality of life issues associated with moving], and very high costs, the recommendation was not to close the LAAFS [Los Angeles AFS]." Rather, Gen. Alton D. Slay, AFSC commander, asked the Air Staff for help in improving the quality of life for the 1,500 USAF personnel already there. In August, Air Force Chief of Staff Gen. Lew Allen, Jr., expressed his support for the AFSC position. Finally, in March 1979, the Secretary of the Air Force announced that Los Angeles had been removed as a candidate for closure. Most likely, some of the same considerations from this case, especially the loss of highly skilled tech-

Table 3.12: Major Systems/Product Centers, by Function, 1961–1987

Major function	Name	Years under AFSC	Remarks
Engineering Development	Arnold AFS	Entire period	USAF wind tunnel center
Scientific Research	Bolling	None	AFSC was a tenant; exploratory development/advanced technology programs
Aerospace Medical	Brooks	1961-	Transferred from ATC; bioastronautics research/development
Flight Test	Edwards	Entire period	USAF Aerospace Research Pilot School
Air Proving/Armament Development	Eglin	Entire period	USAF Climatic Laboratory
Air Development	Griffis	None	AFSC was a tenant; intelligence/ground communications devices
Electronic Systems	Hanscom	Entire period	Command and control system equipment
Missile Development/ Special Weapons	Holloman	-1971	Transferred to TAC; AFSC remained a tenant; air-to-air missiles/drones
Special Weapons/ Space Technology	Kirtland	-1977	Transferred to MAC; AFSC remained a tenant; nuclear/ thermonuclear weapons
Space Systems	Los Angeles AFS	1964-	Space and missile systems
Ballistic Systems/ Missiles	Norton	None	AFSC was a tenant; site activation task forces for ICBMs
Missile Test	Patrick	Entire period	Atlantic Missile Range
Space and Missile Test Organization	Vandenberg	None	AFSC was a tenant; Western Test Range
Aeronautical/Aerospace Systems/Foreign Technology	Wright-Patterson	None	AFSC was a tenant

Sources: AFSC command histories, AFHRA; *Air Force Magazine*, 1961–1987; Robert Mueller, *Air Force Bases,* vol. 1*, Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, D.C.: Office of Air Force History, 1989); Karen J. Weitze, *Keeping the Edge: Air Force Materiel Command Cold War Context (1945–1991)* (Wright-Patterson AFB, Ohio, Aug. 2003), II: 313–314; Doc, "Ideal Base Study," 20 Jun. 1963, AFHRA K145.043–2.

nical personnel and the costs of relocation and reduced program goals (or worse, program failures), contributed to the stability among all AFSC installations during the period. Similar reasoning regarding air-related technical facilities could be found at least as far back as the 1920s with McCook Field, Ohio.[92]

Summary

In comparison with the expansion of the 1950s, for the U.S. Air Force the years between 1961 and 1987 represented a period of retrenchment, consolidation, and stabilization. In 1961, SAC controlled the lion's share of the Air Force budget and nearly one-third of its major installations in the CONUS. The air defense mission was second in priority in the U.S. defense establishment, a fact reflected in the number of CONUS bases controlled by the Aerospace Defense Command (ADCOM; previously, ADC). Neglected for years, airlift was just beginning to receive renewed emphasis; tactical air power, similarly overlooked, was not far behind. ATC was beginning to reduce its annual pilot production as the number of USAF aircraft, especially B–47s, declined. Major logistics installations were experiencing reduced activity while the volume of unused storage space increased. Due largely to heavy fixed capital investments and the unique nature of their work, systems/product centers had been and would remain relatively stable even though space and ballistic missile systems were starting to receive greater emphasis.

By 1987, near the end of the Cold War, the Air Force basing structure in the CONUS had been reduced by one-third, from 152 major installations in FY 1961 to 104 in FY 1987. SAC basing structure had been halved from 46 CONUS bases in 1961 to 24 in 1987. Since the mid-1960s, ICBMs had comprised the bulk of the SAC strategic deterrent force. Despite improvements in missile technologies and weapon systems, SAC missile bases had remained highly stable. For instance, north-central bases remained the core of the ICBM force, and Peacekeeper missiles filled the same silos at Francis E. Warren AFB as the previous generation of Minuteman missiles had. B–52s, in their fourth decade of service, remained the heart of the manned bomber force at long-familiar bases, while the long-awaited B–1B Lancers added to the deterrent arsenal. In response to the sea-launched ballistic missile threat, the Lancers were based north–south along the very center of the country at Ellsworth, McConnell, and Dyess to maximize warning time in case of a Soviet attack (Table 3.13).[93]

Other commands had experienced major changes as well. Two other "flying" commands — Air Defense Command and its successor the Aerospace Defense Command (ADC/ADCOM), and ATC — experienced reductions in mission and basing. Affected primarily by the increasing capabilities of missiles, ADC/ADCOM lost ever-increasing numbers of fighter-interceptors, radar stations, and bases and was subsumed in 1979 by several other commands. ATC, affected mainly by the declining need for pilots, lost a number of bases but maintained the core of its flying training installations in the South and Southwest for the same reasons that had

Table 3.13 Major USAF Bases
Continental United States, 1987

Command	Bases
Strategic Air Command	24: Barksdale, Beale, Blytheville, Carswell, Castle, Dyess, Ellsworth, Fairchild, Francis E. Warren, Grand Forks, Griffiss, Grissom, K.I. Sawyer, Loring, Malmstrom, March, McConnell, Minot, Offutt, Pease, Plattsburgh, Vandenberg, Whiteman, Wurtsmith
Military Airlift Command	14: Altus, Andrews, Bolling, Charleston, Dover, Hurlburt (Eglin Auxiliary #9), Kirtland, Little Rock, McChord, McGuire, Norton, Pope, Scott, Travis
Tactical Air Command	17: Bergstrom, Cannon, Davis-Monthan, England, George, Holloman, Homestead, Langley, Luke, MacDill, Moody, Mountain Home, Myrtle Beach, Nellis, Seymour Johnson, Shaw, Tyndall
Air Training Command	13: Chanute, Columbus, Goodfellow, Keesler, Lackland, Laughlin, Lowry, Mather, Maxwell*, Randolph, Reese, Sheppard, Vance, Williams
Air Force Logistics Command	6: Hill, Kelly, McClellan, Robins, Tinker, Wright-Patterson
Air Force Systems Command	7: Arnold AFS, Brooks, Edwards, Eglin, Hanscom, Los Angeles AFS, Patrick

Source: Compilation of tables throughout this chapter.

* Between 1978 and 1983, Maxwell AFB was under command jurisdiction of ATC.

served previous generations of student pilots. By 1987, among thirteen ATC bases, six were very familiar as technical training bases. In Goodfellow's case, the base had changed hands, but its cryptology training function continued under ATC.

In contrast with ADC/ADCOM and ATC, by the 1980s both MAC and TAC had experienced significant mission increases that were reflected in CONUS basing. By FY 1985, MAC owned fourteen bases while TAC exercised command jurisdiction over seventeen major installations. MAC had developed a balanced structure with major air terminals on both coasts—McChord, Travis, and Norton in the West, and McGuire, Dover, and Charleston in the East. Further, the bases at Little Rock and Pope still represented the core of the C–130 airlift mission in support of the Army. Like MAC, TAC had matured since the early 1960s and now possessed a network of bases that facilitated rapid deployment overseas either east or west. Like ATC flying training bases, the tactical force was concentrated in the South and Southwest for its generally good flying weather and for the availability of ranges. Mountain Home AFB, Idaho, was the lone exception.

Predictably, although some logistics and systems/product centers closed, the rest of the infrastructure remained in well-established locations. Although in the 1960s the AFLC closed four AMAs—Middletown and Rome in the Northeast, Brookley in the South, and San Bernardino in the West—the remaining five geographically dispersed AMAs continued to provide logistics support to the USAF at home and abroad. AFSC, with huge capital investments in test, range, and administrative facilities and employing highly technically trained civilians not inclined to accept geographic dislocations, also remained stable. In 1987, AFSC controlled seven major installations in the CONUS, the same number it had held in 1961. Only Brooks AFB and Los Angeles AFS had been added to the command roster. In the 1970s, AFSC had given up Holloman and Kirtland, but it retained important test functions on both bases.

In the mid-1960s, an ATC study commented on some of the challenges previous Air Force planners had shared:

> Emphasis on short-term economy has caused us to strive for maximum use of facilities and personnel; we move units and consolidate functions at every opportunity in our effort to reduce operating costs to the bare minimum. We close bases and surrender capital investment in a continuing effort to keep costs down. Too often, we find ourselves closing or transferring a base just after we have completed costly permanent type construction on it. On-the-other-hand, some of our active bases, which we have occupied for 11 to 15 years are still grossly short of permanent facilities. To obtain short-term economies by consolidating training, we pour additional money into aged temporary buildings on our active bases. Another complicating factor is politics — opposition to base closures, pressure to move or not move units. Political pressure on the Air Force can be very real and can force actions, which run counter to our efforts to achieve maximum efficiency and economy. Through two wars and many fluctuations in the size of our military air power we have relied heavily on permanent bases conceived and built in the 1930s. We still find some of them as the backbone of our training base structure. From this we might tentatively conclude that history can provide guidance where projected Air Force programming cannot. We need a guiding concept to help insure that permanent construction goes into permanent bases.[94]

In the 1960s, 1970s, and 1980s, perhaps many Air Force planners could have acknowledged the above concerns. But by the late 1980s, the President and the Congress were ready to take a new and, hopefully, better approach to the issue of military basing in the CONUS. The period of stabilization —indeed, it had become all but impossible to close installations that were no longer needed —was coming to an end.

NOTES

1. USAF had lost three major active installations in CONUS between FY1960 and FY1961. In 1960, the number of such bases was 155; see *USAF Statistical Digest,* Fiscal Year 1960, 159; see Chapter 2, this study. For the purposes of brevity and avoiding undue repetition, the present chapter uses "installations" and "bases" interchangeably. Generally, only bases and lesser installations that later were redesignated as bases are considered herein; few Air Force "stations" are included.
2. *USAF Statistical Digest,* Fiscal Years 1961, 1972, 1980; *The United States Air Force Summary, Fiscal Years 1988/1989 (Amended)* (Washington, 1989), Table D–18; *Base Realignments and Closures, Report of the Defense Secretary's Commission* (Washington, Dec. 1988), 9.
3. Doc, Statements to Congress by Key Defense Witnesses — 1961 [Robert S. McNamara before Senate Committee on Armed Services, 4 Apr. 1961], 41, AFHRA K160.211–1.
4. Ibid., 41–42; "AF Program Reshaped in JFK Budget," *Air Force Times,* 1 April 1961, 1, 47.
5. "Force Structure, United States Army Air Forces and United States Air Force," AFHRA, at http://afhra.maxwell.af.mil/wwwroot/usaf_wingforce_structure/force_structure.htm. AFHRA's website states, "for the purpose of this database, a wing/equivalent is any organization at, above, or below wing level with one or more operations squadrons assigned to it." The database illustrates the number and type of operations wings/equivalents "as of the last day of each calendar year."
6. Doc, "Ideal Base Study," 20 Jun. 1963, 3, AFHRA K145.043–2.
7. Ibid., 7, 34–35. For further discussion, see "Major Strategic Bases," this chapter.
8. Ibid., 4. For further discussion, see "Major Strategic Bases," this chapter.
9. Ibid.,19, 36. For further discussion, see "Major Mobility/Airlift Bases," this chapter.
10. Ibid.,8, 14–15, 36. Sources vary on the maximum acceptable distance of ranges from home bases. The 1963 "Ideal Base Study" listed 100 nautical miles as the maximum but other sources listed up to 200 n.m. (see paragraph corresponding to note 219 below). The "Ideal Base Study" seems to have understated the actual requirement for tactical bases near the coasts. For further discussion, see "Major Tactical Bases," this chapter.
11. Ibid., 4, 8, 11, 35. For further discussion, see "Major Air/Aerospace Defense Bases," this chapter.
12. Ibid., 25–26, 37. For further discussion, see "Major Training Bases," this chapter.
13. Ibid., 22, 37. For further discussion, see "Major Logistics Bases" and "Major Systems/Product Centers," this chapter.
14. *Hearing Before the Subcommittee on Military Construction and Stockpiles of the Committee on Armed Services, United States Senate…August 4, 1978* (Washington, 1978), 11–15.
15. Earl H. Tilford, Jr., *Setup: What the Air Force Did in Vietnam and Why* (Air University Press, Maxwell AFB, Ala., 1991), (hereafter Tilford) 47–49. The number of bases was as of the end of Fiscal Year (FY) 1961 (30 June 1961); extracted from *USAF Statistical Digest,* FY 1961.
16. J. C. Hopkins and Sheldon A. Goldberg, *The Development of Strategic Air Command, 1946–1986* (Offutt Air Force Base, Neb., 1986), (hereafter Hopkins & Goldberg) 126, 135; *SAC Missile Chronology 1939–1988* (Offutt AFB, Neb., HQS SAC 1990), 43; Robert Mueller, *Air Force Bases,* vol. 1, *Active Air Force Bases Within the United States of America on 1 January 1974* (Maxwell AFB, Ala.: Albert F. Simpson Historical Research Center, 1982), (hereafter Mueller 1982) 108; Robert Mueller, *Air Force Bases,* vol. 1, *Active Air Force Bases Within the United States of America on 17 September 1982* (Washington, DC: Office of Air Force History, 1989), (hereafter Mueller

1989), 202, 296, 420.

17. George M. Watson, Jr., and Herman S. Wolk, "Whiz Kid: Robert S. McNamara's World War II Service," *Air Power History* 50 (Winter 2003): 14; Bernard and Fawn M. Brodie, *From Crossbow to H-Bomb* (Indiana University Press: Bloomington, Ind., 1973), 283–284, 300, Table 3.1.
18. In this period, "dispersal" involved USAF bases and civilian airports. The latter were used by B–47s for short periods of time during periods of international tension; Gen Thomas S. Power, USAF, "Strategic Air Command," *Air Force Magazine* 43 (Sep 1960): 67.
19. "AF Program Reshaped in JFK Budget," *Air Force Times,* 1 Apr. 1961, 1, 47; "Kennedy Trims 73 Military Sites; 14 AF Facilities in U.S. Affected," *Air Force Times,* 8 Apr. 1961, 4; History, SAC, Jul. 1962–Jun. 1963, vol. II, 383, AFHRA K416.01–92; Hopkins and Goldberg, 98–105; Beryl Sellers, "Hunter Men Up by 200," *Savannah Evening Press,* 27 Dec. 1962; Rpt, Annual SecAF Report, Jul. 1963–Jun. 1964, vol. I, AFHRA K168.02.
20. History, SAC, 1964, Historical Study No. 97, vol. I, 206–207, AFHRA K416.01–97.
21. Ibid., 207–212. Another problem with consolidation was that needed housing and facilities were unavailable at some bases.
22. History, SAC, 1964, Historical Study No. 97, vol. I, 210–216, AFHRA K416.01–97; "Eighty Base Closures in U.S. Named by McNamara," *Defense Department Digest* 1 (15 Dec. 1964). A 1964 Air Force study stated that warning time at Loring was only 14 minutes, 16 seconds — nearly 8 minutes less than for Bergstrom AFB, Texas. The study noted, "Loring [AFB] proves to be a prime example of a base that has a physical capacity to accommodate more than 15 B–52's and 15 KC–135's, yet from a survivability standpoint, an increased base loading would subject a portion of the alert and all the follow-on force to DBL [Destroyed Before Launch]"; Memo SecAF Eugene M. Zuckert to SecDef Robert S. McNamara, "Air Force Base Posture," 2 Oct. 1964, Robert S. McNamara Papers, National Archives and Records Administration. Despite inactivation in 1966 of one of two B–52 squadrons, bombers and tankers remained at the base through the 1980s. Also, Loring was home to a fighter-interceptor squadron which may have influenced the decision to keep the base open; Mueller 1989, 329. In 1979, the Air Force was planning a significant force reduction at Loring. To prevent it, Maine Senators Edmund S. Muskie and William S. Cohen added a rider to the annual military construction bill that prohibited the Air Force from spending funds to reduce its forces at Loring; History, SAC, Jan.–Dec. 1979, vol. I, 78–79, AFHRA K416.01–181. In addition to the bases above, SAC desired to locate 30 B–52s at Homestead AFB, Florida.
23. History, 310 Strategic Aerospace Wing, Oct.–Dec. 1964, Atch 2, "Closure of Schilling Air Force Base," n.d., AFHRA K–WG–310–HI.
24. Mueller 1982, 22–23, 373; History, SAC, 1964, Historical Study No. 97, vol. I, 214–215, AFHRA K416.01–97; Hopkins and Goldberg, 154. Another southern base, Walker in New Mexico, was selected for a super-wing but instead was shut down in 1967.
25. Ed Gates, "Big Shutdown Ordered," *Air Force Times,* 15 Dec. 1965, 1, 10; "Base Closing Reasons Cited," *Air Force Times,* 9 Feb. 1966, 3; *Base Reductions and Closures, Hearings Before Subcommittee No. 4 of the Committee on Armed Services of the House of Representatives, Eighty-Ninth Congress, Second Session, January 25 and 26, 1966* (Washington, 1966), 6402.
26. "Base Closing Reasons Cited," *Air Force Times,* 9 Feb. 1966, 3; *Base Reductions and Closures…January 25 and 26, 1966,* 6404, 6460-6462. At Biggs, altitude/temperature factors produced KC–135 gross weight degradation up to 22,500 pounds; for the B–52, up to 13,000 pounds. In October 1962, during the Cuban Missile Crisis, SAC received its last B–52, an H-model, thereby paving the way for retirement of older B–52s; see Hopkins and Goldberg, *Development of Strategic Air Command,* 109.

27. History, SAC, Jan.–Jun. 1966, Historical Study No. 102, vol. I, x–xi, AFHRA K416.01–102; History, SAC, Jul.–Dec. 1967, vol. I, x, AFHRA K416.01–110; History, SAC, FY1970, "Summary History," 4–5, AFHRA K416.01–117; Lloyd S. Jones, *U.S. Fighters* (Fallbrook, Calif., 1975), 297–300; Lineage and Honors files, AFHRA.
28. Hopkins and Goldberg, *Development of Strategic Air Command,* 157; History, SAC, Jul. 1968–Jun. 1969, vol. I, 19, AFHRA K416.01–116; History, SAC, Jul. 1969–Jun. 1970, vol. I, 18, 20, AFHRA K416.01–117.
29. SAC expected to lose Dyess to TAC as a result of reducing the number of B–52s there, as E models were phased out; SAC proposed relocating the 917th Air Refueling Squadron from Dyess to Westover. However, the 917th remained at Dyess and SAC retained control of the base; History, SAC, Jul. 1968–Jun. 1969, vol. I, 19, AFHRA K416.01–116; History, 96 Strategic Aerospace Wing (H), Apr.–Jun. 1969, vol. I, intro., AFHRA K–WG–96–HI; History, 96 Strategic Aerospace Wing, Jul.–Sep. 1969, vol. I, 2, AFHRA K–WG–96–HI; http://www.maxwell.af.mil/au/afhra/wwwroot/rso/wings_groups_pages/0096abw.php.
30. "Base Closing Reasons Cited," *Air Force Times,* 9 Feb. 1966, 3; History, SAC, Jul. 1969–Jun. 1970, vol. I, 103–112, AFHRA K416.01–117; *Base Reductions and Closures…January 25 and 26, 1966,* 6403; Mueller 1989, 94, 213, 324, 468, 476.
31. *From Snark to Peacekeeper,* 7, 13, 18–39; *SAC Missile Chronology 1939–1988,* 29–42; History, SAC, Jan.–Jun. 1966, vol. II, 282, AFHRA K416.01–102. The Atlas ICBM variants had an effective range of approximately 6,500 nautical miles. The second-generation missiles had greater survivability due to their hardened silo-launch capability.
32. *From Snark to Peacekeeper,* 23–39; *SAC Missile Chronology 1939–1988,* 45–62; Mueller 1982, 420; Rpt "History of Whiteman AFB, Missouri, 1942–1988" (Whiteman AFB, Mo., 1988?), 11, AFHRA K289.76–1; History, SAC, Jul.–Dec. 1959, vol. II, 305, AFHRA K416.01–81. On the issue of the spacing of missile silos, in early 1963 SecAF Eugene M. Zuckert stated that in locating Minuteman silos "the nearest location…is normally a minimum of 18 nautical miles and the farthest location is normally 100 to 125 nautical miles from the support base." Zuckert referred to the requirements for individual sites with regard to "geological, operational, population hazard, and cost factors" but failed to mention specifics; Doc, Papers of SecAF Eugene M. Zuckert, Jan. 1963 [memo, Zuckert to Asst SecDef (Civil Defense), "Site Selection — Impact on Civil Defense," 12 Jan. 1963], AFHRA 168.7050–71.
33. *From Snark to Peacekeeper,* 25; History, SAC, Jan.–Jun. 1966, vol. II, 321–322, AFHRA K416.01–102; Hopkins and Goldberg, 222, 235, 238; Frederick J. Shaw, Jr., and Timothy Warnock, *The Cold War and Beyond: Chronology of the United States Air Force, 1947–1997* (Maxwell AFB, Ala., Air University Press, 1997), (hereafter Shaw and Warnock), 87, 92.
34. *From Snark to Peacekeeper,* 37–43; History, SAC, Jan.–Dec. 1979, vol. II, 697, 702–706, AFHRA K416.01–181; History, Jan.–Dec. 1980, vol. II, 654–655, 660–665, AFHRA K416.01–184.
35. History, SAC, Jan.–Dec. 1980, vol. II, 623, 654, 662–665, AFHRA K416.01–184; History, SAC, Jan.–Dec. 1981, vol. II, 817–821, AFHRA K416.01–190. For details on Peacekeeper, see http://www.globalsecurity.org/wmd/systems/lgm-118-bkg.htm.
36. *From Snark to Peacekeeper,* 43–47; Hopkins and Goldberg, 251–253, 261; Shaw and Warnock, 101, 116.
37. History, SAC, Jul. 1972–Jun. 1973, vol. I, 1, AFHRA K416.01–124; History, SAC, Jul. 1972–Jun. 1973, vol. II, 382, AFHRA K416.01–124; Msg, OSAF to ALMAJCOM, 172209Z Apr. 1973, "Secretary Richardson's Statement on Base Realignments"; Bernard C. Nalty, *Air War over South Vietnam, 1968–1975* (Washington, D.C., 2000), (hereafter Nalty) 403; Bob Towle and Randy Shoemaker, "More Cuts Coming?" Air Force Times, 2 May 1973, 1, 4; Hopkins and Goldberg, 137, 189; Table 3.2. The USAF continued bombing operations in support of South Vietnam until 15 Aug. 1973, on

which date it ceased as a result of congressional action three months earlier; Nalty, 411. For details on basing guidance in 1954, see Chapter 2.

38. Len Famiglietti, "Base Shakeups to Cost Jobs," *Air Force Times,* 22 Mar. 1976, 2; History, 390 SMW, Jan.–Mar. 1976, vol. I, 1–2, 109, AFHRA K–WG–390–HI; Tables 3.1, 3.2; Hopkins and Goldberg, 255; *Base Reductions and Closures…January 25 and 26, 1966,* 6403. Winter weather did not help Glasgow's chances for retention. For instance, in December 1964 Glasgow experienced the worst blizzard to hit northeastern Montana in several years; History, 91 BW, Oct.–Dec. 1964, v, AFHRA K–WG–91–HI.
39. History, MATS, Jan.–Jun. 1960, vol. I, 13–15, AFHRA K300.01; History, MATS, Jan.–Jun. 1961, vol. I, 240–243, AFHRA K300.01; Kenneth P. Werrell, "The Dark Ages of Strategic Airlift: The Propeller Era," *Air Power History* 50 (2003): 20–33.
40. History, MATS, Jan.–Jun. 1961, vol. I, 240–243, AFHRA K300.01.
41. The *USAF Statistical Digest* listed eight MATS bases (CONUS) for FY 1961 but the MATS history only identified seven by name.
42. In January 1963, the Executive Assistant to Secretary of the Air Force Eugene M. Zuckert responded in a letter to the mayor of Greenville, South Carolina, that Donaldson AFB (at Greenville) had been selected for closure because "the number and quality of facilities [at Hunter AFB] are superior to those at Donaldson." The B–47 wing at Hunter was being inactivated and the C–124 wing at Donaldson was to move to Hunter, allowing Donaldson to close; Doc, Papers of SecAF Eugene M. Zuckert, Jan. 1963, Brig Gen Joseph L. Dickman, USAF, to Hon David C. Traxler, 8 Jan. 1963, AFHRA 168.7050–71.
43. History, MATS, Jul.–Dec. 1960, vol. I, 9, AFHRA K300.01; History, MATS, Jul. 1964–Jun. 1965, vol. I, 31–32, 64, 303, AFHRA K300.01.
44. "Eighty Base Closures in U.S. Named by McNamara," *Defense Department Digest* 1 (15 Dec. 1964); History, MAC, Jul. 1967–Jun. 1968, vol. I, 277–288, AFHRA K300.01.
45. History, MATS, Jul. 1964–Jun. 1965, vol. I, 31–32, AFHRA K300.01; "Eighty Base Closures in U.S. Named by McNamara," *Defense Department Digest 1* (15 Dec. 1964).
46. History, MAC, Jan.–Jun. 1967, vol. I, 251, 255–256, AFHRA K300.01.
47. Eventually, Hunter AFB went to the Army for use as an advanced rotary-wing training base.
48. For further discussion on closure of San Bernardino AMA, see "Major Logistics Bases," this chapter.
49. History, MATS, Jul. 1964–Jun. 1965, vol. I, 32–33, AFHRA K300.01; History, MAC, Jul. 1965–Jun. 1966, vol. I, 87–90 (AFHRA); History, MAC, Jan.–Jun. 1967, vol. I, 249–328, AFHRA K300.01. With the transfer of Orlando AFB to the Navy, MATS relocated Headquarters Air Rescue Service. By moving it to Scott AFB, MATS combined the major command, Air Rescue Service, and Air Weather Service headquarters at one base and thereby expected to increase operational efficiency and reduce staff personnel requirements; History, MAC, Jul. 1967–Jun. 1968, vol. I, 209–210, AFHRA K300.01.
50. History, MAC, Jul. 1974–Dec. 1975, vol. I, 42, 44–45, 309–310, AFHRA K300.01; Lt Col Richard G. Schweikhart and Maj Thomas O. Jahnke, "The 23rd Air Force: MAC's Newest!," *Airlift* 6 (Fall 1984): 6–7; History, MAC, Jan.–Dec. 1985, vol. I, 39, AFHRA K300.01; *United States Air Force Summary 1986* (Washington, 7 Mar. 1986), Table D–17, AFHRA K131.199.
51. Tilford, 32; Mueller 1989, 30–34, 430–433, 593; Tables 3.1 and 3.6.
52. History, TAC, Jan.–Jun. 1960, vol. II, SD 75, "Proposed Long Range Base Structure for Tactical Air Command," [4 May 1960], AFHRA K417.01; this document contains specific details on individual TAC bases with respect to facilities, runways, pavements, ranges, and air density; History, TAC, Jul.–Dec. 1960, vol. III, SD 41, TAC/Deputy for Plans (TPL) to TVCMD, "USAF Base Retention Priority List," 16 Aug. 1960, AFHRA K417.01; History, TAC, Jan.–Jun. 1961, vol. I, part I, 46–47, AFHRA K417.01; Histo-

ry, TAC, Jan.–Jun. 1961, vol. I, part II, 506–514, AFHRA K417.01; History, TAC, Jan.–Jun. 1961, vol. II, SD 135, TAC/Deputy for Plans (TPL) to TOI, "Bases and Unit Programming for TAC Forces," 13 Jul. 1960, AFHRA K417.01. TAC considered only Langley, Myrtle Beach, and Seymour Johnson as "modern" bases; the rest were a "mixture of modern and mobilization type structures which were relatively expensive to maintain."

53. History, TAC, Jan.–Jun. 1962, vol. I, 134–136, AFHRA K417.01; Mueller 1989, 353, 524–525.
54. Table 3.2; Mueller 1989, 30–34, 250, 257, 325, 353, 409, 430–433.
55. History, TAC, Jan.–Jun. 1961, vol. 1, part 1, 47, AFHRA K417.01; History, TAC, Jan.–Jun. 1961, vol. 1, part 2, 506–513, AFHRA K417.01.
56. History, TAC, Jan.–Jun. 1961, vol. 1, part 2, 542, AFHRA K417.01; History, TAC, Jul.–Dec. 1963, vol. 1, 735, 782, AFHRA K417.01. Sewart was rated in the middle of three categories among TAC's nonpermanent bases in terms of its facilities, thereby making it a good example to highlight. George, Luke, and Nellis had 40 percent or less permanent facilities; England and Shaw had 50 percent; Cannon, Hurlburt, MacDill, Pope, and Sewart had 40 to 50 percent.
57. History, TAC, Jul.–Dec. 1964, vol. I, 750, 849–850, AFHRA K417.01; Ed Gates, "Big Shutdown Ordered," *Air Force Times,* 15 Dec. 1965, 1, 10; "Base Closing Reasons Cited," *Air Force Times,* 9 Feb. 1966, 3; History, TAC, Jan.–Jun. 1967, vol. I, 685–687, AFHRA K417.01.
58. History, 55 SRW, Jan.–Mar. 1965, vol. I, 6, AFHRA K–WG–55–HI; History, TAC, Jan.–Jun. 1967, vol. I, 651–654, AFHRA K417.01; History, TAC, Jul. 1971–Jun. 1972, vol. I, 34, AFHRA K417.01; History, TAC, Jul. 1971–Jun. 1972, vol. II, SD 98, TAC/Asst Deputy CoS, Plans, "Priority of Installations," 29 Feb. 1972, AFHRA K417.01; Msg, OSAF to ALMAJCOM, 172209Z Apr. 1973, "Secretary Richardson's Statement on Base Realignments."
59. Rpt, Report of SecAF FY 1961, Jul. 1960–Jun. 1961, AFHRA K168.02; Rpt, Annual SecAF Report, Jul. 1963–Jun. 1964, vol. I, AFHRA K168.02; History, TAC, Jul.–Dec. 1966, vol. I, 738–743, AFHRA K417.01; History, TAC, Jan.–Jun. 1968, vol. I, 572–585, AFHRA K417.01; Cuddeback Lake's location, in California, available at http://www.blm.gov/nhp/efoia/ca/Public/RAs/IMs/1997/CDDIM97–15—P.html.
60. History, TAC, Jan.–Dec. 1965, vol. I, 110–114, AFHRA K417.01.
61. History, TAC, Jul. 1973–Jun. 1974, vol. I, 8–9, AFHRA K417.01; Tables 3.1 and 3.6.
62. "AF Program Reshaped in JFK Budget," *Air Force Times,* 1 Apr. 1961, 1, 47; "Kennedy Trims 73 Military Sites; 14 AF Facilities in U.S. Affected," *Air Force Times,* 8 Apr. 1961, 4; "1965 Brought Good and Bad to AF," *Air Force Times,* 29 Dec. 1965, 18; History, Air Defense Command, Jul.–Dec. 1964, vol. I, 1, 11–12, AFHRA K410.01–15; History, Air Defense Command, Jan.–Jun. 1965, vol. I, 28, AFHRA K410.01–16; Richard F. McMullen, Study, "The Fighter Interceptor Force 1962–1964," Nov. 1964, Foreword, 41, 66, 87, AFHRA K410.041–27.
63. McMullen, "Fighter Interceptor Force," 43–45; Mueller 1989, 296, 420; Mueller 1982, 107–108, 116, 165, 228; *Aviation Week and Space Technology* 81 (23 Nov. 1964): 34.
64. History, Air Defense Command, Jul.–Dec. 1965, vol. I, 15–17, AFHRA K410.01–16; History, Aerospace Defense Command, Jul. 1970–Jun. 1971, vol. I, 9–10, 16, AFHRA K410.01–21; History, Aerospace Defense Command, Jul. 1970–Jun. 1971, vol. III, SD 16, Programmed Action Directive 71–10, "Closure — Perrin AFB Texas," 9 Mar. 1971, AFHRA K410.01–21; Organizational Record Cards, First Air Force, AFHRA; Lloyd S. Jones, *U.S. Fighters* (Fallbrook, Calif., 1975), 269, 285; *Air Force Magazine* 51 (Sept. 1968): 98.
65. History, Air Defense Command, Jul.–Dec. 1965, vol. I, 15–17, AFHRA K410.01–16; History, Aerospace Defense Command, Jan.–Jun. 1968, vol. I, 38–40, AFHRA

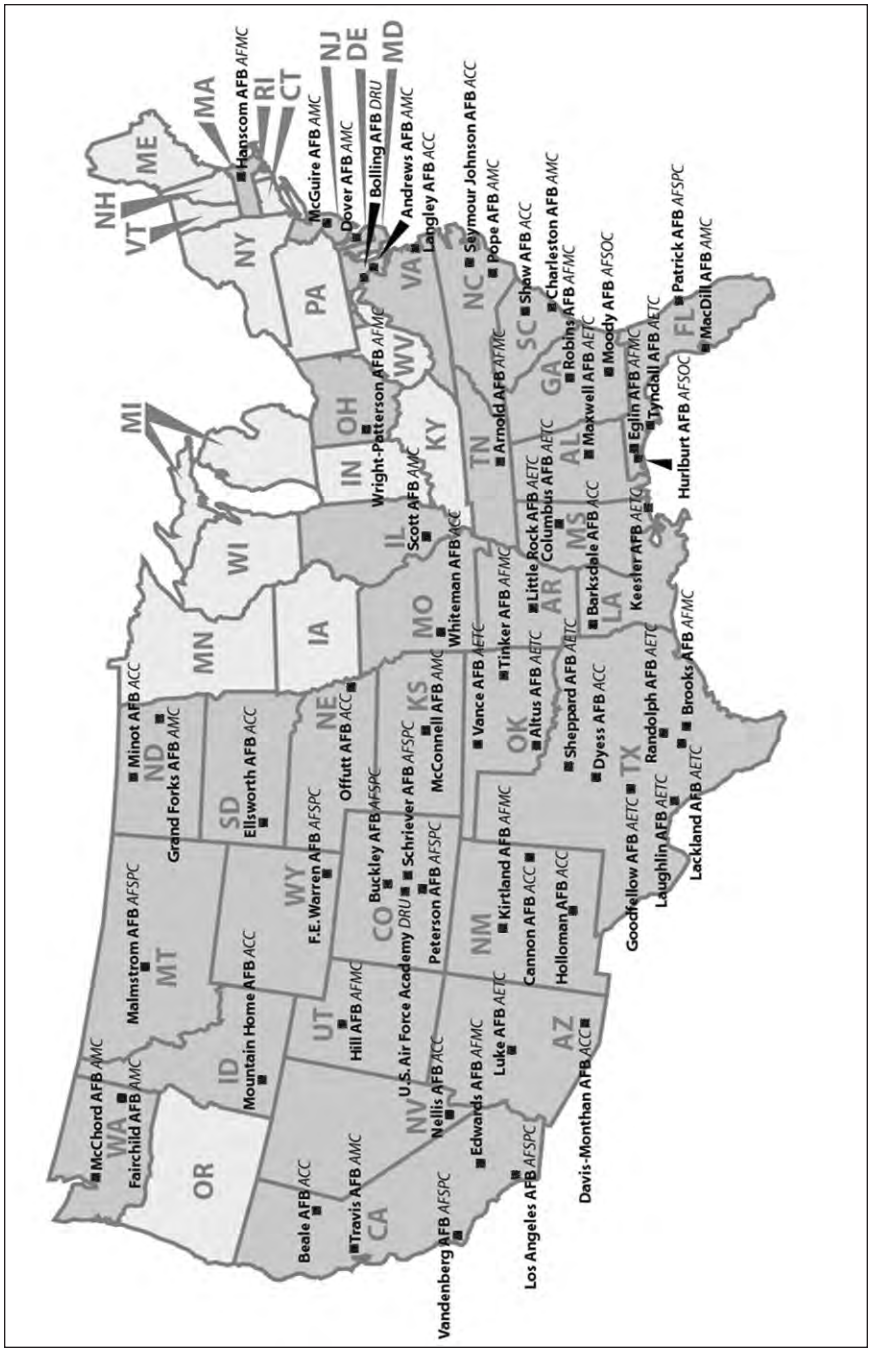
K410.01–19.

66. Ed Gates, "Big Shutdown Ordered," *Air Force Times,* 15 Dec. 1965, 1, 10; "Base Closing Reasons Cited," *Air Force Times,* 9 Feb. 1966, 3; History, Aerospace Defense Command, Jan.–Jun. 1968, vol. I, 38, AFHRA K410.01–19; History, Aerospace Defense Command, Jul. 1970–Jun. 1971, vol. I, 10–17, AFHRA K410.01–21; History, ADC, Jul. 1972–Jun. 1973, vol. I, 94–98, 109–111, AFHRA K410.01–21.
67. History, ADCOM, Jul.–Dec. 1975, vol. I, 4–5, AFHRA K410.011; History, ADCOM, Jan.–Dec. 1976, vol. I, 14–17, AFHRA K410.011; Mueller 1989, 472.
68. History, ADCOM/ADC, Jan.–Dec. 1979, vol. I, 1, AFHRA K410.011; AFHRA Base Book 'O' (for Otis); Shaw and Warnock, 99; Air Force Space Command, at http://www.maxwell.af.mil/au/afhra/wwwroot/rso/major_commands.html#afsc; Falcon (later, Schriever) AFB, see http://www.globalsecurity.org/space/facility/schriever.htm. In 1979, other Air National Guard F–106s were stationed at Jacksonville, Fla., and Atlantic City, N.J.; data provided in email to AFHRA by Dr Charles J. Gross, Chief, ANG History Office, 5 Dec. 2003.
69. The basic pilot rating was earned upon graduation from undergraduate pilot training.
70. Pilot figures extracted from *USAF Statistical Digest,* 1961 to 1980; History, ATC, Jul.–Dec. 1975, vol. I, 17–18, AFHRA K220.01.
71. History, ATC, Jul.–Dec. 1960, vol. I, 19, 24–25, AFHRA K220.01; History, ATC, Jan.–Jun. 1962, vol. I, 25, AFHRA K220.01; Allan R. Scholin, "When an Air Base Closes," *Air Force Magazine* 47 (Feb. 1964): 44–47; "33 Sites to Shut Down; Other Closings Loom," Air Force Times, 25 Dec. 1963, 4. USAF had never sought to gain the land title at Greenville and the base was classed as a temporary facility; all but two buildings were wooden structures dating from World War II.
72. History, ATC, Jul.–Dec. 1964, vol. V, SD I–39, Msg [press release], ATC to Amarillo AFB, "Three ATC Bases Scheduled to Close," 20 Nov. 1964, AFHRA K220.01; History, ATC, Jan.–Jun. 1960, vol. III, SD 71, Memo, AFOOP HQ USAF to SAC, "Categories of Major USAF Installations," 15 Feb. 1960, AFHRA K220.01; History, ATC, Jan.–Jun. 1960, vol. III, SD 72, Msg, COMATC to COFS USAF, "[ATC] bases and jointly-used bases," 4 Apr. 1960, AFHRA K220.01. In 1960, ATC's ranking of technical training bases was as follows: 1) Keesler, 2) Sheppard, 3) Lowry, 4) Chanute, 5) Amarillo, 6) Richards-Gebaur (base under ADC command jurisdiction), and 7) Greenville (closed in 1965).
73. History, ATC, Jan.–Dec. 1981, vol. I, 101, AFHRA K220.01; History, ATC, Jul. 1974–Jun. 1975, vol. I, 80, AFHRA K220.01; History, ATC, Jul.–Dec. 1975, vol. I, 17–20, AFHRA K220.01; History, ATC, Jan.–Dec. 1977, vol. V, SD I–82, Ltr, SecAF Thomas C. Reed to SecDef Harold Brown, "Final Decision: Closure of Craig AFB," 25 Mar. 1977, AFHRA K220.01. UPT ceased at Randolph AFB in 1971.
74. History, ATC, Jan.–Dec. 1977, vol. V, SD I–82, Ltr, "Final Decision: Closure of Craig AFB," AFHRA K220.01.
75. *Military Base Closings: Benefits for Community Adjustment (Washington, 1977), 6–7; Senate Hearings Before the Committee on Appropriations, Installation Realignments, [FY] 1980* (Washington, 1980), 5.
76. In 1976–1977, although ATC sought to close only Craig and Webb, all of its UPT bases except Williams were identified as alternative bases and so, under NEPA, required full environmental assessments and public hearings; History, ATC, Jan.–Dec. 1976, vol. I, 18–25, AFHRA K220.01.
77. History, ATC, Jan.–Dec. 1980, vol. I, 17–19, AFHRA K220.01; History, ATC, Jan.–Dec. 1981, vol. I, 13–16, AFHRA K220.01; Len Famiglietti, "Bases Being Realigned; ADC to Close," *Air Force Times,* 9 Apr. 1979, 1, 4. In March 1976, SecAF Thomas C. Reed planned to close Craig and Webb by 31 Dec. 1976, however, NEPA requirements kept both bases open until September 1977; Len Famiglietti, "Base Shakeups to Cost Jobs," *Air Force Times,* 22 Mar. 1976, 2; History, ATC, Jan.–Dec.

1977, vol. I, 19–24, AFHRA K220.01; Karl D. Hoover, *Base Closure: Politics or National Defense Issue? Goodfellow Air Force Base, Texas 1978–1981* (Randolph AFB, Tex., 1989), (hereafter Hoover) 4, 24.

78. History, ATC, Jan.–Dec. 1980, vol. I, 19, AFHRA K220.01; History, ATC, Jan.–Dec. 1981, vol. I, 15–16, AFHRA K220.01; Hoover, 30–31.
79. History, ATC, Jan.–Dec. 1980, vol. I, 17–21, AFHRA K220.01; History, ATC, Jan.–Dec. 1981, vol. I, 15, AFHRA K220.01; Hoover, 32–39.
80. Ibid, 43–44.
81. History, ATC, Jan.–Dec. 1981, vol. I, 15–16, AFHRA K220.01; History, ATC, Jul. 1973–Jun. 1974, vol. I, 32–35, AFHRA K220.01; Msg, OSAF to ALMAJCOM, 172209Z Apr. 1973, "Secretary Richardson's Statement on Base Realignments"; Bob Towle and Randy Shoemaker, "More Cuts Coming?" *Air Force Times,* 2 May 1973, 1, 4. The transfer of Moody to TAC required only five months. The announcement took place on 30 Jun. 1975 and the base transferred on 1 December; History, ATC, Jul.–Dec. 1975, vol. I, 19–20 AFHRA K220.01.
82. Mueller 1989, 602, 605; History, AFLC, Jul. 1961–Jun. 1962, vol. I, 1, AFHRA K200–23. The *USAF Statistical Digest* listed eleven major AFLC installations in FY1961 but did not identify them by name. AFLC Headquarters was located at Wright-Patterson AFB, while each of the nine air materiel areas was located at an AFLC-owned base. The eleventh AFLC installation probably was Gentile AFS, Ohio, where the Dayton Air Force Depot was located. On 1 July 1962, the depot was discontinued and Gentile was assigned as a detached installation to Wright-Patterson. The *USAF Statistical Digest* for FY 1963 listed ten AFLC installations, one less than the previous year, thereby apparently accounting for the loss of Gentile; History, AFLC, Jul. 1962–Jun. 1963, vol. I, xi, AFHRA K200–24; Rpt, Report of SecAF FY1962, Jul. 1961–Jun. 1962, 5, AFHRA K168.02
83. "33 Sites to Shut Down; Other Closings Loom," *Air Force Times,* 25 Dec. 1963, 4; History, AFLC, Jul. 1963–Jun. 1964, vol. I, 23–30, AFHRA K200–25.
84. History, AFLC, Jul. 1963–Jun. 1964, vol. I, 25, AFHRA K200–25.
85. Ibid., 25–26; History, AFLC, Jul. 1969–Jun. 1970, vol. I, App. 2 and 3, AFHRA K200.01.
86. "Eighty Base Closures in U.S. Named by McNamara," *Defense Department Digest* 1 (15 Dec. 1964); History, AFLC, Jul. 1965–Jun. 1966, vol. I, 3, AFHRA K200–27. In 1968, AFLC planned to transfer the 2863rd Ground Electronics Engineering Installation Agency Squadron from Brookley to Wright-Patterson; History, AFLC, Jul. 1967–Jun. 1968, vol. I, 5, AFHRA K200–29.
87. "Eighty Base Closures," Defense Department Digest 1 (15 Dec. 1964); History, San Bernardino AMA, Jul. 1965–Jun. 1966, vol. I, 4, unnumbered page following page 25, AFHRA K205.12–42. San Bernardino AMA ceased in June 1966, Rome AMA in June 1967, Middletown AMA in June 1968, and Mobile AMA in June 1969; History, AFLC, Jul. 1968–Jun. 1969, vol. I, 9, AFHRA K200.01.
88. History, Air Force Missile Test Center, Jan.–Dec. 1961, vol. I, 1–2, AFHRA K241.01; History, AFSC, Jul. 1966–Jun. 1967, vol. I, 4, AFHRA K243.01.
89. Harry Hansen, ed., *World Almanac 1962 and Book of Facts* (New York, 1962), 96; History, AFSC, Jan.–Jun. 1962, vol. I, 37–41, AFHRA K243.01; History, AFSC, Jul. 1969–Jun. 1970, vol. I, 252, AFHRA K243.01; Table 3.11.
90. Table 3.1; *USAF Statistical Digests,* FYs 1961, 1962, 1971; Mueller 1989, 248–250, 289, 574.
91. History, AFSC, Jan.–Dec. 1978, vol. I, 266–270, AFHRA K243.01.
92. Ibid., 270, 274–275. For discussion of McCook Field and Wilbur Wright Field in the 1920s, see Chapter 1.

93. Personal discussion, Gen. John T. Chain, Jr., USAF (Ret.), with Forrest L. Marion, 24 Nov. 2003, Maxwell AFB, Ala.
94. History, ATC, Jul.–Dec. 1964, vol. II, SD I–4, Atch 1 to Ltr, "DCS/PP&OS Suggested Topics," n.d., AFHRA K220.01.



USAF Major Active Installations 2003

4

Reorganization after the Cold War 1988–2003

Throughout the final two decades of the twentieth century, changes in the global-political environment and cuts in American defense funding forced the Department of Defense (DOD) to alter its defense strategy and reduce drastically the size and constitution of its forces. The large increase in defense spending that highlighted the first term of President Ronald W. Reagan's administration halted in 1985. The passage in October 1988 of Public Law 100–526 removed certain restrictive provisions of the 1969 National Environmental Policy Act (NEPA) and allowed the first round of domestic base closings in nearly a decade. That gave DOD the chance to reorganize its base structure congruent with the reduced needs of its force structure. Subsequent legislation provided DOD with further opportunities in 1991, 1993, and 1995 to balance its base structure with its force structure. For the Air Force's part, it initiated a servicewide reorganization that took into account DOD's new defense strategy and its own view of air power in the changing world order. The passage of these new base closure laws allowed the Air Force the opportunity to accommodate DOD by recommending bases in its domestic infrastructure that had become superfluous as a result of the reduced force structure. In 1989, as the Air Force strove to meet these challenges, it stated, "[w]e recognize that our programmed budgets will not be fully funded during this period of austerity. Still, we refuse to return to the hollow force structure of the early 1980s, choosing instead to reduce force structure and retain quality people."[1] Tables 4.1 and 4.2 highlight the declining trend of Air Force assets and bases.

Table 4.1: USAF Total Aircraft Inventory, FYs 1988–1995*

Active Duty Aircraft	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94	FY 95
Bomber	422	412	366	290	248	225	178	183
Tanker	567	578	555	531	478	391	326	325
Fighter/Interceptor/Attack	2,978	2,840	2,798	2,476	2,000	1,848	1,775	1,763
Reconnaissance/Electronic Warfare	424	401	346	247	238	241	239	237
Cargo/Transport	857	825	824	799	794	749	729	685
Search & Rescue (Fixed Wing)	33	35	36	32	56	35	34	31
Helicopter (Includes Rescue)	200	205	212	243	206	203	189	183
Trainer	1,543	1,555	1,535	1,412	1,313	1,150	1,187	1,180
Other	120	140	141	88	86	144	107	99
Minuteman II ICBM	450	450	450	450	375	227	92	0
Minuteman III ICBM	504	500	500	500	500	500	530	530
Peacekeeper ICBM	46	50	50	50	50	50	50	50

Sources: Department of the Air Force, *United States Air Force Statistical Digest*, prepared by Deputy Assistant Secretary (Cost and Economics) and Assistant Secretary of the Air Force (Financial Management and Comptroller), Washington, D.C. (FY 1991): E2; (FY 1993): E-101; (FY 1995): 96; (FY 1997): 92, AFHRA K134.11–6; "USAF Almanac 1995," *Air Force Magazine* 78, no. 5 (1995): 51.

* Except for the ICBMs, the numbers represent total aircraft inventory; i.e., aircraft assigned to operating forces for mission, test, training, or maintenance and includes primary, backup, and attrition aircraft.

Table 4.2: USAF Installation Posture, FYs 1988–2003

	FY 88-91	FY 92	FY 93	FY 94	FY 95	FY 96	FY 97-01	FY 02-03
Major Installation (Base) Total*	102	101	99	86	81	75	74	72

Sources: Department of the Air Force, *United States Air Force Budget Book, Amended FY 1990/1991, Biennial Budget*, Assistant Secretary of the Air Force (Financial Management and Comptroller), prepared by Deputy Assistant Secretary (Cost and Economics), (Washington, D.C., September 1989), E-10; Department of the Air Force, *United States Air Force Statistical Digest,* Washington, D.C.: (1991): 119; (1995): 117; (1999): 113; "USAF Almanac 2003," *Air Force Magazine* 86, no. 5 (2003): 143.

* 50 States and U.S. Possessions. Includes Air Force Reserve and Air National Guard. Numbers are estimates.

Force Structure and Basing Issues, 1988

In 1988, dwindling budgetary resources and Cold War ideology, despite the decline of the Soviet Union, still influenced the United States and its force-base structure. Balancing the force structure with the base structure would enable DOD to become more efficient, modernize the defense infrastructure, and increase national security. Force structure programming, however, was a dynamic process subject to many influences. Basing was closely tied to force posture and was, therefore, dynamic. A variety of reasons — altered views of existing threats, introduction or expansion of a new weapon system, force-level changes, and revised deployment strategies and concepts — affected the equation. Each alteration to the force posture could lead to additional base changes, with logistics and training impact. A change in these circumstances, like a decision to reduce overseas forces, would require adjustments to the continental United States (CONUS) base structure. "Thus, Air Force base structure may only be defined within the context of existing circumstances."[2]

Within the Air Force, each mission category had its own unique operational and training needs that dictated base sites. In basing offensive forces under Strategic Air Command (SAC), geographic location had to be considered to maximize survivability of the assets. Because Soviet submarine-launched ballistic missiles were the most critical threat to tankers and bombers, inland bases provided the greatest survivability as a result of the longer flight requirements of an incoming missile. This did not preclude non-inland bases from maintaining strategic forces since a coastally based bomber or tanker wing could enhance survivability through dispersal, and thereby achieve the time needed to launch its forces effectively. U.S. intercontinental ballistic missiles (ICBMs), however, required large areas to achieve an adequately dispersed launch site. Additional considerations in basing offensive forces included flying weather, runways, airspace congestion, and support and maintenance facilities.[3]

In 1988, the United States committed to strategic force modernization. It planned to deploy the B–1B to replace its aging B–52 force and modernize the ICBMs. For its part, the Air Force installed fifty Peacekeepers in Minuteman III silos at Francis E. Warren AFB and continued to study "survivable basing options for additional missiles."[4] The year 1988 also saw the first public display of the Air Force's new penetrating bomber, the B–2. In development since the early 1980s, the service had expected its multirole bomber to achieve initial operational capacity in the 1990s at Whiteman AFB. The Air Force selected Whiteman as the main B–2 operating base due to its central CONUS location and an absence of a current flying mission. With no aircraft at Whiteman, the Air Force could avoid a turbulent rebasing situation, which might affect the nation's strategic nuclear war plan, the Single Integrated Operational Plan (SIOP). In its commitment to modernize its strategic defense forces, the Air Force planned to replace the F–106 and F–4C with F–15s and F–4Es. In addition, the F–16A won the air defense interceptor competi-

In 1992 at Whiteman Air Force Base, Missouri, the newly constructed aircraft control tower dwarfed the old one and symbolized the return of a flying mission to the base.

tion, and deployment of the over-the-horizon-backscatter radar system continued. Factors such as the enemy's weapon system capabilities, possible targets, enemy routes of attack, and warning time required to intercept and destroy incoming vehicles dictated a "peripheral coverage of the CONUS for both radar and interceptor aircraft basing, with forward deployed and over-the-horizon radars providing early warning attack."[5]

Tactical Air Command (TAC) forces required considerable training facilities in the CONUS to meet complex equipment needs. "Accessibility to weapons ranges, proximity to training airspace (to include supersonic capability), and suitable weather to conduct the large volume of training" also were necessary. Because CONUS units provided deployable tactical forces for contingency responses, TAC's basing posture was additionally constrained "since forces should be conveniently aligned to airlift and tanker support." Also, tactical forces that supported the Army were to be matched as closely as possible with the Army's training and operational requirements. In 1988, the Air Force continued to modernize its fighter aircraft by bringing new F–15s and F–16s online.[6]

Wartime needs, peacetime operations, and training specifications determined bed down locations for airlift units under Military Airlift Command (MAC). Units

primarily needed to support intertheater airlift were "normally located along the east and west coasts of the United States in proximity to major transportation hubs." This strategy maximized the available airlift assets and expedited personnel and cargo movement through the DOD transportation network. Intratheater airlift and close combat support forces were located in proximity to their support units. These forces required extensive training areas for low-level flying and closed airspace to practice aerial delivery of paratroopers and equipment.[7]

Air Force Systems Command (AFSC) needed large test facilities for aircraft and missiles. It also required runways, restricted airspace, and numerous other facilities to research and develop, produce, and procure aerospace weapons and support sys-

Table 4.3: USAF Major Active Bases Continental United States, 1988

Major Command	Bases
Air Force Logistics Command	7: Hill, Kelly, McClellan, Newark, Robins, Tinker, Wright-Patterson
Air Force Space Command	4: Cheyenne Mountain Complex, Falcon*, Onizuka, Peterson
Air Force Systems Command	7: Arnold, Brooks, Edwards, Eglin, Hanscom, Los Angeles, Patrick
Air Training Command	13: Chanute, Columbus, Goodfellow, Keesler, Lackland, Laughlin, Lowry, Mather, Randolph, Reese, Sheppard, Vance, Williams
Air University	2: Gunter, Maxwell
Military Airlift Command	14: Altus, Andrews, Bolling, Charleston, Dover, Hurlburt Field, Kirtland, Little Rock, McChord, McGuire, Norton, Pope, Scott, Travis
Strategic Air Command	24: Barksdale, Beale, Blytheville (Eaker), Carswell, Castle, Dyess, Ellsworth, Fairchild, F.E. Warren, Grand Forks, Griffiss, Grissom, K.I. Sawyer, Loring, Malmstrom, March, McConnell, Minot, Offutt, Pease, Plattsburgh, Vandenberg, Whiteman, Wurtsmith
Tactical Air Command	17: Bergstrom, Cannon, Davis-Monthan, England, George, Holloman, Homestead, Langley, Luke, MacDill, Moody, Mountain Home, Myrtle Beach, Nellis, Seymour Johnson, Shaw, Tyndall

Sources: "Air Force Almanac 1988," *Air Force Magazine* 71, no. 5 (1988): 194–202; Department of the Air Force, *United States Air Force Budget Book, Amended FY 1988/1989*, prepared by the Directorate of Cost (Washington, D.C., March 1987), E-10; "Schriever AFB, Colorado," Global Security.Org. http://www.globalsecurity.org/space/facility/schriever.htm.

* In 1988, the Air Force redesignated Falcon from an Air Force Station to an Air Force Base.

tems. Air Force Logistics Command (AFLC) preferred extensive warehousing and open storage for aircraft maintenance facilities. Air Force Space Command (AFSPC) missions dictated a decentralized facility structure to provide coverage for attack warning, surveillance, and satellite control. Bases under Air Training Command (ATC) called for extensive classrooms and study facilities. ATC undergraduate pilot training bases required areas with favorable weather, unrestricted airspace, and three parallel runways at main training bases. Each mission category had its own unique training and operational requirements, so to ensure that adequate defense funds be expended on combat capability, the Air Force continually strove to identify installations whose closure might result in resource savings without affecting combat capability.[8] Table 4.3 lists these major installations as of 1988.

BRAC Commission, 1988

President Reagan's Private Sector Survey on cost control (the Grace Commission) concluded in 1983 that savings could be made in the military base structure, and it recommended establishing an independent commission to study the issue. On 3 May 1988, Secretary of Defense Frank C. Carlucci acted on the recommendation and chartered the Defense Secretary's Commission on Base Realignment and Closure. Public Law 100–526 endorsed the review, but only for the 1988 round. The legislation authorized this special commission to recommend base realignments and closures to the Secretary of Defense, and it provided relief from NEPA provisions that had hindered the base closure process. Also, the legislation required both Secretary Carlucci and Congress to accept or reject the commission's findings in their entirety.[9]

For the 1988 commission, the process began with the selection of twelve volunteer commissioners by the Secretary of Defense. Commission members conducted research to determine which installations should be closed or realigned on the basis of criteria issued in the Defense Secretary's charter (see Table 4.4). Military value was the dominant factor. The panel stated that its ability to close bases relied on the information it received from the individual services. The Air Force, driven by current and projected budgetary restraints, was already engaged in reduction and consolidation efforts.[10]

By mid-1988, SAC had drawn up criteria identifying possible bases for closure and realignment and had begun a base-by-base analysis. Factors used to determine whether or not a base would be realigned or closed ranged widely from mission essentiality to physical and operational requirements. Ultimately, the Air Force measured all base realignments against overall mission needs and a flexibility for meeting future requirements. To determine the effectiveness of an installation, the Air Force gave major consideration to four areas: operational and training requirements, force deployment, use of multimission bases, and future flexibility. A broad set of criteria evolved from these considerations, which the Air Force used to evaluate and develop its base realignment proposals. The criteria consisted of the avail-

Table 4.4: Defense Secretary's Commission on Base Realignment and Closure, 1988 Criteria

Criteria
1. The current and future mission requirements and the impact on operational readiness of the military departments concerned. 2. The availability and condition of land and facilities at both the existing and potential receiving locations. 3. The potential to accommodate contingency, mobilization, and future force requirements at receiving locations. 4. The cost and manpower implications. 5. The extent and timing of potential cost savings, including whether the total cost savings realized from the closure or realignment of the base will, by the end of the 6-year period beginning with the date of the completion of the closure or realignment of the base, exceed the amount expended to close or realign the base. 6. The economic impact on the community in which the base to be closed or realigned is located. 7. The community support at the receiving locations. 8. The environmental impact. 9. The implementation process involved.

Source: Department of Defense, *Base Realignments and Closures, Report of the Defense Secretary's Commission, December 1988* (Washington, D.C.: U.S. Government Printing Office, 1988), 37.

ability and condition of facilities, geographic location, community services, future force requirements, urban encroachment, environmental impact, budget considerations inherent in proposed realignment actions, and mission degradation resulting from changing force requirements. The Air Force did not look at these considerations and criteria independently, but measured them as a whole to achieve optimum balance.[11]

The number of bases the Carlucci Commission recommended for closure or realignment depended upon the amount of excess capacity found within the system. "[E]xcess capacity, or the ability to absorb additional units, was defined in terms of land, facilities, operational environment (including airspace), and quality of life or community support factors, as appropriate." To determine capacity in the context of military value, the commission examined whether or not each installation was appropriately sized to support current and future needs. The military value of an installation corresponded to how well the mission-related needs and activities of the units stationed there were being met. The panel then established categories of installations with related missions to provide a basis for evaluating the feasibility of combining them. Aided by the services, the commission identified twenty-one mission-related attributes and grouped them under one of five overall factors pertaining to military value: mission suitability, availability of facilities, quality of facilities, quality of life, and command support. The twenty-one attrib-

utes included characteristics such as natural physical factors like expanse and terrain, weather and geographic location, community relations and civilian encroachment, and quality and quantity of available facilities. The commissioners considered that the size and location of bases were significant factors because they directly affected not only an installation's ability to support its current and future mission but also its ability to accept additional missions and units as a result of realignments. So too, urban encroachment had restrained the "growth potential of many established bases, reduced their ability to conduct training and other operations, and impeded, in some instances, efforts to consolidate units or functions."[12]

After identifying the attributes, commissioners scored each according to the mission requirements of the base. The services then compared attribute information for each base to "a service-established standard for each attribute." Using this comparison, the services scored all attributes for each of their bases under one of three ratings: green for exceeding the standard, yellow for marginally meeting it, and red for falling significantly short. The services developed an installation inventory for each category and made their rating determinations. The commission, for consistency, checked the services' scores. The focus then shifted from the installations to their activities. The commission needed to identify acceptable alternative locations for each major activity before it proceeded with considering whether to close an installation. Therefore, it ranked receiving bases on their ability to enhance the mission of the activity being moved. Mission-enhancement factors included "consolidation of split functions; improvement in training; mobilization, and command and control; cost of operation; customer service; and improvement of quality of life." The commission then evaluated the best relocation sites for installations characterized by environmental or community problems and analyzed them as a package using its Cost of Base Realignment Actions model. The model considered the cost and savings of the package and calculated how much time might be required to obtain a payback. Finally, in December 1988, the Carlucci Commission recommended that five Air Force bases be closed: Chanute AFB, Illinois (ATC); George AFB, California (TAC); Mather AFB, California (ATC); Norton AFB, California (MAC); and Pease AFB, New Hampshire (SAC).[13]

One of five ATC technical training centers, Chanute AFB, ranked lower in military value than the others in the technical training category because its "facilities significantly detract[ed] from its mission effectiveness." The commission found shortages in buildings for training, administration, maintenance, and warehousing. Also, a lack of bachelor housing, family housing units, recreational activities, and medical and dental facilities affected the quality of life for personnel. The commission consolidated Chanute's courses at the other four technical training centers: Sheppard AFB, Keesler AFB, Lowry AFB, and Goodfellow AFB.[14]

George AFB earned its low rank due to degraded training effectiveness, air traffic congestion, and excess capacity. The commission decided to move obsolete F–4E/G fighters from George to Mountain Home AFB to "enhance command and control by consolidating functions with EF–111 air defense suppression aircraft."[15]

The recent expansion of electronic combat and weapons ranges at Mountain Home provided the opportunity to relocate those training and operational assets to increase efficiency and enhance mission effectiveness. To accommodate the F–4E/Gs' move, the commission recommended that F–111Es and F–111As at Mountain Home relocate to Cannon AFB, thus collocating all CONUS-based F–111 aircraft with similar missions at a single base. This again improved command and control and enhanced mission effectiveness at a lowered cost.[16]

The military value of Mather AFB was lower than that of the other seven ATC flying training bases due to a shortage of operational, training, administrative, and maintenance facilities. Also, the B–52Gs from the 320th Bomb Wing, stationed on Mather, were programmed to retire. This would have left the base with only the navigator training mission, which the commission relocated to Beale AFB to improve multiservice training, and an Air Force Reserve (AFRES) KC–135 unit, which moved to McClellan AFB. The Carlucci Commission recommended closing Norton AFB, one of six MAC strategic airlift bases, because of air traffic congestion, inadequate facilities, and excess capacity. Three squadrons of AFRES C–141s, C–21s, and C–12s would move to March AFB, and the remaining C–141 squadron, to McChord. These moves enhanced command and control at a reduced

A southeasterly aerial view frames March Air Force Base, California, against its natural surroundings.

cost while still providing for three strategic airlift installations on the West Coast.[17]

Lastly, the commission recommended Pease AFB, one of twelve SAC bomber bases, for closure "primarily due to quality and availability of facilities, and because of excess capacity within the category." Pease AFB lacked buildings for operational, training, and maintenance needs as well as military family housing and recreational facilities. Also, with the B–1B now operational, the Air Force had planned to transfer SAC FB–111 assets to the tactical air forces beginning in mid-1990. The transfer would have left the base with only the 509th Air Refueling Squadron (KC–135s).[18] The commission determined that sufficient capacity existed within the strategic bomber inventory to absorb the remaining units at a low cost, and the dispersal of the KC–135s to other bases, specifically to Wurtsmith AFB, Plattsburgh AFB, Eaker AFB, Carswell AFB, and Fairchild AFB, would not impair SAC's ability to refuel bombers critical to SIOP and conventional operations. Relocating the KC–135s would improve efficiency in strategic bomber operations by linking tankers with bombers and thereby avoid construction costs with the use of existing facilities. Beyond unit and mission issues, the Carlucci Commission found the military value of Pease AFB to be lower than that of other strategic bomber bases because its coastal location provided "less warning time for aircraft to launch during times of increased tension or international conflict."[19]

In an official statement released in 1989, the Air Force announced that it supported the commission and would continue to provide support for the panel before Congress. The service viewed the commission's recommendations as a chance to achieve long-term cost savings and to realign the base structure in tandem with the force structure. In January 1989 Secretary Carlucci accepted all of these findings, and by May 1989, after the period for congressional review expired with no enactment of a joint resolution of disapproval, the recommendations of the 1988 Carlucci Commission became law.[20]

BRAC Commission, 1991

When the Berlin Wall fell in November 1989, the United States had just begun to reevaluate the posture of its military forces and its defense strategy. Recognizing that a threat from Soviet forces or an attack launched from the Soviet Union's Central European satellites had all but vanished, attention shifted to other nondemocratic countries that "might attempt to achieve hegemony" in regions vital to U.S. concerns. On 2 August 1990, the day Iraq invaded Kuwait, President George H.W. Bush released his new defense strategy, which shifted focus from Cold War deterrence to regional threats. In response to this altered threat, the President announced a 25 percent reduction in force structure and personnel. The reduction in defense spending that accompanied these cuts became law in November 1990. In February 1991, DOD presented these long-term force structure reductions, labeled Base Force, to Congress as part of its fiscal years (FYs) 1992–1997 Future Years Defense Program.[21]

For its part, the Air Force moved quickly to redefine its strategic vision of air power, reorganize its force structure, and rethink its mission and roles. The embodiment of such actions, "Global Reach–Global Power," a white paper issued by Secretary of the Air Force Donald B. Rice in June 1990, developed the strategic planning framework for the future Air Force. Basic assumptions of the national military strategy, essential to this Air Force plan, envisioned the post–Cold War threat as regional rather than global; prepared for a diminished nuclear threat coupled with an increase in the demand for conventional readiness; and recognized the need to replace forward deployment with forward presence.[22]

In May 1990, as part of this new focus, the Air Force established the Air Force Special Operations Command which assumed activities like unconventional warfare and combating terrorism. Another significant milestone occurred in October 1990 when the Air Force transferred the space launch mission from AFSC to AFSPC in recognition of the increasing operational nature of space launch programs. This relocation would give AFSPC "responsibility for the entire process of launch, early-orbit checkout, and control of Air Force spacecraft." Patrick AFB and Cape Canaveral Air Force Station (AFS), both in Florida, plus the Eastern Space and Missile Center at Patrick AFB and the Western Space and Missile Center at Vandenberg AFB, California, transferred, along with the mission. In January 1991, SAC too agreed to turn over control of Vandenberg AFB to AFSPC to bring space launch operations under one command. These two initiatives were but harbingers.[23]

When Gen. Merrill A. McPeak became Air Force Chief of Staff in October 1990, he announced the time had come to restructure the service. In early 1991, he stated that tactical and strategic designations fragmented air power and were counterproductive in light of the ongoing Desert Storm campaign, where so-called tactical aircraft were being used to conduct the strategic campaign and so-called strategic aircraft were hitting tactical targets. As a first step in eliminating these ideas, General McPeak declared his intention in January 1991 to create a composite wing at Mountain Home AFB. This structure would consolidate fighter, tanker, and possibly bomber resources and allow the Air Force to meet a variety of contingencies with the same wing.[24] The 1991 BRAC process would bring the composite wing concept to fruition, but more radical restructuring awaited future BRACs.[25]

Since the 1988 Carlucci Commission had been a one-time panel, Congress passed Public Law 101–510, the Defense Base Closure and Realignment Act of 1990, in November to allow DOD the opportunity to rationalize its infrastructure with its newly reduced force structure. This act established the independent Defense Base Closure and Realignment Commission (BRAC)[26] and tasked it to review recommendations by the Secretary of Defense for base closures and realignments during the calendar years 1991, 1993, and 1995. Structurally, differences between the 1988 Carlucci Commission and the 1991 and subsequent closure commissions were significant.[27] The 1988 commission was chartered by the

Secretary of Defense and later codified in Public Law 100–526. The 1991 commission, however, was established in law from the outset. The President, with advice and consent from the Senate, now selected the commission's eight members, and the General Accounting Office provided oversight of the DOD process. Instead of selecting installations for closure, as in 1988, the new commission reviewed the Defense Secretary's findings, which were determined on the basis of selections by the military services. Submitted in April of each commission year, these recommendations centered upon eight DOD established criteria, with particular attention focused on those pertaining to military value (see Table 4.5). The new commission could change the Secretary's list if it determined that he had "deviated substantially" from the force structure plan and criteria. Lastly, by 1 July of each BRAC session, the commission's findings went to the President, who would then approve or reject the recommendations by 15 July. If approved, the President would send the recommendations to Congress, which had the opportunity to accept or reject the recommendations of the commission in their entirety, as it had in 1988.[28]

Table 4.5: DOD Criteria for the 1991, 1993, 1995 Base Realignments and Closures

	Criteria
Military Value	1. The current and future mission requirements and the impact on operational readiness of the Department of Defense's total force. 2. The availability and condition of land, facilities, and associated airspace at both the existing and potential receiving locations. 3. The ability to accommodate contingency, mobilization, and future total force requirements at both the existing and potential receiving locations. 4. The cost and manpower implications.
Return on Investment	5. The extent and timing of potential costs and savings, including the number of years, beginning with the date of completion of the closure or realignment, for the savings to exceed the costs.
Impacts	6. The economic impact on communities. 7. The ability of both the existing and potential receiving communities' infrastructure to support forces, missions, and personnel. 8. The environmental impact.

Source: Department of Defense, *Base Closure and Realignment Report, April 1991* (Washington, D.C.: U.S. Government Printing Office, 1991), 154.

The act also required that the Secretary's recommendations be based upon a force structure plan submitted to Congress and the commission (see Table 4.6).

Table 4.6: Projected Air Force Structure, 1991*

Projected Forces	FY 90	FY 93	FY 95
Tactical Fighter Wings (Active)	24	16	15
Tactical Fighter Wings (Reserve)	12	12	11
Strategic Bombers	268	171	181

Source: Department of Defense, *Base Closure and Realignment Report, April 1991* (Washington, D.C.: U.S. Government Printing Office, 1991), 22.

* DOD did not list other projected Air Force assets. See Table 4.1 for actual reductions.

Reflecting the reduced possibility of global conflicts, President Bush's FY 1992–1993 budget and FYs 1992–1997 Future Years Defense Program included reductions in the force structure that would, by FY 1995, significantly reorder U.S. forces in support of the new defense strategy. While the Air Force would retain substantial airlift capability, the plan cut nine active Air Force tactical fighter wings and one AFRES wing, a reduction of 37 percent. The plan also cut eighty-seven strategic bombers, a 32 percent loss, from the operational forces. Anticipating the enactment of the Strategic Arms Reduction Treaty (START) at the end of July 1991, the Air Force recommended a "pause in the deployment phase" of its ICBM programs. DOD also programmed, to begin in 1992, the deactivation of all Minuteman II ICBMs based at Ellsworth, Malmstrom, and Whiteman AFBs to maintain a "credible strategic deterrence at the least cost."[29]

The Air Force, which carried out its base-by-base analysis through its Base Closure Executive Group and Base Closure Working Group, looked at all of its U.S. bases (active and reserve) with at least 300 authorized civilian positions. A total of 107 bases, 86 active and 21 reserve, met the level for consideration. The service assigned bases with similar missions to the following mission categories/subcategories: "support, training, flying/strategic, flying/tactical, flying/mobility, flying/training, flying/other, other, and air reserve." It found no significant excess capacity (i.e., more bases than needed to support the reduced force structure levels) in the flying/mobility, flying/other, and support (depot, product divisions, laboratories, and test facilities) categories. Therefore, it excluded 23 active bases based on this capacity study and an additional 12 after a mission-essential analysis. The Air Force then individually examined and rated the remaining 51 active component installations on the basis of approximately 80 subelements, developed from the eight DOD criteria and specific to Air Force basing needs.[30]

In scoring the bases, the working group compared the subelements of each installation to an "Air Force established standard for each subelement." Based on this comparison, it gave each individual subelement for every base a color-coded score (green = high, yellow = medium, red = low). It passed its information for final ranking to the executive group which, based upon members' knowledge and

judgment, could challenge the working group's data and change subelement ratings. The executive group presented option lists for active component bases and the data on AFRES bases to the Secretary of the Air Force, but it did not recommend specific bases for closure.[31]

In all, Secretary of the Air Force Rice recommended fourteen CONUS bases for closure and one for partial closure and realignment in addition to the changes made to BRAC 1988 decisions that affected five bases. Secretary of Defense Richard B. Cheney released the recommendations, unchanged, on 12 April 1991. After its review, the commission affirmed Air Force selections, less one closure recommendation, and submitted its list to President Bush on 1 July 1991. Both the President and Congress accepted the commission's recommendations (see Table 4.7).[32]

Due to planned reductions in the requirements for enlisted personnel, the Air Force determined that, out of the five training category locations, it had one more training center than was necessary to support the reduced force structure. Some of the more important elements required of these bases, which trained Air Force personnel in a variety of technical skills, included adequate training facilities, classrooms, and administrative space. Overall, both Goodfellow and Lowry rated lowest in the first three DOD criteria, which addressed the military value of the installation. For instance, Lowry lacked a runway, and that limited its long-term military value and its ability to accept additional missions. Goodfellow had shown a faster payback and a lower closing cost, but Lowry ranked lower in the last three criteria which dealt with impact from closure and realignment. So too, land sales at Lowry held a better return margin than could be obtained at Goodfellow, Lowry's training courses were more easily contracted out than Goodfellow's intelligence courses, and since Lowry was larger than Goodfellow, the Air Force would be able to eliminate more excess capacity. Therefore, the Secretary of the Air Force recommended Lowry AFB for closure.[33]

In the flying/training category, five bases provided undergraduate pilot training. The required Air Force elements for these bases included "three parallel runways, good flying weather, extensive airspace with relatively unrestricted access, and minimal encroachment." Planned reductions in the requirements for pilots allowed the Air Force to consider one base in this category for closure. The Secretary of the Air Force selected Williams AFB, which suffered from poor facilities and a worsening air space encroachment projected to increase 65 percent by 2005.[34]

The flying/strategic subcategory included twenty-one bases that supported nuclear and conventional missions as well as missile, tanker, and reconnaissance operations. The more important elements that the Air Force required for these bases included wartime and peacetime tanker access, minimum traffic encroachment, and access to bomber ranges. The reduced force structure needs for bombers and tankers allowed the Air Force to determine that it had an excess of six strategic bases. Due to the large number of bases in this subcategory, the executive group ranked them under six options, and under each option, hierarchically into the top, middle, or bottom group in order of retention. The Secretary of the Air Force

Table 4.7: Base Recommendations for Closure and Realignment, 1991*

Bases by Air Force Mission Category/Subcategory	Air Force/DOD Recommendations	Commission Recommendations
Training		
Lowry AFB, Colo.	Close	Close
Flying/Training		
Williams AFB, Ariz.	Close	Close
Flying/Strategic		
Carswell AFB, Tex.	Close	Close
Castle AFB, Calif.	Close	Close
Eaker AFB, Ark.	Close	Close
Grissom AFB, Ind.	Close	Close
Loring AFB, Maine	Close	Close
Wurtsmith AFB, Mich.	Close	Close
Flying/Tactical		
Bergstrom AFB, Tex.	Close	Close
England AFB, La.	Close	Close
MacDill AFB, Fla.	Realign/Partial Closure	Realign/Partial Closure
Moody AFB, Ga.	Close	**Open**
Myrtle Beach AFB, S.C.	Close	Close
Air Reserve Component		
Richards-Gebaur ARS, Mo.	Close	Close
Rickenbacker ANGB, Ohio	Close	Close ^

Sources: General Accounting Office, *Military Bases: Observations on the Analyses Supporting Proposed Closures and Realignments*, report to the Congress and the Chairman, Defense Base Closure and Realignment Commission, GAO/NSIAD–91–224 (Washington, D.C., May 1991), 19; House, *Defense Base Closure and Realignment Commission, Message from the President of the United States transmitting the Report of the Defense Base Closure and Realignment Commission, Accompanied by the Commission's Errata Sheet Submitted on July 9, 1991, Pursuant to Public Law 101-510, Section 2903(e) (104 STAT. 1812)*, 102d Congress, 1st sess., 10 July 1991, H. Doc. 102–111, 13–14, 57–71.

* Changes to BRAC 1988 decisions affected Beale AFB, California; Goodfellow AFB, Texas; March AFB, California; Mather AFB, California; and Mountain Home AFB, Idaho.
^ BRAC 1993 reversed the decision, and Rickenbacker Air National Guard Base remained open.

selected the most encompassing option, which placed priority on military value and stressed readiness, training, cost data, and future mission. Categorized this way, Carswell AFB, Eaker AFB, Grissom AFB, Wurtsmith AFB, Loring AFB, and Plattsburgh AFB ranked in the bottom group. Air and ground encroachment and a poor location for wartime and bomber employment limited Carswell's military value. Eaker and Grissom suffered from poor location for wartime employment, peacetime tanker utility, and access to bomber ranges. Wurtsmith ranked in the bot-

In 1994, at Grissom Air Force Base, Indiana, a solitary KC-135 sits on a quiet flight line, as the base prepares for closure.

tom due to its distance to low-altitude training routes and limited peacetime tanker utility. Consequently, Carswell's B–52Hs went to Barksdale AFB, and its KC–135s, along with those at Grissom and Wurtsmith, went to the AFRES component. The Air Force recommended that Eaker's KC–135s relocate to either active or reserve units and that B–52Gs at both Eaker and Wurtsmith deactivate.[35]

Closing Loring AFB and Plattsburgh AFB, both located in the Northeast, would significantly affect execution of the SIOP, so it was therefore not an option. Due to its deficiencies in peacetime tanker utility, access to bombing ranges, the overall condition of its facilities, and quality of life at Loring AFB, the Secretary of the Air Force selected it for closure. Secretary Rice recommended that its B–52s relocate to K.I. Sawyer AFB and that its KC–135s be dispersed among the active components and AFRES.[36]

Since capacity analysis indicated an excess of six bases in the strategic category, the Air Force selected Castle AFB, which ranked lowest in the middle group, as excess. Castle's drawbacks were a poor location for wartime bomber employment and for wartime or peacetime air-refueling operations, plus it suffered from ground and air encroachment. The Air Force recommended reassignment of its B–52Gs to K.I. Sawyer, relocation of its KC–135s to active or reserve units, and the transfer of its B–52 and KC–135 combat crew training mission to Fairchild AFB. The 1993 commission, however, changed most of Castle's relocations.[37]

Although the Air Force stated that the DOD force structure plan did not call for significant reductions in AFRES forces, it decided to "assess these bases for cost-effective realignments to active air bases." It recommended Richards-Gebaur Air Reserve Station (ARS) and Rickenbacker Air National Guard Base for closure. Closing them and transferring their units to active installations would reap significant financial savings.[38]

Due to the reduction in force structure needs for fighter aircraft, the Air Force determined that it had an excess of five tactical bases in the flying/tactical subcategory. Factors used to determine which eleven bases would be retained and which five would be eliminated included good flying weather, low-altitude training routes, and minimum traffic congestion. Selecting the most comprehensive option, military value, the Secretary of the Air Force rated Bergstrom, England, Moody, Myrtle Beach, and Homestead AFBs the lowest. The Air Force selected Bergstrom due to its lack of adequate training ranges and increased encroachment, and it recommended that Bergstrom's RF–4s retire. England, which suffered from poor weather and available training space, was to redistribute its A–10s among active and reserve units. Myrtle Beach, whose problems included poor weather, ground encroachment, and increased air traffic, was to redistribute its A–10s to Shaw AFB and Pope AFB. The Secretary of the Air Force, however, believed Homestead should remain open because of its key geographic location and its support of drug interdiction operations along the southeastern coast. He instead proposed a partial closure and realignment of MacDill AFB because of its limited airspace and low-level routes, and he recommended that its F–16s transfer to Luke AFB, which the 1991 commission noted had "exceptional training airspace to the south" connected by established routing. The remainder of MacDill would become an administrative base. Rounding out the closure list was Moody, which suffered from weather limitations and increased air traffic. Additionally, it was the least costly of all the bases in its subcategory to close. The Air Force recommended that its F–16s be redistributed to other active and reserve units to modernize their fleets.[39]

The 1991 commission agreed with all of the Air Force recommendations for base closure and realignment except for Moody AFB. The commission confirmed an increase in commercial aviation around Moody, but it pointed out that the Federal Aviation Administration had been able to provide extra airspace for the base and that training limitations were successfully managed. With regard to weather problems, the commission noted "[s]orties have been lost to weather, but the Air Force has successfully overcome this problem in the past and should be able to do so in the future." The community surrounding Moody also argued that the Air Force had recently cited the base as one of its best installations. The commission agreed and stated the negligible savings generated by closing Moody did not justify its cessation.[40]

Lastly in this round, due to significant changes between the force structure plans used by the Carlucci Commission and the 1991 commission, the Air Force proposed changes to some previously approved 1988 decisions. For example, as part of George AFB's closure under BRAC 1988, the 35th Tactical Training Wing and the 37th Tactical Fighter Wing (F–4E/G aircraft) relocated to Mountain Home AFB. Prompted by budget reductions, the 1988 Carlucci Commission had been able to consolidate similar units due to the planned F–4 retirement. During Operation Desert Storm, however, the Air Force validated an operational requirement to maintain some total force F–4G capability into the future. It recommended, and the

1991 commission agreed, to realign the F–4Gs to the Nevada and Idaho Air National Guard (ANG) squadrons already flying RF–4s, making the relocation cost-effective. It further recommended, with subsequent BRAC approval, that remaining EF–111s at Mountain Home relocate to Cannon AFB to consolidate all CONUS-based F–111 aircraft at a single base. These changes allowed the Air Force to improve command and control, enhance mission effectiveness, and reduce cost. It also provided Mountain Home with the capacity to create McPeak's composite wing, composed of F–15C/Es, F–16s, tankers, AWACS (Airborne Warning and Control System), and, after the 1992 restructuring, B–52s.[41]

BRAC Commission, 1993

Throughout the 1991 process and subsequent to it, world events continued to significantly affect political affairs. The ending of the Cold War, initiated by the fall of the Berlin Wall in 1989, culminated in December of 1991 with the collapse of the Soviet Union. This shift in threat required a new defensive focus. At the time, DOD's Base Force strategy was still in its initial stage. Though the Bush administration had presented it throughout 1991, not until the issuance of the 1992 National Military Strategy did policymakers completely describe the numerous linkages among national security, military strategy, and force structure. The 1992 National Military Strategy identified four foundations: strategic nuclear deterrence and defense, forward presence, crisis response, and reconstitution.[42] These foundations were tied to policymakers' assumptions about the types of future military challenges and the forces required to confront them. In keeping with the Cold War experience, DOD believed that the United States would not have to undertake any significant commitments of forward deployed forces and, therefore, sized its force structure (reduced according to 1991 guidelines) to handle two major regional contingencies.[43]

Using its strategic planning framework, Global Reach–Global Power, the Air Force had begun in 1990 to adapt air power to the changing world order. In 1992, it continued to support the new DOD strategy through the most fundamental reshaping of its organization since 1947. Analysis of air power success in Desert Storm convinced the Air Force that restructuring would take advantage of the flexibility of its weapon systems and eliminate the division of its strategic and tactical forces. In September 1991, it announced, effective July 1992, the inactivation of SAC, TAC, and MAC and the distribution and merger of their assets into two new commands—the Air Combat Command (ACC) and the Air Mobility Command (AMC) (see Table 4.8).[44]

While ACC became responsible for CONUS-based strategic bombers, reconnaissance forces, ICBMs, and fighter and attack aircraft, most of the SAC tanker fleet — two-thirds of the Air Force's KC–10s and more than half of its KC–135s — went to AMC, the command responsible for integrating airlifters and tankers. AMC initially consisted of two numbered air forces to provide airlift, and one num-

Table 4.8: Reorganized USAF Major Active Bases Continental United States, July 1992*

Major Command	Bases
Air Combat Command	36: **From SAC**: Barksdale, Beale, Carswell, Castle, Dyess, Eaker, Ellsworth, Fairchild, F.E. Warren, Grand Forks, Griffiss, K.I. Sawyer, Loring, McConnell, Minot, Offutt, Whiteman, Wurtsmith; **From TAC:** Bergstrom, Cannon, Davis-Monthan, England, George, Holloman, Homestead, Langley, Luke, MacDill, Moody, Mountain Home, Myrtle Beach, Nellis, Seymour Johnson, Shaw, Tyndall; **From MAC:** Pope^
Air Mobility Command	16: **From SAC:** Grissom, Malmstrom, March, Plattsburgh; **From MAC:** Altus, Andrews, Charleston, Dover, Hurlburt Field#, Kirtland, Little Rock, McChord, McGuire, Norton, Scott, Travis
Air Force Materiel Command	13: **From AFLC:** Hill, Kelly, McClellan, Newark, Robins, Tinker, Wright-Patterson; **From AFSC:** Arnold, Brooks, Edwards, Eglin, Hanscom, Los Angeles
Air Force Space Command	6: Cheyenne Mountain Complex, Falcon, Onizuka, Patrick, Peterson, Vandenberg
Air Training Command	13: Chanute, Columbus, Goodfellow, Keesler, Lackland, Laughlin, Lowry, Mather, Randolph, Reese, Sheppard, Vance, Williams
Air University	2: Gunter Annex, Maxwell

Sources: History, AMC, June 1992–December 1994, 1: 12, 54, AFHRA K323.01; Memo w/atch, Col C.F. Ross, MAC/PA, to CINCMAC, [Revised News Release], Dec. 13, 1991, SD 1-32, in History, AMC (Provisional), Jan 15–May 31 1992, Global Reach for America: Air Mobility Command's Inception, 2: 1–2, AFHRA K323.01; "1991 USAF Almanac," *Air Force Magazine* 74, no. 5 (1991): 73–74; "1992 USAF Almanac," *Air Force Magazine* 75, no. 5 (1992): 119–127.

* The Air Force listed Bolling AFB as AFDW (Air Force District of Washington).
^ Coinciding with Pope's transfer to ACC, AMC transferred control of its C–130 tactical airlifters at Pope AFB to the 23d Wing, a composite wing, when it activated in June of 1992.
# On 1 October 1992, in keeping with General McPeak's plan to consolidate command missions on command bases, Hurlburt Field transferred to Air Force Special Operations Command.

bered air force to provide air refueling. To integrate the tankers and airlifters, AMC planned to consolidate these numbered air forces and, through the BRAC 1993 process, merge their assets at two locations east and west of the Mississippi River. In anticipation of this merger, MAC had created Tanker Airlift Control Center at Scott AFB in April 1992. Before its activation, MAC's numbered air forces had

planned, scheduled, and completed all operational missions. After its activation, the Tanker Airlift Control Center assumed this responsibility, leaving the numbered air forces free to focus on the readiness of the forces.[45]

Other major changes included the merger of AFLC and AFSC into Air Force Materiel Command (AFMC) on 1 July 1992. Combining AFSC expertise in technology, science, research, development, and testing with AFLC's experience in supportability and life-cycle acquisition produced a seamless, integrated weapon system management process. Integration was possible because the Air Force had previously streamlined both commands. Moreover, both shared a similar management philosophy.[46] Table 4.8 illustrates the shift of bases under this reorganization.

Beyond organizational changes, the Air Force further reduced the size and constitution of its force structure in response to U.S. and Soviet arms reduction negotiations. After announcements by President Bush in September 1991 and January 1992, the Air Force removed 450 Minuteman II ICBMs and all of its bombers from alert status. START I, signed on 31 July 1991, accelerated to FY 1997 the final deactivation of the Minuteman IIs. START II, signed on 3 January 1993, scheduled retirement of the Peacekeeper, a multiple independently targeted reentry vehicle missile with ten warheads, for the early 2000s. Until Russian ratification of START II, however, the Air Force would maintain the fifty Peacekeepers at one wing. The treaty also required the service to reconfigure its remaining ICBM force, 500 Minuteman IIIs, from three warheads to one. START II, which could not be implemented until ratification, remained in limbo during this period. Its uncertain status was a major issue for Air Force ICBM basing during the last two BRACs.[47]

Congress retained, for the most part, the same requirements and procedures used during the 1991 BRAC process for the 1993 round of base closures and realignments, except that now the Secretary of Defense was required to submit his list of recommendations for closure and realignment by 15 March, one month earlier. As before, his recommendations for closure and realignment were based on the eight DOD selection criteria that had been established in 1991 as well as a six-year force structure plan. For FYs 1994 to 1999, DOD used the Base Force plan of the former Bush administration (see Table 4.9).[48]

Table 4.9: Projected Air Force Structure, 1993*

Projected Forces	FY 92	FY 95	FY 97
Air Force Fighters (Active)	1,248	1,098	1,098
Air Force Fighters (Reserve)	816	810	810
Air Force Bombers	242	176	184

Source: Department of Defense, *Base Closure and Realignment Report, March 1993* (Washington, D.C.: U.S. Government Printing Office, 1993), 20.

* DOD did not list other projected Air Force assets. See Table 4.1 for actual reductions.

The principal elements of the Air Force process, essentially unchanged since 1991, included the DOD force structure plan, a base capacity analysis, a depot study, detailed data gathered for each base, and the eight DOD selection criteria. One hundred bases, seventy-five active and twenty-five reserve, met the criteria. The Air Force excluded sixteen mission-essential or geographically important bases from further consideration. For instance, it removed Andrews AFB, Maryland, which provided airlift support for the President and Congress. After further study, the Air Force removed another nineteen installations, a total of six subcategories, finding them to contain no excess capacity. It measured the remaining bases, forty active and twenty-five reserve, against the eight DOD selection criteria, prioritizing military value and an emphasizing "readiness and training, future mission, and cost." The same color-coding system established in 1991 was used again to indicate a base's military value.[49]

In March 1993, after receiving the Air Force selections from Acting Secretary of the Air Force Michael B. Donley, Secretary of Defense Les Aspin passed the list of recommendations for base closures and realignments to the commission. Of thirty-one major bases recommended for closure and twelve for realignment, DOD recommended four major Air Force closures and three realignments. After its review, the 1993 commission recommended five major Air Force bases for closure and three for realignment (see Table 4.10).[50]

Before DOD sent its selections to the commission, it dropped the Air Force recommendation to close McClellan AFB, which provided depot maintenance for "space/ground communications-electronics, aircraft, hydraulics, and instruments." The Air Force had selected McClellan for closure to "reduce excess depot capacity by 6.3 million direct labor hours," but according to DOD officials, "the proposed closure of McClellan Air Force Base was not recommended to the commission because such an action, when combined with prior closures and realignments for the region, exceeded the cumulative economic impact standard established by the OSD [Office of the Secretary of Defense]" (see Table 4.5, "Impacts").[51]

However, DOD did support the recommendation of the Air Force to close Newark AFB, which rated the lowest of the depots. Its Aerospace Guidance and Metrology Center provided depot maintenance on inertial guidance, navigational systems, components, and displacement gyroscopes for ICBMs and most Air Force aircraft. Newark suffered, in comparison with the other depots, because it did not have an airfield and was essentially a standalone, industrial plant operated predominately by civilians. The commission noted that its major deficiency was not the lack of an airfield; rather, it was a nonunique workload. The commission recommended that Newark's workload be contracted out or privatized in place to retain the maintenance work in the local job market. DOD further changed the Air Force recommendations and added the O'Hare International Airport (IAP) ARS to the closure list because the city of Chicago had exercised its right to propose the closure of O'Hare ARS. O'Hare was the only AFRES installation recommended by DOD for closure or realignment.[52]

Table 4.10: Recommendations for Base Closure and Realignment, 1993*

Bases by Air Force Mission Category/Subcategory	Air Force Recommendations	DOD Recommendations	Commission Recommendations
Flying/Large Aircraft			
Griffiss AFB, N.Y.	Realign	Realign	Realign
K.I. Sawyer AFB, Mich.	Close	Close	Close
March AFB, Calif.	Realign	Realign	Realign
McGuire AFB, N.J.	Realign	Realign	**Open**
Plattsburgh AFB, N.Y.	None	None	**Close**
Flying/Small Aircraft			
Homestead AFB, Fla.	Close	Close	**Realign**
Industrial, Technical Support/Depot			
Newark AFB, Ohio	Close	Close	Close
McClellan AFB, Calif.	Close	**Removed from list**	
Other			
Gentile AFS, Ohio	None	None	**Close**
Air Reserve Component			
O'Hare IAP ARS, Ill.	None	**Added to list: Close**	Close

Sources: Department of Defense, *Base Closure and Realignment Report, March 1993* (Washington, D.C.: U.S. Government Printing Office, 1993), 109–126; General Accounting Office, *Military Bases: Analysis of DOD's Recommendations and Selection Process for Closures and Realignments, report to the Congress and the Chairman, Defense Base Closure and Realignment Commission*, GAO/NSIAD-93-173 (Washington, D.C., April 1993), 43–46; House, *Defense Base Closure and Realignment Commission Report to the President, Communication from the President of the United States transmitting His Certification of His Approval of All the Recommendations Contained in the Commission's Report, Pursuant to Public Law 101–510, Section 2903(e) (104 STAT. 1812),* 103d Congress, 1st sess., 14 July 1993, H. Doc. 103–115, 12–13.

* Changes made to previous BRAC decisions affected Carswell AFB, Texas; Castle AFB, California; Chanute AFB, Illinois; MacDill AFB, Florida; Mather AFB, California; and Rickenbacker Air National Guard Base, Ohio.

The Air Force, in the flying/large-aircraft category, had four more large aircraft bases than it needed to support its bombers, tankers, and airlift assets as required under DOD's Base Force structure. To meet these requirements, it planned to realign Griffiss AFB, March AFB, and McGuire AFB and close K.I. Sawyer AFB

to facilitate ACC and AMC in orienting the forces and bases they had inherited under the 1992 reorganization. To optimize global management of mobility forces in support of regional crises, AMC planned to establish two new air mobility wings (AMWs), one on the East Coast and one on the West Coast, to be composed of airlift and tanker aircraft. This arrangement consolidated mobility assets from two or more bases onto one base under one "boss" (like composite wings) at a reduced cost. While each AMW would be tailored to meet its base capacity, the optimum location would have space for 70 to 80 aircraft, the number derived from consolidating a typical airlift wing and a typical tanker wing. Coastal basing gave the maximum range to airlift without requiring air refueling or stopovers in theater, and it extended the "reach" of the tankers for air refueling operations. To implement AMC plans, the Air Force recommended Travis AFB, California, for the West Coast location and Plattsburgh AFB, New York for the East Coast site. To meet reduced force structure levels, it also recommended the realignment of McGuire and Griffiss, both failed East Coast candidates, and March, one of the failed West Coast candidates. The commission disagreed in part and recommended that the East Coast wing be established at McGuire and that Plattsburgh close.[53]

In the DOD analysis, Plattsburgh AFB, when compared directly with McGuire, rated better in its ability to support the AMW because of its geographic location, base loading capacity, and key mobility attributes that included space for 70 to 80 tanker/airlift aircraft, fuel hydrants, and fuel supply and storage capacity. Basing the wing at Plattsburgh would also "eliminate many of the problems associated with operating McGuire, in the midst of the New York–New Jersey air traffic congestion." Placing additional aircraft of an AMW at McGuire would only add to this air congestion, whereas Plattsburgh had an abundance of airspace. Data from the two bases' Facility Surveys and Capacity Analyses also showed that McGuire's primary runway, built of asphalt in 1943, rated fair and would need major work in the next five years, whereas Plattsburgh's runway was constructed of concrete in 1955 and rated good. For these reasons, DOD recommended that McGuire AFB convert to an air reserve base (ARB) and transfer thirty-six of its C–141s to Plattsburgh.[54]

The commission found that DOD did not adequately evaluate the military value of McGuire in its consideration of airspace problems and in light of the base's contribution to Operations Desert Shield and Desert Storm, and to similar, future operations. Agreeing that an increase in civil aviation was likely, it believed the Federal Aviation Administration could manage the increased mission activity incurred from the new AMW. Because Plattsburgh AFB was located farther from normal airlift customers and load points, its annual operating costs were higher. Fuel delivery costs were "approximately 5.6 times more expensive annually at Plattsburgh AFB than at McGuire AFB." In addition, McGuire was closer to "customers of the military airlift system, prospective contingency on load points, and [was] in the heart of the northeast surface transportation systems." Therefore, the commission found that McGuire should remain an active installation and, furthermore, host the

new East Coast mobility wing. Plattsburgh, which no longer had a mission, was selected for closure to meet force structure requirements. The commission recommended that its KC–135s be redistributed.[55]

The Air Force also recommended that March and Griffiss AFBs, failed AMW candidates, realign due to the reduced need for bases intended for large aircraft. March required a "large active duty component to support a relatively small active duty force structure," and it ranked low in military value due to highly congested airspace. Its KC–10s relocated to Travis AFB. The commission also found that while Griffiss rated high as a tanker base, Fairchild AFB, which also hosted the Air Force Survival School, and Grand Forks AFB, which had an additional value due to its missile field, rated higher in overall military value. To further organize its newly acquired tanker force, AMC planned to set up three core KC–135 tanker bases at Fairchild, Grand Forks, and McConnell AFBs to support its global reach mission. As part of these efforts, BRAC approved relocation of the KC–135s at Griffiss and Minot AFB to Grand Forks. By the summer of 1994, AMC consolidated most of the remaining KC–135s at these three bases, which the Air Force transferred from ACC to AMC.[56]

The transfer of Grand Forks and McConnell to AMC required the Air Force to adjust its B–1B assets. Before 1994, B–1Bs operated out of Dyess, Ellsworth, McConnell, and Grand Forks AFBs. When the latter two bases left ACC, the Air Force removed B–1Bs at Grand Forks but, as part of its total force policy, kept those at McConnell by shifting them to the ANG unit on the base. The 116th ANG wing at Dobbins ARB also received B–1Bs, as did the composite wing at Mountain Home when its B–52Gs retired in 1994.[57] The Air Force redistributed the B–1B support structure and spare parts to its remaining two main operating bases, Dyess and Ellsworth, where the concentration of repair facilities and aircraft improved support capability and mission-capable rates.[58]

In addition to losing its tanker mission, Griffiss realigned owing to further reductions in the B–52 force structure. These force structure cuts prompted the Air Force to consolidate a large number of B–52s at Minot and Barksdale. Griffiss rated high as a B–52 base, but Minot also rated high and had the additional value of owning a missile field. So too, Barksdale rated very high as a B–52 base, and it had a higher overall military value after the Air Force selected it to become the B–52 combat crew training base. In recognition of the force structure changes between BRAC 1991 and BRAC 1993, the Air Force recommended, and the commission approved, redirecting the B–52 and KC–135 combat crew training mission from Fairchild AFB to Barksdale and Altus AFBs. These realignments created Barksdale AFB as the major hub for B–52 operations and training.[59]

To further meet these changes and fulfill the requirement to eliminate four large aircraft bases, the Air Force recommended K.I. Sawyer for closure. The uncertainty of START II ratification required the Air Force to "maintain Minuteman III basing flexibility." Therefore, it had to retain ballistic missile fields at Malmstrom, Grand Forks, Minot, and Francis E. Warren AFBs. Retaining a bomber and missile

The missile exhibit and sign in 1992 at the main gate of Francis E. Warren Air Force Base, Wyoming, displayed the new command title and emblem.

base at Minot, which had to remain open because it housed missiles, was more economical than keeping a bomber-only base at K.I. Sawyer. The commission, which found K.I. Sawyer rated lower as a B–52 base than both Barksdale and Minot did, agreed with DOD and recommended that that base close. The Air Force relocated the B–52Hs at K.I. Sawyer to Barksdale and retired its B–52Gs, negating the BRAC 1991 transfer from Castle AFB.[60]

Other actions during the BRAC 1993 process included the Air Force recommendation to close Homestead AFB. The Air Force determined that it had one more small-aircraft base than required to support its fighter aircraft. It therefore recommended the base for closure because of its low ranking in the small-aircraft subcategory and the excessive cost of rebuilding it in the aftermath of Hurricane Andrew in 1992. Instead of a costly rebuilding, the commission recommended realigning the base, temporarily keeping its F–16s at Moody AFB and Shaw AFB, where they had relocated after the hurricane. This action would close all DOD activities and facilities while leaving the local county to run Homestead as a civil airport, with some AFRES units as on-base tenants. Lastly, in the "other" category, the commission recommended closure of Gentile AFS, which did not appear on the DOD list of recommendations, to cut costs and streamline operations.[61]

BRAC 1993 actions also had a major impact on the U.S. air defense mission and the ANG. By the early 1990s, the ANG was handling 90 percent of the air defense mission, and all of the fighter-interceptor squadrons defending the CONUS were ANG units. The Air Force, therefore, wanted to transfer First Air Force, the U.S. component of the North American Aerospace Defense Command, the joint U.S. and Canadian command responsible for air defense, to the ANG. The Air Force believed the ANG was in a better position politically to defend the mission, which some considered superfluous in the post–Cold War period. The realignment of Griffiss AFB gave the transfer proposal further impetus when the BRAC directed the Air Force to either move the Northeast Air Defense Sector from Griffiss or transfer it to the ANG. Since the Air Force did not want to move the sector, it agreed to shift it, along with responsibility for the entire First Air Force, to the ANG.[62]

Throughout the whole process, the Air Force continued actions associated with restructuring its major commands. Kirtland AFB transferred to AFMC in January 1993 due to AMC's commitment to remove missions and bases not directly related to its core strategic airlift mission, that of providing global reach. As part of this commitment, and in line with the perceived success of the composite wing at Pope AFB, General McPeak directed that all CONUS-based C–130 tactical airlifters be reassigned from AMC to ACC. Therefore, in October 1993 Little Rock AFB, along with the remaining AMC C–130 force structure, went to ACC.[63] In another case, on 1 July 1993, the Air Force redesignated the Air Training Command as the Air Education and Training Command (AETC), which continued to operate the service's training and education system and its infrastructure. AETC also received Air University, formerly a separate major command, and control over most combat crew training, a mission that ATC had conducted in the 1950s but that the operational commands had handled since then. To accomplish this new function, AETC received Altus AFB (AMC), Luke AFB (ACC), and Tyndall AFB (ACC). Also on 1 July 1993, responsibility for the ICBM forces transferred from ACC to AFSPC. As part of this new mission, AFSPC assumed ownership of Francis E. Warren AFB and later, in July 1994, of Malmstrom AFB. The move relieved ACC of a training task that took a lot of time but did not fit its mission, and it placed the missiles under a commander whose chief responsibilities included launch expertise.[64]

BRAC Commission, 1995

The downsizing of the Air Force and the other military services continued under President William J. Clinton's administration, which called for a new look at the military in this era of reduced budgets. Secretary of Defense Les Aspin's Bottom-Up Review (BUR), in October of 1993, provided a comprehensive overview of the nation's defense strategy, force structure, infrastructure, modernization, and foundations. It concluded that, based on the current state of global affairs, the United States needed to maintain forces capable of fighting and winning two "nearly simultaneous" major regional contingencies, in contrast to the two "simultaneous"

major regional contingencies envisioned in the contingency strategy elucidated in 1992. The cutbacks under BUR aimed to reduce the force structure by one-third from the FY 1990 level. This was far beyond the 25 percent reduction projected by the Base Force. That reduction had been nearly achieved by the end of FY 1993. In the 1995 round of base closures and realignments, the BUR force structure plan (see Table 4.11), which looked at FYs 1995 through 2001, required an Air Force of 20 fighter wings comprising 13 active and 7 reserve; up to 184 bombers composed of B–52Hs, B–1Bs, and B–2s; and a missile force of 500 Minuteman IIIs.[65]

Table 4.11: Projected Air Force Structure, 1995*

Projected Forces	FY 94	FY 97	FY 99
Air Force Fighters (Active)	978	936	936
Air Force Fighters (Reserve)	795	504	504
Air Force Bombers (Active)	139	104	103
Air Force Bombers (Reserve)	12	22	26

Source: Department of Defense, *Base Closure and Realignment Report, March 1995* (Washington, D.C.: U.S. Government Printing Office, 1995), 2–7.

* DOD did not list other projected Air Force assets. See Table 4.1 for actual reductions.

The Air Force examined all active and reserve bases within the United States that had at least 300 civilian positions. Under this guideline, it identified ninety-nine bases, seventy-two active and twenty-seven reserve, and placed them into seven categories and thirteen subcategories.[66] Secretary of the Air Force Sheila E. Widnall excluded fifteen installations from additional analysis for reasons of mission essentiality or geographic location. She excluded McChord AFB in Washington state, for example, because it was the primary deployment base for the Army I Corps and it supported the rapid deployment of Army troops to the Pacific. The executive group further eliminated nine bases, having found them to contain no excess capacity, after comparing their projected force structure needs against their total capacity and future mission requirements. For instance, it eliminated the entire space support subcategory because the Air Force found no excess capacity, and it spared two bases, Patrick AFB and Vandenberg AFB, for mission considerations. Seventy-five remained for further study.[67]

On the whole, the Air Force recommended to Secretary of Defense William J. Perry the closure, disestablishment, and realignment of twenty-three installations, and it proposed the reconsideration of seven previous BRAC decisions. When DOD announced its selections in February 1995, Secretary Perry stated that he had approved the recommendations from the military departments without exception as

necessary in shaping the armed forces to allow them to support the National Military Strategy and the BUR. In July 1995, after its review, the commission recommended six major closures and six major realignments for the Air Force (see Table 4.12).[68]

The Air Force did not recommend closing any base categorized as operational, though its analysis indicated a potential excess capacity of eight bases in the subcategories. The missile subcategory had one, the large-aircraft subcategory held four, three were in the small-aircraft subcategory. During the rating process, six of these bases scored in the lowest, third-tier category. These and some bases from the second tier were reviewed, but the Secretary of the Air Force did not recommend closing any due to operational and closure costs. In the low tier of the large-aircraft subcategory, the Air Force considered the closure of Ellsworth (which based B–1 bombers), Scott, and Grand Forks AFBs. With regard to Ellsworth, the Air Force was concerned about overloading Dyess, the other B–1 bomber base, as well as placing all the B–1s at a single location. Provisions of START also precluded collocating nonnuclear-capable aircraft (B–1s) with nuclear-capable aircraft (B–52s), further limiting potential relocations. The Secretary of the Air Force and the executive group expressed concern over the high, one-time closure cost ($250 million) of Scott and the disruption to U.S. Transportation Command activities. Lastly, with respect to Grand Forks, which would lose its Minuteman III mission, the Secretary and the executive group focused on finding a base that could receive all of its forty-eight KC–135s as a single package. They considered relocating them to McGuire, but environmental issues intervened. Consistent with DOD criteria, both Beale and McGuire AFBs had to be eliminated from consideration as possible receivers of missions from other bases because locating additional aircraft there could increase local air pollution beyond allowable levels. Notwithstanding the environmental issue, Grand Forks provided a "prime location for single integrated operational plan (SIOP) purposes."[69]

After looking in the bottom tier of the large-aircraft subcategory, the Secretary of the Air Force considered bases in the middle tier, focusing on Minot, Beale, and Malmstrom. The service could have closed Minot, but it did not plan to reduce its B–52 inventory, and an appropriate receiving base could not be found. Moving Minot's B–52s to Beale, for instance, would have raised environmental issues as well as elevated concerns over the high cost of $182 million for moving the mission. In the matter of Beale, the executive group noted that closing the base and moving its U–2s would create problems with encroachment and create an overload of aircraft at its potential receiving base, Davis-Monthan. Lastly, the executive group precluded Malmstrom from closure because of the importance of its Minuteman missile field, and it excluded Offutt and McGuire AFBs, also second-tier bases, on the basis of mission importance. While the Secretary of the Air Force did not recommend any closures in the large-aircraft and missile subcategories, she suggested two realignments: Grand Forks AFB and Malmstrom AFB.[70]

The Air Force recommended Grand Forks for realignment because a reduction

Table 4.12: Recommendations for Base Closure and Realignment, 1995*

Bases by Air Force Mission Category/Subcategory	Air Force/DOD Recommendations	Commission Recommendations
Operations/Large Aircraft, Missile		
Grand Forks AFB, N.Dak.	Realign	**Realign (Amended)****
Malmstrom AFB, Mont.	Realign	Realign
Undergraduate Flying Training		
Reese AFB, Tex.	Close	Close
Industrial, Technical Support/Depot	(See table 4.13)	
Kelly AFB, Tex.	None	**Realign**
McClellan AFB, Calif.	None	**Close**
Industrial, Technical Support/Product Centers and Laboratories		
Brooks AFB, Tex.	Close	**Open**
Kirtland AFB, N.Mex.	Realign	**Open (DOD Request)^**
Rome Laboratory, N.Y.	Close	**Open**
Industrial, Technical Support/Test and Evaluation		
Eglin AFB, Fla.	Realign	Realign
Hill AFB (Utah Test and Training Range), Utah	Realign	Realign
Space/Satellite Control		
Onizuka AS, Calif.	Realign	Realign
Air Reserve Component		
Bergstrom ARB, Tex.	Close	Close
Greater Pittsburgh IAP ARS, Pa.	Close	**Open**
Moffett Federal Airfield AGS, Calif.	Close	**Open**
North Highlands AGS, Calif.	Close	**Open**
O'Hare IAP ARS, Ill.	None	**Close+**
Ontario IAP AGS, Calif.	Close	Close
Roslyn AGS, N.Y.	Close	**Close (Amended)**
Springfield-Beckley AGS, Ohio	Close	**Open**

Sources: Department of Defense, *Base Closure and Realignment Report, March 1995* (Washington, D.C.: U.S. Government Printing Office, 1995), 4-7–4-12; General Accounting Office, *Military Bases: Analysis of DOD's 1995 Process and Recommendations for Closures and Realignments, report to the Congress and the Chairman, Defense Base Closure and Realignment Commission*, GAO/NSIAD-95-133 (Washington, D.C., April 1995), 58, 138–139, 143; House, *Defense Base Closure and Realignment Commission Report to the President, Message from the President of the United States transmitting His Certification of His Approval of All the Recommendations Contained in the Commission's Report, Pursuant to Public Law 101–510, Section 2903(e) (104 STAT. 1812),* 104th Congress, 1st sess., 13 July 1995, H. Doc. 104–96, 103–133, 230–232, 260–262, 272.

* Changes to previously approved BRAC decisions affected Griffiss AFB, New York; Homestead AFB, Florida; Lowry AFB, Colorado; MacDill AFB, Florida; and Williams AFB, Arizona.

** Amended: changes to DOD recommendations regarding the nature of realignment or closure.

^ The Secretary of Defense, in a letter dated 9 June 1995 changed his recommendation and asked the commission not to realign Kirtland AFB.

+ Modified the 1993 BRAC closure recommendation.

in the ICBM force structure required inactivation of one missile group. The "missile field at Grand Forks AFB ranked lowest due to operational concerns resulting from local geographic, geologic, and facility characteristics." The commission found all four Minuteman fields[71] to be fully capable, but the high water table at Grand Forks AFB "reduced survivability and required an increased level of on-site depot support." Total on-site support costs per Minuteman silo over the previous three years were higher at Grand Forks than they were at Minot or Francis E. Warren, but they were lower at Grand Forks than they were at Malmstrom. Efforts to counteract water intrusion accounted for 5 percent of the total costs and were highest at the Grand Forks base. The commission also found the missile alert rate at Grand Forks AFB to be consistently lower than it was at Minot AFB. The Air Force, in agreement with the commission, excluded Francis E. Warren AFB from further consideration due to its requirement to keep Peacekeeper missiles beyond the period in which the commission's actions would take effect and as a result of START treaty considerations directing the realignment of the only Peacekeeper missile base. Because Malmstrom, with its fifty additional Minuteman silos, was considered militarily more important, keeping the missile field at Malmstrom AFB took precedence over the savings associated with closing that base and retaining the multimission base at Grand Forks. Therefore, the commission recommended realignment of Grand Forks AFB. The 321st Missile Group would inactivate, and its Minuteman III missiles would relocate to Malmstrom AFB, be maintained at depot facilities, or retire.[72] The 319th Air Refueling Wing at Grand Forks, however, remained in place.[73]

While the Malmstrom AFB missile field rated very high, and would remain, its KC–135 airfield resources could support only a small number of tankers. Closure of the airfield would generate significant savings. The commission was also concerned because Malmstrom's elevation and 11,000-foot runway prevented its aircraft from taking off fully loaded. This limited not only the tanker's range but also the amount of fuel it could transport to a receiving aircraft. Deficiencies at Malmstrom provided the Air Force with an opportunity to correct a shortage of tankers in the southeastern United States and comply with a DOD directive to provide more tanker support to the unified commands at MacDill AFB. Agreeing that the seventy tankers based at Fairchild AFB along with the twelve at Malmstrom had saturated the northwestern United States, the commission recommended that KC–135s at Malmstrom relocate to MacDill to ease the shortage in tanker capability in the southeastern CONUS. Sending the aircraft to MacDill was made possible through the DOD directive, and BRAC 1995 reversed past BRAC realignment decisions that would have transferred ownership of the MacDill airfield to a non-DOD entity. The Air Force successfully used MacDill as a staging area for operations to Haiti in late 1994, validating its flight-line capabilities and strategic location.[74]

The Air Force recommended no realignments or closures for small-aircraft bases despite a potential excess of three bases. In the small-aircraft subcategory, the

Air Force placed Cannon, Holloman, and Moody AFBs in the bottom tier, but their potential receiving bases — Hill, Nellis, and Shaw AFBs — had operational constraints that affected their ability to accommodate aircraft and meet training and range requirements. The executive group stated that both Cannon and Holloman had range and airspace capabilities difficult to replace if closed. Holloman AFB, for instance, had the airspace and training ranges required to support its unique F–117 mission. Furthermore, relocating its aircraft to Nellis and Shaw would overload those facilities. So too, moving Moody's aircraft would cause air congestion and overload facilities at the potential receiving bases, Hill and Shaw. Besides, the four active F–16C LANTIRN-equipped squadrons at Moody AFB required a receiving base able to support such specialized equipment. After looking at bases in the bottom tier, the Secretary of the Air Force examined the middle-tier bases for closure candidates, but she met with the same concerns and operational impacts. The Secretary concluded no small-aircraft bases could be closed or realigned.[75]

Much of the rest of the Air Force's recommendations concerning the active force dealt with the industrial/technical support category and its corresponding subcategories. In the depot subcategory, the Air Force recommended realigning the Air Logistics Centers (ALCs) at Hill AFB, Kelly AFB, McClellan AFB, Robins AFB, and Tinker AFB and consolidating their workloads (see Table 4.13). At Ogden ALC (located at Hill AFB), the type of depot maintenance work included strategic missiles, aircraft, air munitions, photoreconnaissance, and landing gear; at San Antonio ALC (Kelly AFB), it included aircraft, engines, and nuclear equipment; at Sacramento ALC (McClellan AFB), depot work was space and ground communications, electronics, aircraft, hydraulics, and instruments; at Warner

Table 4.13: Air Logistics Centers, 1995

Industrial, Technical Support/Depot	Air Force/DOD Recommendations	Commission Recommendations
Ogden ALC: Hill AFB, Utah	Realign	**Open**
San Antonio ALC: Kelly AFB, Tex.	Realign	**Realign (Amended)**
Sacramento ALC: McClellan AFB, Calif.	Realign	**Close**
Warner Robins ALC: Robins AFB, Ga.	Realign	**Open**
Oklahoma City ALC: Tinker AFB, Okla.	Realign	**Open**

Source: House, *Defense Base Closure and Realignment Commission Report to the President, Message from the President of the United States transmitting His Certification of His Approval of All the Recommendations Contained in the Commission's Report, Pursuant to Public Law 101–510, Section 2903(e) (104 STAT. 1812),* 104th Congress, 1st sess., 13 July 1995, H. Doc. 104–96, 104–105, 128–129, 131–133.

Robins ALC (Robins AFB), it was aircraft, avionics, propellers, and life support systems; and at Oklahoma City ALC (Tinker AFB), aircraft, engines, and oxygen equipment constituted the maintenance workload.[76]

The Air Force believed these realignments would effect reductions in personnel, infrastructure, and cost. Secretary of the Air Force Widnall defended this decision before the BRAC, citing high closure costs as justification for realigning the five depots rather than closing poorly rated Kelly and McClellan AFBs. The 1995 commission rejected the DOD proposal to downsize the five ALCs; instead it recommended closure of McClellan AFB and realignment of Kelly AFB. Commission members found that the Air Force recommendation to downsize the five ALC depots by mothballing excess space would not eliminate infrastructure or decrease overhead costs. They noted that the Air Force had already rated McClellan low with respect to military value and had reduced its mission needs. So too, the cost of closing McClellan was less than DOD had predicted. The commission selected Kelly for realignment because of its low military value ranking from the Air Force and because a lower cost and greater savings would be realized in realigning it than DOD had estimated. A realigned Kelly AFB would also be able to receive support from its nearby neighbor, Lackland AFB.[77]

In the industrial/technical support (product centers and laboratories) category, the Air Force recommended closure of Brooks AFB and Rome Laboratory, and realignment of Kirtland AFB. The Air Force stated that it had more laboratory capacity than it needed to support its current and projected research requirements. The Armstrong Laboratory and Human Systems Center at Brooks AFB contributed less to Air Force needs as measured by criteria such as workload requirements, personnel, and facilities. The Air Force ranked Brooks lower than the other bases in this subcategory and, therefore, recommended the base close and relocate most of its laboratory activities to Wright-Patterson AFB. The commission found that closing the base would require a large up-front cost of $211.5 million and would interrupt critical research. The commissioners also stated that the move would create one of two problems: having to move a large workforce would keep costs high, or only a small number of personnel would be willing to move, which would interrupt ongoing research. Brooks remained open. So did Rome Laboratory. To reduce excess laboratory capacity, the Air Force recommended that Rome Laboratory close and consolidate its functions at Fort Monmouth, New Jersey, and at Hanscom AFB, Massachusetts. The commission, however, found the cost for closure too high and the savings from consolidation too low.[78]

The third recommendation, realignment of Kirtland AFB, would reduce infrastructure and produce significant annual savings by closing most of the base. The Air Force planned to keep the Phillips Laboratory open and place the Sandia National Laboratory in cantonment. The commission, however, found that the expense of realignment would be too great to generate any savings. While realignment would reduce Air Force operating costs, it would negatively affect other government agencies on base. The Department of Energy, which owned the Sandia

National Laboratory, would incur increased operating costs after it lost base support, and the Defense Nuclear Agency, slated to relocate, would lose its intrinsic bond with the Energy Department. Finally, the commission received a letter from the Secretary of Defense on 9 June 1995 withdrawing the selection of Kirtland AFB for realignment, stating it no longer represented "a financially or operationally sound scenario."[79]

In the industrial/technical support (test and evaluation) category, the Air Force recommended realignment of Eglin AFB and Hill AFB. At Eglin, it recommended relocation of the Electromagnetic Test Environment, which consisted of eight Electronic Combat threat simulator systems and two pod systems, to Nellis AFB, Nevada. The Air Force determined that open-air range workload requirements could be satisfied at one range and that Nellis had the available capacity to absorb the projected workload. The commission agreed, and Eglin realigned per Air Force recommendations. At Hill AFB, the Air Force recommended disestablishing the permanent AFMC test range activity at the Utah Test and Training Range and transferring its management, along with personnel and equipment, from AFMC to ACC. These actions would reduce excess test and evaluation capacity while maintaining the training value offered by the range. The commission agreed with the Air Force findings.[80]

In the undergraduate flying training (UFT) category, the Air Force found that it had one more base than it needed to support its pilot training requirements under the DOD force structure plan. Reese AFB, an undergraduate pilot training (UPT) base, ranked the lowest when evaluated on factors such as weather, including density altitude and crosswinds, and on available airspace, including the amount of airspace open for training and the distance to training areas. After BRAC 1991, the Air Force had not planned to close another UPT base, but further decreases in pilot training requirements since then had created excess capacity in the UFT category. The original decision to base T–1 airlift and tanker training aircraft at Reese AFB reflected a need for a base that would allow easy airline access for contractors, rather than a judgment of its military value. A joint primary training program with the Navy was initiated at Reese because it was the only Air Force UPT base "that had transitioned to the new primary training syllabus required for the joint program, a direct result of the T–1 introduction." However, for the 1995 round, the Air Force evaluated UPT bases on their functional value to perform UPT, the primary determinant of military value in the UFT category, and found that Reese ranked lowest. The commission agreed with the Air Force, and the base closed.[81]

The last active category, space (satellite control), contained the Air Force recommendation to realign Onizuka Air Station (AS). Based on projected Air Force satellite control requirements under the DOD force structure plan, the service had one more satellite control station than it needed, and Onizuka AS ranked low compared to other bases in its subcategory. For example, Falcon AFB "had superior protection against current and future electronic encroachment, reduced risks associated with security and mission-disrupting contingencies, and significantly higher

closure costs." Although the Air Force would have preferred to close Onizuka, it had to keep the station open to support tenants with missions not scheduled to complete or move until after 2001, the timeframe of BRAC 1995's actions. The commission found that backup capability and redundancy for controlling individual satellites would not be lost with the realignment, and it agreed with the Air Force recommendation. The 750th Space Group would inactivate, and its functions would relocate to Falcon AFB, along with Detachment 2, Space and Missile Systems Center, AFMC.[82]

While the Air Force targeted excess capacity of the active component primarily through realignment recommendations, it addressed the excess capacity of AFRES strictly through closure recommendations, many of which the commission changed. The Air Force slated Greater Pittsburgh IAP ARS to close, stating that AFRES had more C–130 operating locations than it needed to effectively support those aircraft under the DOD force structure plan. The commission disagreed, stating that the Air Force's high operating cost figures for three C–130 AFRES locations were inaccurate. When corrected, the data showed the Greater Pittsburgh IAP ARS to be the least costly to operate. The commission also recommended changing the BRAC 1993 decision regarding O'Hare IAP ARS and relocating its C–130s to AFRES units at Dobbins ARB and Peterson AFB. Under revised figures, inactivating O'Hare's 928th Airlift Wing would produce the highest savings. Since the commission found it necessary to close one C–130 AFRES station, O'Hare provided the opportunity to support DOD's efforts to reduce infrastructure.[83]

The Air Force also targeted Moffett Federal Airfield Air Guard Station (AGS) and North Highlands AGS for closure, with relocation of their units to McClellan AFB as a more cost-effective basing arrangement. But the commission had recommended that McClellan close, and the cost associated with moving the Guard units to another base was too high. Therefore, both Guard stations remained open. The Air Force also recommended Springfield-Beckley Municipal Airport AGS for closure and a relocation of its units to Wright-Patterson AFB to achieve manpower and other savings. The commission found the facilities at Wright-Patterson to be inadequate and the Springfield-Beckley facilities and basing arrangement to be ideal. This AGS remained open as well.[84]

The commission, however, did agree with the decision of the Air Force to close Bergstrom ARB in Texas, Ontario IAP AGS in California, and Roslyn AGS in New York state. Bergstrom was to close due to a drawdown that had created an excess of F–16 locations in the AFRES. Per recommendation, its F–16s would be redistributed or retired. While the base had infrastructure to support F–16s and KC–135s, overall excess capacity within AFRES required action. The closure was the most cost-effective; moreover, other F–16 AFRES locations rated higher than Bergstrom ARB for training, facilities, and joint operations.[85]

Lastly, the Air Force recommended that Ontario IAP AGS and Roslyn AGS close. Ontario units would move to March ARB, and most of those at Roslyn would go to Stewart IAP AGS, New York. Both closures would provide a more

cost-effective basing arrangement. The commission agreed but stipulated that the Roslyn property had to be sold at fair market value in order to make the recommendation cost-effective.[86]

Beyond BRAC 1995

While there has been a certain consistency between decisions made in the 1990s and the present location of bases and forces, non-BRAC related changes have occurred since 1995 that have altered the location and ownership of some Air Force assets. Though not always directly related to the composite wing structure itself, the majority of these post-1995 alterations have effectively ended this organization.

Since its inception in 1992, ACC had owned some C–130 tactical airlifters, the result of the Air Force's creation of the composite wing at Pope AFB. The perceived success of this wing prompted General McPeak in 1993 to direct that all CONUS-based C–130s be reassigned from AMC to ACC. However, by late 1996, Air Force leadership was convinced that a "seamless mobility system" was imperative to the success of future operations in theaters like Bosnia, where a very active strategic airlift mission proved inseparable from the tactical airlift mission conducted alongside it. The division of CONUS-based mobility assets had created seams in training and deployment capabilities by dispersing tanker airlift control elements and operations between two commands. Therefore, to eliminate the rift between theater and strategic airlift, the Air Force in 1997 returned operational control of its CONUS-based C–130 and C–21 airlifters to AMC. As part of the reorganization, the 23rd Wing at Pope AFB inactivated, and its C–130s, along with Pope itself, returned to AMC control.[87] Little Rock AFB, the only C–130 training base, went to AETC.[88]

The 347th Wing at Moody AFB also lost its C–130s under this reorganization but gained HH–60s and HC–130s for combat search and rescue. Fighter squadrons, also, continually shifted in and out, and in May 2001 the 347th Wing officially converted to the 347th Rescue Wing, the only Air Force active-duty combat search and rescue wing. In 2003, the Air Force transferred command of Moody from ACC to AFSOC to consolidate combat search and rescue and take advantage of combining like aircraft and missions.[89]

The 366th Wing at Mountain Home AFB also had a similar experience in 2002, but its dissolution was due in part to Air Force efforts to reduce and consolidate all B–1B assets. The BUR determined the bomber requirement by 1999 to include as many as 184 total bombers. The Air Force in 1999 slightly increased its requirement to 190 bombers: 93 B–1s, 21 B–2s, and 76 B–52s. Of these, 70 B–1s, 16 B–2s, and 44 B–52s were combat-ready.[90] However, in mid-2001 the Air Force announced it would reduce its B–1B inventory from 93 to 60 aircraft and consolidate the assets at Ellsworth and Dyess AFBs, ending the B–1B mission for Mountain Home and the ANG units at Robins and McConnell

AFBs.[91] The Air Force explained that the savings gained from reduction and consolidation could be used to modernize the remaining sixty aircraft, increasing their "war-time punch," providing greater survivability against more complex air defense systems, producing higher mission-capable rates, and allowing for easier maintainability. Therefore, in conjunction with these and other changes, the Air Force officially redesignated the 366th Wing the 366th Fighter Wing.[92]

Summary

Dramatic changes in global politics, due in large part to the collapse of the Soviet Union, significantly altered the defense strategy of the United States. No longer faced with a monolithic threat, the United States drastically reduced its CONUS-based forces under the first President Bush's Base Force defense strategy, through President Clinton's Bottom-Up Review, and in accordance with STARTs I and II. The Reagan administration had planned for more than forty fighter wings, though it never fielded more than thirty-seven, to fight the former Soviet Union. Faced with regional threats, the first President Bush cut forces to twenty-six wings and President Clinton reduced the wings to twenty. Strategic bombers, pegged at 300 under Cold War plans, shrunk to 210 under the Bush administration and to 184 under President Clinton. The entire stock of Minuteman II ICBMs, 450 in all, was deactivated. The only major element in the Air Force that did not decline in this period was airlift, which in light of diffuse post–Cold War threats had to maintain sufficient capacity to move troops and equipment rapidly. These major force reductions, coupled with a diminished Air Force budget, 30 percent lower in 1995 than it had been in 1990, necessitated that the Air Force curtail an infrastructure that was draining its funding and no longer viable in a post–Cold War world.[93]

Before 1988, restrictive provisions of the 1969 NEPA had halted all attempts to close major domestic bases. To achieve the savings demanded by stringent reductions in defense funding, new legislation passed in 1988 and again in 1990 allowed for four separate rounds of base closings and gave the DOD the chance to balance its CONUS base structure with a reduced force structure. In recognition of changing world events, the Air Force supported DOD initiatives, first in 1990 with Global Reach–Global Power, and then again in 1992 with the fundamental reshaping of its major commands. While Global Reach–Global Power provided the strategic planning framework, reorganization allowed the Air Force to inactivate obsolete commands and transfer authority to a new streamlined structure. To reconcile its CONUS base structure with limited defense funding, force reductions, and arms limitations, the Air Force proposed to the four BRAC commissions a number of closures and realignments. Between 1988 and 1995, the BRACs officially recommended twenty-nine major Air Force base closures and ten realignments.[94]

The first two BRACs, especially BRAC 1991, gave the Air Force the opportunity to divest itself of a bloated infrastructure by targeting bases under the former SAC and former TAC. Force structure reductions required SAC to close and con-

solidate aircraft from six B–52/KC–135 bases. TAC relocated its assets from four bases to other installations and moved many of its active A–10s and F–16s to the ANG. The 1993 and 1995 commissions also trimmed excess capacity; more importantly, they gave the Air Force the chance to shift assets that had transferred in place, along with supporting base structures, during the 1992 reorganization. Deactivation of B–52G aircraft, beginning in 1992, required the Air Force to adjust the pared-down basing needs of bombers of the ACC by removing excess locations and consolidating the remaining B–52Hs at Minot AFB and Barksdale AFB, both bases critical for SIOP and conventional warfare purposes. With the exception of hurricane-ravaged Homestead AFB, most ACC fighter base adjustments had been made under the first two BRACs which, for the most part, aligned those forces to southeastern locations for rapid deployment and sustainment of combat forces, and to southwestern bases for operations, testing, and training (see Table 4.14 for a complete listing). However, ACC did transfer ownership of two fighter bases to AETC when AETC took over most of the combat crew training in 1993. AMC also transferred a base for the same reason. The first two commissions consolidated ATC (later, AETC) assets from two technical training and two flying training installations onto bases with a better quality of and quantity of facilities, and in the case of the flying training installations, with better airspace. Lastly, ACC lost control over its pared-down ICBM forces, along with two missile bases, when the Air Force transferred authority to the AFSPC in 1993.[95]

AMC utilized the 1993 commission to merge the assets of its SAC-gained tankers with some of its airlifters at two coastal locations and to disperse the remaining tankers throughout core CONUS base locations. The rest of AMC airlifter bases, like McChord AFB in Washington state which supported the rapid deployment of Army troops to the Pacific, were critical to the global reach mission and remained untouched. For AFMC and AFRES component bases, while reductions in excess capacity were made during the 1995 process, most Air Force selections met with mixed results. The commission chose not to close any product centers or laboratories despite three Air Force recommendations. It did cut depot capacity, though in a different way than that envisioned by the Air Force, by closing and realigning two bases.

The law required DOD to complete closure and realignment actions for the 1988 round by 30 September 1995, and for the 1991, 1993, and 1995 rounds within six years from the date the President forwarded the recommended actions to Congress. However, the legislation allowed for property disposal and environmental cleanup beyond the six-year time frame. By 30 September 2001, DOD reported it had taken all necessary steps to implement the recommendations from the four commissions.[96] Tables 4.15 through 4.20 break down the remaining Air Force infrastructure by command and list the surviving major installations with their associated missions and weapon systems. The data highlight the span of consistency between decisions made in the early 1990s and the location of present-day forces and their bases.

Table 4.14: Air Combat Command, 2003

Bases by Geographic Region	Mission	Major Weapon System(s)
Midwest		
Ellsworth AFB, S.Dak.	B-1 operations	B-1
Minot AFB, N.Dak.	B-52 operations	B-52H and AFSPC owned Minuteman IIIs
Offutt AFB, Nebr.	Worldwide reconnaissance, command and control, and combat support to war-fighting commanders; tenant – U. S. Strategic Command	E-4B, EC-130H*, OC-135B, RC-135S/U/V/W, TC-135S/W, WC-135C/W
Whiteman AFB, Mo.	B-2 operations	B-2, T-38
South		
Barksdale AFB, La.	B-52 operations and training; tenant – Eighth Air Force	B-52H
Dyess AFB, Tex.	B-1 operations	B-1, C-130
Langley AFB, Va.	F-15 air superiority operations; tenant – ACC	F-15C/D
Seymour Johnson AFB, N.C.	F-15E operations and training	F-15E
Shaw AFB, S.C.	F-16CJ operations; tenant – Ninth Air Force	F-16C/CJ/D
West		
Beale AFB, Calif.	RC-135 and U-2 operations	T-38, U-2R/S, Global Hawk
Cannon AFB, N.Mex.	F-16 operations	F-16C/D
Davis-Monthan AFB, Ariz.	A-10 combat crew training; OA-10 training and operations; EC-130E/H operations; tenant – Twelfth Air Force	A/OA-10, C-130
Holloman AFB, N.Mex.	F-117 operations	AT-38B, F-117A, German F-4F
Mountain Home AFB, Idaho	Air Expeditionary Wing; F-15C/D/E and F-16CJ/D operations	F-15C/D/E, F-16CJ/D
Nellis AFB, Nev.	Air warfare center	A-10, F-15C/D/E, F-16C/D, HH-60, Predator

Sources: MSgt. Scott Elliott, "AFSOC taking combat search, rescue," *Air Force Print News*, April 30, 2003, http://www.af.mil/stories/story.asp?storyID=123004751; "Space and Missile Systems Center becomes part of Air Force Space Command," AF.MIL. http://www.af.mil/media_center/Oct-Dec2001/02100101print.html; "USAF Almanac 1994," *Air Force Magazine* 77, no.5 (1994): 103; "USAF Almanac 1997," *Air Force Magazine* 80, no.5 (1997): 85, 95, 141; "USAF Almanac 2003," *Air Force Magazine* 86, no. 5 (2003): 110–153.

* Located at Davis-Monthan AFB.

Table 4.15: Air Education and Training Command, 2003

Bases by Geographic Region	Mission	Major Weapon System(s)
South		
Altus AFB, Okla.	C-5, C-17, KC-135 training	C-5, C-17, KC-135
Columbus AFB, Miss.	Specialized undergraduate pilot training	T-1, T-37, T-38
Goodfellow AFB, Tex.	Intelligence, fire protection, special instruments training for DOD/Others	-------
Keesler AFB, Miss.	Communications, electronics, radar, computer and command and control systems, and physician training; tenant – Second Air Force	C-130
Lackland AFB, Tex.	Largest USAF training wing	C-5, F-16
Laughlin AFB, Tex.	Specialized undergraduate pilot training	T-1, T-6, T-37, T-38
Little Rock AFB, Ark.*	Largest C-130 training base	C-130
Maxwell AFB (includes Gunter Annex), Ala.	Military, graduate, professional education; tenant – Air University	-------
Randolph AFB, Tex.	Instructor pilot training; fighter fundamentals; tenants – AETC, Nineteenth Air Force	T-1, T-6, T-37, T-38, T-43
Sheppard AFB, Tex.	Largest technical training center	T-37, T-38
Tyndall AFB, Fla.	F-15 operations; F-15 air-to-air pilot training; tenants – First Air Force and Southeast Air Defense Sector (ANG)	BQM-34, F-15, F/A-22, MQM-107, QF-4
Vance AFB, Okla.	Joint specialized undergraduate pilot training	T-1, T-37, T-38
West		
Luke AFB, Ariz.	F-16 operations/aircrew training	F-16

Sources: MSgt. Scott Elliott, "AFSOC taking combat search, rescue," *Air Force Print News*, April 30, 2003, http://www.af.mil/stories/story.asp?storyID=123004751; "Space and Missile Systems Center becomes part of Air Force Space Command," AF.MIL. http://www.af.mil/media_center/Oct-Dec2001/02100101print.html; "USAF Almanac 1994," *Air Force Magazine* 77, no.5 (1994): 103; "USAF Almanac 1997," *Air Force Magazine* 80, no.5 (1997): 85, 95, 141; "USAF Almanac 2003," *Air Force Magazine* 86, no. 5 (2003): 110–153.

* In April 1997, AETC acquired Little Rock AFB when it took over the C–130 combat crew training mission from ACC.

Table 4.16: Air Force Materiel Command, 2003

Bases by Geographic Region	Mission	Major Weapon System(s)
Northeast		
Hanscom AFB, Mass.	Development/Acquisition of command and control systems	-------
Midwest		
Wright-Patterson AFB, Ohio	Develops, acquires, sustains aerospace systems; tenant – AFMC	-------
South		
Arnold AFB, Tenn.	Supports acquisition of new aerospace systems through research and development (R&D)	-------
Brooks City-Base, Tex.*	Aerospace medicine; assesses and manages health, safety, and environmental risks to personnel	-------
Eglin AFB, Fla.	Testing, acquisition, deployment of all air-delivered weapons	F-15
Robins AFB, Ga.	Logistics for C-5, C-130, C-141, F-15, helicopters, and missiles; tenant – AFRC	E-8
Tinker AFB, Okla.	Logistics and depot maintenance for over 850 aircraft including the B-1B, B-2, B-52, E-3, and KC-135	E-3, E-6
West		
Edwards AFB, Calif.	Testing on manned and unmanned aircraft	-------
Hill AFB, Utah	Engineering/Logistics for F-16s; maintains A-10, C-130, F-16; logistics/maintenance on Minuteman and Peacekeeper ICBMs; logistics for space and C3I programs	F-16
Kirtland AFB, N.Mex.	Munitions maintenance, worldwide training, R&D, and testing	C-130, MH-53

Sources: MSgt. Scott Elliott, "AFSOC taking combat search, rescue," *Air Force Print News*, April 30, 2003, http://www.af.mil/stories/story.asp?storyID=123004751; "Space and Missile Systems Center becomes part of Air Force Space Command," AF.MIL. http://www.af.mil/media_center/Oct-Dec2001/02100101print.html; "USAF Almanac 1994," *Air Force Magazine* 77, no.5 (1994): 103; "USAF Almanac 1997," *Air Force Magazine* 80, no.5 (1997): 85, 95, 141; "USAF Almanac 2003," *Air Force Magazine* 86, no. 5 (2003): 110–153.

* On 22 July 2002 the Air Force conveyed Brooks AFB's land, facilities, and utilities to the Brooks Development Agency, which changed the name to Brooks City-Base. The Air Force now leases the land and facilities through the agency.

Table 4.17: Air Force Space Command, 2003*

Bases by Geographic Region	Mission	Major Weapon System(s)
South		
Patrick AFB, Fla.	Launch/Range operations for DOD and NASA; shuttle program support	C-130, H-60
West		
Buckley AFB, Colo.**	Missile warning and space communications	F-16
F.E. Warren AFB, Wyo.	Maintains/Operates Peacekeeper and Minuteman III ICBMs; tenant – Twentieth Air Force	Minuteman III, Peacekeepers, UH-1
Los Angeles AFB, Calif.^	R&D; purchase of military space and missile systems	-------
Malmstrom AFB, Mont.	Minuteman III Operations	Minuteman III, UH-1
Peterson AFB, Colo.	Missile warning and space surveillance; tenants – AFSPC, U.S. Northern Command, NORAD	-------
Schriever (Falcon) AFB, Colo.	Command and control of DOD/Allied satellites	-------
Vandenberg AFB, Calif.	Polar-orbiting launches and launch R&D tests; test support for DOD space and ICBM systems; tenant – Fourteenth Air Force	UH-1, Delta II, Atlas IIAS, Titan II, Titan IV, Pegasus, Taurus

Sources: MSgt. Scott Elliott, "AFSOC taking combat search, rescue," *Air Force Print News*, April 30, 2003, http://www.af.mil/stories/story.asp?storyID=123004751; "Space and Missile Systems Center becomes part of Air Force Space Command," AF.MIL. http://www.af.mil/media_center/Oct-Dec2001/02100101print.html; "USAF Almanac 1994," *Air Force Magazine* 77, no.5 (1994): 103; "USAF Almanac 1997," *Air Force Magazine* 80, no.5 (1997): 85, 95, 141; "USAF Almanac 2003," *Air Force Magazine* 86, no. 5 (2003): 110–153.

* The Air Force converted Cheyenne Mountain Complex from an AFB to an AFS in July 1994.
** On 2 October 2000, Buckley Air National Guard Base became an active duty base when the Air Force transferred it from the Colorado Air National Guard to AFSPC.
^ On 1 October 2001, the Air Force transferred Los Angeles AFB from AFMC to AFSPC.

Table 4.18: Air Force Special Operations Command, 2003

Bases by Geographic Region	Mission	Major Weapon System(s)
South		
Hurlburt Field, Fla.	Specialized air power; tenant – AFSOC	AC-130H/U, C-41A, C-130, MC-130H, MC-130P, MH-53J/M, UH-1N
Moody AFB, Ga.*	HC-130, HH-60 operations	HC-130, HH-60, T-6, T-38

Sources: MSgt. Scott Elliott, "AFSOC taking combat search, rescue," *Air Force Print News*, April 30, 2003, http://www.af.mil/stories/story.asp?storyID=123004751; "Space and Missile Systems Center becomes part of Air Force Space Command," AF.MIL. http://www.af.mil/media_center/Oct-Dec2001/02100101print.html; "USAF Almanac 1994," *Air Force Magazine* 77, no.5 (1994): 103; "USAF Almanac 1997," *Air Force Magazine* 80, no.5 (1997): 85, 95, 141; "USAF Almanac 2003," *Air Force Magazine* 86, no. 5 (2003): 110–153.

* On 1 October 2003, the Air Force transferred Moody AFB from ACC to Air Force Special Operations Command in order to consolidate combat search and rescue and take advantage of combining like aircraft and missions.

Table 4.19: Air Mobility Command, 2003

Bases by Geographic Region	Mission	Major Weapon System(s)
Northeast		
McGuire AFB, N.J.	C-141/KC-10 operations; tenant – Twenty-First Air Force	C-17, C-141, KC-10
Midwest		
Grand Forks AFB, N.Dak.	KC-135R operations	KC-135
McConnell AFB, Kans.	KC-135 operations	KC-135
Scott AFB, Ill.	C-9/C-21 operations; tenants – AMC, U.S. Transportation Command	C-9, C-21
South		
Andrews AFB, Md.	Airlift for president and top officials	C-9, C-20, C-32, C-37, F-16, VC-25, UH-1
Charleston AFB, S.C.	C-17 operations	C-17
Dover AFB, Del.	Provides 25 percent of nation's intertheater airlift capability	C-5
MacDill AFB, Fla.	KC-135 operations; tenants – U.S. Special Operations Command, U.S. Central Command	C-37, KC-135
Pope AFB, N.C.*	C-130 operations; intratheater combat airlift and support	A-10, C-130
West		
Fairchild AFB, Wash.	KC-135R/T operations	KC-135
McChord AFB, Wash.	C-17 operations; tenant – Western Air Defense Sector (ANG)	C-17
Travis AFB, Calif.	C-5/KC-10 operations; tenant – Fifteenth Air Force	C-5, C-17, KC-10

Sources: MSgt. Scott Elliott, "AFSOC taking combat search, rescue," *Air Force Print News*, April 30, 2003, http://www.af.mil/stories/story.asp?storyID=123004751; "Space and Missile Systems Center becomes part of Air Force Space Command," AF.MIL. http://www.af.mil/media_center/Oct-Dec2001/02100101print.html; "USAF Almanac 1994," *Air Force Magazine* 77, no.5 (1994): 103; "USAF Almanac 1997," *Air Force Magazine* 80, no.5 (1997): 85, 95, 141; "USAF Almanac 2003," *Air Force Magazine* 86, no. 5 (2003): 110–153.

* In April 1997, AMC acquired Pope AFB when ACC C–130s and C–21s returned to AMC.

Table 4.20: Air Force Reserve Command and Air National Guard, 2003*

Bases by Geographic Region	Major Weapons System(s) and NAFs
Northeast	
Otis ANGB, Mass.	F-15
Westover ARB, Mass.	C-5A
Midwest	
Grissom ARB, Ind.	KC-135R
Selfridge ANGB, Mich.	KC-135E, F-16
South	
Dobbins ARB, Ga.	C-130H; Twenty-Second Air Force
West	
March ARB, Calif.	C-141C, KC-135R; Fourth Air Force

Sources: MSgt. Scott Elliott, "AFSOC taking combat search, rescue," *Air Force Print News*, April 30, 2003, http://www.af.mil/stories/story.asp?storyID=123004751; "Space and Missile Systems Center becomes part of Air Force Space Command," AF.MIL. http://www.af.mil/media_center/Oct-Dec2001/02100101print.html; "USAF Almanac 1994," *Air Force Magazine* 77, no.5 (1994): 103; "USAF Almanac 1997," *Air Force Magazine* 80, no.5 (1997): 85, 95, 141; "USAF Almanac 2003," *Air Force Magazine* 86, no. 5 (2003): 110–153.

* List includes only major AFRC and ANG installations.

Note: The remaining CONUS major installations in 2003 included Headquarters USAF, D.C. at Bolling AFB, D.C., and the U.S. Air Force Academy in Colorado, both reporting units of the USAF, and Eielson AFB and Elmendorf AFB in Alaska and Hickam AFB in Hawaii, all belonging to the Pacific Air Forces.

NOTES

1. Department of the Air Force, *Air Force Issues Book, 1989* (Washington, D.C.: U.S. Government Printing Office, 1989), x–xii, 13; William T. Y'Blood, "Metamorphosis: The Air Force Approaches the Next Century," (hereafter, Y'Blood) in *Winged Shield, Winged Sword: A History of the United States Air Force,* vol. 2, ed. Bernard C. Nalty, 535–536 (Washington, D.C.: Air Force History and Museums Program, 1997).
2. Department of Defense, *Base Structure Report for Fiscal Year 1989,* prepared by Office of the Assistant Secretary of Defense (Production and Logistics), (Washington, D.C., February 1988), (hereafter, *Base Structure Report, 1989*) 81–82; House, *Defense Base Closure and Realignment Commission, Message from the President of the United States transmitting the Report of the Defense Base Closure and Realignment Commission, Accompanied by the Commission's Errata Sheet Submitted on July 9, 1991, Pursuant to Public Law 101–510, Section 2903(e) (104 STAT. 1812),* 102d Congress, 1st sess., 10 July 1991, H. Doc. 102–111, (hereafter, *Message, 1991*) 12.
3. Base Structure Report, 1989, 82.
4. The installment of Peacekeepers at Francis E. Warren was a "near-term way to partially redress the imbalance in prompt, hard-target kill capability." However, it did not provide the ICBMs with improved survivability and, therefore, Congress halted additional deployments until approval of a more survivable basing mode, the Rail Garrison. Under this concept the Air Force would place the remaining Peacekeepers on trains stationed at various installations. However, due to arms reductions and fiscal constraints, the Air Force terminated the program. Air Force, *Issues Book, 1989,* 23–24; Department of the Air Force, *Air Force Issues Book, 1992* (Washington, D.C.: U.S. Government Printing Office, 1992), 4.
5. *Base Structure Report, 1989,* 82–83; Department of the Air Force, *Air Force Issues Book, 1988* (Washington, D.C.: U.S. Government Printing Office, 1988), 2–9; Pt Ppr, SAC/XPPB, "B–2 Procurement and Basing," Jun 18, 1990, SD 10–114 in History, SAC, Jan–Dec 1990, vol. 23, AFHRA K416.01–219; "U.S. Air Force Fact Sheet, B–2 Spirit," AF.MIL. http://www.af.mil/factsheets/factsheet_print.asp?fsID=82&page=1.
6. *Base Structure Report, 1989,* 84.
7. Ibid., 85.
8. Ibid., 81, 85–87.
9. Department of Defense, *Base Closure and Realignment Report, April 1991* (Washington, D.C.: U.S. Government Printing Office, 1991), (hereafter, *Report, 1991*) 168; Department of Defense, *Base Realignments and Closures, Report of the Defense Secretary's Commission, December 1988* (Washington, D.C.: U.S. Government Printing Office, 1988), (hereafter, *Report, 1988*) 6, 23, 39, 41; General Accounting Office, *Military Bases: Lessons Learned from Prior Base Closure Rounds, July 1997,* report to the Congress, GAO/NSIAD–97–151 (Washington, D.C., July 1997), (hereafter, *Lessons Learned*) 15; Stephen R. Schwalbe, "An Expose on Base Realignment and Closure Commissions," *Air and Space Power Chronicles* (July 10, 2003): (hereafter, Schwalbe) 3. http://www.air power.maxwell.af.mil/airchronicles/cc/schwalbe.html. In subsequent years, the 1988 Defense Secretary's Commission on Base Realignment and Closure became known as BRAC, which acronym remains in general use today.
10. *Report, 1988,* 10; Schwalbe, 3
11. *Base Structure Report, 1989,* 75–77; History, SAC, Jan–Dec 1989, 1: 349, AFHRA K416.01–219.
12. "In January 1989, the Chairmen and Ranking Minority Members of the Senate and House Committees on Armed Services asked the General Accounting Office (GAO) to review the Commission's methodology, findings, and recommendations." General Accounting Office, *Military Bases: An Analysis of the Commission's Realignment and*

Closure Recommendations, report to Congressional Requesters, GAO/NSIAD–90–42 (Washington, D.C., November 1989), (hereafter, *GAO, 1989*) 2, 17–19; *Report, 1988,* 12–16.

13. The law required DOD to complete closure and realignment actions for the 1988 round by September 30, 1995. General Accounting Office, *Military Base Closures: Progress in Completing Actions from Prior Realignments and Closures,* report to the Honorable Vic Snyder, House of Representatives, GAO–02–433, (Washington, D.C., April 2002), (hereafter, *GAO, BRAC Progress*) 5; *GAO, 1989,* 19–20, 26; *Report, 1988,* 16–18, 74–79.
14. History, SAC, Jan–Dec 1989, 1: 349 AFHRA K416.01–219; *Report, 1988,* 74–75.
15. The F–4G "Advanced Wild Weasel" was an "E" model modified with advanced electronic warfare equipment. "F–4G Advanced Wild Weasel," GlobalSecurity.Org. http://www.globalsecurity.org/military/systems/aircraft/f-4g.htm.
16. *Report, 1988,* 75–76.
17. *Report, 1988,* 76–78; Rpt, HQ Historical Research Center, "List of Active United States Air Force Organizations Through 31 December 1988," January 15, 1989, 63, AFHRA K238.054–31.
18. Pease AFB began the transfer of its FB–111s to Cannon AFB (TAC) in June 1990, where the aircraft were converted to F–111Gs. SAC completed the transfer of its remaining FB–111s to TAC in 1991 when it moved the last of them from Plattsburgh AFB to Cannon AFB. History, 509th Bombardment Wing, Medium, Jan–Sept 1990, 1: 30, AFHRA K–WG–509–HI; History, SAC, Jan–Dec 1991, 1: xxvii–xxviii AFHRA K416.01–219.
19. Extract from USAF PAD 89–2, "Base Realignment/Closure from SecDef Commission Results," 1 Feb. 1989, SD 10–3 in History, SAC, Jan–Dec 1989, 16: 1, AFHRA K416.01–219; History, SAC, Jan–Dec 1989, 1: 349–350, AFHRA K416.01–219; *Report, 1988,* 78–79; "Strategic Command," GlobalSecurity.Org. http://www.globalsecurity.org/wmd/agency/stratcom.htm.
20. Air Force, *Issues Book, 1989,* 1; Julie Bird and John Ginovsky, "Base Closures: Many Yeas, Some Nays," *Air Force Times,* January 9, 1989, 3; *Report, 1991,* 169.
21. Eric V. Larson, *Defense Planning in a Decade of Change: Lessons from the Base Force, Bottom-Up Review, and Quadrennial Defense Review* (Santa Monica: Rand, 2001), (hereafter, Larson) 2: 6, 10; General Accounting Office, *Force Structure: Issues Involving the Base Force,* report to the Congressional Requesters, GAO/NSIAD–93–65, (Washington, D.C., January 1993), (hereafter, GAO, *Issues Involving the Base Force*) 16, 21.
22. Forward Deployment: large permanent overseas based forces. Forward Presence: smaller permanent overseas forces offset by periodic deployments. Larson, 11; Warren A. Trest, *Air Force Roles and Missions: A History* (Washington, D.C.: Air Force History and Museums Program, 1998), (hereafter, Trest) 249; Y'Blood, 545–546.
23. "Air Force Special Operation Command," GlobalSecurity.Org. http://www.globalsecurity.org/military/agency/usaf/afsoc.htm; History, AFSPC, Jan–Dec 1991, 1: xviii AFHRA K496.01; History, AFSPC, Jan–Dec 1990, 1: xv, 2, 7 AFHRA K496.01.
24. The Air Force tested the composite wing concept at Seymour Johnson AFB, in April 1991, without realignments, by merging F–15Es and KC–10s already stationed on base. Merrill A. McPeak, *Selected Works, 1990–1994* (Maxwell AFB: Air University Press, August 1995), (hereafter, McPeak) 55.
25. Department of the Air Force, *Air Force Issues Book, 1993* (Washington, D.C.: U.S. Government Printing Office, 1993), 13; Department of the Air Force, *Global Reach Global Power: The Evolving Air Force Contribution to National Security* (Washington, D.C., December 1992), (hereafter, *Global Reach Global Power*) 5; McPeak, 5–6, 10–11.

26. The 1988 Carlucci Commission was subsequently referred to as BRAC I, or BRAC 1988.
27. However, as in 1988, Congress set aside the provisions of NEPA to allow the commission to make recommendations and the President to approve or disapprove them. *Report, 1991,* 11.
28. The law required DOD to complete closure and realignment actions for the 1991, 1993, and 1995 rounds within six years from the date the President forwarded the recommended actions to Congress. *Defense Base Closure and Realignment Act, U.S. Code,* vol. 2, (hereafter, *Defense Base Closure and Realignment Act*) sec. 2901, 2903 (1990); *GAO, BRAC Progress,* 5; *Message, 1991,* 11, 18–19; Report, 1991, 7–11, 170.
29. *Defense Base Closure and Realignment Act, U.S. Code,* sec. 2901; Department of the Air Force, *Air Force Issues Book, 1990* (Washington, D.C.: U.S. Government Printing Office, 1990), 35; *Message, 1991,* 11.; *Report, 1991,* 1–2, 7, 20–21.
30. General Accounting Office, *Military Bases: Observations on the Analyses Supporting Proposed Closures and Realignments,* report to the Congress and the Chairman, Defense Base Closure and Realignment Commission, GAO/NSIAD–91–224, (Washington, D.C., May 1991), (hereafter, *GAO, 1991*) 37–38.
31. The Air Force used a different approach for the twenty-one reserve component bases. It initially examined these bases to identify savings that would result from realigning reserve and guard units to active installations. If a base showed significant savings, the Air Force would examine it using the eight DOD criteria. *GAO, 1991,* 38–39; *Report, 1991,* 90.
32. Julie Bird, "AF Panel Chief Explains Selection Process," *Air Force Times,* April, 22 1991, 4; *Message, 1991,* 13, 26.
33. *GAO, 1991,* 40; *Report, 1991,* 100–101.
34. *GAO, 1991,* 41; *Report, 1991,* 108–109.
35. *GAO, 1991,* 41–42; *Message, 1991,* 57–71.
36. *GAO, 1991,* 41–42; *Message, 1991,* 57–71; *Report, 1991,* 99–100.
37. *GAO, 1991,* 42; *Message, 1991,* 59–60.
38. *GAO, 1991,* 39–40, 45–47; *Message, 1991,* 68–70.
39. *GAO, 1991,* 42–43; *Message, 1991,* 57–71; *Report, 1991,* 102.
40. *Message, 1991,* 66–67.
41. BRAC 1991 realignments also set up a composite wing at Pope AFB by combining A/OA–10s and F–16s with Pope's C–130s in order to provide airlift and tactical air support for Army airborne training and deployments. History, AMC, June 1992–December 1994, 1: 54 AFHRA K323.01; McPeak, 55; "Mountain Home Air Force Base: History," MountainHome.af.mil.http://www.mountainhome.af.mil/WingStaff/HO/index.asp (hereafter, "Mountain Home, Composite Wing"); *Report, 1988,* 75–76; *Report, 1991,* 114–115.
42. Crisis Response: improvement of U.S. capability to respond to crises in light of reductions to forward-deployed forces; Reconstitution: the ability to rebuild forces and forestall an enemy from militarily competing with the United States. Larson, 11.
43. Also referred to as major regional conflict. This permitted the United States to employ decisive force in one part of the world while retaining sufficient forces for a second conflict elsewhere. Larson, 6, 10–11; GAO, *Issues Involving the Base Force,* 27.
44. When SAC stood down on June 1, 1992, the Air Force transferred responsibility for strategic nuclear force targeting and control to the newly activated United States Strategic Command (USSTRATCOM). Air Force, *Issues Book, 1992,* 4–5; *Global Reach Global Power,* 13; McPeak, 54–59.
45. *Global Reach Global Power,* 14; History, AMC, June 1992–December 1994, 1: 27–29,

40, AFHRA K323.01; Y'Blood, 549.

46. Department of the Air Force, *Air Force Issues Book, 1991* (Washington D.C., 1991), 31; Msg, OSAF/PA to ALMAJCOM–FOA/CC, "Public Affairs Guidance–TAC-MAC-SAC Inactivation and ACC-AMC Activation Interim Announcement," 062355Z Dec 91, SD 1–34 in History, AMC (Provisional), January 15–May 31, 1992, Global Reach for America: Air Mobility Command's Inception, 2: 3, 4, AFHRA K323.01.
47. *Air Force, Issues Book, 1992,* 4–6; Air Force, *Issues Book, 1993,* 9; Robert G. Joseph and Ronald F. Lehman II, comps., *U.S. Nuclear Policy in the 21st Century: A Fresh Look at National Strategy and Requirements, Final Report,* (Washington, D.C.: U.S. Government Printing Office, 1998), 4.17, 4.19; Y'Blood, 543–544.
48. Department of Defense, *Base Closure and Realignment Report, March 1993* (Washington, D.C.: U.S. Government Printing Office, 1993), (hereafter, *Report, 1993*) 3; General Accounting Office, *Military Bases: Analysis of DOD's Recommendations and Selection Process for Closures and Realignments,* report to the Congress and the Chairman, Defense Base Closure and Realignment Commission, GAO/NSIAD–93–173, (Washington, D.C., April 1993), (hereafter, *GAO, 1993*) 11–14.
49. Categories and Subcategories: 1) Flying: operations (missile bases, large aircraft bases, and smaller aircraft bases), **pilot training, special operations forces;** 2) Industrial/technical support: depots, **product centers and laboratories, test facilities;** 3) Training: **technical training,** education; 4) Other: **major headquarters,** space operations, cantonments; 5) Air Reserve component: Air National Guard, Air Force Reserve. The Air Force deemed all bases in the education and space operations subcategories mission-essential and excluded them from consideration. The six subcategories highlighted in bold were the ones the Air Force excluded from further consideration for reasons of no excess capacity. *GAO, 1993,* 42, 92–95.
50. House, *Defense Base Closure and Realignment Commission Report to the President, Communication from the President of the United States transmitting His Certification of His Approval of All the Recommendations Contained in the Commission's Report, Pursuant to Public Law 101–510, Section 2903(e) (104 STAT. 1812)* 103d Congress, 1st sess., 14 July 1993, H. Doc. 103–115, (hereafter, *Communication, 1993*) 12; *Report, 1993,* 1, 27.
51. *GAO, 1993,* 14–15, 23, 46; General Accounting Office, *Closing Maintenance Depots: Savings, Workload, and Redistribution Issues,* report to Congressional Requesters, GAO/NSIAD–96–29, (Washington, D.C.: March 1996), (hereafter, *GAO, Closing Depots*) 64.
52. *GAO, 1993,* 23, 46; *GAO, Closing Depots,* 64; *Communication, 1993,* 97–98.
53. Air Force, *Issues Book, 1993,* 23–25; *Communication, 1993,* 87; History, AMC, June 1992–December 1994, 1: 6, 40, AFHRA K323.01.
54. History, AMC, June 1992–December 1994, 1: 18, AFHRA K323.01; *Report, 1993,* 117–118; Richard A. Bernardi, "The Base Closure and Realignment Commission: A Rational or Political Decision Process?" *Public Budgeting & Finance* 16, no. 1 (1996): 39–40.
55. *Communication, 1993,* 91–93.
56. As part of this transfer, ACC gave AMC most of its remaining KC–10s and KC–135s tankers, which had been assigned to ACC upon its activation. These actions, by 1995, caused Seymour Johnson AFB to lose its composite wing status. *Communication, 1993,* 87–88, 90–91; History, AMC, June 1992–December 1994, 1: 7, 41, 43, AFHRA K323.01; History, ACC, Jan–Dec 1993, 1: xxxiii, AFHRA K401.01; "Seymour Johnson: Wing History," SeymourJohnson.af.mil.http://www.seymourjohnson.af.mil/wing_history/wing_history.htm.
57. In 1996, when 116th ANG Wing converted from F–15 fighters to B–1Bs, the wing also simultaneously relocated to Robins AFB, which had the necessary airspace required to fly the B–1B. "116th Air Control Wing: History," http://www.garobi.ang.af.mil/Histo-

ry/history.htm; "Robins AFB, Warners Robins, GA," Global Security.Org. http://www.globalsecurity.org/military/facility/robins.htm.

58. Beginning in 2001, all B–1Bs returned to Dyess and Ellsworth. "B–1B Lancer," GlobalSecurity.Org. http://www.globalsecurity.org/wmd/systems/b-1b.htm; "184th Bomb Wing/184th Air Refueling Wing," GlobalSecurity.Org. http://www.globalsecurity.org/military/agency/usaf/184bw.htm; "Mountain Home, Composite Wing."
59. *Communication, 1993,* 88, 101.
60. Ibid., 88–89.
61. *Communication, 1993,* 93–94, 97; *Report, 1993,* 109–110.
62. By 1997, the ANG assumed complete responsibility for the First Air Force, which consisted of ten fighter wings and three air defense sectors for the northeast (Rome, New York), southeast (Tyndall AFB, Florida), and western (McChord AFB, Washington) regions of the CONUS. "First Air Force," GlobalSecurity.Org. http://www.globalsecurity.org/military/agency/usaf/1af.htm; History, ACC, Jan–Dec 1993, 1: 68–69 AFHRA K401.01; "History: First Air Force," http://www.1staf.tyndall.af.mil/history.html.
63. This helped the Air Force set up another composite wing at Moody AFB in mid-1994, composed of F–16s, A/OA–10s, and C–130Es. "347th Rescue Wing [347th RQW]," GlobalSecurity.Org. http://www.globalsecurity.org/military/agency/usaf/347rqw.htm.
64. History, AMC, June 1992–December 1994, 1: 15, 84, AFHRA K323.01; History, ACC, Jan–Dec 1993, 1: xxxiii, AFHRA K401.01; McPeak, 196–199; Y'Blood, 549–550; "USAF Almanac 1993," *Air Force Magazine* 76, no. 5 (1993): 113–121.
65. At the end of 1994, the Air Force had a total of 193 bombers: 95 B–1Bs, 94 B–52Hs, and 4 B–2s. Of this, only 152 were considered operational: 84 B–1Bs, 64 B–52Hs, and 4 B–2s. The rest were used for training and backup or were in maintenance. Congressional Budget Office, *The Costs of the Administration's Plan for the Air Force Through the Year 2010,* distributed by Defense Technical Information Center (Washington, D.C., November 1994), (hereafter, CBO: Costs) 5–6; Department of the Air Force, *Air Force Issues Book, 1994* (Washington, D.C.: U.S. Government Printing Office, 1994), 1, 7; General Accounting Office, *Military Bases: Analysis of DOD's 1995 Process and Recommendations for Closures and Realignments,* report to the Congress and the Chairman, Defense Base Closure and Realignment Commission, GAO/NSIAD–95–133, (Washington, D.C., April 1995), (hereafter, *GAO, 1995*) 20, 22; Larson, 41–42, 45; Trest, 251; Y'Blood, 553.
66. 1) Operations: missiles, large aircraft, small aircraft; 2) Undergraduate flying training; 3) Industrial/technical support: depots, product centers and labs, test and evaluation; 4) Education and training: technical training, education; 5) Space: space support, satellite control; 6) Other/administrative; 7) Air Reserve component: Air National Guard, Air Force Reserve. *GAO, 1995,* 56.
67. Department of Defense, *Base Closure and Realignment Report, March 1995* (Washington, D.C.: U.S. Government Printing Office, 1995), (hereafter, *Report, 1995*) 5-109–5-110; *GAO, 1995,* 54–57.
68. *GAO, 1995,* 51, 58; House, *Defense Base Closure and Realignment Commission Report to the President, Message from the President of the United States transmitting His Certification of His Approval of All the Recommendations Contained in the Commission's Report, Pursuant to Public Law 101–510, Section 2903(e) (104 STAT. 1812)* 104th Congress, 1st sess., 13 July 1995, H. Doc. 104–96, (hereafter, *Message, 1995*) 12, 16–17; "Secretary Perry Recommends Closing, Realigning 146 Bases," DefenseLINK.Mil. http://www.dod.mil/news/Feb1995/b022895_bt095-95.html.
69. *GAO, 1995,* 57, 67–68.
70. Ibid., 68.
71. Grand Forks AFB and Minot both maintained 150 Minuteman IIIs. Francis E. Warren AFB had controlled 200 Minuteman IIIs but, beginning in the early 1980s, converted

50 of those silos for Peacekeeper use. Malmstrom AFB also controlled 150 Minuteman IIs and 50 Minuteman IIIs, but after President Bush's September 1991 decree, the Air Force deactivated Malmstrom's Minuteman IIs and began converting those silos for Minuteman III use. By June 1994, 30 Minuteman IIIs were shipped and installed at Malmstrom, temporarily bringing the active Air Force inventory of Minuteman IIIs to 530. Additional emplacement of Minuteman IIIs in the remaining silos at Malmstrom awaited BRAC 1995 decisions. History, 341st Missile Wing, Jan–Jun 1994, 1: 16, AFHRA K–WG–341–HI; History, 91st Missile Wing, Jan–Jun 1994, 1: 2 AFHRA K–WG–91–HI; History, 90th Missile Wing, Jan–Jun 1994, 1: ix, 32, AFHRA K–WG–90–HI; Point Paper, OO-ALC/LM, "OO-ALC/LM 1994 Historical Data," Dec 19, 1994, SD 94 in History, Ogden ALC, FY 1994–1995, vol. 5, AFHRA K205.06–40.

72. In October 1995, the Air Force began the transfer of 120 Minuteman IIIs from Grand Forks to Malmstrom. It sent Grand Forks's remaining 30 missiles to Ogden ALC for refurbishment and storage as spares. History, Ogden ALC, FY 1994–1995, 1: 36–37, AFHRA K205.06–40.
73. *Message, 1995,* 121–123; *Report, 1995,* 5-122–5-123.
74. *Message, 1995,* 113–116; TSgt Charles B. Foster, Jr., *Try Fighting Without Us, A Brief History of MacDill AFB and the 6th Air Mobility Wing* (MacDill AFB, Florida: Office of History, 6th Air Mobility Wing), 11–12.
75. *GAO, 1995,* 68–69.
76. *GAO, Closing Maintenance Depots,* 64; *Message, 1995,* 131.
77. Gary Martin, "AF Chief Defends Closure List," *San Antonio Express-News,* 7 March 1995, 1B; *Message, 1995,* 104–105, 128–129; Report, 1995, 5-125–5-126.
78. *Message, 1995,* 119–120, 126–128; *Report, 1995,* 5-114, 5-118.
79. *GAO, 1995,* 59–60; *Message, 1995,* 117; *Report, 1995,* 5-122.
80. *Message, 1995,* 110, 130–131.
81. *Message, 1995,* 129–130; *Report, 1995,* 5-118–5-119.
82. *Message, 1995,* 107–108.
83. *GAO, 1995,* 58; *Message, 1995,* 114, 124–125.
84. *Message, 1995,* 105–106, 123–124.
85. Ibid., 125–126.
86. Ibid., 108–109, 121.
87. The A–10s, under the 23rd Wing, went to the 23rd Fighter Group, an ACC tenant at Pope AFB. The F–16s had previously left in 1996. "History of Pope Air Force Base," http://public.pope.amc.af.mil/43AW/43aw_ho/popehist.htm.
88. History, ACC, Jan–Dec 1996, 1: 1–2, 26–27, AFHRA K401.01; "USAF Almanac 1997," *Air Force Magazine* 80, no.5 (1997): 85, 95, 141.
89. "Moody AFB Fact Sheet," Moody.af.mil. http://www.moody.af.mil/bios/Moody percent20Fact percent20Sheet.htm; "347th Rescue Wing [347th RQW]," GlobalSecurity.Org. http://www.globalsecurity.org/military/agency/usaf/347rqw.htm.
90. While the Air Force believed 76 B–52Hs (44 combat coded) were sufficient, a total of 94 B–52Hs still remained in service. Congress required the Air Force to maintain 18 attrition reserve B–52s at Minot AFB, though the Air Force considered them surplus. Adam J. Hebert, "The Long Reach of the Heavy Bombers," *Air Force Magazine* 86, no. 11 (2003), 27–28.
91. Following the B–1B consolidation announcements, the 116th ANG Wing transitioned into the first ever "blended wing." It was composed of active duty and ANG personnel, facilities, and equipment from both the 116th and the active duty 93rd Air Control Wing, collocated at Robins, which operated the E–8C Joint STARS battlefield surveillance aircraft. "Robins AFB, Warners Robins, GA," Global Security.Org.

http://www.globalsecurity.org/military/facility/robins.htm.

92. "Defense Department plans B-1 reduction," AF.MIL. http://www.af.mil/news/Jul2001/n20010706_0923.shtml; Department of the Air Force*, U.S. Air Force White Paper on Long Range Bombers, March 1, 1999* (Washington, D.C., March 1999), 2–3; "Mountain Home, Composite Wing."
93. CBO: Costs, 1, 5.
94. These were the total number of commission-approved recommendations. However, each subsequent BRAC had the opportunity to change previously approved decisions, and in some cases, it altered the specific nature of approved realignment and closure decisions.
95. History, TAC, Jan–May 1992, 18–19, AFHRA K417.01; History, 2d Bomb Wing, Jul–Dec 1993, 1: iv AFHRA K–WG–2–HI; "Holloman AFB [ex Alamogordo AAF]," GlobalSecurity.Org. http://www.globalsecurity.org/military/facility/holloman.htm; Rpt, DAF, "Enhancing the Nation's Conventional Bomber Force: The Bomber Roadmap," June 1992, SD C–15 in History, ACC, Jun–Dec 1992, 16: 6, 8, AFHRA K401.01; "20th Fighter Wing," Shaw.af.mil. http://www.shaw.af.mil/20fw/20fwmain.html.
96. *GAO, BRAC Progress,* 5.

5

Base Realignment and Closure Commission, 2005

By the beginning of the twenty-first century, the Department of Defense (DoD) had carried out four rounds of base realignment and closure (BRAC), one each in 1988, 1991, 1993, and 1995. These BRACs had initiated the closure of thirty-four USAF bases, five in the 1988 round, thirteen in the 1991 round, and eight each in the 1993 and 1995 rounds.[1] Even so, the Defense Department still possessed significant excess infrastructure, and in 2005, there was a fifth BRAC round. As in the previous BRAC rounds, the 2005 BRAC proceeded according to the provisions of the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510).[2] This chapter will investigate what the Air Force and the Department of Defense recommended to the 2005 BRAC, the reasoning behind those recommendations, and what the commission ultimately decided.

During his presidential campaign in 2000, Texas governor George W. Bush called for a military transformation that would result in lighter, leaner, and more lethal forces. When he became President early the next year, he appointed Donald Rumsfeld as Secretary of Defense. Rumsfeld, previously Secretary of Defense during the 1970s, had the same goal in mind.[3] President Bush provided Rumsfeld freedom to make significant changes.[4]

Terrorist attacks on New York and Washington on September 11, 2001, which destroyed the twin towers of the World Trade Center and severely damaged the Pentagon itself, altered the administration's course, but did not divert it from the goal of military transformation.[5] The President, with congressional approval, established a Department of Homeland Security and launched Operation Noble Eagle to enhance domestic security. More importantly, he secured congressional support for a major military campaign in Afghanistan to topple the Taliban regime there, which had harbored Osama bin Laden and his al Qaeda terrorist network which executed the attacks. The new war in west Asia increased demands for mas-

sive overseas deployment of resources from all the military services. The United States launched Operation Enduring Freedom on October 7, and on November 28, U.S. ground forces entered Afghanistan. Not long afterwards, Bush also prepared for possible war with Iraq, since that country continued to defy United Nations weapons inspectors.[6] The 2005 BRAC process would have occurred with or without the massive operations in west and southwest Asia. Nevertheless, they influenced the Pentagon even as it began considering recommendations for base realignments and closures within the United States and its territories, because deployments abroad depended greatly on defense infrastructure at home.

On December 22, 2001, President Bush signed the National Defense Authorization Act of Fiscal Year 2002, (Public Law 107-107). It amended Public Law 101-510, which had set up the BRAC process for the three 1990s rounds, but it did not substantially change the process. As in earlier rounds, a new Base Closure and Realignment Commission would review and hold hearings on the DoD recommendations; approve, reject, or modify the recommendations, and then submit its report to the President, who could either approve the whole package or send it back to the commission for a revised package within a certain time period. If the President approved the entire package, then he would forward it to Congress. If Congress did not disapprove the whole 2005 BRAC recommendations by joint resolution within forty-five days, then they would become law. The process was designed to reduce the chances that a base would be kept open just because it was in the district of a powerful member of Congress. However, the 2005 BRAC commission was authorized to consider the economic effects of base closures and realignments, and not military necessity alone. The amended Defense Base Closure and Realignment Act of 1990 required the secretary of defense to submit base closure and realignment recommendations to the BRAC Commission by May 16, 2005.[7]

On November 15, 2002, Secretary Rumsfeld issued a memorandum entitled "Transformation Through Base Realignment and Closure" that called for military transformation to eliminate excess infrastructure, line up the remaining base network with current strategy, maximize warfighting capability and efficiency, and expand opportunities for joint activities. The Department of Defense then began planning in earnest for the next BRAC round.[8]

The Pentagon developed its plans through important committees. An Infrastructure Executive Council including the secretaries of the military departments, the service chiefs of staff, the chairman of the Joint Chiefs of Staff, and the under secretary of defense for acquisition, technology, and logistics, defined policy and provided general oversight. An Infrastructure Steering Group provided executive-level guidance. It included the military department assistant secretaries, the vice chiefs of staff of the military services, the vice-chairman of the Joint Chiefs of Staff, the assistant commandant of the Marine Corps, and the deputy under secretary of defense for installations and environment, and met more than sixty times during the BRAC process. One of its key functions was to oversee the analyses of seven Joint Cross-Service Groups, charged with developing joint basing options.

Each of the seven groups handled one of the following categories: education and training; headquarters and support activities; industry; intelligence; medicine; supply and storage; and technical, consisting of research, development, testing and evaluation facilities. Besides the Infrastructure Executive Council, the Infrastructure Steering Group, and the Joint Cross Service Groups, the Department of Defense also relied on the advice of analytical teams from each of the three major military departments, Joint Action Scenario Team, For Joint Process Action Teams, and a "Red Team" composed of executive-level former government officials, for independent assessment of candidate recommendations. Members of the Red Team included Gen. Hansford T. Johnson, USAF (Ret.), former commander of the U.S. Transportation Command and Air Mobility Command; Gen. Leon E. Salomon, USA (Ret.), former commander of U.S. Army Materiel Command; and Robert B. Pirie, Jr. former assistant secretary of defense.[9]

Section 2912 of the BRAC statute directed the Department of Defense to conduct an analysis of its facility inventory to determine its excess capacity. From this inventory study, the Department of Defense determined that it had twenty-four percent excess capacity. On March 23, 2004, Secretary Rumsfeld provided Congress with an inventory of military installations and facilities. That inventory included more than 520,000 buildings and structures, eighty-seven percent of which were within the United States and its territories.[10] Closures or realignments of military bases abroad were beyond the purview of the 2005 BRAC planners, because those decisions were made in a bilateral approval process between the United States and the host nations.[11] Public Law 101-510, as amended, required the Department of Defense to base its recommendations on its twenty-year force structure plan, the inventory of installations provided to Congress, and the final BRAC selection criteria.[12] Those criteria included eight elements, with military value as the prime factor, but with cost, economic effect on local communities, and environmental impact as considerations.[13]

The Pentagon had undertaken Quadrennial Defense Reviews (QDRs) in 1997 and 2001 that influenced what the Defense Department recommended to the 2005 BRAC Commission. The 2001 QDR influenced Air Force BRAC planners enough to warrant mention in their eventual report to the Department of Defense for the Defense Base Closure and Realignment Commission. That QDR focused primary emphasis on homeland defense. It also called for military forces strong enough to deter aggression and coercion in four unspecified geographic areas, swiftly defeat two unspecified aggressors simultaneously, and preserve the ability to defeat one major enemy, without specifying that enemy. The 2001 QDR did not assume that the enemy would be in one specific geographic area, nor did it assume the major enemy would be Russia, the common assumption during the decades of the Cold War.[14]

Other Defense Department and Air Force studies affected the 2005 BRAC round. The 2005 National Defense Strategy, focusing on defending the U.S. homeland from direct attack, securing strategic access, and retaining global freedom of

action, stressed a capabilities-based defense and the transformation of the military services. The Air Staff's Force Structure Plan, which looked twenty years into the future to determine the number of wings needed for each kind of flying mission. It foresaw changes in the force structure of the Air Force that would affect basing even beyond the 2005-2011 implementation period that the 2005 BRAC would require. The number of major Air Force bases was directly related to the number of Air Force wings.[15]

Between November 2002 and May 2005, each military department prepared a list of recommendations for base realignments and closures, with the understanding that the Department of Defense would consolidate the recommendations of the separate services before transmitting them to the BRAC Commission. The Defense Department allowed each service much liberty in determining which of its bases to close or realign. In the end, the department submitted each of the service recommendations largely unchanged as a separate part of its final report to the 2005 BRAC Commission.[16]

By the time of the 2005 BRAC process, the Air Force had already reorganized its operational forces for rotational deployment to combat theaters overseas. The service had developed a carefully-planned set of ten air and space expeditionary forces. These forces were designed to manage the operations tempo more effectively and to provide a much-needed measure of predictability to personnel deploying overseas. Each of the forces was composed of a set of expeditionary organizations, most of them permanent U.S. Air Force organizations temporarily converted to provisional status. Most of these expeditionary units derived the majority of their personnel and equipment resources from a variety of permanent organizations based within the United States. For that reason, the needs of the ten air and space expeditionary forces influenced Air Force leaders making basing decisions.[17]

In March 2003, with large numbers of U.S. troops still committed in Afghanistan, President Bush launched an invasion of Iraq. Skyrocketing defense budgets and the massive deployments of military forces to these two wars made cutting excess bases, realigning resources, and transforming the military even more imperative.[18]

The Secretary of the Air Force assigned responsibility for coordination of the analysis behind what would become his recommendations to the Department of Defense to Mr. Nelson F. Gibbs, assistant secretary of the Air Force for installations, environment, and logistics. In April 2003, Michael A. Aimone took office as deputy assistant secretary for basing and infrastructure analysis, working for Mr. Gibbs. As the former deputy civil engineer at the Air Staff, Aimone was knowledgeable about Air Force base infrastructure and the resources an active military installation needed to operate efficiently. Aimone and Gibbs did not lack institutional memory since the last BRAC round in 1995, because they benefitted from expert analysts who had been involved in previous BRAC rounds, some of whom had been under contract with the Air Force as early as 2001.[19]

The department also chartered the Air Force Base Closure Executive Group

(BCEG), on October 20, 2004. By then Michael Aimone had moved on to another position. The BCEG consisted of twelve members led by two co-chairmen: Gerald F. Pease, Jr., Aimone's successor as deputy assistant secretary of the Air Force for basing and infrastructure analysis; and Maj. Gen. Gary W. Heckman, assistant deputy chief of staff for plans and programs. Each of the twelve members was to serve as individual advisors to the Secretary of the Air Force, and not just as representatives of the offices from which they came. The seven voting members of the BCEG were the two co-chairs and Brig. Gen. William L. Holland (Operations); Brig. Gen. Hanferd J. Moen, Jr, (Air Force Reserve); Brig. Gen. R. Anthony Haynes (Air National Guard); Matthew M. Mleziva (Logistics); and Fredolin W. Kuhn (Installations). The other five members included William H. Booth (Manpower); Kathleen I. Ferguson (Civil Engineering); Maureen T. Koetz (Environment), Jay H. Jordan (Finance), and Steven Rogers (Legal). Seven members of the BCEG constituted a quorum, with at least five voting members present. All members of the BCEG worked together to gather information from which the Air Force would make its recommendations for the Department of Defense to submit to the Base Closure and Realignment Commission in 2005. The BCEG met about three times a week, and sometimes, every day. Altogether, they met a total of 127 times.[20]

According to its charter, the Air Force Base Closure Executive Group was to advise the secretary of the Air Force on base closure and realignment recommendations. It oversaw processes of collecting, verifying, and analyzing data. The BCEG also ensured that recommendations adhered to the Air Force Internal Control Plan and to its goals of ensuring accuracy, limiting premature disclosure, and refining requirements. The BCEG considered all Air Force installations in the United States and its territories and possessions with at least 300 DoD direct-hire civilian personnel authorizations. These installations were to be considered on an equal basis, without regard for their consideration in previous BRAC rounds.[21]

The BCEG depended on three computer tools to facilitate its collection of information for those drafting the Air Force recommendations. One, called COBRA, for Cost of Base Realignment Actions, had originally been developed by the U.S. Army. Another, the IVT, for Installation Visualization Tool, allowed the BCEG to visually examine the bases without having to physically visit them. Finally, another computer program allowed the executive group members to ask questions to compare and contrast installations in the light of various combinations of factors. Members of the BCEG used the three computer programs to make their conclusions more objective and less subject to personal preferences or subjective criteria.[22] A Base Closure Working Group (BCWG) served as a staff-working group responsible to the BCEG for preparing standard and unbiased data.[23]

The declining number of operational aircraft in the Air Force inventory greatly influenced the service's planners for the 2005 BRAC round. The planners believed that if the number of flying organizations did not also decrease, then those organizations would also have too few aircraft to remain viable. The 2005 BRAC round

would allow the service to reduce, along with the number of its bases, the number of its flying organizations, while at the same time insuring that surviving flying organizations and bases would have enough aircraft for emergencies that might emerge over the next twenty years.[24]

The Base Closure Executive Group considered eight statutory criteria influencing which bases to realign or close, but stressed only the first four, because they were the ones concerned with military value.[25] First, the Air Force planners sought to maximize the warfighting capability of each squadron.[26] Second, they attempted to realign Air Force infrastructure with future defense strategy.[27] Third, the BCEG pursued the goal of eliminating excess physical capacity, allowing for concentration of forces on fewer bases and releasing financial resources for deployments, personnel, and weapon systems.[28] Fourth, the group sought to take advantage of opportunities to increase joint activity, one of the goals of Defense Department leadership.[29] Other considerations, such as the economic impact of closing a facility on the surrounding community, were far less important factors in their perspective.

Five Air Force basing imperatives provided guidance for the service's 2005 BRAC planners: access to polar and equatorial earth orbits for satellites; preservation of land-based strategic deterrent infrastructure; airfield capacity to accommodate the President, foreign dignitaries, and other special airlift; basing that would meet site protection and response time criteria stipulated by USNORTHCOM and USPACOM; and U.S. air mobility bases along deployment routes. In addition to the five Air Force basing imperatives, eleven basing principles guided the Air Force during its preparation of 2005 BRAC recommendations for the Department of Defense. The Air Force wanted to have fighter bases in proximity to military airspace and ranges, and it sought to optimize squadron size by having the ideal number of aircraft, depending on the mission. For example, ideally, an active duty fighter squadron would manage twenty-four aircraft, and a Reserve fighter squadron would retain eighteen; an active duty air mobility squadron would sustain sixteen transports, and a Reserve air mobility squadron would manage eight.[30] The service wanted enough base capacity to station all of its forces, if necessary, within the United States and its territories, and desired its air refueling bases to be in proximity to future mission routes. It wanted Reserve and Air National Guard facilities close enough to population centers to facilitate personnel retention and recruitment. The service did not favor joint bases except in those rare situations in which such basing would increase military value. It sought to retain its long-range strike bases and also two geographically separated munitions sites. The Air Force wanted bases that would allow surge capacity for deployments, evacuations, and base repairs. It wanted to consolidate or co-locate older fleets of aircraft, and it wanted two air mobility bases and one additional wide-bodied-aircraft-capable base on both the east and west coasts.[31]

Previous BRAC rounds had already closed most excess major Air Force bases. The Base Closure Executive Group might have been better called a "Base Realign-

ment Executive Group," because it focused more on realignment than closure. The BCEG members focused on optimal realignment of resources, including personnel and aircraft, rather than on closing bases.[32]

All twelve members of the Air Force's Base Closure Executive Group signed a certification that the information contained in the Air Force Report to the Department of Defense was accurate and complete. It was accompanied by a Memorandum for the Secretary of Defense, dated May 9, 2005, with the subject: "Air Force 2005 Base Closure and Realignment Recommendations." The memo noted that the recommendations followed the procedure defined by the Defense Base Closure and Realignment Act of 1990 and it claimed the recommendations were designed to re-shape the force and transform the Air Force, "leveraging the inherent strengths and advantages of our National Guard and Reserve forces." It also noted "emerging missions" that would replace older ones to ensure that Reserve components, as part of the Total Force, "remained relevant." The memorandum was signed by Michael L Dominguez, acting secretary of the Air Force.[33]

Certain Air Force officials worked closely with the Department of Defense during the 2005 BRAC process. Nelson Gibbs and Gen. T. Michael Moseley of the Air Force served on the Secretary of Defense's BRAC planning group, but BCEG co-chairmen Pease and Heckman served as their alternates. General Heckman sat in for Moseley at many of the Defense Department meetings about basing. The Department of Defense did not contradict what the Air Force recommended, but submitted them to the Base Closure and Realignment Commission largely unchanged.[34]

The Air Force recommendations, entitled "Department of the Air Force Analysis and Recommendations, 2005 BRAC," were included in volume V, part 1 of the "Department of Defense Report to the Defense Base Closure and Realignment Commission." Recognizing that the purpose of BRAC was to "divest the Air Force of infrastructure it no longer needed while improving the overall effectiveness of our air forces," the Air Force BRAC strategy noted that restructuring in the Air Force was necessary in part because of "declining force structure" and the "fragmenting of the force into small, inefficient units."[35]

A Congressionally-appointed Commission on Review of Overseas Military Facility Structure of the United States reported its findings to Congress on May 9, 2005, even while the Department of Defense conducted its own study for base closures and realignments overseas, called the Integrated Global Posture and Basing Study. These reports did not have an important impact on the Defense Department's recommendations to the 2005 BRAC Commission, because the department knew the commission would base its decisions only on the inventory of domestic bases, within the United States and its territories.[36]

On May 13, the Secretary of Defense Rumsfeld transmitted his department's recommendations to the 2005 BRAC Commission and to Congress in the form of a multivolume Department of Defense Base Closure and Realignment Report. The report included a section of Air Force recommendations, as well as the recom-

mendations of each of the other military departments. It also included the recommendations of the Joint Cross-Service Groups. On May 16, the Pentagon published the report in the *Federal Register* in accordance with Public Law 101-510.[37]

The Defense Department estimated that its recommendations to the 2005 BRAC Commission, if implemented, would reduce plant replacement value by five percent, vacate twelve million square feet of leased space, eliminate as many as 18,000 civilian support positions, and realize an annual net savings of over $5 billion. Among the recommendations was that there be a new BRAC review, if not a new BRAC round, every five to ten years.[38]

The Air Force, with DoD concurrence, called for the closing of ten bases, the most important of them being Cannon Air Force Base in New Mexico, Ellsworth Air Force Base in South Dakota, Brooks City Base in Texas—formerly a standard Air Force Base that had become a leased facility—and Onizuka Air Force Station in California. The plan also called for the closing of three Air Reserve Stations: General Mitchell in Wisconsin, Niagara Falls in New York, and Pittsburgh in Pennsylvania. The Air Force also recommended that four Air National Guard installations be closed: Kulis in Alaska, Mansfield Lahm in Ohio, Otis in Massachusetts, and W. K. Kellogg in Michigan. (See Table 5.1 for a list of these). The Air Force considered recommending the closing of Holloman Air Force Base in New Mexico, because the Air Force no longer needed the F–117 aircraft that were based there, but eventually decided to keep Holloman because of its suitability for other missions as an entire base worthy of strategic reserve. Moreover, closing both Cannon and Holloman in New Mexico would have been a double blow to a state that relied so heavily on the Air Force for its economic health. However, overall, the Air Force recommendations for base closures were governed much more by military utility than by concerns about economic impact on the nearby communities.[39]

The Air Force also recommended, with DoD concurrence, the realignment of 62 additional Air Force, Air Force Reserve, and Air National Guard installations that would remain open. They recommended dropping 28 flying organizations and reducing the number of flying installations from 142 to 114, a decrease of 20 percent.[40]

One of the Air Force's most important goals in the 2005 BRAC round was to optimize the size of the service's organizations to give them the appropriate numbers of aircraft. In its report to the BRAC Commission, the Defense Department embraced these goals, reducing the number of suboptimal F–15 squadrons from seven to one; the number of suboptimal F–16 squadrons from twenty-seven to none; and the number of suboptimal A–10 squadrons from ten to none. In other words, the F–15, F–16, and A–10 organizations, almost without exception, would have enough aircraft to maintain viability, reversing the trend of reducing aircraft numbers at each installation until operational efficiency was lost. Fewer bases with aircraft meant that more aircraft could be put on each surviving flying base.[41] Certain bases would lose manned aircraft, but gain unmanned aerial vehicles, or remotely piloted vehicles, which were increasing in numbers within the Air Force.

Table 5.1: USAF, AFR, and ANG Bases DoD Recommended to BRAC Commission 2005 for Closure

BASE	TYPE	STATE
Cannon	Air Force Base	New Mexico
Ellsworth	Air Force Base	South Dakota
General Mitchell	Air Reserve Station	Wisconsin
Kulis	Air Guard Station	Alaska
Mansfield Lahm	Air Guard Station	Ohio
Niagara Falls	Air Reserve Station	New York
Onizuka	Air Force Station	California
Otis	Air National Guard Base	Massachusetts
Pittsburgh	Air Reserve Station	Pennsylvania
W. K. Kellogg	Air Guard Station	Michigan

Sources: 2005 Defense Base Closure and Realignment Commission Report to the President (Arlington, VA: Defense Base Closure and Realignment Commission, 2005), pp. 114-261; Department of the Air Force Analysis and Recommendations, BRAC 2005, vol. V, part 1, of the Department of Defense Report to the Defense Base Closure and Realignment Commission (May 2005), pp. iii and 13.

In a time of declining aircraft numbers, fewer units meant more units with optimal numbers of aircraft. The Air Force/Department of Defense recommendations called for the number of F-15 fighter squadrons to be reduced from 20 to 15; F-16 fighter squadrons from 48 to 26; C-130 transport squadrons from 39 to 23; and KC-135 tanker squadrons from 38 to 29. An exception was the number of C-17 squadrons, which would increase from 12 to 14.[42]

As in previous BRAC rounds, Air Force Reserve and Air National Guard representatives served on the BCEG as voting members, but the 2005 round affected Reserve and Guard flying organizations more than had previous rounds. Over the years, the number of Reserve and Guard installations and flying units had not declined as much as had the number of Air Force aircraft. During the aircraft inventory reduction of the 1990s, the active duty force had drawn down a commensurate number of flying squadrons, but the Reserve and the Guard had, for the most part, distributed aircraft cuts across a nearly static number of flying squadrons. As a consequence, most of the Reserve and Guard organizations had too few aircraft at each of their installations. The Air Force knew that even the BRAC Commission that would review its recommendations did not have the authority to eliminate Air National Guard organizations or installations, which were partly under the authority of the various state governors, but it did have the authority to determine where Air Force aircraft would be based. The Air Force decided to realign some of the aircraft so that there would be more per flying squadron.[43] There would not be enough aircraft to go around, and many of the Air National Guard bases were not

needed for operational flying missions. Those bases would become "enclave bases." They would exist, not so much for future USAF aircraft to be stationed there, but to provide installations for engineers, fire fighters, communication experts, and other ground personnel that state governors and the President might need for domestic emergencies. The number of Air National Guard bases and units would not decrease as much as the number of such bases and units with aircraft.[44]

Air Force 2005 BRAC planners hoped to reduce the service's excess buildings and facilities as much as 79 percent. Runways were less vulnerable because they were needed for emergencies, such as humanitarian airlifts in response to natural disasters or even terrorist attacks. Still, the service also sought to cut its excess flightline infrastructure, or ramp space, by 37 percent.[45]

Drafters of the Air Force recommendations were aware of the joint cross-service groups that would also be making recommendations to the Department of Defense for the BRAC Commission, but they included in their proposals information that enhanced joint activity. They wanted optimally-sized A–10 squadrons near Army posts such as Fort Polk (for Joint Readiness Training), Fort Benning (for Ranger School), and Fort Stewart (where there was a Ranger regiment). Although the A–10 was an Air Force aircraft, it operated in coordination with and provided direct air support for U.S. Army ground troops. The Air Force wanted some of its wide-bodied C–17 transports to be stationed in proximity to new Army Stryker brigades in Hawaii and Alaska, in case they were needed to airlift troops across the Pacific Ocean. Air Force planners also recommended that Eglin Air Force Base host the Army's Seventh Special Forces Group and that Shaw Air Force Base host the Third Army, the latter in order to co-locate the primary ground component of United States Central Command with the primary air component, Ninth Air Force. Pope Air Force Base could become part of adjacent Fort Bragg, although major Air Force airlift resources would continue to be based there. They also considered outside proposals to concentrate Joint Strike Fighter training at an Air Force base such as Eglin.[46]

The joint cross-service groups' recommendations went to the Department of Defense, and through it to the Base Closure and Realignment Commission, along with the separate sets of recommendations from the military services. Consequently, the Air Force recommendations did not address joint bases, since that was another part of the Defense Department's report.[47] Air Force BRAC planners did not oppose joint bases per se, but the original scope of joint basing as briefed during BRAC proceedings was the consolidation of support contracts rather than the sweeping base consolidations that subsequently occurred. Complicating matters were the services' varying priorities and requirements, making each service's installations substantially different.[48]

President Bush appointed nine distinguished leaders, including veterans from the Navy, Army, and Air Force, as members of the 2005 BRAC Commission. Anthony J. Principi, the chairman, was secretary of veterans affairs. Principi had graduated from the Naval Academy and was a decorated Vietnam veteran. He had

also been vice president of a major corporation (Pfizer). James H. Bilbray and James V. Hansen were former U.S. Congressmen, from Nevada and Utah respectively. Hansen was, like Principi, a U.S. Navy veteran. Another U.S. Navy veteran on the 2005 BRAC Commission was Adm. Harold W. Gehman, Jr., with thirty-five years of service. Gehman had served as NATO's Supreme Allied Commander, Atlantic, and had served as commander in chief of the U.S. Forces Command, so he also had experience as a joint commander. Philip E. Coyle III, had served as former assistant secretary of defense for test and evaluation from 1994 to 2001. He had also served as a senior advisor to the President, in the Center for Defense Information, and at the Lawrence Livermore National Laboratory. Under President Jimmy Carter, Coyle had served as principal deputy assistant secretary of defense programs and the Department of Energy.[49]

U.S. Army veterans also served on the 2005 BRAC Commission. Gen. James H. Hill had served as former commander of United States Southern Command, and, before that, as commander of the 25th Infantry Division. Samuel K. Skinner, after having also served in the Army, had been chief of staff to President George H. W. Bush and had been a former secretary of transportation. Skinner also had experience as a leader of two major corporations.[50]

The 2005 BRAC Commission included two retired U.S. Air Force generals. Gen. Lloyd W. "Fig" Newton had served as former commander of the Air Education and Training Command and as director of operations of U.S. Special Operations Command. A pilot with more than 4,000 flying hours, Newton also served as a vice president of Pratt and Whitney. The other retired general was Brig. Gen. Sue E. Turner. With 30 years of active duty, Turner had served as director of nursing services in the Office of the Surgeon General of the Air Force, and had been chief nurse at Wilford Hall Medical Center, the premier medical facility, located on the grounds of Lackland Air Force Base in San Antonio, Texas.[51]

On twenty-nine different dates between May 3 and August 27, 2005, the BRAC Comission held hearings and meetings to prepare for and consider the recommendations of the Defense Department. A number of these meetings were held in Washington, D.C. (See Table 5.2) On May 3, at the Cannon House Office Building, the commission considered lessons learned from the four previous BRAC rounds and also discussed current and long-term threats confronting U.S. national security. On May 4, at the same location, the commission reviewed the Force Structure Plan, Global Posture Review, and the Secretary of Defense Guidance on the Quadrennial Defense Review. On May 16 the commission held its first hearing after having received the Defense Department recommendations. At the Hart Senate Office Building the commission considered the "Presentation of Recommendations and Methodology for the Department of Defense". On May 17, at the Dirksen Senate Office Building, the commission considered the "Presentation of Recommendations and Methodology for the Air Force." Later the same day, at the Hart Senate Office Building, it considered the "Presentation of Recommendations and Methodology for the Navy and Marine Corps. The next day, May 18, back at the Dirksen Senate Office Building, the commission con-

sidered the recommendations of the Army and, later that day, heard a presentation of recommendations and methodology of the Joint Cross-Service Groups. It continued on the same subject on May 19, but at the Hart Senate Office Building.[52]

Table 5.2: Non-Regional Meetings of the BRAC Commission 2005

DATE	PLACE	TOPIC	MEMBERS
May 3	Washington, DC	Lessons learned from previous BRAC rounds	All
May 3	Washington, DC	Threats to U. S. national security	All
May 4	Washington, DC	Force Structure Plan Global Posture Review Quadrennial Defense Review Guidance	All
May 16	Washington, DC	Department of Defense Recommendations and Methodology	All
May 17	Washington, DC	Recommendations of the Air Force	All
May 17	Washington, DC	Recommendations of the Navy and Marine Corps	
May 18	Washington, DC	Recommendations of the Army	All
May 18	Washington, DC	Recommendations of Joint Cross-Service Groups	All
May 19	Washington, DC	Recommendations of Joint Cross-Service Groups	8 of 9 comm.
June 30	Atlanta, Georgia	Adjutants General Air National Guard	Coyle, Skinner, Bilbray, Gehman
July 18	Washington, DC	Department of Defense, General Accounting Office, Overseas Basing Commission	Principi, Hill, Gehman, Newton, Hansen, Skinner
July 19	Washington, DC	Base Closure and Realignment Additions	All
August 11	Washington, DC	Environmental Stewardship of installations recommended for closure or realignment	All

DATE	PLACE	TOPIC	MEMBERS
August 11	**Washington, DC**	**Impacts of Base Closures and Realignments on Homeland Security**	**All**
August 20	**Washington, DC**	**DoD Views on Realignment and Closure**	**All**
Aug. 24-27	**Arlington, VA**	**Final Deliberations**	**All**

In June, the BRAC Commission began holding regional hearings around the country to discuss the views of those affected by the projected base closures and realignments. Not all nine commission members attended all the regional hearings. For example, on June 15, four of the commissioners met in Alaska to consider base realignments and closure recommendations in that state. On June 17, the same four commissioners met in Oregon to consider installations in Oregon, Montana, Washington, and Idaho. During the summer of 2005, commission members held twenty such regional hearings in California, New Mexico, Missouri, North and South Dakota, Massachussetts, New York, the District of Columbia, Maryland, North Carolina, Georgia, Texas, and Louisiana. Each hearing focused on a particular geographic area, with input from the leaders of that region. No doubt the feedback from those leaders, including legislators and business leaders, influenced the BRAC members who were there, and encouraged them to consider, in addition to military necessity, the economic impact of possible base closures and realignments. Table 5.3 contains a list of all the meetings, including where they were held, what region was considered at each meeting, and which BRAC members were present.[53]

The Base Realignment and Closure Commission of 2005 held its final deliberations at the Hyatt Regency Hotel in Arlington, Virginia, from August 24 through August 27, 2005. At the end of August, 2005, the nation's attention was diverted to New Orleans and the Mississippi gulf coast, as powerful Hurricane Katrina roared ashore from the Gulf of Mexico. The weeks after the hurricane hit, the federal bureaucracy and the Defense Department were focused on helping the hurricane and flood victims recover from the natural disaster. All of the armed services took part in the massive relief efforts, with the Air Force moving hundreds of troops and specialized personnel as well as tremendous amounts of humanitarian equipment and supplies to New Orleans and coastal Mississippi. The nation's press also focused on the storm victims and the recovery efforts, and not on the 2005 BRAC process. Nevertheless, that process continued, and the commission members worked on their final recommendations, possibly with Hurricane Katrina having some effect on their decisions.[54]

On September 8, 2005, the Defense Base Closure and Realignment Commission delivered its final report to the President.[55] As stipulated in the legislation, President Bush could either accept it as a total package or reject it. One week later, on September 15, the President sent the 2005 BRAC report to Congress and

Table 5.3: Regional Meetings of the BRAC Commission 2005

DATE	PLACE	REGION CONDIDERED	MEMBERS
June 15	Fairbanks, Al	Alaska	Principi, Bilbray, Coyle, Hansen
June 17	Portland, OR	Oregon, Montana, Washington, Idaho	Principi, Bilbray, Coyle, Hansen
June 20	St. Louis, MO	Missouri, Illinois, Iowa, Kentucky, Indiana, Michigan, Wisconsin	Gehman, Hansen, Turner
June 21	Rapid City, SD	South Dakota & Wyoming	Skinner, Coyle, Bilbray
June 23	Grand Forks, ND	North Dakota & Minnesota	Skinner, Coyle, Bilbray
June 24	Clovis, NM	New Mexico, Arizona, Nevada	Hansen, Turner, Hill, Coyle, Bilbray, Newton
June 27	Buffalo, NY	New York, Ohio	Principi, Newton, Turner, Bilbray
June 28	Charlotte, NC	North Carolina, South Carolina, West Virginia	Coyle, Hill, Sinner, Gehman
June 30	Atlanta, GA	Georgia, Alabama, Tennessee	Coyle, Skinner, Bilbray, Gehman
July 6	Boston, MA	Rhode Island, Connecticut, Massachusetts, Maine, New Hampshire	Principi, Newton, Bilbray, Turner, Skinner
July 7	Washington, DC	Washington, DC & Pennsylvania	Principi, Newton, Bilbray, Turner
July 7	Arlington, VA	Virginia	Principi, Newton, Bilbray, Turner, Coyle
July 8	Baltimore, MD	Maryland, New Jersey Delaware	Principi, Coyle, Newton, Turner
July 11	San Antonio, TX	Texas, Arkansas, Oklahoma	Principi, Hill, Newton, Turner
July 14	Los Angeles, CA	California and Guam	Principi, Gehman, Turner, Bilbray, Coyle
July 22	New Orleans, LA	Mississippi, Louisiana, & Florida	Coyle, Hill, Turner
August 4	Washington, DC	Virginia	Principi, Gehman
August 8	Monterey, CA	Alaska, Colorado, California	Principi, Bilbray, Coyle, Gehman, Hansen
August 10	Washington, DC	Indiana, Ohio, Maine, DC North Carolina, Virginia,	Principi, Coyle, Newton, Skinner, Turner
August 20	Washington, DC	Virginia, Florida	All

returned to dealing with the aftermath of Hurricane Katrina.[56] If Congress did not, by joint resolution, reject the report in its entirety within 45 days, or by November 9, the report would be implemented.[57] On October 27, 2005, the House of Representatives voted to reject a bill to disapprove the recommendations of the Defense Base Closure and Realignment Commission. In other words, by voting no on the question of "no," the House approved the 2005 BRAC recommendations, as did the Senate, and the 2005 BRAC decisions were authorized.[58] They would be implemented over the course of the next six years, by September 15, 2011.[59]

The 2005 BRAC Commission approved 86 percent of the Department of Defense recommendations, but there were significant differences between what the Pentagon recommended and what the commission decided, especially with regard to Air Force bases.[60] The BRAC Commission called for the closing of fewer bases than the Air Force recommended. The commission concurred with closing Brooks City Base in Texas (a leased facility), General Mitchell Air Reserve Station in Wisconsin, Kulis Air Guard Station in Alaska, and Onizuka Air Force Station in California. It also added another base, Galena Forward Operating Location, in Alaska, to the closure list. But it recommended that six bases the Air Force had designated for closure remain open: Ellsworth Air Force Base in South Dakota, Niagara Falls Air Reserve Station in New York, Pittsburgh Air Reserve Station in Pennsylvania, Mansfield Lahm Air Guard Station in Ohio, Otis Air National Guard Base in Massachusetts, and W. K. Kellogg Air Guard Station. The commission approved the closure of Cannon Air Force Base only if the Air Force did not find another use for the base within the next four years, which essentially translated to a decision to keep that base open. DoD and the Air Force had recommended the closure of considerably more installations than the 2005 BRAC Commission did. As a result, the commission reduced the amount of infrastructure money saved for other uses, such as the development and production of additional aircraft to replace those leaving the inventory or for the prosecution of the wars in Afghanistan and Iraq. Air Force leaders were sometimes disappointed that the 2005 BRAC Commission did not close more bases, and seemed to be more sensitive to the economic impact of closing Air Force bases than to considerations of their actual military necessity.[61]

The most important Air Force bases the service and the Department of Defense had recommended closing that would ultimately remain open were Ellsworth Air Force Base and Cannon Air Force Base. Each of these cases warrants additional discussion.

The Air Force had recommended closing Ellsworth Air Force Base largely to save the expense of having two widely separated bases with the responsibility for maintaining expensive B–1 bomber aircraft. The Air Force hoped to station all 67 B–1 bombers at only one base, Dyess Air Force Base in Texas. Service leaders believed that this move would result in more economic maintenance and administration, as at Whiteman Air Force Base, Missouri, where all B–2 bombers were stationed. Severe winters in South Dakota were also a factor. Texas had less ice, less snow, and more good days for flying. The 2005 BRAC Commission disagreed, not

wanting to put all the B–1s at one base. Ellsworth also offered uncongested air space. Perhaps more importantly, there were economic and political reasons to keep Ellsworth open. Influential Senator John Thune spoke out in favor of keeping the base open, partly because it was his state's second largest employer. On August 26, 2005, by a vote of 8-1, the 2005 BRAC Commission voted to keep Ellsworth open.[62]

Table 5.4: USAF Installations 2005 BRAC Commission Decided not to Close, Despite USAF & DoD Recommendations

BASE	TYPE	STATE
Cannon	Air Force Base	New Mexico
Ellsworth	Air Force Base	South Dakota
Mansfield Lahm	Air Guard Station	Ohio
Niagara Falls	Air Reserve Station	New York
Otis	Air National Guard Base	Massachusetts
Pittsburgh	Air Reserve Station	Pennsylvania
W. K. Kellogg	Air Guard Station	Michigan

Source: 2005 Defense Base Closure and Realignment Commission Report to the President (Arlington, VA: Defense Base Closure and Realignment Commission, 2005), pp. 114-261.

Table 5.5: USAF, AFR, & ANG Closings as a Result of 2005 BRAC Commission

BASE	TYPE	STATE
AFRL/Mesa	Det 13 of AFRL	Arizona
Brooks City Base	Leased facility	Texas
Buckley Annex	Annex for Buckley Afb	Colorado
Four Lakes	Air National Guard Station	
Galena	Forward Operating Location	Alaska
General Mitchell	Air Reserve Station	Wisconsin
Kulis	Air Guard Station	Alaska
Onizuka	Air Force Station	California

Source: 2005 Defense Base Closure and Realignment Commission Report to the President (Arlington, VA: Defense Base Closure and Realignment Commission, 2005), pp. 114-261.

The Air Force had also recommended closing Cannon Air Force Base in New Mexico, because it was no longer needed as a fighter base. Cannon was located on the air route between Dallas and Los Angeles, and overflying airliners every day restricted the airspace. It also had a relatively small range for operational training.[63] Governor Bill Richardson spoke out in defense of Cannon, claiming the base rep-

resented 30 percent of the state's economy. By a vote of 6-1, (2 abstentions) the 2005 BRAC Commission decided that Cannon would close, but only if the Air Force did not find an alternative use for the base by the end of 2009.[64]

The Air Force did find a new mission for Cannon Air Force Base, before the deadline. On June 20, 2006, the Secretary of the Air Force announced that the base would realign with special operations as its new mission. Cannon transferred from Air Combat Command to Air Force Special Operations Command, and its 27th Fighter Wing was redesignated as the 27th Special Operations Wing on October 1, 2007. The wing traded its F–16 fighters for special operations aircraft such as AC–130s, MC–130s, MQ–1s, and MQ–9s.[65]

Previous BRAC rounds looked at the installations of each service separately, and did not recommend that bases of different services that might be adjacent to each other or close be combined into joint bases to save overhead. The 2005 BRAC Commission decision to establish twelve joint bases was a profound aspect of the round. Ten of these involved Air Force installations.

Two of the Air Force bases in the Washington, D.C. area, Bolling and Andrews, became part of joint bases. Bolling Air Force Base and Naval Annex Anacostia in the District of Columbia were made a joint base under US Navy administration. The new base would be called Joint Base Anacostia-Bolling and fell under the authority of the Naval District Washington. Naval Air Facility Washington and Andrews Air Force Base in Maryland were made a joint base under Air Force administration, Joint Base Andrews-Naval Air Facility Washington (effected on October 1, 2009). Maj. Gen. Ralph Jodice then served as Air Force District of Washington commander. The 316th Wing, under commander Col. Steven Shepro, would administer Andrews. Thus, in the capital area, four installations became two, one went to the Navy and absorbed an Air Force base, and the other went to the Air Force and absorbing a Navy base.[66]

Near Charleston, South Carolina, Naval Weapons Station Charleston and Charleston Air Force Base were combined to become a joint base under Air Force administration. Although the joint base name was not specified in the original 2005 BRAC Commission report, it was generally referred to as Joint Base Charleston.[67]

In the San Antonio area of Texas, a U.S. Army post, Fort Sam Houston, was combined with Randolph and Lackland Air Force Bases to become a joint base under Air Force administration. The name of the new base was not specified in the original commission report, but it later became Joint Base San Antonio. In terms of numbers of personnel, if not area (the U.S. Army's Fort Hood retained that record), the new San Antonio joint base became the largest U.S. military base, and included the headquarters of the Air Education and Training Command. The Air Force's 502d Air Base Wing would administer Joint Base San Antonio, handling security, fire and emergency services, housing, logistics, financial, legal, and community services, and mail. Col. Vincent Feck served as director of the Joint Basing Implementation Office at Randolph Air Force Base. The joint base was to be operational by October 2010.[68]

Table 5.6: USAF Installations Becoming Part of Joint Basing

INSTALLATION	STATE OR TERRITORY	JOINING WITH	SERVICE
Andersen AFB *	Guam	US Naval Forces, Marianas	US Navy
Andrews AFB	Maryland	Naval Air Facility Washington	US Air Force
Bolling AFB*	DC	Naval Annex Anacostia	US Navy
Charleston AFB	South Carolina	NWS, Charleston	US Air Force
Elmendorf AFB	Alaska	Fort Richardson	US Air Force
Hickam AFB*	Hawaii	NS Pearl Harbor	US Navy
Lackland AFB	Texas	Fort Sam Houston & and Randolph AFB	US Air Force
Langley AFB	Virginia	Fort Eustis	US Air Force
McChord AFB*	Washington	Fort Lewis	US Army
McGuire AFB	New Jersey	Fort Dix &Naval Air Engineering Station Lakehurst	US Air Force
Randolph AFB	Texas	Fort Sam Houston & Lackland AFB	US Air Force

***ceasing to be a USAF installation**

Source: 2005 Defense Base Closure and Realignment Commission Report to the President (Arlington, VA: Defense Base Closure and Realignment Commission, 2005), vol. I, pp. 219-21.

In March 2011, Air Force chief of staff Gen. Norton Schwartz and Army chief of staff Gen. George Casey signed an agreement establishing the San Antonio Military Health System to oversee military medical treatment facilities in the San Antonio area, including Wilford Hall Ambulatory Surgical Center, which would handle outpatient services, and Brooke Army Medical Center, which would provide inpatient services under a new name: San Antonio Military Medical Center. The 59th Medical Wing commander at Lackland Air Force Base, Maj. Gen. Byron Hepburn, USAF, was appointed first director of the San Antonio Military Health System, and Brig. Gen. Joseph Caravalho, USA, commander of what had been Brooke Army Medical Center, was appointed deputy director of the system. The Air Force and Army leaders agreed to rotate leadership of the San Antonio Military Health System every two years.[69]

In Virginia, Air Force and Army facilities were joined under Air Force administration when Langley Air Force Base and Fort Eustis combined to form Joint Base Langley-Eustis. Langley, the first U.S. military base purchased and built

Table 5.7: USAF, AFR, & ANG Installations Ceasing to be USAF Installations as a Result of BRAC Commission 2005

BASE	STATE OR TERRITORY	DESTINY
AFRL	Arizona	Closing (transferred to AFRL at WPAFB
Andersen AFB	Guam	Part of joint base run by U.S. Navy
Bolling AFB	District of Columbia	Part of joint base run by U.S. Navy
Brooks City Base	Texas	Closing
Buckley Annex	Colorado	Closing (Buckley AFB remaining open)
Four Lakes ANG Sta.	Washington	Closing
Galena FOL	Alaska	Closing
General Mitchell ARS	Wisconsin	Closing
Hickam AFB	Hawaii	Part of joint base run by U.S. Navy
Kulis Air Guard Sta.	Alaska	Closing
McChord AFB	Washington	Part of joint base run by U.S. Army
Onizuka AFS	California	Closing
Pope AFB	North Carolina	Part of Fort Bragg

Source: Source: 2005 Defense Base Closure and Realignment Commission Report to the President (Arlington, VA: Defense Base Closure and Realignment Commission, 2005), vol. I

specifically for military aviation, served as the host installation for Air Combat Command headquarters.[70]

The Air Force did not always gain administrative authority over joint bases formed from Army and Air Force installations. A case in point is Joint Base Lewis-McChord, which was formed from Fort Lewis and McChord Air Force Base in Washington State. The U.S. Army was assigned to administer the merged facility in this case, in contrast to the joint bases in Virginia and Texas.[71]

In a unique tripartite arrangement, bases of the Army, Navy, and Air Force came together in New Jersey, when a joint base was created from the Fort Dix, the Naval Air Engineering Station, Lakehurst, and McGuire Air Force Base. The new base was called Joint Base McGuire-Dix-Lakehurst, reflecting the fact that the Air Force would administer the combined installation.[72]

Joint bases were also created in Alaska, Hawaii, and the territory of Guam. In Alaska, the Army's Fort Richardson and Elmendorf Air Force Base were united in Joint Base Elmendorf-Richardson, under Air Force administration. In Hawaii, Hickam Air Force Base and Naval Station Pearl Harbor joined to form Joint Base Pearl Harbor-Hickam, under Navy administration. In Guam, Andersen Air Force

Table 5.8: Air National Guard Facilities Scheduled to Lose Aircraft

BASE	STATE	AIRCRAFT TYPE
Bradley IAP Air Guard Station	Connecticut	A-10
Capital Mun. Apt. Air Guard Station	Illinois	F-16
Ellington Air Guard Station	Texas	F-16
Hector International Airport	North Dakota	F-16
Hulman Reg. Apt. Air Guard Station	Illinois	F-16
Key Field Air Guard Station	Mississippi	KC-135
Lambert-St. Louis IAP Air Guard Station	Missouri	F-15
Mansfield-Lahm Airport Air Guard Station	Ohio	C-130
March Air Reserve Base	California	KC-135
Nashville IAP Air Guard Station	Tennessee	C-130
Niagara Falls IAP Air Guard Station	New York	KC-135
Otis ANG Base	Massachusetts	F-15
Richmond IAP Air Guard Station	Virginia	F-16
Springfield-Beckley Airport Air Guard Station	Ohio	F-16
W. K. Kellogg Air Guard Station	Michigan	A-10
Will Rogers World Airport Air Guard Station	Oklahoma	C-130
Willow Grove Air Reserve Station	Pennsylvania	A-10 and C-130

Source: 2005 Defense Base Closure and Realignment Commission Report to the President (Arlington, VA: Defense Base Closure and Realignment Commission, 2005), vol. I, pp. 176-177.

Base was united with Naval Base Guam in a joint base under Navy administration and management by the commander, U.S. Naval Forces, Marianas. Civilians working at Andersen would stop working for the Air Force and start working for the Navy. The merger was to be complete in Guam by October 2009.[73]

Of the eleven Air Force bases that became part of joint bases, Andrews, Charleston, Elmendorf, Lackland, Langley, McGuire, and Randolph remained under Air Force administration; Andersen, Bolling, and Hickam went to the Navy; and McChord went to the Army. (See Table 5.6.) Qualifying this observation is the

Table 5.9: Air National Guard Facilities Losing Some Aircraft but Keeping Others

BASE	STATE	STAYING	GOING
Atlantic City IAP Air Guard Station	New Jersey	F-15	F-16
Barnes Municipal Airport Air Guard Station	Massachusetts	A-10	F-15
Boise Air Terminal Air Guard Station	Idaho	C-130	A-10
Fort Smith Regional Airport Air Guard Station	Arkansas	F-16	A-10
Great Falls IAP	Montana	F-16	F-15
Selfridge ANG Base	Michigan	F-16 & C-130	KC-135 A-10

Source: 2005 Defense Base Closure and Realignment Commission Report to the President (Arlington, VA: Defense Base Closure and Realignment Commission, 2005), vol. I

fact that Lackland and Randolph themselves were merging. From that perspective, the Air Force would administer six of the ten joint bases that included Air Force installations.

In the 2005 BRAC round, the Army actually gained control of two Air Force bases, McChord Air Force Base in Washington and Pope Air Force Base in North Carolina. Pope was an unusual case, not becoming part of an Army-administered joint base, but actually becoming a part of adjacent Fort Bragg. In 2011, Pope Air Force Base became Pope Army Airfield. It disappeared as an Air Force installation, its real estate going to the Army. The case is reminiscent of what happened many years earlier when Lawson Air Force Base, created during the Cold War from adjacent Fort Benning, Georgia, was returned to the Army to become Lawson Army Air Field. The Air Force would continue to have organizations stationed at Fort Bragg's Pope Army Airfield, and the Air Force would continue to provide air transport for the soldiers at Fort Bragg, one of the most important airborne installations in the country. The Army needed to expand Fort Bragg to accommodate its organizations moving in from other Army facilities. The most significant examples were U.S. Army Forces Command and U.S. Army Reserve Command, coming from Fort McPherson, Georgia, in the Atlanta area, because that base was closing.[74]

Some of the Air Force bases not chosen to be part of joint bases nevertheless accepted tenants from sister services. A good example is Eglin Air Force Base, chosen to administer joint fighter pilot training for all the major services, particularly in the F–35 Joint Strike Fighter. In addition to that, a major U.S. Army special forces organization was scheduled to move to Eglin, despite the fact that Eglin was to remain an Air Force installation.[75]

Base Realignment and Closure Commission

The 2005 BRAC Commission agreed with the Air Force to substantially realign the resources of Air National Guard organizations, transferring aircraft and the units that flew them from one base to another. The changes were sometimes challenged by governors, who questioned whether a unit that they considered within their state militia could be moved to another state. Nevertheless, there were major movements of Air National Guard organizations and aircraft from base to base and from state to state. However, the commission did not recommend closing many of the Air National Guard installations that were losing aircraft; rather, the installations themselves would be retained in case they were needed for a national emergency.[76]

In many ways, the 2005 BRAC round was more significant, for the Air Force and for the Department of Defense, than any of the previous rounds. For the Air Force, the 2005 BRAC decisions enhanced its close relationship with the other services and contributed to the "total force" integration of Air National Guard, Air Force Reserve, and active Air Force organizations, personnel, resources and bases. The Air Force focus on military value in its realignments preserved future viability and combat effectiveness of Reserve and Guard flying squadrons that would have become irrelevant had the twenty-year force structure been allowed to run its course without realignment. While the 2005 BRAC round did not close more bases than the previous rounds, it did create a set of new joint bases, and it called for more permanent movement of organizations and resources from base to base around the country. It truly moved toward the military transformation goal of President Bush and Secretary Rumsfeld. The 2005 BRAC round was also different from the others because of the distracting environment in which it took place: major wars in Afghanistan and Iraq, and major natural disasters such as Hurricane Katrina. Yet these operations contributed to the 2005 BRAC process by bringing to the nation's attention where its military resources should best be located for future wars, contingencies, and humanitarian emergencies. Time will give the final grade to the 2005 BRAC Commission decisions and their implementation through mid-September 2011.

NOTES

1. Department of Defense Report to the Defense Base Closure and Realignment Commission, vol. V (USAF Recommendations), May 2005, p. 7.
2. Air Force Internal Control Plan for the 2005 Base Realignment and Closure Process, p. 1.
3. Donald Rumsfeld, *Known and Unknown: A Memoir* (New York: Sentinel, 2011) pp. 294 and 297.
4. Bradley Graham, *By His Own Rules* (New York: Public Affairs, 2009), p. 208.
5. Bradley Graham, *By His Own Rules* (New York: Public Affairs, 2009), p. 213.
6. Scott McClellan, *What Happened* (New York: Public Affairs, 2008), p. 128-130.
7. Charter, Air Force Base Closure Executive Group, 20 October 2004.
8. Department of Defense Base Closure and Realignment Report, 2005, volume I, pp. 3 and 13.
9. Charter, Air Force Base Executive Group, 20 Oct 2004; Department of Defense Base Closure and Realignment Report, vol. I, pp. 3, 14-17.
10. Department of Defense Base Closure and Realignment Report, vol. I, pp. 2 and 19.
11. Department of Defense Base Closure and Realignment Report, vol. I, p. 1, and cover letter from Secretary of Defense Donald Rumsfeld to Anthony Principi, Chairman of the Defense Base Closure and Realignment Commission.
12. Department of Defense Base Closure and Realignment Report, Volume I, p. 17.
13. Department of Defense Base Closure and Realignment Report, Volume I, pp. 2, 18-19.
14. Department of Defense Report to the Defense Base Closure and Realignment Commission, vol. V (USAF Recommendations), p. 7.
15. Department of Defense Report to the Defense Base Closure and Realignment Commission, vol. V (USAF Recommendations), May 2005, pp. 1 and 4.
16. Memorandum from James G. Roche, Secretary of the Air Force, to all major command commanders, 26 Nov 2002.
17. Department of Defense Report to the Base Closure and Realignment Commission, vol. V (USAF Recommendations), May 2005, p. 10.
18. Bradley Graham, *By His Own Rules* (New York: Public Affairs, 2009), pp. 670-671.
19. Interview of Mr. Michael Aimone at the Pentagon on April 7, 2011 by Dr. Daniel Haulman and Mr. Mark Stanley
20. Department of the Air Force Analysis and Recommendations, 2005 BRAC, volume V, part 1 of Department of Defense Report to the Defense Base Closure and Realignment Commission, May 2005, p. 5; Charter of the Air Force Base Closure Executive Group (20 October 2004); Interview of Maj Gen Gary Heckman by Dr. Forrest Marion on 12 July 2008.
21. Charter, Air Force Base Closure Executive Group, October 20, 2004; Air Force Internal Control Plan for the 2005 Base Realignment and Control Process, change 4, incorporated January 5, 2005, p. 1.
22. Interview of Mr. Gerald "Fred" Pease and Maj. Gen. Gary W. Heckman on April 7 and 8, 2011 at the Pentagon, by Dr. Daniel L. Haulman and Mr. Mark Stanley.
23. Air Force Internal Control Plan for the 2005 BRAC Process, Change 4, incorporated January 5, 2005, pp. 3-4.
24. Department of Defense Report to the Defense Base Closure and Realignment Commission, vol. V (USAF Recommendations), May 2005, p. i.

25. Interviews with contractors involved not only in 2005 BRAC but also previous rounds of BRAC in the 1990s. Among them were Mr. Morganti, Mr. Callaghan, Mr. Neall, and Mr. Freund. The interviews took place with the author and with Mr. Mark Stanley at Rosslyn, Virginia, at the end of July 2011.
26. Department of the Air Force Analysis and Recommendations, 2005 BRAC, volume V, part 1 of Department of Defense Report to the Defense Base Closure and Realignment Commission, May 2005, pp. i-ii.
27. Department of the Air Force Analysis and Recommendations, 2005 BRAC, volume V, part 1 of Department of Defense Report to the Defense Base Closure and Realignment Commission, May 2005, pp. i-ii.
28. Department of the Air Force Analysis and Recommendations, 2005 BRAC, volume V, part 1 of Department of Defense Report to the Defense Base Closure and Realignment Commission, May 2005, pp. i-ii.
29. Department of the Air Force Analysis and Recommendations, 2005 BRAC, volume V, part 1 of Department of Defense Report to the Defense Base Closure and Realignment Commission, May 2005, pp. i-ii and 4.
30. Department of Defense Report to the Defense Base Closure and Realignment Commission, vol. V (USAF Recommendations), May 2005, p. 1, 12.
31. Department of Defense Report to the Defense Base Closure and Realignment Commission, vol. V (USAF Recommendations), May 2005, pp. 12-13.
32. Department of Defense Report to the Defense Base Closure and Realignment Commission, vol. V (USAF Recommendations), May 2005, p. i (Executive Summary).
33. Department of the Air Force Analysis and Recommendations, 2005 BRAC, volume V, part 1 of Department of Defense Report to the Defense Base Closure and Realignment Commission, May 2005, p. 3.
34. Interview of Maj Gen Gary Heckman by Dr. Forrest Marion on 12 July 2008.
35. Department of the Air Force Analysis and Recommendations, 2005 BRAC, volume V, part 1 of Department of Defense Report to the Defense Base Closure and Realignment Commission, May 2005, p. i.
36. Department of Defense Base Closure and Realignment Report, Volume I, p. 2.
37. Preface to the Department of Defense and Realignment Report, Volume I, and cover letter, Secretary of Defense Donald RumsfeLd to Anthony J. Principi, Chairman of the Defense Base Closure and Realignment Commission, dated May 13, 2005.
38. Department of Defense Base Closure and Realignment Report, Volume I, p. 4.
39. Interview of Maj Gen Gary Heckman by Dr. Forrest Marion, 12 July 2008.
40. Department of Defense Report to the Defense Base Closure and Realignment Commission, vol. V (USAF Recommendations), May 2005, p. 4.
41. Department of Defense Report to the Defense Base Closure and Realignment Commission, vol. V (USAF Recommendations), May 2005, p. 3.
42. Department of Defense Report to the Defense Base Closure and Realignment Commission, vol. V (USAF Recommendations), May 2005, p. 3.
43. Interview of Mr. Gerald “Fred” Pease and Maj. Gen. Gary W. Heckman on April 7 and 8, 2011 at the Pentagon, by Dr. Daniel L. Haulman and Mr. Mark Stanley; Interview of Maj Gen Gary Heckman by Dr. Forrest Marion on 12 July 2008
44. Interview of Maj Gen Gary Heckman by Dr. Forrest Marion on 12 July 2008.
45. Department of Defense Report to the Defense Base Closure and Realigment Commission, vol. V (USAF Recommendations), May 2005, p. 4.
46. Department of Defense Report to the Defense Base Closure and Realignment Commission, vol. V (USAF Recommendations), May 2005, p. 4.

47. Telephone conversation of Dr. Daniel Haulman with Mr. Michael Aimone, 1 June 2011.
48. Interview of Maj Gen Gary Heckman by Dr. Forrest Marion, 12 July 2008.
49. 2005 Defense Base Closure and Realignment Commission Report to the President, vol. II, Appendix G, pp. G-1-G-3.
50. 2005 Defense Base Closure and Realignment Commission Report to the President, vol. II, Appendix G, pp. G-1-G-3.
51. 2005 Defense Base Closure and Realignment Commission Report to the President, vol. II, Appendix G, pp. G-1-G-3.
52. 2005 Defense Base Closure and Realignment Commission Report to the President, vol. I, p. iv.
53. 2005 Defense Base Closure and Realignment Commission Report to the President, vol. I, p. iv.
54. Scott McClellan, *What Happened* (New York: Public Affairs, 2008), p. 290.
55. Gerry L. Gilmore, "President Sends BRAC Commission Report to Congress," *Armed Forces Press Service* (September 16, 2005).
56. Breanne Wagner, "Bush Endorses BRAC Moves," *Air Force Magazine*, vol 88, no. 11 (November 2005), p. 18.
57. David S. Sorensen, *Military Base Closure: A Reference Handbook* (Westbrook, CT: Praeger, 2007), p.
58. House Joint Resolution 65, "Disapproving the Recommendations of the Defense Base Closure and Realignment Commission" was rejected by a vote of 324 to 85 (Clerk of House of Representatives 2005 roll call vote 548).
59. "Joint Basing Under Way at 3 AMC Bases," Air Force News Service Press Release, February 5, 2009.
60. Adam J. Hebert, "Where BRAC Came Out," *Air Force Magazine* vol. 88, no. 12 (December 2005), p. 35.
61. Interview of Maj Gen Gary Heckman by Dr. Forrest Marion, 12 July 2008.
62. 2005 Defense Base Closure and Realignment Commission Report to the President, vol. I, pp. 159-160; Michael Bruno, "BRAC Panel Retains Ellsworth, Cannon Air Force Bases," *Aviation Week*, Aug 29, 2005; Ronald A. Wirtz, "Ellsworth Air Force Base: BRAC in Business," *Fedgazette*, Nov 2005.
63. Interview of Maj Gen Gary Heckman by Dr. Forrest Marion, 12 July 2008.
64. 2005 Defense Base Closure and Realignment Report to the President, vol. I, pp. 143-145; Michael Bruno, "BRAC Panel Retains Ellsworth, Cannon Air Force Bases," *Aviation Week*, Aug 29, 2005.
65. Department of the Air Force A1M letter 856s dated 27 Aug 2007; Air Force Special Operations Command Special Order GS-33 dated 27 Aug 2007; 27 Special Operations Wing Lineage and Honors History at Air Force Historical Research Agency.
66. Capt. Robert Sperling, "Officials Unveil Joint Base Andrews Naval Air Facility Washington," Air Force News Service, October 8, 2009; David S. Sorenson, *Military Base Closure: A Reference Handbook* (Westport, CT: Praeger, 2007), pp. 105-106.
67. "Joint Basing Efforts Under Way at 3 AMC Bases," Air Force News Service, February 5, 2009; David S. Sorensen, *Military Base Closure: A Reference Handbook* (Westport, CT: Praeger, 2007), pp. 105-106.
68. Paula Bissonette, "Officials Set Operating Location for San Antonio Joint Base," Air Force News Service, May 4, 2009; Michelle Tan, "Joint Base San Antonio is Largest Installation," *Air Force Times*, March 3, 2010; 2005 Defense Base Closure and Realignment Commission Report to the President, vol. I, pp. 219-220.

69. "San Antonio Medical Collaboration Takes Another Step," article in Air Force Magazine Online, in Daily Report eNewsletter dated March 10, 2011.
70. "BRAC Joint Basing Law," U.S. Air Force Fact Sheet, from Air Education and Training Command; 2005 Defense Base Closure and Realignment Commission Report to the President, vol. I, pp. 219-220; *Air Force Magazine*, vol. 94, no. 5 (May 2011), p. 69.
71. "Joint Basing Efforts Under Way at 3 AMC Bases," Air Force News Service, February 5, 2009; 2005 Defense Base Closure and Realignment Commission Report to the President, vol. I, pp. 219-220.
72. "Joint Basing Efforts Under Way at 3 AMC Bases," Air Force News Service, February 5, 2009; 2005 Defense Base Closure and Realignment Commission, vol. I, pp. 219-220; Tom Philpott, "Services Clash Over Joint Bases," May 11, 2007 (http://www.military.com/features/01524013531700.html).
73. 2005 Defense Base Closure and Realignment Commission Report to the President, vol. I, pp. 219-220; SSgt. Jamie Lessard, "Andersen Officials to Transfer Management Functions to Navy," Air Force News Service, December 2, 2008; Tom Philpott, "Services Clash Over Joint Bases," (http://www.military.com/features/01524013531700.html).
74. 2005 Defense Base Closure and Realignment Commission Report to the President, vol. I, pp. 148-151; Paul Connors, "The Joint Base Issue: What's Best for All," *Military.Com*, July 12, 2005.
75. "Army Special Forces Group to Beddown at Eglin AFB," Air Force News Service, November 21, 2008; John A. Tirpak, "The Meaning of BRAC," *Air Force Magazine*, vol. 88, no. 7 (July 2005), pp. 10-12.
76. Adam J. Hebert, "Where BRAC Came Out," *Air Force Magazine*, vol. 88, no. 12 (Dec 2005), p. 35; David S. Sorenson, *Military Base Closure: A Reference Handbook* (Westport, CT: Praeger, 2007), pp. 98-99.

6

Planning and Establishing Joint Bases 2002-2011

As the Cold War came to an end and the threat of a major conflict against the Soviet Union and its Warsaw Pact allies subsided, the United States began to decrease its military forces and reduce the number of installations required to support them. Between 1988 and 1995, Congress passed legislation that resulted in four major waves of base realignment and closure (BRAC), realigning nine U.S. Air Force bases and closing thirty-four others.[1] The administration of President George W. Bush decided to initiate yet another restructuring of Defense Department installations after Bush took office in 2001. This committed the Department of Defense (DOD) to the fifth restructuring of its installations and their associated infrastructure in almost twenty years.

The formal legislative process began with the amendment of Public Law 101-510, the Base Realignment and Closure Act of 1990, through the passage of Public Law 107-107, the National Defense Authorization Act for Fiscal Year 2002.[2] The Department of Defense conducted an internal review process and made recommendations to a congressional Base Realignment and Closure Commission composed of former legislators, retired general and flag officers, and defense experts.[3] After receiving the Defense Department's recommendations, the congressional commission on May 13, 2005, the congressional commission then reviewed them and, after rejecting certain recommendations and adding others, made its final report to President Bush on September 8.[4] He accepted the report as submitted and sent it to Congress one week later, beginning a forty-five day period during which if Congress did not approve the report in its entirety through a joint resolution, it would become law.[5] Less than two weeks before the deadline, on October 27, 2005, the House of Representatives approved the report in a roundabout manner by rejecting a bill to reject the commission report, and

the Senate subsequently accepted the report as well. With concurrence of some sort from the President, House of Representatives, and Senate, the final report of the BRAC Commission amounted to effective legislation which had to be met by the Defense Department and the armed services no later than September 15, 2011.

At the time, the Air Force operated 166 installations around the world, eighty-four of which it considered as major bases.[6] The 2005 BRAC Commission report, now binding congressional legislation, suggested closing and realigning of a number of these installations. However, for the first time in the history of the BRAC process, it also included the establishment of joint bases incorporating units and personnel from multiple services.[7] Defense Department and congressional leaders expected that joint basing would reduce excess property and personnel and eliminate duplicative functions carried out at bases in close proximity to one another by assigning them to a single service component. The requirement to identify these redundant resources and functions, and to formulate plans acceptable to the departments of the Army and Navy to reduce them, greatly complicated the Air Force's planning process throughout the six years allotted to accomplish the BRAC installation realignments. Despite these difficulties, the Department of Defense completed the consolidation of twenty-six Army, Navy, Air Force, and Marine Corps installations into twelve joint bases within its assigned timeframe. The congressional imperative to implement joint basing affected a total of eleven Air Force installations (see Table 6.1).[8] The Air Force received primary responsibility for six of the new bases, and four other installations included a major Air Force component to be supported by either the Army or Navy.[9]

THE JOINT BASING CONCEPT

Joint basing was part of a larger effort to reshape the U.S. military from a force organized and equipped to fight a major conflict in Europe against the Soviet Union into one capable of rapid response to a wider variety of threats to national interests. After taking office in January 2001, President George W. Bush and his administration planned to reform the post-Cold War military through "transformation," an ambitious and revolutionary process envisioning a fighting force reliant upon advanced technology, information systems, and weaponry to deploy to battle zones efficiently and then to defeat its swiftly and decisively.[10] This vision of the armed forces of the future emphasized the need for improved joint cooperation between the services, enhancing striking speed and reducing the amount of logistical support needed for operations. It also endorsed the concept of an "expeditionary" military based mostly within the continental United States, diminishing dependence upon distant and expensive foreign bases. Therefore, the simultaneous consolidation and modernization of military installations within the United States became a fundamental component of transformation. Although the process would necessarily require major expenditures of funds, U.S. military and political leaders hoped that the consolidation of bases would reduce annual operating costs in the long run while improving the military's ability to counter or respond to national security threats.[11]

Table 6.1: Air Force Installations Selected for Joint Basing

BASE	NAME	LEAD SERVICE
McChord AFB	Joint Base Lewis-McChord	Army
McGuire AFB	Joint Base McGuire-Dix-Lakehurst	Air Force
Andrews AFB	Joint Base Andrews-NAF Washington	Air Force
Bolling AFB	Joint Base Anacostia-Bolling	Navy
Elmendorf AFB	Joint Base Elmendorf-Richardson	Air Force
Hickam AFB	Joint Base Pearl Harbor-Hickam	Navy
Randolph AFB & Lackland AFB	Joint Base San Antonio	Air Force
Charleston AFB	Joint Base Charleston	Air Force
Langley AFB	Joint Base Langley-Eustis	Air Force
Anderson AFB	Joint Region Marianas	Navy

With these ideas in mind, Donald H. Rumsfeld, President Bush's choice as secretary of defense and a major advocate of transformation, intended to synchronize his plans to modernize the Defense Department's internal strategic planning processes and business practices with the external congressional BRAC process. To this end, on November 15, 2002, he formally initiated the department's preliminary preparations for the 2005 BRAC round. Part of his directive included instructions to the service secretaries to "oversee joint cross-service analyses of common business oriented functions and ensure the integration of that process with the Military Department and Defense Agency specific analyses of all other functions."[12] This set the Department of Defense on the road to examining its internal working processes to better facilitate interservice planning and cooperation.

Four months after directing the services to analyze their business practices from a joint perspective, Secretary Rumsfeld established a group of defense insiders and analysts called the Joint Defense Capabilities Study Team. Led by Edward C. "Pete" Aldridge, who had previously served as secretary of the Air Force and under secretary of defense for acquisition, technology and logistics, the study team included representatives from the Joint Staff, U.S. Joint Forces Command, and several offices within the Office of the Secretary of Defense (OSD).[13] Once their deliberations began, the group sought to develop ways and means to foster better cooperation between the armed services when planning and determining their requirements.[14] When the study group released its final report in January 2004, it noted that that current infrastructure planning focused on maintaining and supporting existing installations, rather than on "consolidation and divestiture."[15] To solve this problem, the study group proposed three courses of action, labeled "moderate," "aggressive," and "radical." The first of these would have established a "Joint Facilities Directorate" to determine planning priorities for installations directly supporting joint activities, leaving responsibility for the installations themselves with their present service com-

ponents. A second alternative would have created a new assistant secretary of defense position to oversee and enforce joint cooperation in installations and environmental management planning. The third and most extreme proposal would have placed ownership of all defense infrastructure under "an OSD-led entity" responsible for overseeing "alternative governance structures for the various infrastructure services as appropriate."[16] Although none of these proposals ultimately served as the basis for the actual policies formulated during the joint basing initiative, they pointed toward the Air Force and the other armed services eventually having to surrender a certain amount of autonomy in planning, funding, and controlling their installations as Rumsfeld's drive to transform the military and the congressionally-mandated BRAC program developed.

While these proposals to provide oversight and management for the future joint bases remained notional and deliberative within Aldridge's study group, the Office of the Secretary of Defense did take steps that would have a direct effect on the joint basing process as it later developed. Its Installations Capabilities Council, led by Philip W. Grone, the deputy under secretary of defense for installations and environment, formed a Senior Joint Base Working Group, whose members included himself, the deputy assistant secretaries from the armed services involved with installation management, and their general or flag officer counterparts. Both the council and the working group would approve common standards and levels of service, called Common Output Level Standards (COLS), to be provided at the joint bases.[17] In early 2005, to help formulate these new standards, the working group began forming thirty-two Service Standard Teams made up of representatives from inside and outside the Department of Defense and, ultimately, members from the armed services and external civilian experts.[18] These teams were charged with developing common definitions for installation services and draft standards for their provision. The teams also had to establish common units of measure for use as "cost drivers," which would affect the future fiscal distributions, slated to begin in fiscal year 2008, necessary to support each joint base.[19] The teams began deliberations on July 18, 2005, and met through that December, delivering recommendations for definitions of the common output level standards and the means to measure their delivery to the Installations Capabilities Council in early 2006.[20]

In October 2004, the Installation Capabilities Council formed a second working group to determine what became known as "common delivery of installation support" (CDIS). Grone directed this Common Delivery of Installation Support Working Group to create "a strategic framework for delivery of installation support services" to ensure that all bases, regardless of the service responsible for running them, would have a method to provide equal quality of support.[21] Up to this time, the Department of Defense had never established uniform standards for installation support. Instead, each service determined its own policies, resulting in differing emphases and priorities for funding.[22] To create an overarching policy for all the armed services, the working group identified thirteen services—varying from the mundane necessities of utilities, custodial services, and public transportation to mis-

sion-specific efforts such as airfield, port, and training range operations—requiring new common standards of service at military installations.[23] The group projected that it would take almost two years to determine the necessary changes to be made to the relevant Department of Defense installation management policy documents.[24] This would push the issuance of common output level standards and common delivery of installation support standards until past the announcement of the congressional joint basing decisions, meaning that they would have to be altered, if necessary, to fit the parameters laid down by the formal BRAC legislation when it appeared.

PRELIMINARY ANALYSIS AND STUDIES FOR JOINT BASING

After the Common Delivery of Installation Support Working Group began its analysis, it was clear that joint basing would lead to major changes in the way the services operated and managed their installations. However, the processes that would lead to these changes had just begun, and the Office of the Secretary of Defense had yet to formulate definitive guidance to the services on how to proceed. Lacking official guidance and historical precedent for large-scale intraservice base mergers, the services began their own internal planning processes. In May 2005, as the Defense Department made its recommendations to the congressional BRAC Commission, the Air Force and the Navy initiated a series of discussions regarding possible future joint basing initiatives.[25] Shortly after these talks took place, the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics formed a study group, the Joint Basing Implementation Roadmap Study (JBIRS), to help develop the policies the Defense Department needed to formulate and hand down to the armed services.[26] The group, designed to "serve as a platform to research, develop and document processes and recommended courses of action," would design studies to "be used to develop implementation guidance at all Joint Basing sites … and further serve to inform and shape the ongoing development of overarching OSD Common Delivery of Support (CDIS) policy and guidance."[27]

The Joint Basing Implementation Roadmap Study group sought to resolve the unprecedented issues involved in consolidating multiple services on a single installation, and, like the armed service departments, worked with limited guidance from the Defense Department. The group began its deliberations with the expectation that the process would necessitate the transfer of funds and almost all operations and maintenance funds between services or installations.[28] From this provision, the group assumed that the lead service on a given joint base would absorb either the civilian and uniformed personnel authorizations or the funding for them—or, possibly both—from the other service.[29] The issue of whether and how to accomplish such transfers of funding, resources, and assets between services resulted in prolonged and contentious debate throughout the BRAC planning and implementation process.

To create "laboratories" to experiment with joint basing practices, the Office of the Secretary of Defense selected three geographically advantageous locations to conduct Joint Basing Implementation Roadmap Study studies: Fort Lewis and

McChord Air Force Base (AFB), both in the state of Washington, to be led by the Army; McGuire Air Force Base, Fort Dix, and Naval Air Engineering Station Lakehurst, all in New Jersey, to be led by the Air Force; Anacostia Naval Station, Bolling Air Force Base, and the Naval Research Laboratory, all located in Washington, D.C., to be led by the Navy.[30] The selection of these installations provided a useful cross-section, each with a different lead service and a wide range of specific issues to be resolved. At each, a team composed of members from each affected service documented their experiences in an unofficial, unsigned draft "CDIS installation support agreement" that would later be used to "plow lessons/observations into CDIS policy" so that "OSD gets it as right as possible."[31] The teams began their work at the three "laboratory" installation groups in August 2005.[32] Each team included fourteen subordinate working groups dedicated to functions such as facility operations, personnel, environmental issues, housing, security, emergency response, transportation, information technology, and other critical aspects of installation management.[33] Once begun, the JBIRS project evaluated the ability to consolidate resources while continuing to fulfill the missions executed at each location.[34] Each study examined the issues caused by combining base operations support funds into a single service's structure and estimated the funds required to ensure that each service's ability to conduct operations would not diminish. The JBIRS analyses accounted for support provided through contracted labor and services, preexisting memoranda of agreement between the services, and current services organically provided by each of the involved services. These exhaustive studies gave valuable feedback to the Defense Department while it formulated its guidance to form the joint bases.

The working team from Fort Lewis and McChord Air Force Base provided its thousand-page report before the other two teams. Their submission focused on a total of fifty-six installation functions and, as expected, found numerous problems to be overcome before the transfer of responsibilities, personnel, funding, and property between the Army and Air Force could take place.[35] Of particular concern for the Air Force was the impact joint basing would have on readiness and on-base command and control. The Air Force relied on a cyclical readiness model called the Aerospace Expeditionary Force (AEF), which required many airmen to execute mission and installation support functions. At McChord Air Force Base, the team found that "mission and installation management functions and resources" were "commingled within 'traditional' installation support organizations" throughout the 62d Airlift Wing, the major unit stationed there. This included the position of the wing commander, who also served as the installation commander.[36] Uncoupling the responsibilities for mission functions and installation support functions, the report found, would be an "arduous task" unless the Air Force made major changes to the AEF model, which the group assumed would not happen.[37] In addition to the problems caused by the AEF construct, while joint basing sought to pare down personnel, the Air Force's unit type code system assigned excess personnel to bases to provide airmen sufficient time to maintain skills and promotion eligibility.[38] These concerns about the Air Force's ability to maintain its readiness system and preserve its traditional personnel

development policies confirmed that the Air Force would have to remain vigilant to protect its priorities throughout the joint basing process.

The roadmap study group for the Washington, D.C.-area bases was anomalous in that its installations were geographically contiguous. Over the years, the lines between Bolling Air Force Base and Anacostia Naval Station had become blurred, and the two bases already operated jointly in a number of ways. For example, several Air Force units and tenants were located on naval property, the Navy provided construction and design services to Bolling, and the two services consolidated and jointly funded a number of installation support activities. Therefore, the study projected that no significant savings would be gained through the further reduction of personnel or consolidation of services.[39] The report, however, also acknowledged the "unique mission of Bolling AFB," which housed the 11th Wing. The wing included ceremonial units, such as the Air Force's honor guard and band, and also performed protocol, funeral support, medical care, and administrative command support for Headquarters Air Force and other Air Force units. It therefore, as the report stated in a naval analogy, served as "the 'Quarterdeck' of the AF," and the report noted that the Air Force would want to maintain its current status "in the same way that the Navy would want to maintain the Washington Naval Yard in its unique role."[40] The study also identified Department of Defense policies governing civilian workers as an obstacle to an orderly merger, since employees paid through nonappropriated funding could not be transferred between the Air Force and Navy budgets without losing certain benefits. Additionally, both services were in the midst of implementing the National Security Personnel System, a pay banding system for civilians instituted in 2004. Each service had a different schedule to convert their civilian workforce from the traditional federal General Schedule system to the new one, and moving employees between the services could cause some to unnecessarily and inefficiently convert multiple times.[41] As was the case with the Fort Lewis-McChord Air Force Base study, the Anacostia-Bolling-Naval Research Laboratory study also pointed out that policies and procedures for on-base command and control and the transfer of real property between services were unclear and would need to be defined.[42]

The third team at McGuire Air Force Base-Fort Dix-Naval Air Engineering Station Lakehurst was the only one that included members from three, rather than two, services. Like the two studies that preceded it, the New Jersey-based study identified disparities and inconsistencies in pay and benefits for civilians, military command and control, and transfers of funding and property as major areas of concern. However, the report's most pressing issue was the fact that Fort Dix, a training center for reservists, was owned, operated, and funded by the U.S. Army Reserve, rather than by the active-duty U.S. Army Installation Management Agency. This complicated matters by adding the Army Reserve as a fourth "stakeholder" with its own interests and concerns.[43]

While each study revealed intrinsic issues and concerns at each installation, over the course of their studies, the teams revealed a number of consistently-appearing issues that would have to be sorted out.[44] Underlying all these issues was the need to

identify the reductions to service budgets and manpower to create cost-saving efficiencies. One of the most critical problems identified over the course of the working group studies was the question of how to handle total obligation authority, or the funding authorized by Congress for each service's annual budget. Neither Congress nor the Office of the Secretary of Defense had provided definitive guidance on how funds for installation services would be transferred between the services on joint bases, or how the services could be assured that their priorities were adequately funded at a joint base run by another service. Other persistent problems needing resolution included the ownership of physical property on a joint base, consolidation and alteration of current contracts for installation support, the definition of command and control and reporting chains for base commanders, and the alignment of base support personnel and their organization under a new joint command.[45] Once the findings of the Joint Basing Implementation Roadmap Study group had been duly submitted and their concerns noted, the members of the OSD Installations Capabilities Council and its subordinate bodies continued their work to establish the new common output level standards and common delivery of installation support standards, aiming to establish all twelve of the planned joint bases by October 1, 2007.[46]

HEADQUARTERS AIR FORCE JOINT BASING ACTIVITIES

The leaders of Headquarters Air Force increased their efforts to shape the direction of the joint basing process in August 2005, while the congressional BRAC Commission began its final meetings.[47] Aware that the commission's report would make its way to the president and Congress by the next month, the Air Force began creating the necessary bureaucratic processes and structures to provide oversight and ensure the execution of BRAC-related tasks. Hoping to provide input during this critical period of the joint basing planning process and to ensure "that CDIS polices include AF IS (installation support) principles and that COLS accurately reflect all elements of our installation support programs," Vice Chief of Staff General T. Michael Moseley released a memorandum on August 1, 2005. In his memo, Moseley sought experts from the Air Staff, as well as the Air Force's major commands (MAJCOMs) and field operating agencies, to represent the Air Force in the service standards teams working at the time to establish draft versions of the common output level standards. The memo also named the Air Force Civil Engineer (AF/A7) as Headquarters Air Force's executive agent for all further joint basing efforts.[48] Henceforth, the Air Force Civil Engineer's office would "work directly with OSD to facilitate communication, provide implementation support, and serve as liaison between the HAF/MAJCOM functionals and OSD."[49] Two months later, on October 1, the Air Force formed a program management office, led by Col. James P. Holland and overseen by an executive steering group chaired by Fredolin W. Kuhn, the deputy assistant secretary for installations. This office was charged with completing all BRAC-related activities within the assigned six-year period without adverse effects upon readiness, with opening lines of communication with the other armed services

and the Air Force's own major commands, and with keeping Headquarters Air Force's senior leadership informed of any major developments.[50]

Once the program management office had been put into place, its staff began writing a program action directive to provide guidance to the rest of the service on how to implement the BRAC legislation after Congress accepted the BRAC Commission report. On March 23, 2006, the Air Force published Program Action Directive 06-01, *Defense Base Closure and Realignment Commission (DBCRC) Results as approved by the President of the United States 2005*, signed by Gen. John D. W. Corley, who had become vice chief of staff after Moseley's promotion to chief of staff in September 2005. The Air Force intended this document to prepare "for the closure, realignment, retention, and/or relocation of force structure, manpower, and equipment at Air Force installations." The directive also contained a detailed list of milestones to be met during the BRAC process and recommendations for external Department of Defense offices for their own activities that would affect Air Force personnel and resources.[51] The directive also made clear that the Air Force intended to protect its institutional interests throughout the joint basing process, enumerating a list of principles to be adhered to while negotiating the agreements to merge installations. These principles included a dedication to training as the service's "top priority," noting that the implementation of joint basing would have to ensure that the service's responsibilities to organize, train, and equip its forces under Title 10 of the U.S. Code were not infringed. A second principle was articulated in a blunt statement that "Airmen open and operate airfields, and Sailors open and operate ports," proclaiming that the "core competencies" of individual armed services should remain distinct despite the changes in installation management.[52]

With the program action directive in place, work began to develop detailed programming plans at the affected locations and with the corresponding major commands. These plans covered specific actions required at each location to comply with the BRAC requirements. Over the next six years, these plans turned out to cover a wide range of tasks requiring complex organizational and logistic maneuvering to complete. For example, merging functions at what would become Joint Base Anacostia-Bolling transferred almost 600 civilian and military Air Force manpower spaces to the Navy, leaving the air base's primary unit, the 11th Wing, below the minimal organizational size required at the wing echelon. Preserving the wing required moving most of its remaining subordinate units to Joint Base Andrews-Naval Air Facility, Washington, D.C., where it absorbed elements of the 316th Wing, inactivated to provide the 11th Wing with the necessary personnel.[53] On the other side of the world, joint basing ultimately left the Air Force installation commander at Andersen Air Force Base, which merged with Naval Base Guam to form Joint Region Marianas, simultaneously designated as both the commander of the 36th Wing and the deputy commander of the joint region, and responsible for the transfer of over $200 million in annual support funds and more than 600 civilian personnel billets to the Navy.[54]

DISPUTES WITH OSD

Implementing such changes to meet the requirements of 2005 BRAC would have been a difficult task for the Air Force if it had only involved relocating units, aircraft, personnel, and other assets amongst its own bases, but the imperative to merge certain bases and functions with those of the other armed services made it even more complex. Complicating matters for the Air Force further during its planning for joint basing was the fact that, although the Joint Basing Implementation Roadmap Study analyses had been conducted and work continued to define common delivery of installation support and common output level standards, the Office of the Secretary of Defense had yet to provide definitive guidance to direct planning.[55] The Department of Defense released an initial draft of an implementation policy to guide the joint basing process on May 1, 2006, and originally planned to provide a definitive and final version by October 1, 2007.[56] To this end, Deputy Secretary of Defense Gordon R. England provided a revised draft of the policy to the leaders of the armed services for review and comments in early February 2007. England also requested comments from a number of subordinate offices across the Department of Defense and installations around the globe to further refine the draft before its final release.[57]

When considering the relationship of the different services to be housed on the same base, the draft guidance of May 2006 adopted the language of joint command and control doctrine, designating the lead service as the "supporting component" and the other as the "supported component."[58] It established that joint base commanders, responsible for all installation support and management, would be provided by the supporting service. The Air Force-led bases would be an exception, keeping senior mission command and responsibility for installations vested within a single commander in accordance with its doctrine and organization, rather than keeping these functions separate as Army and Navy practice dictated.[59] To ensure representation of the supported services within the base chains of command, the guidance instituted "joint base integrated" personnel billets reporting to the base commanders. Intending to reduce costs and bureaucratic overhead, the guidance also—and more controversially—directed that the supported services transfer total obligation authority, civilian personnel authorizations involved in installation support, and physical property to the supporting commands.[60] The guidance, however, provided little specific instruction on how to accomplish such transfers, beyond noting that they were "expected to occur prior to full implementation, with specifics to be detailed in supplemental guidance."[61]

Senior leaders within the services offered numerous objections to the guidance and suggestions for refinement or reconsideration. Fearing a loss of fiscal autonomy, senior Air Force leaders had throughout the joint base planning process resisted the idea of handing over total obligation authority and property to the other services. Indeed, Assistant Secretary of the Air Force for Installations, Environment and Logistics William C. Anderson later described the proposal as "a train wreck for the Air Force."[62] Throughout the joint basing discussions with the Office of the Secretary of

Defense, Anderson understood that the Air Force would keep its property and facilities, and that the lead commands at joint bases would provide services on a reimbursable basis, with the supported service placing requests and the supporting service determining the costs to meet them and billing the supported service in turn.[63] However, despite the difficulties identified by the Joint Basing Implementation Roadmap studies, the draft guidance indicated that the Office of the Secretary of Defense had decided to move to a direct transfer of funds, property, and personnel.

Air Force senior leaders also viewed the transfer of total obligation authority and property as a threat to the service's long-standing installation management policies and traditions. The Air Force had a long reputation of having a better quality of life on its bases than the other services, which it believed was an important factor in retaining its expensive, well-trained, and "very specialized" airmen.[64] Its leaders were intent on preserving the funding necessary to maintain that reputation and to avoid the pitfall of diverting base support funds to support operations, a practice the other services often resort to by the other services. More importantly, the Air Force considered its installations as its primary means of power projection, no different than naval ships or overseas bases for deployed ground forces, and feared a reduction in readiness and effectiveness if it could not guarantee quality of life once its bases came under the control of the Army or Navy.[65]

Shortly after receiving the draft guidance from the Office of the Secretary of Defense, Secretary of the Air Force Michael W. Wynne and General Moseley issued a joint memorandum to Deputy Secretary England to register their concerns and to express their dissatisfaction with the proposed transfer of total obligation authority funds between services at the joint bases. They argued that rededicating his funding would create "numerous potential conflicts between components." The detailed and constant accounting work that would be needed at the bases and at the Pentagon to execute the funding transfer would, the secretary and chief of staff warned, add "an entirely new level of complexity and manpower than presently required." It would also prevent a supported component holding its own reimbursable funds from competing for lower-cost services, which could possibly foster a private market-like "creative tension of the customer-supplier relationship" between it and the supporting component. In addition resisting the funding transfer, the Air Force also refused to concur with the proposal that supported components transfer their property to supporting components, believing this would deprive commanders of infrastructure and resources vital to their unit missions. Finally, Wynne and Moseley asserted that the initial timeline for the completion of joint base mergers, calling for all bases to reach initial operational capability by October 1, 2007, was unacceptable.[66] This, they asserted, was "overly aggressive" and would create "significant risk by failing to adequately test the concept."[67] They instead suggested instead that no more than two joint bases be established to serve as test cases, with the remainder merging after these initial conversions had been studied and analyzed. The Air Force's senior leaders concluded their list of objections with a bid to preserve the service's autonomy to the maximum possible extent, assuring the deputy secretary that "the Air Force

stands ready to assume the lead role for every Joint Base where we are involved" and urging him to "make the necessary changes to give us this opportunity to provide quality support to the Airmen, Soldiers, Sailors, Marines and their families."[68]

After receiving comments from the armed services, the Senior Joint Base Working Group began working on the final draft of the guidance. When the department-level instructions for the joint basing process finally arrived nearly four months later, it was clear that the Office of the Secretary of Defense had ignored or rejected almost all of the Air Force's major objections to the previous draft version, accepting only the suggestion to stagger the initial operational capability dates for the affected bases, albeit in a different manner than Wynne and Moseley had proposed. On January 22, 2008, Deputy Secretary England issued the Joint Base Implementation Guidance (JBIG), announcing that the new joint bases would be established in two phases to be completed within a two-year period. In each of these phases, the services would sign an initial memorandum of agreement for each installation to define their individual roles and responsibilities and to allow them to begin work under an agreed-upon set of expectations. Once these memoranda had been signed, the joint bases were to reach initial operational capability under the command of the supporting service within four months, and all installation management assets and authority would be transferred to the supporting command within the following nine months.

The Air Force installations scheduled to merge into joint bases within the first phase included Andrews, McGuire, and Andersen Air Force Bases, with the initial memoranda of agreement to be signed on September 30, 2008, and initial and full operational capabilities expected by January 31 and October 31, 2009, respectively. The second phase of implementation, its dates scheduled exactly one year after the first, affected Bolling, Hickam, McChord, Charleston, Elmendorf, Lackland, Randolph, and Langley Air Force Bases.[69] Along with confirming the permanent transfer of total obligation authority, civilian personnel, and property, the guidance also defined forty-nine installation support functions that would transfer between services. These functions would henceforth be measured by 274 common output level standards. The supporting service was responsible for budgeting to meet these standards, and the supported service would transfer the requisite funds.[70] The Installations Capabilities Council approved the official list of these standards two months after the release of the Joint Base Implementation Guidance, in March 2008.[71] In a victory for the Air Force, which had feared the lowering of standards at its affected bases, the Senior Joint Base Working group had adopted many Air Force standards for installation services as the COLS standards, since they were typically more demanding than those of the Army or Navy.[72]

To facilitate the required transfer of resources and assets, the Office of the Secretary of Defense provided each of the twelve joint bases with a memorandum of agreement template, to be customized at each of the joint bases in accordance with its missions, manpower, budgets, and property and then sent back to OSD along with an implementation plan. Once this plan was approved, the vice chiefs of staff of the supporting and supported services signed the official memoranda of agreement. To

follow up and measure performance in accordance with the new standards, OSD developed an electronic "Cost and Performance Framework" system for joint bases to submit quarterly status reports and annual financial reports to be reviewed by OSD and the services.[73]

FINAL ANALYSIS AND IMPLEMENTATION

With the Defense Department guidance finally issued and a formal process put into place, the armed services began the work to merge the selected installations. Since most of the mergers involving the Air Force joined its installations with those of the Navy, the senior leaders of the two services cooperated closely. After receiving the Joint Basing Implementation Guidance, Air Force and Navy requested and gained approval from the Office of the Secretary of Defense to conduct yet another round of studies, so-called "table top exercises," which would not delay the process but instead provide new information from the teams working to develop the memoranda of agreement at the merging installations.[74] Conducted at four soon-to-be joint installations—Joint Bases Anacostia-Bolling, Charleston, and Pearl Harbor-Hickam, and Joint Region Marianas—these exercises involved representatives from the Air Force and Navy headquarters, the installation leaders, and individual experts in installation management and sought to identify "red lines" indicating where installation support and mission support activities conflicted.[75]

The exercises revealed widely divergent opinions regarding the feasibility of providing seamless support to installation management and to operations. The first exercise was held at the future Joint Base Anacostia-Bolling on April 23 and 24, 2007.[76] The Washington, D.C.-area bases presented the simplest case investigated by the four exercises for merging base support, since the Air Force had no active airfield activities there and, as the Joint Basing Implementation Roadmap Study analysis had shown, significant progress had already been made to establish mutually supporting functions shared between the Air Force and Navy well before the 2005 BRAC legislation. The report confirmed the findings of the earlier study, suggesting that although there was still "some level of efficiencies" to be achieved, there would be "No major effects (good or bad) at functional level by a Joint Structure."[77]

The exercise held between July 30 to August 3, 2007, in Hawaii, which included an accompanying command and control exercise, conversely revealed major difficulties in integrating the operations of the 15th Airlift Wing into the new joint basing construct. There, questions regarding operational mission support dominated the proceedings, leaving more than twenty critical installation support functions—including port operations, financial management, legal services, supply, food services, environmental restoration, and child and youth programs—unstudied.[78] In his comments to the exercise report, the wing commander, Col. John J. Torres, concluded that "the Air Force and the Navy, in many areas, are diametrically opposed in their organizational structure" because the Navy, unlike the Air Force, compartmentalized installation support and mission support, making the two services operationally incompati-

ble.[79] Furthermore, since Pearl Harbor had no airfield operations of its own, the wing commander would "have to break the wing to make the base" by dividing the operations support, maintenance operations, and logistics readiness squadrons to provide those services there, introducing inefficiency and conflicting with unity of command.[80] Torres suggested that a follow-on exercise for the Hawaii bases be conducted, and that the Office of the Secretary of Defense reconsider its timelines and policies for the entire joint basing enterprise. His naval counterpart arrived at a different conclusion, offering that "From Naval Station Pearl Harbor's perspective, there were no 'red-lines,' but clearly areas that require higher headquarters guidance and changes to the JBIG."[81]

Looked at as a whole, the studies consistently identified airfield and port operations, and also the supply, storage, and distribution of munitions, as "red lines" needing resolution before moving ahead to the actual mergers.[82] Accompanying these concerns were a host of administrative issues, such as problems with integrating differing information systems and personnel accustomed to a single service's human resources policies into a joint framework. However, the final comprehensive after-action report indicated that the placement of authority for installation management in the hands of a single commander "could be accomplished without significant consequence," although not all of the associated support functions presently conducted by each service could be transferred so easily. The studies also demonstrated that if total obligation authority and real property were not transferred, needless complexities in financial management would arise and threaten the ability to provide services in a timely and consistent manner.[83] Impressed with the findings of the four table-top exercises, the Office of the Secretary of Defense used them to refine its overarching guidance and common output of level standards and to define proposals for which support functions should transfer between components at a given joint base. It also subsequently directed that the remaining eight bases conduct their own exercises to provide further information.[84]

After the completion of the first round of table-top exercises, Air Force and Navy representatives held a series of talks between August and September 2007 that resulted in a joint memorandum issued to the Air Force and Navy commands affected by joint basing, signed by General Moseley and Chief of Naval Operations Admiral Michael G. Mullen, declaring that while "Seeking efficiencies through Joint Basing is important…it must always be secondary to maintaining our respective warfighting capabilities" and that "cost savings are secondary to mission effectiveness."[85] The two service chiefs agreed to a list of tenets to guide the process, many of which echoed the Air Force's precepts as enumerated in Program Action Directive 06-01, issued two years before.[86] These included a mandate that changes brought about by joint basing not impinge upon the service chiefs' legal requirements under Title 10 of the U.S. Code to train, man, and equip the armed forces, and that airfield and port operations remain distinct "core competencies" of the respective services."[87]

The table-top analyses also convinced the Office of the Secretary of Defense to alter the phased timelines for completing the base mergers as outlined in the Joint Base

Implementation Guidance. The deadline to complete the memoranda of agreements at the first phase of installations changed from September 30, 2008, to November 28 of that year. The initial operational capability date was pushed back a full month, from January 31 to March 31. However, the final full operational capability date was moved ahead thirty days, from October 31 to October 1, 2009. The full operational capability date for the installations in the second phase was similarly pushed ahead to October 1, 2010, but its dates for completion of the memoranda of understanding and the attainment of initial operational capability remained unchanged.[88]

The final memoranda of agreement required the leadership of the affected installations to develop an implementation plan to guide the process and an organizational structure tailored to the particular requirements for operational and installation support. They also required identification of personnel authorizations to transfer, assessments and valuation of real property, and budgetary analysis to create a historically based estimate for costs and forecasts to meet the new department-wide service standards.[89] The memoranda themselves varied widely in complexity and scope; for example, the memoranda between the Air Force and Navy to create Joint Base Andrews-Naval Air Facility, Washington required only 164 pages, while the memoranda between the Air Force and Army for Joint Base San Antonio were over three-and-a- half times longer, sprawling to over 592 pages.[90]

After being signed by the vice chiefs of the involved services, the memoranda would guide the work toward reaching initial operational capability. This would be achieved when the bases completed reimbursements for consolidated contracts and for interim services required by the relocation of units and activities; physical resources had been reassigned and repositioned; plans had been completed for the transfer of property and civilian personnel; and military personnel to be embedded into the joint installation organization had been identified. Finally, full operational capability was defined by the final assignment of the joint organizational military personnel billets and the completed transfer of civilian personnel, funding, and property.[91]

All three Air Force bases selected for the first phase of implementation their reached full operational capabilities by the date of October 1, 2009, as assigned by the Office of the Secretary of Defense.[92] During the process, a number of difficulties emerged, many of which were by now hardly unexpected. One pressing issue was to clarify how each armed service would provide funding to meet the new common output level standards. By early 2009, the Senior Joint Base Working Group had approved modified resourcing policies for the standards, allowing supported services to deviate from them and transfer funding to the supporting service if it demanded support above the requirements and establishing the supporting component's staffing and resourcing policies as the benchmark for funding transfer unless both components agreed to a different standard.[93] Other difficulties had already been identified by the table-top exercises, such as the need to transfer funds and civilian personnel between the services and the lack of a rating system for uniformed personnel placed into joint base integrated billets.[94] The bases also needed to develop information architectures to migrate data between incompatible information technology systems

to meet mandatory BRAC-related reporting requirements and operational needs. Despite these and other difficulties, by late 2008 the office of the Air Force's Civil Engineer had issued a briefing noting that the initiative was "progressing well" and on track to meet its deadline of September 2011, and that he expected no "show-stoppers" to delay the process.[95] Like the first three bases, the installations in the second implementation phase completed their memoranda and met their scheduled dates for full operational capability a year later on October 1, 2010. The Air Force Civil Engineer's report on the joint basing effort pithily concluded: "It is working."[96]

EARLY RESULTS OF JOINT BASING

A major drive behind the joint basing initiative was the desire to reduce long-term expenditures and wasteful overhead related to installation support and management.[97] However, the simultaneous modernization and renovation of selected facilities to support military transformation and to establish efficiencies, as well as the associated costs of closing others and moving their associated units and personnel, required sizable up-front costs that approached the total costs of all previous BRAC efforts combined.[98] The 2005 BRAC Commission estimated that the necessary expenditures would total approximately $21 billion, or just $4 billion less than the sum of the four rounds that preceded it, but also that the overall effort would save a net present value of almost $36 billion over the next twenty years. The initial estimates for one-time joint basing costs represented $50.6 million of this sum, but the commission forecasted that this would soon be offset by annual savings of $183.8 million.[99] However, these one-time, up-front costs required throughout the entire BRAC program began rising as early as 2007. In 2012, analysts at the Government Accountability Office estimated that the total savings to be achieved through the 2005 BRAC process had dwindled to just less than $10 billion, less than a third of the original estimate.[100] The Defense Department agreed with the estimates, noting that "the Department continues to believe that the BRAC process is the only fair, objective, and proven process for closing and realigning bases in the United States."[101] Joint basing, with its host of new and mandatory common output level standards to be met at military installations, proved to be one of the least effective attempts to realize long-term savings. Initially projected to return a net present value of over $2.3 billion over two decades, the Government Accountability Office forecasted that the actual savings by 2025 would total less than a quarter billion dollars.[102]

In addition to the unrealized fiscal reductions anticipated by the move to joint basing, gains from the drive to improve "jointness" and cooperation amongst the armed services proved to be elusive. Placing multiple services within the same installation chain of command created, as the BRAC planning process had revealed, frictions between the services that would take time to resolve.[103] A Headquarters Air Force lessons-learned report released in mid-2012 noted the challenges caused or exacerbated by conflicts of professional and institutional cultures between the armed service personnel stationed on joint bases. The report emphasized that the Air Force still clung

to its position that, unlike the other services, it fought "from its installation" and therefore viewed its uniformed and civilian personnel as a cohesive whole that provided base operational support, making the transition to receiving that support from another service difficult to accept. Additionally, since Air Force installation management policy traditionally flowed from individual major commands, rather than from a centralized Pentagon-level command such as the U.S. Army Installation Management Command and the Navy Installation Command, many airmen had difficulty comprehending the business practices of those services. Airmen also reported feeling pressured to serve "two masters" in the form of the Air Force and their respective major command on one hand and the supporting joint base commander on the other.[104]

The decision to create joint bases housing multiple services under a single command led to a tumultuous period within the Department of Defense. Nearly all the major impediments to a swift and simple merging of facilities—questions how funding, command and control, oversight of personnel, and property ownership would be handled—emerged early in the process and required years of negotiation before effective solutions could be prepared and the actual work to establish the joint bases could begin. Throughout the process, the Air Force leadership used strongly articulated principles based on the service's doctrine, organizational structure, and traditions to argue against relinquishing control of its bases, personnel, and resources to the other services. However, the joint basing experiment proved to be an ultimately frustrating one for the Air Force. The service provided valuable input throughout the process that helped to shape the final policies and procedures, and the Defense Department's adoption of many of its installation funding and service standards as the baseline for the new joint common output level standards was a vindication of its tradition of providing the highest standards for quality of life within the Department of Defense. The Air Force also managed to preserve its practice of vesting responsibility for both operations and installation functions within a single commander on the six joint bases where it acted as the supporting service. Most importantly, along with the departments of the Army and the Navy, the Air Force successfully accomplished the herculean task of meeting the implementation timelines set by the Defense Department once it issued its final, definitive guidance. These accomplishments were the product of tireless, dedicated staff work in offices throughout the Air Staff and at the major command and installation level. However, the Air Force lost its struggle to preserve unilateral control of functions at its installations where it was designated as a supported service to the Navy or Army, and it failed to prevent the transfer of total obligation authority and real property over to the Navy and Army as supporting services, resulting in a loss of budgetary and institutional autonomy. While the Air Force benefitted from the 2005 Base Realignment and Closure process as a whole, the joint basing initiative provided, at best, incremental value to the service. Joint basing proved to be of greater value to the Department of Defense at large, despite its excessive and unforeseen financial costs, by forcing it to examine its lack of overarching installation management policies or standards and to create them.

NOTES

1. Rept, Department of Defense, "Department of Defense Recommendations to the Base Closure and Realignment Commission: Department of the Air Force Analysis and Recommendations, BRAC 2005," vol V, pt 1, May 2005, p 7, AF/HOH.
2. *Base Realignment and Closure Act*, Public Law 101-510, (1990), http://www.house.gov/legcoun/Comps/BRAC.PDF, (accessed 18 Nov 2013); Sect 3001, "Authorization of Round of Realignments and Closures of Military Installations in 2005," *National Defense Authorization Act for Fiscal Year 2002*, Public Law 107-107 (2001), http://www.gpo.gov/fdsys/pkg/PLAW-107publ107/pdf/PLAW-107publ107.pdf (accessed 18 Nov 2013).
3. Rept, Appendix G, Defense Base Closure and Realignment Commission, *Final Report to the President*, 2 vols, (Arlington, Va.: BRAC Commission, 2005), pp 2:G1–G3, http://www.brac.gov/finalreport.html (accessed 20 Nov 2013).
4. Msg, Anthony J. Principi, Chairman, BRAC Commission, et al. to President George W. Bush, 8 Sep 2005, Defense Base Closure and Realignment Commission, *Final Report to the President*, 2 vols, (Arlington, Va.: BRAC Commission, 2005), pp 1:1–2, http://www.brac.gov/finalreport.html (accessed 20 Nov 2013).
5. Sect. 2904, "Realignment and Closure of Military Installations," *Base Realignment and Closure Act*, Public Law 101-510, (1990), http://www.house.gov/legcoun/Comps/BRAC.PDF, (accessed 18 Nov 2013); "Final Vote Results for Roll Call 548," http://www.brac.gov/docs/FinalVoteResultsForE-library.pdf (accessed 18 Nov 2013).
6. Brfg, Col Mark Pohlmeier, AF/A7ILEP, *AF Views of Joint Basing*, Mar 2006, p 2, AF/HOH.
7. Rept, Defense Base Closure and Realignment Commission, *Final Report to the President*, 2 vols, (Arlington, Va.: BRAC Commission, 2005), pp 1:219–22, http://www.brac.gov/finalreport.html (accessed 20 Nov 2013).
8. Brfg, Maj Gen Delwyn R. Eulberg, AF/A7, *BRAC 2005—Joint Basing*, 13 Nov 2008, Air Force Historical Studies Office (AF/HOH), p 16; Web Page, ODUSD(I&E), "Basing Directorate," 2 Nov 2010, http://www.acq.osd.mil/ie/ basing.shtml (accessed 9 Aug 2013).
9. Brfg, Maj Gen Delwyn R. Eulberg, AF/A7, *BRAC 2005—Joint Basing*, 13 Nov 2008, AF/HOH, p 17. The two joint bases not involving the Air Force were Joint Base Little Creek-Story, comprised of Navy and Army installations in Virginia, and Joint Base Myer-Henderson Hall, which included Army and Marine Corps installations in Virginia and Washington, D.C.
10. Donald H. Rumsfeld, "Transforming the Military," *Foreign Affairs* 81:3 (May/Jun 2002), pp 20–32.
11. Jim Garamone, "BRAC 2005: Rumsfeld, Myers State Their Case to Commission," 16 May 2005, http://www.defense.gov/News/NewsArticle.aspx?ID=31642 (accessed 17 Oct 2013). At the time, Air Force General Richard B. Myers was serving as the chairman of the Joint Chiefs of Staff.
12. Memo, Donald H. Rumsfeld, SECDEF, to Secretaries of the Military Departments, et al., subj.: Transformation Through Base Realignment and Closure, 15 Nov 2002, AF/HOH.
13. Brfg, Lt Col Mark Pohlmeier, AF/ILEP, *Common Delivery of Installation Support (CDIS) Overview*, 27 Jul 2005, pp 3, 17, AF/HOH.
14. Rept, Joint Defense Capabilities Study Team, *Joint Defense Capabilities Study: Improving DoD Strategic Resourcing and Execution to Satisfy Joint Capabilities—Final Report*, Jan 2004, p iii.
15. Rept, Joint Defense Capabilities Study Team, *Joint Defense Capabilities Study:*

Improving DoD Strategic Resourcing and Execution to Satisfy Joint Capabilities—Final Report, Jan 2004, p 3-15.

16. Rept, Joint Defense Capabilities Study Team, *Joint Defense Capabilities Study: Improving DoD Strategic Resourcing and Execution to Satisfy Joint Capabilities—Final Report*, Jan 2004, pp 3-16–3-18, A-2.
17. Brfg, *JBIRS Kickoff Conference: BRAC 05 Joint Basing Implementation Roadmap Study*, 17 Jul 2005, pp 3, 10, 16, AF/HOH; Rept, DODIG, *Marine Corps Transition to Joint Region Marianas and Other Joint Basing Concerns*, Report No. DODIG-2012-054, 23 Feb 2012, p 2. The initial Air Force representatives on the council were Deputy Assistant Secretary of the Air Force for Installations Fredolin W. Kuhn and Maj Gen L. Dean Fox, the Air Force Civil Engineer.
18. Brfg, Lt Col Mark Pohlmeier, AF/ILEP, *JBIRS Kickoff Conference: Common Delivery of Installation Support (CDIS) Overview*, 27 Jul 2005, p 11, AF/HOH.
19. Brfg, Maj Craig Cole, AF/ILEPB, *Joint Basing/Common Delivery of Installation Support (CDIS)*, 21 Nov 2005, pp 4, 8, AF/HOH.
20. Brfg, Lt Col Mark Pohlmeier, AF/ILEP, *Common Delivery of Installation Support (CDIS) Overview*, 27 Jul 2005, pp 11–13, AF/HOH; Brfg, Maj Michael Harner, AF/A7CIB, *Joint Basing for PHMA Conference*, n.d., p 11, AF/HOH. Although the second briefing does not include a date, information from the brief places it in the first quarter (Oct–Dec) of Fiscal Year 2008.
21. Brfg, Lt Col Mark Pohlmeier, AF/ILEP, *JBIRS Kickoff Conference: Common Delivery of Installation Support (CDIS) Overview*, 27 Jul 2005, AF/HOH, p 3.
22. Rept, GAO, GAO-09-336, *Defense Infrastructure: DOD Needs to Periodically Review Support Standards and Costs at Joint Bases and Better Inform Congress of Facility Sustainment Funding Uses*, 30 Mar 2009, p 14.
23. Brfg, Lt Col Mark Pohlmeier, AF/ILEP, *JBIRS Kickoff Conference: Common Delivery of Installation Support (CDIS) Overview*, 27 Jul 2005, AF/HOH, pp 3–5.
24. Brfg, Lt Col Mark Pohlmeier, AF/ILEP, *JBIRS Kickoff Conference: Common Delivery of Installation Support (CDIS) Overview*, 27 Jul 2005, p 8, AF/HOH. Most critically, the CDIS process would affect future versions of Department of Defense Directive No. 4001.1 (*Installation Management*) and Department of Defense Instruction No. 4000.19 (*Support Agreements*). As it turned out, the Department of Defense did not issue the revised version of the former, which was changed to a departmental instruction, until almost three and a half years later. See Department of Defense, DODI 4001.1, *Installation Management*, 10 Jan 2008, which cancelled the preceding version of 4 Sep 1986.
25. Brfg, *JBIRS Kickoff Conference: BRAC 05 Joint Basing Implementation Roadmap Study*, 27 Jul 2005, p 5, AF/HOH.
26. Brfg, *JBIRS Kickoff Conference: BRAC 05 Joint Basing Implementation Roadmap Study*, 27 Jul 2005, p 8, AF/HOH; Doc, DUSD (AT&L), *DUSD (AT&L) BRAC 2005 Recommendations, Joint Basing Implementation Roadmap Study (JBIRS) Charter*, 1 Aug 2005, AF/HOH.
27. Doc, DUSD (AT&L), *DUSD (AT&L) BRAC 2005 Recommendations, Joint Basing Implementation Roadmap Study (JBIRS) Charter*, 1 Aug 2005, AF/HOH.
28. Brfg, *JBIRS Kickoff Conference: BRAC 05 Joint Basing Implementation Roadmap Study*, 27 Jul 2005, p 6, AF/HOH.
29. *Ibid*.
30. Although the BRAC Commission originally intended to merge the Naval Research Laboratory with what would ultimately become Joint Base Anacostia-Bolling, it opted not to because of its status as a Secretary of the Navy Working Capital Fund Activity, which required the Navy to maintain control of its facilities and infrastructure. Rept, Defense Base Closure and Realignment Commission, *Final Report to the President*, 2 vols, p 1:221.

31. Brfg, *JBIRS Kickoff Conference: BRAC 05 Joint Basing Implementation Roadmap Study*, 27 Jul 2005, pp 5–7, AF/HOH.
32. Brfg, *JBIRS Kickoff Conference: BRAC 05 Joint Basing Implementation Roadmap Study*, 27 Jul 2005, pp 7, 11, 14, AF/HOH.
33. Brfg, *JBIRS Kickoff Conference: BRAC 05 Joint Basing Implementation Roadmap Study*, 27 Jul 2005, p 25, AF/HOH; Brfg, AF/ILEPB, *Joint Basing/Common Delivery of Installation Support (CDIS)*, 21 Nov 2005, p 10, AF/HOH.
34. Brfg, Maj Craig Cole, AF/ILEPB, *Joint Basing/Common Delivery of Installation Support (CDIS)*, 21 Nov 2005, p 10, AF/HOH.
35. Rept, *Joint Basing Implementation Roadmap Study: Joint Base Lewis-McChord*, 15 Nov 2005, pp EXSUM9–EXSUM10, AF/HOH.
36. Rept, *Joint Basing Implementation Roadmap Study: Joint Base Lewis-McChord*, 15 Nov 2005, pp SS5–SS10, AF/HOH.
37. Rept, *Joint Basing Implementation Roadmap Study: Joint Base Lewis-McChord*, 15 Nov 2005, p EXSUM3, AF/HOH.
38. *Ibid.*
39. Rept, *Joint Basing Implementation Roadmap Study: Joint Base Anacostia-Bolling-Naval Research Laboratory*, 29 Nov 2005, p ES1, AF/HOH.
40. *Ibid.*
41. Rept, *Joint Basing Implementation Roadmap Study: Joint Base Anacostia-Bolling-Naval Research Laboratory*, 29 Nov 2005, p ES6, AF/HOH. The Department of Defense abandoned the implementation of the National Security Personnel System in 2009, and employees who had been moved into it reverted to the General Schedule. See GAO, GAO-11-524R, *DOD Is Terminating the National Security Personnel System, but Needs a Strategic Plan to Guide its Design of a New System*, 28 Apr 2011. http://www.gao.gov/assets/100/97461.pdf
42. Rept, *Joint Basing Implementation Roadmap Study: Joint Base Anacostia-Bolling-Naval Research Laboratory*, 21 Nov 2005, pp ES6–ES7, AF/HOH.
43. Rept, *Joint Basing Implementation Roadmap Study: Joint Base New Jersey McGuire AFB-Fort Dix-NAES Lakehurst*, 21 Nov 2005, pp 5–6, AF/HOH. The U.S. Army Installation Management Agency was elevated from an agency to a command in 2006. See Jeffrey B. Burbach and J. Elise Van Pool, eds., *Installation Management Command: A Short History 2001-2010* (Washington, D.C.: U.S. Army Installation Management Command, 2010), p 21.
44. Brfg, *Big Rock Issues*, *JBIRS Conference*, n.d., AF/HOH, 1–7.
45. Brfg, *Big Rock Issues*, *JBIRS Conference*, n.d., AF/HOH, pp 2–6.
46. Memo, Maj Craig Cole, AF/A7CPB, subj: Talking Paper on OSD Joint Installation Support (IS) Initiatives, 5 Mar 2006, AF/HOH.
47. Rept, Appendix G, Defense Base Closure and Realignment Commission, *Final Report to the President*, 2 vols, (Arlington, Va.: BRAC Commission, 2005), p 1:iv, http://www.brac.gov/finalreport.html (accessed 20 Nov 2013).
48. Memo, Gen T. Michael Moseley, AF/CV, to MAJCOM/FOA/CVs, subj: Common Delivery of Installations Support (CDIS), 1 Aug 2005, AF/HOH; Brfg, Maj Gen Delwyn R. Eulberg, AF/A7, *BRAC 2005—Joint Basing*, 13 Nov 2008, p 18, AF/HOH.
49. Memo, Gen T. Michael Moseley, AF/CV, to MAJCOM/FOA/CVs, subj: Common Delivery of Installations Support (CDIS), 1 Aug 2005, AF/HOH.
50. Rept, *Air Force BRAC Program Management Office (PMO)*, n.d., AF/HOH; Ssgt. C. Todd Lopez, "Implementation of BRAC begins this Year," 27 Dec 2005, http://www.af.mil/News/ArticleDisplay/tabid/223/Article/132374/implementation-of-brac-begins-this-year.aspx (accessed 19 Oct 2013).

51. Msg, Program Action Directive 06-01, *Defense Base Closure and Realignment Commission (DBCRC) Results as approved by the President of the United States 2005, Change 1*, 23 Mar 2006, p A-1, AF/HOH.
52. Msg, Annex A, "Joint Basing," Program Action Directive 06-01, *Defense Base Closure and Realignment Commission (DBCRC) Results as approved by the President of the United States 2005, Change 1*, 23 Mar 2006, pp A-1-1-4–A-1-1-5, AF/HOH.
53. Memo, William H. Booth, AF/A1MZ, to Gen Carrol H. Chandler, AF/CV, subj: Package (BLUE): AFDW Post Joint Basing Organization Change Request (OCR), 7 Apr 2010, AF/HOH.
54. Brfg, *Joint Region Marianas: Town Hall Meetings*, n.d., p 2, AF/HOH.
55. MSgt Mitch Gettle, "Air Force implements BRAC decisions," *Air Force AIM Points*, 13 Apr 2006, p 1.
56. Msg, DOD, *Department of Defense Guidance for BRAC 05 Joint Base Implementation May 01 Draft*, 1 May 2006, AF/HOH.
57. *Ibid*.
58. For a formal doctrinal definition of supporting and supported command relationships and responsibilities in joint operations, see JP 1, *Joint Doctrine for the Armed Forces of the United States*, 2 May 2007, pp IV-10–IV-12.
59 Brfg, Capt Paz B. Gomes, ODUSD(I&E), *Joint Basing Update Brief to Senior Base Working Group*, 7 Nov 2006, pp 5–8, AF/HOH; Memo, Senior Joint Base Working Group, subj: Meeting Minutes, 7 Nov 2006, AF/HOH; Memo, Gordon R. England, Dep SECDEF, to Secretaries of the Military Departments, et al., subj: Request for Coordination: Base Realignment and Closure (BRAC) 2005 Joint Base Initial Implementation Guidance, Feb 2007, AF/HOH.
60. *Ibid*.; Msg, OSD, *Base Realignment and Closure (BRAC) 2005 Joint Base Initial Implementation Guidance*, 31 Jan 2007, pp 2–3, 6–7, AF/HOH.
61. Msg, OSD, *Base Realignment and Closure (BRAC) 2005 Joint Base Initial Implementation Guidance*, 31 Jan 2007, pp 6–7, AF/HOH.
62. Adam J. Herbert, "The Joint Base Dispute," *Air Force Magazine* 91:10 (Oct 2008), p 30; Intvw, SMSgt Al Garver, historian, AF/HOH, with William C. Anderson, ASAF/ILE, 25 Sep 2008.
63. Intvw, SMSgt Al Garver, historian, AF/HOH, with William C. Anderson, ASAF/ILE, 25 Sep 2008.
64. *Military Base Closings, Defense Base Closure and Realignment (BRAC)*, Hearing before the Base Realignment and Closure Commission, 17 May 2005, http://www.brac.gov/docs/ BRACHearingFullTranscript17MayAM-certified.pdf (accessed 9 Aug 2013).
65. Brfg, Col Mark Pohlmeier, AF/A7ILEP, *AF Views of Joint Basing*, Mar 2006, pp 5, 9, AF/HOH; Tom Philpott, "Air Force not keen on joint base plan," *Colorado Springs Gazette*, 7 May 2007.
66. Msg, DOD, *Base Realignment and Closure (BRAC) 2005 Joint Base Initial Implementation Guidance*, 31 Jan 2007, p G-1, AF/HOH.
67. Memo, Michael T. Wynne, SECAF, and Gen T. Michael Moseley, AF/CC, to Gordon R. England, Dep SECDEF, subj: Base Realignment and Closure (BRAC) 2005 Joint Base Initial Implementation Guidance, 9 Feb 2007, AF/HOH.
68. *Ibid*.
69. Msg, DOD, subj: Initial Guidance for BRAC 2005 Joint Basing Implementation, Attachment G, "Schedule of Events," p G-1, n.d., AF/HOH; Brfg, Navy Region Hawaii/PacAF, *Joint Basing Implementation Schedule*, n.d., AF/HOH.

70. Brfg, ODUSD(I&E), *Joint Basing: Overview and Update*, Feb 2011, pp 5–6, 11, AF/HOH; Brfg, Lt Col John M. Balzano, AF/A7CIB, *Joint Basing Overview*, 25 Feb 2010, p 6, AF/HOH. The number of COLS standards was later reduced from 274 to 265.
71. Memo, Wayne Arny, DUSD (I&E), to Secretaries of the Military Departments, et al., subj: Transforming Through Base Realignment and Closure (BRAC) 2005—Joint Basing Common Output Level Standards (COLS), 12 Jan 2009, AF/HOH.
72. Testimony, Dorothy Robyn, DUSD (I&E), before the House Appropriations Committee, Subcommittee on Military Construction, Veterans Affairs and Related Agencies, 5 Apr 2011, p 5. In 2009, the Air Force used OSD's joint COLS standards as the basis for a new set of "common level standards" for its own installations unaffected by the joint basing project. See Memo, Gen Carrol H. Chandler, AF/CV, to MAJCOM/CCs, subj: Air Force Installation Support Standards, 3 Nov 2009, AF/HOH.
73. Brfg, ODUSD(I&E), *Joint Basing: Overview and Update*, Feb 2011, p 14, AF/HOH.
74. Brfg, Maj Michael Harner, AF/A7CIB, *Joint Basing for PHMA Conference*, n.d., pp 11–12, 18, AF/HOH.
75. Brfg, Maj Michael Harner, AF/A7CIB, *Joint Basing for PHMA Conference*, n.d., pp 19–20 , AF/HOH.
76. Rept, Joint Basing Tabletop Program, *Joint Basing Exercise Program: After-Action Report and Action Plan, JB Anacostia-Bolling—Phase I*, n.d., p 12, AF/HOH.
77. Rept, Joint Basing Tabletop Program, *Joint Basing Exercise Program: After-Action Report and Action Plan, JB Anacostia-Bolling—Phase I*, n.d., p 3–5, AF/HOH.
78. Rept Joint Basing Tabletop Program, *Joint Basing Exercise Program: After-Action Report and Action Plan, JB Pearl-Hickam*, n.d., p 11, AF/HOH.
79. Rept Joint Basing Tabletop Program, *Joint Basing Exercise Program: After-Action Report and Action Plan, JB Pearl-Hickam*, n.d., p 7, AF/HOH.
80. Rept Joint Basing Tabletop Program, *Joint Basing Exercise Program: After-Action Report and Action Plan, JB Pearl-Hickam*, n.d., pp 9–10, AF/HOH.
81. Rept Joint Basing Tabletop Program, *Joint Basing Exercise Program: After-Action Report and Action Plan, JB Pearl-Hickam*, n.d, p 17, AF/HOH.
82. Brfg, Maj Michael Harner, AF/A7CIB, *Joint Basing for PHMA Conference*, n.d., p 21, AF/HOH; Rept Joint Basing Tabletop Program, *Joint Basing Exercise Program: After-Action Report and Action Plan, JB Charleston*, n.d., p 6, AF/HOH; Rept, Joint Basing Tabletop Program, *Joint Basing Exercise Program: After-Action Report and Action Plan, Joint Region Marianas*, n.d, pp 5–6, 10, AF/HOH; Rept, Joint Basing Tabletop Program, *Joint Basing Exercise Program: Final After Action Report*, n.d., p EXSUM, AF/HOH
83. Rept, Joint Basing Tabletop Program, *Joint Basing Exercise Program: Final After Action Report*, n.d., pp EXSUM, 5–11, AF/HOH.
84. Brfg, Maj Michael Harner, AF/A7CIB, *Joint Basing for PHMA Conference*, n.d., pp 12, 18, AF/HOH.
85. Memo, Adm M. G. Mullen, CNO, and Gen T. Michael Moseley, AF/CC, to CNO (N4), et al., subj: AF/NAVY JOINT BASING TENETS, n.d., AF/HOH. Although the memo is undated, a separate briefing establishes its issuance in Sep 2007. See Brfg, Maj Gen Delwyn R. Eulberg, AF/A7, *BRAC 2005—Joint Basing*, 13 Nov 2008, p 19, AF/HOH.
86. Msg, Program Action Directive 06-01, *Defense Base Closure and Realignment Commission (DBCRC) Results as approved by the President of the United States 2005, Change 1*, 23 Mar 2006, pp A-1-1-4–A-1-1-5, AF/HOH.
87. Memo, Adm M. G. Mullen, CNO, and Gen T. Michael Moseley, AF/CC, to CNO (N4), et al., subj: AF/NAVY JOINT BASING TENETS, n.d., AF/HOH.

88. Brfg, Maj Gen Delwyn R. Eulberg, AF/A7, *BRAC 2005—Joint Basing*, 13 Nov 2008, p 8, AF/HOH.
89. Brfg, Maj Gen Delwyn R. Eulberg, AF/A7, *BRAC 2005—Joint Basing*, 13 Nov 2008, pp 9, 23, AF/HOH.
90. Memo, subj: Memorandum of Agreement Between United States Air Force, Supporting Component and United States Army, Supported Component: Installation Support Memorandum of Agreement (MOA) for Joint Base Andrews-Naval Air Facility Washington, MD, n.d., AF/HOH; Memo, subj: Memorandum of Agreement Between United States Air Force, Supporting Component and United States Army, Supported Component: Installation Support Memorandum of Agreement (MOA) for Installation support activities at Lackland AFB, Fort Sam Houston, and Randolph AFB, hereafter referred to as Joint Base San Antonio (JBSA), 16 Nov 2009, AF/HOH.
91. Brfg, Maj Gen Delwyn R. Eulberg, AF/A7, *BRAC 2005—Joint Basing*, 13 Nov 2008, p 23, AF/HOH.
92. Brfg, Lt Col John M. Balzano, AF/A7CIB, *Joint Basing Overview*, 25 Feb 2010, p 6, AF/HOH; Memo, Lt Col (nfn) Kent, AF/A7CIB, subj: Bullet Background Paper on Joint Basing Implementation Issues, 10 Nov 2008, AF/HOH.
93. Memo, Wayne Arny, DUSD (I&E), to Secretaries of the Military Departments, et al., subj: Transforming Through Base Realignment and Closure (BRAC) 2005—Joint Basing Common Output Level Standards (COLS), 12 Jan 2009, AF/HOH.
94. Memo, Lt Col (nfn) Kent, AF/A7CIB, Bullet Background Paper on Joint Basing Implementation Issues, 10 Nov 2008, AF/HOH; Rept, Joint Basing Tabletop Program, *Joint Basing Exercise Program: Final After Action Report*, n.d., pp 3–4, AF/HOH.
95. Memo, Lt Col (nfn) Kent, AF/A7CIB, subj: Bullet Background Paper on Joint Basing Implementation Issues, 10 Nov 2008, AF/HOH; Brfg, HAF, *Kneeboards 4th Qtr 2010 (Oct—Dec)*, p 15, AF/HOH. For examples of local issues being worked out at Air Force installations during the mergers and concurrence of a lack of "showstoppers," see also Memo, Lt Col (nfn) Kent, AF/A7CIB, subj: Bullet Background Paper on Joint Base San Antonio, 31 Oct 2008, AF/HOH; Memo, (nfn) Goldberg, A7CIB, subj: Bullet Background Paper Joint Base Pearl Harbor-Hickam, 3 Jun 2009, AF/HOH; Memo, Ah Sam, PACAF/A7PI, Bullet Background Paper on Joint Basing in the Pacific, 28 Jul 2009, AF/HOH; Memo, Cary Wallington, AF7CIB, subj: Bullet Background Paper on Langley-Eustis Joint Base, 31 Aug 2009, AF/HOH.
96. Brfg, HAF, *Kneeboards 4th Qtr 2010 (Oct—Dec)*, p 15, AF/HOH.
97. Memo, OASD (PA) to AIG 8777 Message Group, subj: Public Affairs Guidance—Transformation Through Base Realignment and Closure (BRAC 2005), 13 Feb 2003, AF/HOH.
98. Brfg, ODUSD(I&E), *Joint Basing: Overview and Update*, Feb 2011, p 4, AF/HOH.
99. Defense Base Closure and Realignment Commission, *Final Report to the President*, 2 vols, p 1:219.
100. Government Accountability Office, GAO-12-709R, *Military Base Realignments and Closures: Updated Costs and Savings Estimates from BRAC 2005*, 29 June 2012, pp 4–5.
101. Memo, Dorothy Robyn, DUSD(I&E), to Brian Lepore, Dir, GAO, 21 Jun 2012, Encl. VII in Government Accountability Office, GAO-12-709R, *Military Base Realignments and Closures: Updated Costs and Savings Estimates from BRAC 2005*, 29 June 2012, p 47.
102. Rept, Air Education and Training Command, *U.S. Air Force Fact Sheet: BRAC Joint Basing Law*, n.d, AF/HOH; Government Accountability Office, GAO-12-709R, *Military Base Realignments and Closures: Updated Costs and Savings Estimates from BRAC 2005*, 29 June 2012, pp 15–16; Government Accountability Office, GAO-08-159, *Military Base Realignments and Closures: Cost Estimates Have Increased and Are Likely to Continue to Evolve*, 11 Dec 2007, pp 4–6.

103. Brfg, ODUSD (I&E), *Joint Basing: Overview and Update*, Feb 2011, p 16, AF/HOH.
104. Rept, AF/A9, *CSAF Vector: Developing and Caring for Airmen and Their Families, Collection: Impact of Joint Basing*, 18 July 2012, pp 7–8, 10–11, AF/HOH.

Conclusion
History's Legacy

This study describes the historical rationales that have determined the location of USAF installations within the continental United States, excluding Alaska, from 1907 to the present. The location and numbers of these bases have fluctuated according to the size of the air forces, the capabilities of available weapon systems, and the strategies contemplated for their employment. In the modern U.S. Air Force, the number of bases rose from 115 in 1947 to peak at 162 in 1956 before declining to 69 in 2003. This ebb and flow reflected a Cold War expansion, retirement of much of the strategic bomber force, and the post–Cold War drawdown. Over time, the USAF has constantly realigned its forces within the network of bases to reflect current needs and strategies. Tanker aircraft, for example, once paired with strategic bomber units to ensure nuclear deterrence, are now collocated with intratheater airlift wings to support the post–Cold War global power projection.

The locations of modern Air Force installations owe much to the vision and foresight of early planners. The active installations that exist today are the remnants of a larger network that existed during World War II. The second Truman administration (1949–1953), seeking to maximize the returns of prior investments, directed an expanding Air Force to select, whenever possible, former World War II bases for activation. With very few exceptions, the Air Force has followed this guidance. In 2003, 65 (94 percent) of the 69 active major Air Force installations within the continental United States had been active War Department installations, usually Army Air Fields, during World War II. Fourteen (20 percent) of the 69 bases had existed before World War II. The longevity of most active installations suggests that money follows the path of prior investment and that the criteria used for selecting a location for an air base have been remarkably stable.

In late 1952, the Air Force Development Board refined the guidance of the Truman administration, designating as "permanent" eighty-five bases essential for peace and war and eligible for 25-year construction projects. Criteria for permanent

status included World War II usage; location consistent with mission; proximity to construction, maintenance, and logistical support facilities; potential for expansion; and minimal airspace interference. Given the changes in weapon systems capabilities and the relocation of forces that have occurred since 1952, the board exercised keen foresight in selecting bases suitable for a variety of missions. Today, 40 (62 percent) of the 65 active, former World War II installations were among those designated as permanent in 1952.

The decisions made in the second Truman administration leveraged those made decades earlier by those who pioneered U.S. air power. Precedents for the modern criteria determining the suitability of flying training bases, technical training centers, air logistics centers, and laboratories were established in the 1920s, and by the late 1940s, the USAF had determined the basic requirements for the location of airlift and tactical forces. Since then it has located its forces within the vestiges of a network that was functioning at the close of World War II. Only the locations of long-range bomber, intercontinental missile, air defense, and space forces have necessitated the construction since 1947 of a relatively few new bases.

In 1963, the Air Force authors of the "Ideal Base Study" validated criteria to be used in determining the location of USAF bases. Some had been in use for decades. Since 1963, identical or nearly identical criteria have reappeared in testimony presented before Congress and, subsequently, Base Realignment and Closure Commissions. The persistence of basing location criteria over time suggests that the attributes of a good air base in 2003 are basically the same as those that existed before 1947.

A major, but not decisive, factor influencing the location of military bases has been politics. The Air Force has followed the example of its predecessors in accommodating community requests to have an installation located nearby, particularly when the requests were accompanied by generous donations of land and infrastructure, providing the proffered location satisfied basic military requirements. Political influence has also kept bases open, but evidence suggests that political pressure cannot keep a base open indefinitely beyond the expiration of its military value. Ultimately, the decisive factor in determining the location and continuation of an Air Force installation has been its suitability for its military mission.

Acronyms

AAC	Army Air Corps
AAF	Army Air Forces
AAFTC	Army Air Forces Training Command
ACC	Air Combat Command
ADC	Air Defense Command
ADCOM	Aerospace Defense Command
AETC	Air Education and Training Command
AFB	Air Force Base
AFLC	Air Force Logistics Command
AFMC	Air Force Materiel Command
AFRES	Air Force Reserve
AFS	Air Force Station
AFSC	Air Force Systems Command
AFSOC	Air Force Special Operations Command
AFSPC	Air Force Space Command
AGS	Air Guard Station
ALC	Air Logistics Center
AMA	Air Materiel Area
AMC	Air Materiel Command to 1961; Air Mobility Command after 1992
AMW	Air Mobility Wing
ANG	Air National Guard
APCS	Air Photographic and Charting Service
ARB	Air Reserve Base
ARDC	Air Research and Development Command
ARS	Air Reserve Station
AS	Air Station
ATC	Air Transport Command before 1947; Air Training Command after 1947
AU	Air University
BRAC	Base Realignment and Closure Commission
BUR	Bottom-Up Review
CONAC	Continental Air Command
CONUS	Continental United States
DOD	Department of Defense

Acronyms

EIS	Environmental Impact Statement
FY	Fiscal Year
IAP	International Airport
ICBM	intercontinental ballistic missile
MAC	Military Airlift Command
MATS	Military Air Transport Service
NACA	National Advisory Committee for Aeronautics
NEPA	National Environmental Policy Act
SAC	Strategic Air Command
SAGE	Semi-Automatic Ground Environment
SAMSO	Space and Missile Systems Organization
SIOP	Single Integrated Operational Plan
START	Strategic Arms Reduction Treaty
TAC	Tactical Air Command
UFT	undergraduate flying training
UPT	undergraduate pilot training
USAF	United States Air Force

Select Bibliography

Sources from the USAF collection at the Air Force Historical Research Agency, Maxwell AFB, Alabama, are not cited in this bibliography. Multiple references to annuals of *Air Force Magazine* and *Air Force Times* are also excluded.

Books

Ambrose, Stephen E. *Rise to Globalism: American Foreign Policy Since 1938*. London: Allen Lane Penguin Press, 1971.

Brown, Jerold E. *Where Eagles Land: Planning and Development of U.S. Army Airfields, 1910–1941*. New York: Greenwood Press, 1990.

Cameron, Rebecca Hancock. *Training to Fly: Military Flight Training, 1907–1945*. Washington, D.C.: Air Force History and Museums Program, 1999.

Carter, John D. "The Air Transport Command." In Wesley Frank Craven and James Lea Cate, *The Army Air Forces in World War II*, vol. 7, *Services around the World*, 3–45. Washington, D.C.: Office of Air Force History, new imprint, 1983.

Cornelisse, Diana G. *Splendid Vision, Unswerving Purpose*. Wright-Patterson AFB, Ohio: Aeronautical Systems Center History Office, 2002.

Eisenhower, Dwight D. *Mandate for Change, 1953–1956*. Garden City, N.Y.: Doubleday, 1963.

Ennels, Jerome A. and Wesley Phillips Newton. *The Wisdom of Eagles: A History of Maxwell Air Force Base*. Montgomery, Ala.: Black Belt Press, 1997.

Finletter, Thomas K., George P. Barker, Palmer Hoyt, John A. McCone, and Arthur D. Whiteside. *Survival in the Air Age: A Report by the President's Air Policy Commission*. Washington, D.C.: U.S. Government Printing Office, 1948.

Friedel, Frank. *America in the Twentieth Century*. New York: Alfred A. Knopf, 1976.

Futrell, Robert Frank. *Ideas, Concepts, Doctrine: A History of Basic Thinking in the United States Air Force, 1907–1964*. Maxwell AFB, Ala.: Air University, 1974.

———. "The Development of Base Facilities." In Wesley Frank Craven and James Lea Cate, *The Army Air Forces in World War II*, vol. 6, *Men and Planes*, 119–168. Washington, D.C.: Office of Air Force History, new imprint, 1983.

Select Bibliography

Gantz, Kenneth F., ed. *The United States Air Force Report on the Ballistic Missile*. Garden City, N.Y.: Doubleday, 1958.

Goldberg, Alfred, ed. *A History of the United States Air Force*. New York: Arno Press, 1974.

Heck, Frank H. "The Northwest Air Route to Alaska." In Wesley Frank Craven and James Lea Cate, *The Army Air Forces in World War II*, vol. 7, *Services around the World*, 152–172. Washington, D.C.: Office of Air Force History, new imprint, 1983.

Hennessy, Juliette A. *The United States Army Air Arm: April 1961–April 1917*. Washington, D.C.: (new imprint) Office of Air Force History, 1985.

Hoover, Karl D. *Base Closure: Politics or National Defense Issue? Goodfellow Air Force Base, Texas 1978–1981*. Randolph AFB, Tex: Headquarters Air Training Command, 1989.

Hopkins, J.C., and Sheldon A. Goldberg. *The Development of Strategic Air Command, 1946–1986*. Offutt AFB, Nebr.: Office of the Historian, Strategic Air Command, 1986.

Joseph, Robert G., and Ronald F. Lehman II, comps. *U.S. Nuclear Policy in the 21st Century: A Fresh Look at National Strategy and Requirements, Final Report*. Washington, D.C.: U.S. Government Printing Office, 1998.

Knaack, Marcelle S. *Post–World War II Bombers, 1945–1973*. Washington, D.C.: Office of Air Force History, 1988.

Larson, Eric V. *Defense Planning in a Decade of Change: Lessons from the Base Force, Bottom-Up Review, and Quadrennial Defense Review*. Santa Monica: Rand, 2001.

Levy, Michael H., and Patrick M. Scanlan. *Pursuit of Excellence: A History of Lowry Air Force Base, 1937–1987*. Lowry AFB, Colo.: Lowry Technical Training Center History Office, 1987.

Maurer, Maurer. *Aviation in the U.S. Army, 1919–1939*. Washington, D.C.: Office of Air Force History, 1987.

McPeak, Merrill A. *Selected Works, 1990–1994*. Maxwell AFB: Air University Press, August 1995.

Miller, Maurice, ed. *McClellan Air Force Base, 1936–1982*. McClellan AFB, Calif.: Sacramento Air Logistics Center Office of History, 1982.

Miller, Roger G. *To Save a City: The Berlin Airlift, 1948–1949*. Washington, D.C.: Air Force History and Museums Program, 1998.

Mueller, Robert. *Air Force Bases*, vol. I, *Active Air Force Bases within the United States of America on 1 January 1974*. Maxwell AFB, Ala: Albert F. Simpson Historical Research Center, 1982.

Neufeld, Jacob. *The Development of Ballistic Missiles in the United States Air Force, 1945–1960*. Washington, D.C.: Office of Air Force History, 1990.

Ravenstein, Charles A. *Air Force Combat Wings*. Washington, D.C.: Office of Air Force History, 1984.

———. *The Organization and Lineage of the United States Air Force*. Washington, D.C.: Office of Air Force History, 1986.

Sanders, Chauncey E. "Redeployment and Demobilization." In *Services around the World*, 545–582.

Shaw, Frederick J., Jr., and A. Timothy Warnock. *The Cold War and Beyond: Chronology of the United States Air Force, 1947–1997*. Maxwell AFB, Ala.: Air University Press, 1997.

Smith, Jay H., ed. *Anything, Anywhere, Anytime: An Illustrated History of the Military Airlift Command, 1941–1991*. Scott AFB, Ill.: Military Airlift Command History Office, 1991.

Thum, Marcella, and Gladys Thum. *Airlift: The Story of the Military Airlift Command*. New York: Dodd, Mead, and Company, 1986.

Tilford, Earl H., Jr. *Setup: What the Air Force Did in Vietnam and Why*. Maxwell AFB, Ala.: Air University Press, 1991.

Trest, Warren A. *Air Force Roles and Missions: A History*. Washington, D.C.: Air Force History and Museums Program, 1998.

Warnock, A. Timothy, ed. *Short of War: Major USAF Contingency Operations, 1947–1997*. Washington D. C.: Air Force History and Museums Program, 2000.

Watson, George M. "Building Air Power." In Bernard C. Nalty, ed., *Winged Shield, Winged Sword: A History of the United States Air Force*, vol. I, 231–238. Washington, D.C.: Air Force History and Museums Program, 1997.

———. *The Office of the Secretary of the Air Force, 1947–1965*. Washington, D.C.: Office of Air Force History, 1993.

Weitze, Karen J. *Cold War Infrastructure for Air Defense: The Fighter and Command Missions*. Langley AFB, Va.: Air Combat Command, 1999.

Winkler, David F. *Searching the Skies*. Langley AFB, Va.: Air Combat Command, 1997.

Y'Blood, William T. "Metamorphosis: The Air Force Approaches the Next Century." In Bernard C. Nalty, ed., *Winged Shield, Winged Sword: A History of the United States Air Force*, vol II, 513–554. Washington, D.C.: Air Force History and Museums Program, 1997.

Young, James O. "Riding England's Coattails: The Army Air Forces and the Turbojet Revolution." In Jacob Neufeld et al. eds., *Technology and the Air Force: A Retrospective Assessment*, 3–39. Washington, D.C.: Air Force History and Museums Program, 1997.

Periodicals and Pamphlets

Anderson, Gen. Samuel E. "Air Materiel Command." *Air Force Magazine* 43:9 (Sep 1960): 156–162.

Atkinson, Lt. Gen. Joseph H. "Air Defense Command." *Air Force Magazine* 43:9 (Sep 1960): 130-131.

A Pictorial History of Kelly Air Force Base. Kelly AFB, Tex.: San Antonio Air Logistics Center Office of History, 1981.

Bernardi, Richard A. "The Base Closure and Realignment Commission: A Rational or Political Decision Process?" *Public Budgeting & Finance* 16, no. 1 (Spring 1996): 37–48.

Burkard, Dick J. *Military Airlift Command Historical Handbook, 1941–1984*. Scott AFB, Ill.: Military Airlift Command History Office, 1984.

Eastman, James N., Jr. "Flight of the Lucky Lady II." *Aerospace Historian*, Winter 1969.

"Eighty Base Closures in U.S. Named by McNamara." *Defense Department Digest* 1 (15 Dec 1964).

From Snark to Peacekeeper: A Pictorial History of Strategic Air Command Missiles. Offutt AFB, Neb.: Headquarters Strategic Air Command, 1990.

Foulois, Benjamin D. "Early Flying Experiences: Why Write a Book, Part II?" *The Air Power Historian* 2 (July 1955): 45–65.

Hales, Grant, ed. *United States Air Force 50th Anniversary; Air Combat Command 5th Anniversary*. Langley AFB, Va.: Air Combat Command History Office, 1997.

Hebert, Adam J. "The Long Reach of the Heavy Bombers." *Air Force Magazine* 86, no. 11 (2003), 27.

"Historical Highlights on Bases of the Air Force." *Air Force Magazine* 34:9 (Sep 1951): 42–46, 116–118, 121, 128.

History of Hill Air Force Base. Hill AFB, Utah: Ogden Air Logistics Center, 1981.

Kennedy, Betty R. *An Illustrated History of Scott Air Force Base, 1917–1987*. Scott AFB, Ill.: Military Airlift Command Historical Office, 1987.

Knachel, P.A. *An Unclassified History of Rome Air Development Center*. Griffiss AFB, N.Y.: Rome Air Development Center Office of History, 1959.

Manning, Thomas A., ed. *History of Air Training Command, 1943–1993.* Randolph AFB, Tex.: AETC Office of History and Research, 1993.

Mehuron, Tam. "USAF Leaders Through the Years." *Air Force Magazine* 85:5 (May, 2003): 69.

Power, Gen. Thomas S. "Strategic Air Command." *Air Force Magazine* 42:9 (Sep 1959): 115–116.

———. "Strategic Air Command." *Air Force Magazine* 43:9 (Sep 1960): 67–68.

Villars, Ralph. "The Tullahoma Testers." *United Aircraft Bee-Hive* (Summer 1972): 2–7.

Warnock, A. Timothy. "From Infant Technology to Obsolescence: The Wright Brothers' Airplane in the U.S. Army Signal Corps, 1905–1915." *Air Power History* 49 (Winter 2002): 46–57.

———. *The U.S. Army Air Forces in World War II: The Battle Against the U-Boats in the American Theater*. Washington, D.C.: Center for Air Force History, n.d.

Documents

Defense Base Closure and Realignment Act. U.S. Code. Vol. 2, secs. 2901–03 (1990).

U.S. Congressional Budget Office. *The Costs of the Administration's Plan for the Air Force Through the Year 2010*. Distributed by Defense Technical Information Center. Washington, D.C., November 1994.

U.S. Department of Defense. *Base Closure and Realignment Report, April 1991*. Washington, D.C.: U.S. Government Printing Office, 1991.

———. *Base Closure and Realignment Report, March 1993*. Washington, D.C.: U.S. Government Printing Office, 1993.

———. *Base Closure and Realignment Report, March 1995*. Washington, D.C.: U.S. Government Printing Office, 1995.

———. *Base Realignments and Closures, Report of the Defense Secretary's Commission, December 1988*. Washington, D.C.: U.S. Government Printing Office, 1988.

———. *Base Structure Report for Fiscal Year 1989*. Prepared by Office of the Assistant Secretary of Defense (Production and Logistics). Washington D.C., February 1988.

U.S. Department of the Air Force. *Air Force Issues Book, 1988*. Washington, D.C.: U.S. Government Printing Office, 1988.

———. *Air Force Issues Book, 1989*. Washington, D.C.: U.S. Government Printing Office, 1989.

———. *Air Force Issues Book, 1990*. Washington, D.C.: U.S. Government Printing Office, 1990.

———. *Air Force Issues Book, 1991*. Washington, D.C.: U.S. Government Printing Office, 1991.

———. *Air Force Issues Book, 1992*. Washington, D.C.: U.S. Government Printing Office, 1992.

———. *Air Force Issues Book, 1993*. Washington, D.C.: U.S. Government Printing Office, 1993.

———. *Air Force Issues Book, 1994*. Washington, D.C.: U.S. Government Printing Office, 1994.

———. *Global Reach Global Power: The Evolving Air Force Contribution to National Security*. Washington, D.C., December 1992.

———. *United States Air Force Budget Book, Amended FY 1988/1989*. Prepared by the Directorate of Cost. Washington, D.C., March 1987.

———. *United States Air Force Budget Book, Amended FY 1990/1991, Biennial Budget*. Assistant Secretary of the Air Force (Financial Management and Comptroller), Prepared by Deputy Assistant Secretary (Cost and Economics). Washington, D.C., September 1989.

———. *United States Air Force Statistical Digest, Fiscal Year 1991*. Prepared by Deputy Assistant Secretary (Cost and Economics), Assistant Secretary of the Air Force (Financial Management and Comptroller of the Air Force). Washington, D.C., 1991.

———. *United States Air Force Statistical Digest, Fiscal Year 1995*. Prepared by Assistant Secretary of the Air Force (Financial Management and Comptroller). Washington, D.C., 1995.

———. *United States Air Force Statistical Digest, Fiscal Year 1999*. Prepared by Deputy Assistant Secretary (Cost and Economics), Assistant Secretary of the Air Force (Financial Management and Comptroller of the Air Force). Washington, D.C., 1999.

———. *U.S. Air Force White Paper on Long Range Bombers, March 1, 1999*. Washington, D.C., March 1999.

U.S. General Accounting Office. *Closing Maintenance Depots: Savings, Workload, and Redistribution Issues*. Report to Congressional Requesters, GAO/NSIAD–96–29. Washington, D.C., March 1996.

———. *Force Structure: Issues Involving the Base Force*. Report to the Congressional Requesters, GAO/NSIAD–93–65. Washington, D.C., January 1993.

———. *Military Base Closures: Progress in Completing Actions from Prior Realignments and Closures*. Report to the Honorable Vic Snyder, House of Representatives, GAO–02–433. Washington, D.C., April 2002.

———. *Military Bases: Analysis of DOD's 1995 Process and Recommendations for Closure and Realignment*. Report to the Congress and the Chairman, Defense Base Closure and Realignment Commission, GAO/NSIAD–95–133. Washington, D.C., April 1995.

———. *Military Bases: Analysis of DOD's Recommendations and Selection Process for Closures and Realignments*. Report to the Congress and the Chair-

man, Defense Base Closure and Realignment Commission, GAO/NSIAD–93–173. Washington, D.C., April 1993.

———. *Military Bases: An Analysis of the Commission's Realignment and Closure Recommendations*. Report to Congressional Requesters, GAO/NSIAD–90–42. Washington, D.C., November 1989.

———. *Military Bases: Lessons Learned from Prior Base Closure Rounds*. Report to Congress, GAO/NSIAD–97–151. Washington, D.C., July 1997.

———. *Military Bases: Observations on the Analyses Supporting Proposed Closures and Realignments*. Report to the Congress and the Chairman, Defense Base Closure and Realignment Commission, GAO/NSIAD–91–224. Washington, D.C., May 1991.

U.S. House. *Base Reductions and Closures, Hearings Before Subcommittee No. 4 of the Committee on Armed Services of the House of Representatives, Eighty-Ninth Congress, Second Session, January 25 and 26, 1966*. Washington: Government Printing Office, 1966.

———. *Defense Base Closure and Realignment Commission, Message from the President of the United States Transmitting the Report of the Defense Base Closure and Realignment Commission, Accompanied by the Commission's Errata Sheet Submitted on July 9, 1991, Pursuant to Public Law 101–510, Section 2903(e) (104 STAT. 1812)*. 102d Cong., 1st sess., 1991. H. Doc. 102–111.

———. *Defense Base Closure and Realignment Commission Report to the President, Communication from the President of the United States Transmitting His Certification of His Approval of all the Recommendations Contained in the Commission's Report, Pursuant to Public Law 101–510, Section 2903(e) (104 STAT. 1812).* 103d Cong., 1st sess., 1993. H. Doc. 103–115.

———. *Defense Base Closure and Realignment Commission Report to the President, Message from the President of the United States Transmitting His Certification of His Approval of all the Recommendations Contained in the Commission's Report, Pursuant to Public Law 101–510, Sec. 2903(e) (104 STAT. 1812)*. 104th Cong., 1st sess., 1995. H. Doc. 104–96.

U.S. Senate. Committee on Armed Services. *Hearings Before the Subcommittee on the Air Force*. 84th Congress, April 1956. Washington, D.C.: Government Printing Office, 1956.

———. *Hearing Before the Subcommittee on Military Construction and Stockpiles of the Committee on Armed Services, United States Senate…August 4, 1978*. Washington: Government Printing Office, 1978.

Contributors

Daniel L. Haulman is Chief, Organizational History Division, at the Air Force Historical Research Agency, where he has worked since 1982. He earned his Ph.D. in history from Auburn University and has authored six U.S. Air Force books and pamphlets describing USAF humanitarian airlift operations, World War II in the Pacific, and, most recently, a 100-year chronology of flight. Dr. Haulman compiled the list of official USAF aerial victories that appear on the Air Force Historical Research Agency's Internet Web page. He wrote the Air Force chapter in supplement IV of *A Guide to the Sources of United States Military History* and has completed five studies on aspects of recent USAF operations. The author of ten published historical articles, Dr. Haulman has presented papers at twelve historical conferences and taught college history classes at night in Montgomery, Alabama.

Christopher N. Koontz is a historian at the Air Force Historical Studies Office, Joint Base Anacostia-Bolling, DC. He earned his Ph.D. in history from the University of North Texas in 2003. Before coming to the Air Force in 2010, he worked as a historian at the U.S. Army Center of Military History, Fort McNair, DC. He is the editor of *Enduring Voices*, an official Army publication of oral histories with veterans of Operation Enduring Freedom, and has delivered over a dozen historical papers and presentations on World War II and America's war in Afghanistan.

Forrest L. Marion is a historian at the Air Force Historical Research Agency, Maxwell AFB, Alabama. He has been an Air Force historian since 1998. He earned his Ph.D. from the University of Tennessee at Knoxville in 1998. Dr. Marion has written several articles on U.S. Air Force search-and-rescue and special operations during the Korean War that have been published in *Air Power History*. He also serves as a lieutenant colonel in the Air Force Reserve.

Jeffrey P. Sahaida, worked at the Air Force Historical Research Agency, Maxwell AFB, Alabama, where he was an Air Force historian in 2002 and 2003. He earned his M.A. in history in 2001 from Kent State University, where he focused on twentieth century foreign relations and Cold War diplomacy.

Frederick J. Shaw, Jr., retired as Chief of the Research Division at the Air Force Historical Research Agency (AFHRA), Maxwell AFB, Alabama. He served four years in the United States Air Force, most of that time assigned to the 10th Tactical Reconnaissance Wing, RAF, Alconbury, the United Kingdom, as an intelligence officer. A Fulbright Scholar, Dr. Shaw resided during 1972 in Mexico City preparing for his dissertation. After receiving a Ph.D. in Latin American history from the University of Florida in 1975, Dr. Shaw worked as a historian at the Strategic Air Command Office of History, specializing in ballistic missiles and budgeting. He moved to the AFHRA in 1986, serving for a period as the Research Division's Deputy Chief. He has authored monographs on the development of the mobile and Peacekeeper ICBMs; wrote "Crisis in Bosnia: Operation Provide Promise," a chapter in *Short of War: Major USAF Contingency Operations;* and coedited *The Cold War and Beyond: Chronology of the United States Air Force, 1947–1997.*

A. Timothy Warnock retired as the Chief, Organizational History Division, Air Force Historical Research Agency, Maxwell AFB, Alabama. He has been an Air Force historian since 1980. He earned his Ph.D. from the University of Georgia in 1972. Dr. Warnock is the author of *Air Force Combat Medals, Streamers, and Campaigns* and has written several pamphlets and articles on various aspects of U.S. Air Force history. He also edited *The USAF in Korea: A Chronology, 1950–1953* and *Short of War: Major USAF Contingency Operations*. Most recently, he wrote "The Wright Brothers and the U.S. Army Signal Corps, 1905–1915," which was published in *Reconsidering a Century of Flight*.

A BT–9 over Randolph Field (later Randolph Air Force Base).