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The United States Air Force

REPORT to the 102nd CONGRESS

of the United States of America

FISCAL YEAR 1992/93

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INTRODUCTION

As this report went to press, the United States Air Force was heavily engaged, alongside forces from our sister services and coalition partners, in Operation Desert Storm. While the campaign is still unfolding, early operations have illustrated the importance of airpower in underwriting US strategy. The forces we are employing are a product of past budgets that have emphasized high quality, well-trained people, advanced weapon systems, and readiness and sustainability.

The United States Air Force of today is the best in the world -- bar none. Our unparalleled ability to rapidly project precise, lethal force anywhere in the world provides our nation's leaders with the flexible capabilities needed to underwrite national security objectives in an exceptionally dynamic time.

The changing international political climate and accelerating shift from a bipolar toward a multipolar world bring new challenges and opportunities. We must continue to broaden our focus and enhance our ability to flexibly respond throughout the globe. While the potential of a military conflict with the Soviet Union has decreased significantly, the Soviets retain, and continue to improve, their modern arsenal. At the same time, the security environment has become less predictable. Hostile regional powers, equipped with deadly modern armaments, have proven they can threaten our national interests.

As outlined in the Air Force's strategic planning framework, *Global Reach -- Global Power* (Appendix A), the unique characteristics of the Air Force -- speed, range, flexibility, precision, and lethality -- contribute significantly to underwriting US national security objectives. Our challenge is to organize, train, equip, provide, and support the balanced aerospace forces needed to deter aggression across the spectrum of conflict and, should deterrence fail, provide our leaders a broad range of options to achieve national objectives.

The evolving world order dictates a fundamental restructure of the Air Force, which affects both the overall size of the Air Force and internal organization. The reduced Soviet conventional threat enables us to respond to economic pressures by reducing force structure. While a smaller force inherently entails some increased level of risk, we are applying advanced technologies to enhance overall lethality and power projection capabilities. We are protecting the core capabilities that will sustain *Global Reach -- Global Power* into the 21st century, including programs such as the B-2, C-17, ATF, and advanced munitions. At the same time, alternatives have been sought where the threat is diminishing, programs are in technical difficulty, or costs are prohibitive. Our investment strategy includes efforts to preserve the vital technologies essential to our future strength.

One past investment which is beginning to pay dividends is stealth technology. Just as the rifled barrel significantly increased the effectiveness of the foot soldier, stealth, perhaps the most revolutionary set of military technologies since the advent of radar and the atomic bomb, will revolutionize US air combat capabilities. Future stealth aircraft, including the B-2 and the ATF, will require significantly fewer -- in some cases dramatically fewer -- sorties and support aircraft to accomplish mission objectives. Traditionally, this nation has capitalized on advanced technologies to provide the military capabilities needed to support national security objectives while minimizing risk to American lives. By significantly increasing the combat effectiveness of each airframe, stealth enables us to retain required combat capabilities even as force structure shrinks. At the same time, it dramatically reduces the potential cost, in human terms, should force be required to achieve national objectives.

Internal restructuring focuses on streamlining the Air Force to increase organizational efficiency from the flight line to Air Force Headquarters. One innovative initiative is the creation of composite wings that include -- at one base, under one commander -- all the resources needed to form composite force packages. One wing commander will have all the necessary resources to execute "mission-type" orders, significantly reducing command, control, and communications (C^3) problems. In the years to come, the proportion of the Air Reserve Component (ARC) will grow in almost every mission area to take maximum advantage of cost-effective ARC capabilities. Other initiatives include scaling back the number of personnel assigned to headquarters units and reducing the vertical layers of authority in organizations. In the long run, these changes will enable the Air Force to do its job smarter and better. With today's Air Force, the American people are getting great value for their dollars; tomorrow's Air Force will provide even more.

The FY 92/93 President's Budget enables the Air Force to provide those options for national security best achieved through aerospace power. Air Force strategic forces continue to play a vital role in the nation's defense, providing two legs of our nuclear deterrent Triad, as well as long-range conventional forces to project power worldwide within hours of notification. Theater forces can respond rapidly to contingencies throughout the world, furnishing the flexible forces and options that our national leaders require to meet any challenge to US interests. Our airlift and aerial refueling forces provide the global reach that enable forces from all the services to be shifted rapidly worldwide. C^3 and space assets provide the high ground to assess and direct military combat. We will continue to integrate space functions into the basic roles and missions of the Air Force.

People underwrite all of our efforts. We must continue to attract high-quality people to the active and reserve forces, and retain those in which we have already made a substantial investment; without them, we will be operating at a less-than-optimum level, unable to exploit the technological capabilities of our advanced weapons systems. At the same time,

we recognize the need to get the most out of our past and future investments in hardware, and will continue to leverage those investments by maximizing the readiness of our present forces, and by improving existing systems through cost-effective modifications and upgrades.

The FY 92/93 President's Budget provides a range of balanced capabilities that will enable the Air Force to continue providing the global reach and global power needed to underwrite future US national security objectives.

STRATEGIC NUCLEAR FORCES

Strategic forces provide nuclear deterrence, worldwide conventional power projection, and strategic defense across all levels of conflict. The challenge is to properly balance our Triad forces while focusing on the stabilizing characteristics necessary to confidently sustain our deterrent posture. Strategic Arms Reduction Talks (START) will result in reduced offensive forces, but the mission of deterrence will endure. Even with START constraints and a weak economic outlook, Soviet nuclear capabilities continue to increase. We must structure our forces to provide the flexible capabilities needed for deterrence today as well as tomorrow under the constraints and potential uncertainties of the post-START era.

While specifics are outlined in the Theater/Contingency chapter, it is important to note here that many of the attributes that make manned bombers effective nuclear deterrent systems also contribute to their ability to project conventional power worldwide. For the foreseeable future, the combination of Soviet conventional capabilities, regional adversaries with highly capable and sophisticated military forces, and declining forward force levels will require the Air Force to have a long-range conventional bomber capability to respond to threats against our vital national interests around the globe. At present, a portion of the B-52 force has been dedicated to this conventional mission. The bomber's long range means that we can project power and enhance presence in a very short time. In the Persian Gulf area or throughout other theaters, long-range bombers can threaten or hit targets in the crucial first hours or early days of a conflict; they may be the only assets available that are capable of doing so. The operational requirements for conventional missions continue to increase in all theaters. While most of the current strategic conventional capabilities currently reside in our dedicated B-52 forces, the potential conventional capabilities of the B-1B, and especially the dramatic conventional capabilities of the B-2, will become increasingly important as regional powers continue to develop sophisticated air defense systems.

NUCLEAR DETERRENCE

The *National Security Strategy of the United States* (March 1990) states that deterring nuclear attack will remain the nation's highest national security priority. The Soviet Union, equipped with modernized nuclear forces, is the only country that has the capability to threaten the existence of our country. The Soviets are vigorously pursuing strategic modernization programs while posturing their forces for compliance with likely treaty restrictions. Because of their aggressive modernization programs, we will face the most capable Soviet nuclear force in history, even after full compliance with START sanctions. The threat these nuclear forces pose is best countered by a strategy which discourages their use--deterrence.

Triad. The Triad concept remains fundamental. The Triad has provided an effective deterrent for three decades and its success has led to a broad national consensus that we should continue to maintain a balanced force structure composed of

modernized, effective individual legs--manned bombers, intercontinental ballistic missiles (ICBMs), and sea-launched ballistic missiles (SLBMs). The Triad provides high confidence against technological breakthroughs, system failures, communication limitations, treaty breakout, and unforeseeable "fog of war" factors. The Triad ensures sufficient forces survive an enemy attack to successfully retaliate against an aggressor. Each leg of the Triad possesses unique and complementary characteristics which synergistically provide a retaliatory capability no adversary could hope to successfully counter.

Arms Control. The purpose of arms control when coupled with effective deterrent forces is to reduce the risk of war and enhance stability in a crisis. Our national security strategy recognizes the value of both arms control initiatives and strategic modernization programs. The Air Force fully supports the President's efforts to achieve mutual and verifiable strategic arms-reduction agreements with the Soviet Union.

While ongoing START talks will likely result in strategic force reductions, embarking on irreversible and unilateral force drawdowns before an agreement is concluded is counterproductive. Early force reductions must be carefully considered in order to preserve subsequent force structure options and not remove incentives for the Soviets to seriously negotiate an equitable treaty. Even after a START agreement is in force, the Soviet Union will retain more than enough nuclear weapons to destroy the United States. Despite the benefits of arms control, our nation will still require a credible nuclear deterrent. To provide that deterrent, the fewer weapons available in the post-START force structure will have to be of the highest quality, effectiveness, and reliability. In a post-START world, our strategic nuclear forces must continue to underwrite a carefully thought-out deterrent strategy. Effective implementation of that strategy will require the continued prudent modernization of our deterrent force structure.

Bombers. Bombers are the most flexible leg of the strategic Triad -- the only leg that can support the full spectrum of conflict from total nuclear war to conventional regional conflicts such as Operation Desert Storm.

Bombers are also the most stabilizing leg of the Triad. They can rapidly increase their alert posture, disperse to alternate airfields, launch under positive control before the decision is made to employ weapons, and be recalled or redirected enroute. Through these attributes, bombers provide our nation's leaders with a highly flexible means of sending a variety of unmistakable messages to an adversary to help defuse crises. While bombers provide devastating strike capability, they do not pose a first strike threat because of their relatively slow flight time. We and the Soviets recognize the stabilizing qualities of the bomber and have agreed to START counting rules that encourage bomber deployment.

Our strategic bomber force consists of B-52H and B-1B penetrators equipped with short-range attack missiles (SRAM) and gravity bombs, and B-52Gs and B-52Hs equipped with

stand-off air-launched cruise missiles (ALCM) and, in the future, Advanced Cruise Missiles (ACM). Penetrating bombers and cruise missile carriers work together to complicate an enemy's defense planning.

In nuclear operations, the penetrating bomber provides an excellent combination of accuracy and weapon yield. The crews' capabilities to assess whether sites have useful targets present and whether high priority locations targeted by more than one weapon require a follow-up attack enhances efficiencies. In essence, the penetrating bomber can hold more targets at risk than the actual number of weapons carried. And the penetrating bomber's synergistic relationship with cruise missile carriers enhances the effectiveness of the air breathing force as a whole.

Under current plans, some reductions to bomber force structure will occur as a result of retiring some ALCM-capable B-52Gs, but manned bombers will continue to provide a large percentage of the weapons dedicated to the Triad's nuclear deterrent mission. However, the continuing modernization of Soviet air defenses and changes in the target base make modification of existing bomber systems and acquisition of the B-2 essential.

B-2. Continuing improvements to Soviet air defense systems tax the abilities of B-52s and B-1Bs to penetrate. The improved enemy threat will eventually force traditionally designed bombers into a "stand-off" cruise missile role. This will severely constrain the ability of these manned bombers to hold at risk a wide variety and number of targets. And, as years of study have illustrated, a pure cruise missile force would open us to new vulnerabilities to create a liability, not a deterrent. The Soviets could employ existing forces (interceptors, tankers, and airborne radar platforms) to destroy cruise missile carriers before they reached their launch points.

While continued improvements to current forces are vital, only the capabilities that the B-2 can provide will guarantee the continued viability of the bomber leg and a balanced nuclear Triad. The stealthy B-2 will become the backbone of the bomber fleet -- and thus provide US national security with the stabilizing, deterring and flexible capabilities of bombers for the long term. The Air Force's commitment to the B-2 is rooted in the historical experience of long-range bomber development and operations, the bomber's indispensable role in supporting nuclear deterrence, and the unique flexibility that makes it a particularly effective weapon for conventional operations and US power projection.

Technologically, the B-2 represents a generational leap incorporating capabilities unattainable with conventional airframes -- but required in response to enemy air defense modernization. It effectively integrates low-observable technologies (electromagnetic, optical, thermal, and acoustic) -- among the most significant technologies to appear in recent decades -- into a large aerodynamically efficient aircraft, creating a highly survivable bomber with long range and a heavy payload. The B-2's low-observable characteristics significantly reduce the capability of enemy forces

to detect, track, and engage, which provides the B-2 with unparalleled capabilities to penetrate sophisticated air defenses, attack targets with a wide range of weapons, and survive.

The B-2 program is currently in its flight-test phase. The first two aircraft have logged more than 112 flight hours on 30 test flights. The test program has been an unqualified success to date, with many significant test objectives completed. In fact, aircraft handling qualities have been as good as or better than predicted in the simulator. The immediate future of the test program will be devoted to low-observable testing and continuation of the flight envelope expansion which began in late 1990. A total of 75 operational aircraft are planned.

B-1B. The B-1B, our newest deployed bomber, performs today's penetration mission better than any other operational heavy bomber in the world. Current flight tests have demonstrated the inherent capability of the basic aircraft design and the automatic terrain following system. A typical penetration profile of 200 feet above ground level at speeds in excess of 600 miles per hour has been successfully tested over both flat/rolling and mountainous terrain. Nevertheless, flight test activities revealed that while some important electronic countermeasures (ECM) techniques do work, there is a deficiency in the basic design of the defensive avionics system. The Air Force has developed a recovery plan that, when implemented, will complete the baseline B-1B ECM development and provide the capability for future growth.

B-52. As Desert Storm is demonstrating, the B-52 remains a vital element in our manned bomber forces. Past modifications have expanded and enhanced the capabilities of these 30-year-old aircraft, allowing us to maximize the return on our investment in the original airframe. In the same vein, current and future modifications will enable the B-52 to continue its nuclear deterrent mission while improving its conventional warfighting capabilities for theater/contingency operations. All B-52s with a nuclear deterrent mission have completed the Cruise Missile Integration program providing cruise missile carriage capability. In addition, B-52Hs will be modified with the Common Strategic Rotary Launcher providing internal carriage for cruise missiles. ECM improvements continue with the ALQ-172(V1) system on all ALCM-capable B-52Gs and the ALQ-172(V2) system on B-52Hs. These systems will counter significant advances in Soviet and third-world surface-to-air missile and airborne interceptor systems through improved detection, processing, warning, prioritization, countermeasures, and displays.

ACM. The ACM is a second generation cruise missile that provides significantly greater range, more targeting flexibility, better accuracy, and greater survivability than ALCM. It is more effective against preplanned, fixed, hardened targets, and its low-observable features increase its probability of arrival against even the most heavily defended targets. The ACM completed full-scale development in July 1990 and will enter full-rate production upon a Defense Acquisition Board decision expected in early 1991.

SRAM II. SRAM II is a replacement for the SRAM-A and can be employed on the B-1B and B-2. The aging SRAM-A has experienced propulsion problems during operational testing and an increasing component failure rate. It faces a decreasing spare parts inventory and warhead safety issues. Our initial approach was to upgrade the SRAM-A, but analysis indicated that every major element of the current missile would require changes. Furthermore, improved defenses coupled with a harder, more mobile target base require performance improvements. The SRAM II is designed to meet these needs. It will be able to effectively strike hardened, defended targets from longer ranges and with greater flexibility than the SRAM-A. Other attributes include increased reliability, more favorable size and weight characteristics, and improved penetration flexibility when compared to existing air-delivered missiles. The SRAM II warhead also meets or exceeds all modern nuclear safety standards.

The critical design review (CDR) for SRAM II has been delayed because of propellant development problems. A new propellant has been developed, and the flight-test phase will start after the rocket motor with the new propellant is proven to meet all requirements. In addition, the program has been delayed because of development problems in the missile guidance computer which lacked sufficient throughput for the current software requirements. Condensed software appears to have solved the problem, but this must be tested before a production decision is made.

ICBMs. ICBMs make unique contributions to the Triad. They are valued for their promptness, reliability, accuracy, low operating cost, connectivity, and availability. ICBMs maintain nearly a 100-percent alert rate and comprise about half of the nation's day-to-day alert weapons. Their high alert rate allows the other two legs of the Triad to operate at more economical tempos. ICBMs can hold virtually all of the high-priority, most time-sensitive, high-value Soviet warfighting assets at risk, including command and control facilities and ICBM silos. Additionally, ICBMs can be retargeted rapidly. They provide secure high confidence connectivity. Furthermore, sovereign basing eliminates any ambiguity of intent if an adversary elects to attack.

Currently, we deploy 1,000 silo-based ICBMs divided among three operational systems -- 450 single-reentry vehicle (RV) Minuteman IIs, 500 three-RV Minuteman IIIs, and 50 ten-RV Peacekeepers. The Minuteman II was initially deployed 25 years ago; the Minuteman III was installed in upgraded silos in the 1970s. Peacekeeper, the nation's most accurate land- or sea-based ballistic missile, achieved full operational capability in December 1988 in silos at F.E. Warren AFB, Wyoming. Together, these three missile systems provide an economic means to sustain a significant number of warheads at a constant high state of alert.

Minuteman. Several programs are underway that improve the Minuteman III system. These programs are proceeding at a prudent pace, recognizing that the impending START agreement and fiscal realities

will precipitate changes to the ICBM force structure. In particular, the Air Force will begin gradually retiring the Minuteman IIs in FY 92. Minuteman improvement programs accommodate force structure changes by focusing on Minuteman III and stopping Minuteman II modifications.

The most critical Minuteman modernization effort is the Rapid Execution and Combat Targeting (REACT) program. Minuteman III launch control centers have not been upgraded since the missiles were first deployed, which has led to supportability problems and potential decreased effectiveness. REACT will ensure launch control center supportability into the next century, improve responsiveness, and retargeting capability, and replace the aging weapon system computer with a modern processor. In addition, new missile crew consoles will consolidate controls and equipment. While REACT is focused primarily on Minuteman and Peacekeeper, it will also provide maximum commonality between current and future ICBM weapons systems.

Peacekeeper in Minuteman Silos. Peacekeeper can promptly engage and destroy -- thereby "hold at risk" -- those assets Soviet leaders most value, such as hardened ICBM silos and military command bunkers. Peacekeeper also partially offsets the Soviet advantage in prompt hard target kill capability, contributing to strategic balance. Deterrence cannot be a bluff; it must be based on proven performance. In 1990 Peacekeeper continued its unprecedented flight test program achievement with three more successful launches. This brings the total to 21 successes out of 22 flight tests -- the best record in the history of ballistic missiles. Furthermore, Peacekeeper continues to demonstrate accuracy far better than design thresholds. Because of these successes and our confidence in the Peacekeeper missile, we have reduced the tempo of the flight test program which allows us to decrease the total Peacekeeper missile buy. Even with fewer total missiles, barring an arms control agreement banning multiple independently-retargetable reentry vehicle (MIRV) missiles, we expect Peacekeeper to remain in the force structure beyond its 15-year life cycle and well into the 21st century.

ICBM Modernization. Soviet advancements in ICBM accuracy and increased MIRVing led to increasing concern over the vulnerability of our silo-based ICBMs and the potential for crisis instability. Adding mobility to the ICBM force was determined to be the most effective option to address these problems, which in turn led to the Peacekeeper Rail Garrison (PRG) and Small ICBM (SICBM) in Hard Mobile Launchers (HMLs) programs. PRG would remove Peacekeeper missiles from their silos and rebase them on trains in secure garrison on Air Force bases. The mobile SICBM would be carried on HMLs that could be deployed on existing Minuteman launch facilities or in a random movement mode in the Southwest. But changes in the international environment make a deep crisis involving the Soviet Union much less likely. And potential future arms control talks beyond START I are increasingly focusing on reducing or eliminating heavily MIRVed land-based systems such as the PRG and the Soviet SS-18.

The Air Force thus will pause deployment of PRG. However, as a contingency, we will continue to develop and test PRG, permitting accelerated deployment should future international conditions warrant. Furthermore, by continuing development, we also preserve the industrial and technological base needed to develop and deploy the next generation of ICBMs.

Continuing SICBM missile development has protected the option for missile deployment in either silo or HML basing mode. Whether mobile or in silos, the SICBM's single warhead will be more stabilizing during periods of crisis than MIRVed ballistic missiles. If the strategic situation warrants a mobile basing mode, SICBMs would be placed on hard mobile launchers. In a mobile mode, SICBMs would improve stability in a post-START environment by ensuring survivability through a price-to-attack ratio that would exhaust the attacker's force without significantly degrading our own capability.

Advanced Strategic Missile Systems (ASMS). The ASMS program develops key missile system technologies to provide timely solutions for evolving mission needs in operational ICBMs. As a basic research and development program, ASMS ensures the predevelopment activity to mature ICBM technologies and concepts. We are integrating ASMS efforts with the Science and Technology basic laboratory responsibilities to provide a more efficient application of Air Force resources in meeting the future needs of our ICBM force.

STRATEGIC DEFENSE

Strategic defense must provide the national leadership the ability to posture forces for survival, limit damage from attacks, and respond appropriately to an attack on the United States. The ability to accomplish these tasks enhances our deterrent posture. Functionally, strategic defense is divided into three sub-mission areas: ballistic missile defense, atmospheric defense, and space defense. Modernization in each area is necessary to offset growth in Soviet strategic offensive capabilities, maintain our deterrent's effectiveness, and respond to concerns over third-country ballistic missile proliferation.

The Cheyenne Mountain Complex houses the command post of the North American Aerospace Defense Command (NORAD) as well as the computer and communications systems that monitor and assess the air, ballistic missile, and space activities of the Soviet Union and other countries. Several upgrades are programmed for this complex that will enhance NORAD's ability to process and display threat warning information, support Commander-in-Chief (CINC) NORAD's and USCINCSPACE's threat assessment, and facilitate the national leadership's decision making. In addition, the Offutt Processing and Correlation Center will provide a second node for integrating threat warning and attack assessment as well as making missile warning information available to CINCSAC.

Ballistic Missile Defense and Early Warning. While the United States does not currently have an operational ballistic missile defense

system, our ballistic missile warning systems provide tactical warning and attack assessment (TW/AA) information to the National Command Authorities for accurate and timely decision making. Current TW/AA provides dual phenomenology capabilities using space-based systems (discussed in the Space/C^3I chapter), the Ballistic Missile Early Warning System (BMEWS), the Perimeter Acquisition Radar Attack Characterization System (PARCS), and PAVE PAWS phased-array SLBM detection radars.

Two ballistic missile early warning system modifications are currently underway. The first, modernization of the obsolete BMEWS site at Fylingdales, United Kingdom, replaces the existing mechanical detection and tracking radars with a new, three-faced, phased-array radar providing 360 degrees of coverage. The upgrade allows the system to predict more accurately the impact points of increased numbers of smaller, more closely spaced objects that would constitute a modern ballistic missile attack. This program is allowed under the 1972 Anti-Ballistic Missile Treaty since the Fylingdales radars were initially deployed prior to the treaty's signature -- the upgrade simply replaces obsolete radars at a current radar site. The Fylingdales modernization is a joint US/UK program, with the United Kingdom responsible for facility construction while the United States is responsible for radars, computers, software, and integration.

The second modification program under ballistic missile defense is the automated data processing replacement at the northeast and northwest PAVE PAWS sites. The Cape Cod AFB and Beale AFB sites were the first two PAVE PAWS radars deployed. They are undergoing computer upgrades to enhance supportability and commonality with the other two, more modern sites.

Atmospheric Defense. Soviet development of air- and sea-launched cruise missiles, combined with ongoing bomber programs require that careful consideration be given to atmospheric defenses. We will continue to deploy the North Warning System microwave radars that is replacing the Distant Early Warning line. When completed, this integrated network of detection radars will provide an effective and cost-efficient atmospheric defense warning system for North America. The modernization of our fighter interceptor forces, begun in the 1980s, is nearing completion. To increase efficiency and cost-effectiveness, responsibility for this important mission will shift entirely to the Air Reserve Component. Recent world political changes, along with other ongoing atmospheric TW/AA improvements, enable the standdown of Over-the-Horizon Backscatter radar. We will maintain the ability to restore full operational capability should strategic indicators warrant.

Space Defense. Space defense is a segment of space force application. Therefore, the Strategic Defense Initiative is discussed in the Space/C^3I chapter of this report.

THEATER/CONTINGENCY FORCES

Theater/contingency forces provide versatile combat power in support of the National Security Strategy of the United States. Drawing upon the inherent characteristics of airpower -- speed, range, flexibility, precision, and lethality -- theater/contingency forces provide much of the punch behind *Global Reach -- Global Power*. They are structured to respond quickly across the broad spectrum of potential conflicts from large-scale protracted operations to low intensity conflict. Operation Desert Shield/Storm clearly demonstrates the importance of rapidly deployable air forces to establish initial deterrence and combat capability. Air Force F-15 aircraft, for example, were in theater, ready to conduct operations, within 24 hours of the deployment order. We deployed five E-3 AWACS within 48 hours, and five squadrons of fighters in five days. Even as we reduce our force structure we must maintain a fast, agile, modernized theater/contingency force equipped to either hit hard and terminate quickly or sustain long-term operations, as appropriate.

Joint/Combined operations with US/Allied air, naval, and ground forces remain a fundamental aspect of theater/contingency air operations. Neutralizing or destroying enemy capability to resist at all levels of war, limiting his freedom of action, and disrupting his scheme of operations, remain the objectives of theater air force operations.

In support of the Joint Force commander's campaign objectives, we conduct a wide variety of missions. Control of the air (air superiority) is our first consideration. Since the advent of modern airpower, no major conflict has been won without it. Air superiority protects friendly forces from enemy air attack and provides all of our forces -- air and surface -- with freedom of action. Air forces are then free to employ three dimensional maneuver to attack vital enemy targets -- key military, political, and economic centers of gravity -- to affect an enemy's capability and will to wage war (strategic attack). Simultaneously, airpower can be used to divert, disrupt, delay, or destroy enemy surface military potential (interdiction) to help ensure a favorable friendly-to-enemy ground force ratio at the point of contact. Finally, air attack over the battlefield (close air support and battlefield air interdiction (CAS/BAI)) can provide direct and indirect air support to friendly ground forces. In addition, several other operations -- special operations, air rescue, reconnaissance, and electronic warfare -- all support the Joint Force commander. The lethal, rapid, and flexible characteristics of airpower provide the Joint Force commander with these essential capabilities.

CONTROL OF THE AIR

Control of the air continues to be our first consideration in conducting joint force operations. We must deny the enemy free use of the air to attack our forces. History has shown time and again that joint forces, free from threat of enemy air attack, can pursue their objective with the vigor and freedom of maneuver necessary for victory. The Advanced Tactical

Fighter will greatly enhance our capability to achieve air superiority.

Advanced Tactical Fighter (ATF). The ATF is the most important element of our tactical force modernization effort. The ATF will be capable of gaining and maintaining air superiority well into the 21st century. ATF incorporates a revolutionary blend of capabilities that are essential to mission success; capabilities which cannot be achieved with alternative aircraft. Low observability, supersonic cruise, highly integrated avionics, maneuver advantage, and lethal weapons capability combine to permit the ATF to operate and survive over enemy territory, conduct around-the-clock combat operations, and achieve first-look, first-kill success against multiple enemy aircraft. The ATF's improved supportability features will permit the high sortie rates necessary to dominate the air-to-air arena and provide Joint Force commanders the freedom of action necessary to conduct their operations.

The current ATF demonstration/validation (Dem/Val) phase significantly reduced government risk. We are nearing completion of the very successful Dem/Val prototype engineering data gathering program. In April, one of the two contractor teams (Lockheed, teamed with Boeing and General Dynamics on the F-22, and Northrop, teamed with McDonnell Douglas on the F-23) will be selected. In full-scale development (FSD) we will refine aircraft performance characteristics, integrate the avionics packages, and confirm low-observable characteristics in preparation for an FY 97 production start date. Initial operational capability (IOC) is programmed for early in the 21st century.

F-15XX. The Air Force began looking at an "F-15XX" as an alternative to the ATF during the SECDEF's Major Aircraft Review. Preliminary analysis revealed that the F-15XX could be a highly maneuverable aircraft. Incorporating a new wing, ATF engines, a modified radar, increased fuel load, advanced electronic combat capabilities, and wing tip missiles, it could achieve some performance capabilities comparable to the ATF. However, it would still fall well short in several areas, most importantly low observability, and thus would lack the vital first-look, first-kill capability. It would also be less survivable. Nevertheless, we are conducting a mission analysis to quantify the mission effectiveness and developmental/production costs of the F-15XX (along with an F-16 derivative). The results of this study will be provided to Congress when they are finalized.

STRATEGIC ATTACK/INTERDICTION

Strategic attack seeks to destroy or neutralize the enemy's capability and will to wage war, while interdiction seeks to delay, divert, disrupt, or destroy enemy surface forces (follow-on forces and material) before it can be used effectively against friendly forces. We continue to emphasize the leveraged effects of strategic attack and interdiction through bomber and fighter force modernization efforts.

B-52. The B-52's ability to deliver large, varied conventional payloads over great distances at night and under adverse weather conditions against a wide variety of targets provides a capability found in few other

weapon systems. Launched from bases in the United States, they can attack targets anywhere in the world in a matter of hours. When Iraq invaded Kuwait, B-52s quickly forward-deployed to the region, and since the beginning of Operation Desert Storm, they have been actively integrated into combat operations.

We are completing several modifications to enhance effectiveness of the conventional B-52G force. We are also beginning modification of the newer B-52H. These upgrades include the Integrated Conventional Stores Management System, the Global Positioning System, and night vision goggle/head-up display modifications. In a similar vein, some B-52Hs and additional B-52Gs will be modified to employ the HAVE NAP missile, providing a precision conventional standoff capability against high-value point targets. Future modifications will continue to focus on enhanced standoff capabilities and increased survivability.

B-1. Although the B-1B has a demonstrated conventional bombing capability, we must complete Follow-on Operational Test and Evaluation (FOT&E) and aircrew training before operational capability can be achieved. Thirteen of 15 FOT&E flights have been successfully completed, with the final two live-drop flights scheduled for March 1991.

B-2. The B-2's assured ability to penetrate modern defenses, coupled with its high survivability, long range, and heavy payload, allows the United States to bring precise, heavy conventional firepower to bear at virtually any time or place. The B-2's inherent freedom to operate without material support from other nations will offer the President effective, politically feasible, non-nuclear military options not otherwise available. A long-range, large payload, and highly survivable aircraft like the B-2 allows us to project power without the need for a range of support assets (defense suppression and air escort) -- assets essential to the employment of other conventional bombers. The fewer the aircraft needed to conduct contingency operations, the fewer the lives that will be placed at risk and the lower the potential cost.

Advanced Tactical Aircraft (ATA). The Air Force's next generation interdiction aircraft, the ATA, was to be a variant of the Navy A-12. In light of the A-12 program cancellation, the Air Force will reevaluate future options. While interdiction remains a primary Air Force mission, we must consider the evolving threat, declining budgets, reduced force structure, and aircraft age as we prioritize aircraft modernization programs. The age and capabilities of our interdiction aircraft, the F-111F, F-15E, and F-117, do not necessitate immediate replacement action. We will consider the Navy A-12 successor, if it meets the Air Force's basic requirements for our next generation interdiction aircraft. We will also study the potential to adapt the ATF to an air-to-ground role. Neither of these options would be available until well after the year 2000. Meanwhile, fielding of the B-2's stealthy, long-range capability assumes even greater importance.

F-15E. The Air Force completed F-15E procurement funding in FY 91. The sophisticated, multi-role

fighter will complement the long-range, all-weather interdiction force, as well as our air-to-air force. In addition to an expanded air-to-surface capability, including Low Altitude Navigation and Targeting Infrared for Night (LANTIRN) for precision, night/adverse weather attack, the F-15E retains the F-15's inherent air-to-air capabilities.

AIR ATTACK OVER THE BATTLEFIELD

The Air Force continues its strong commitment to CAS/BAI, dedicating approximately 25 percent of the force structure to this mission area. While our current A-7D/A-10A CAS/BAI aircraft will be unable to fully meet the joint force commander's requirements for the mid-1990s and beyond, fiscal constraints and force drawdowns preclude development of a totally new CAS/BAI aircraft. Consequently, the Air Force will modify existing aircraft, which are already capable in the role, to even more effectively support the CAS/BAI mission area in the late-1990s and beyond. We will retain two wings of A-10 aircraft, but will look at improved avionics to meet increased mission requirements. In addition, we plan to modify approximately 350 mid-model F-16 (Block 30) aircraft with a forward looking infrared system, 30mm gun pod, the improved data modem system (formerly automatic target handoff system), the digital terrain system, a Pave Penny laser tracker and some hardening to optimize the F/A-16 for the CAS/BAI mission. Our FY 92 CAS/BAI funding requests focus on accomplishing these modifications.

RECONNAISSANCE AND ENGAGEMENT SYSTEMS

Reconnaissance and engagement systems are a group of related programs designed to provide a comprehensive picture of the battlefield in near-real-time and allow commanders to immediately engage targets. These complementary programs involve both standoff and penetrating assets. Standoff programs include the Joint Surveillance Target Attack Radar System (Joint STARS) to detect moving targets and the Tactical Reconnaissance System's (TRS) Advanced Synthetic Aperture Radar System (ASARS II) to detect fixed targets. But standoff reconnaissance alone will not meet the needs of the Joint Force commander for up-to-date information. The Follow-on Tactical Reconnaissance System (FOTRS) will provide a penetrating capability with an electro-optical sensor suite configured for carriage on both manned and unmanned platforms.

Joint STARS. Joint STARS is an Air Force/Army program to field a command radar and attack control system for worldwide combat operations. Joint STARS' unique capability to monitor ground activity will provide commanders critical information across a broad spectrum of conflict. In addition, Joint STARS will play an instrumental role in crisis management, counterterrorism, counternarcotics, diplomacy, and post-Conventional Forces Europe (CFE) verification activities. The Joint STARS E-8A platform carries a multi-mode radar, processing equipment, controller stations, and command and control interfaces, giving it a real-time capability to detect mo-

bile ground forces and provide targeting/movement information to battlefield commanders. Commanders will use this information to direct attacks against key target areas, control the tempo of the battle and develop strategy for future operations. It's exceptional potential was clearly highlighted by the deployment of two Joint STARS aircraft still in development to Operation Desert Storm. FY 92 funding supports the ongoing development effort, with delivery of the first operational aircraft planned for FY 95.

TRS. The TRS consists of the TR-1 aircraft, various sensors (including the ASARS II imaging radar), and ground exploitation stations. The TRS provides our only all-weather, very high resolution, fixed target imagery capability. It provides the capability to collect, transmit, exploit, and disseminate intelligence information in 15 minutes or less. Access to this time-critical intelligence information enhances the ability of the theater commander to develop strategy and allocate his forces. FY 92 funding continues TRS development, integration, procurement, and initial spares to operate the TR-1 fleet worldwide and achieve CONUS-based, deployable ground exploitation systems in the early 1990s.

FOTRS. The FOTRS program is an umbrella concept consisting of two program elements and two associated projects for upgrading Air Force, Navy, and Marine Corps penetrating tactical reconnaissance systems. One project, the Advanced Tactical Air Reconnaissance System (ATARS), includes development of electro-optical and infrared sensors, recorders, data link, and reconnaissance management systems. ATARS integrates these sensor suites into a pod that can be flown on selected Air Force, Navy, and Marine Corps aircraft and into the medium-range unmanned aerial vehicle. Future Air Force reconnaissance-equipped aircraft will be embedded into the tactical force structure. The second project, the Joint Service Imagery Processing System (JSIPS), develops a common, modular ground station to support processing Service imagery requirements. An ATARS/JSIPS production decision, delayed nine months to realign the program with the progression of existing carrier platforms, is now planned for June 1992, with IOC in the mid-to-late 1990s.

ELECTRONIC COMBAT

Today's sophisticated threat systems pose significant problems for our theater forces. Electronic combat assets leverage our investment in combat aircraft. They significantly improve the effectiveness of our forces by disrupting, degrading, and destroying enemy air defense capabilities. The Air Force Electronic Combat (EC) strategy employs a complementary mix of effective, affordable assets to provide the capability to detect a wide variety of threats and tailor the response. Today's major EC efforts are focused on developing integrated, reprogrammable systems emphasizing joint service application.

The Air Force requests development and procurement funds in FY 92 to build and sustain a complementary mix of destructive, disruptive, and self-protective EC systems. Our FY 92 funding continues development and procurement of the following systems.

High Speed Anti-Radiation Missiles (HARM) - HARM (AGM-88) forms the heart of our destructive EC capability. Currently employed by the F-4G, HARM provides a surgical, immediate strike capability against specific air defense threats. As the F-4G is phased out of inventory, the HARM mission will be transferred to F-16/F-15E aircraft.

Advanced Radar Warning Receiver Program. In December 1988, the Air Force chose the ALR-56M over the ALR-74 as the Advanced Radar Warning Receiver for F-16 applications. The ALR-56M, a derivative of the ALR-56C currently installed on the F-15C/D, provides warning against new and projected threat systems. It also has potential for installation on the AC-130H/U, B-1B, MC-130, C-17, and Joint STARS.

Integrated Electronic Warfare System (INEWS). INEWS is an Air Force-led, joint Air Force/Navy program to develop the self-protection suite of the 1990s and beyond for the ATF and other advanced technology aircraft. It will use common hardware and software modules to allow tailoring to mission requirements, and will effectively integrate defensive capabilities with other aircraft sensors and avionics to achieve total weapon system synergism. As a result, INEWS will provide aircrews with timely and accurate threat warning and automatically apply optimum countermeasures.

SPECIAL OPERATIONS FORCES (SOF)

Whether conducting peacekeeping operations, low-intensity or high-intensity conflict operations, or combatting terrorism, SOF assets are capable of operating effectively across the entire spectrum of warfare. In Operation Just Cause, SOF were the leading edge of the sword, conducting precision strike missions prior to and during the main assault. In Operation Desert Shield/Storm, SOF are accomplishing foreign internal defense, unconventional warfare, combat search and rescue, special reconnaissance, recovery, and counterterrorist missions in support of United Nations forces. Special Operations Forces provide a versatile military capability to conduct covert and overt missions in support of national military, political, or economic objectives.

The United States Special Operations Command (USSOCOM) was created in 1987 to prepare for, and carry out assigned SOF missions. The Air Force component, Air Force Special Operations Command (AFSOC), which became a separate major command in May 1990, is fully committed to support USSOCOM. The SOF modernization program is funded through USSOCOM budget authority and addresses efforts in several systems.

MC-130H Combat Talon II. The MC-130H Combat Talon II aircraft, a night, adverse-weather, low-level aircraft, is used primarily for infiltration and resupply of Army Special Forces, Army Rangers, and Navy SEALs. Continuing toward the 24 aircraft procurement objective will significantly improve our ability to meet these SOF requirements. IOC is programmed for FY 91.

AC-130U. AC-130U aircraft will modernize the active gunship fleet

while upgraded AC-130Hs will be transferred to the ARC to replace their older AC-130As. The AC-130U gunship will perform close air support, interdiction, and armed reconnaissance missions using precise delivery of 20mm, 40mm, and 105mm ordnance. With improved equipment, including a new airframe and radar, and the extended range provided by inflight refueling, the AC-130U will continue to use the surgical application of firepower to support both special operations and conventional objectives. The Air Force will procure 12 AC-130U gunships. IOC with four aircraft is expected by FY 94.

MH-60G. MH-60Gs will replace the aging AFRES H-3s. Reliability and maintainability will be improved as these aircraft enhance overall SOF capabilities to infiltrate and exfiltrate joint SOF teams. IOC is expected in FY 93.

Modifications. Other modifications are also underway to enhance reliability, maintainability, and combat capability. These modifications include enhancements for the EC-130, HC-130, AC-130H, MC-130E, and MH-60G. Eleven C-130E and 13 C-141B special operations low level aircraft are also being modified to provide additional special operations capability. Finally, ongoing MH-53J helicopter service life extension program and ship-board modifications, designed to support medium range SOF missions into the next century, are scheduled for completion in FY 93.

AIR RESCUE SERVICE

In 1989, the Air Rescue Service (ARS) was established with its headquarters at McClellan AFB, California. Established as a field operating unit reporting directly to MAC, ARS became the focal point for worldwide Air Force rescue forces. ARS manages a myriad of rescue operations through the Air Force Rescue Coordination Center at Scott AFB, Illinois. ARS also provides support for the National Aeronautics and Space Administration's space shuttle missions and for SAC missile sites. Several rescue force modernization efforts are necessary to meet this expanded commitment.

MH-60G. Procurement of the MH-60G to replace the H-3s provide warfighting CINCs a more effective means of rescuing downed crewmembers. The MH-60G has greater speed, extended range, precision low-level navigation, aerial refueling capability, improved communications, and upgraded self-protection features compared to the H-3.

HC-130 tankers. Rescue-dedicated HC-130 tanker aircraft extend the operating range of the MH-60G. With all rescue-dedicated HC-130s currently assigned to the Air Reserve Component (ARC), any major contingency response overseas may require mobilization of the ARC or use of SOF-dedicated tankers.

COUNTERNARCOTICS

The Secretary of Defense issued guidance on Sept. 18, 1989 to assist in the swift and effective implementation of the President's National Drug Control Strategy. This guidance designated the detection and countering of the production, trafficking and use of illegal drugs as a high-priority national

security mission of the Department of Defense. The Secretary also approved plans submitted by specified and unified commanders to elevate the priority of the counternarcotics mission in their areas of responsibility.

The Air Force's role in counternarcotics efforts has grown from support incidental to training to one where support is provided to five CINCs. For example, nearly 1,400 drug surveillance sorties were flown in FY 90 alone. We have also deployed mobile and fixed radars in support of the counternarcotics mission and have provided facilities for use by law enforcement agencies. These agencies are also supported with equipment loans such as radar display consoles, fuel trucks, night vision goggles and a tactical air navigation system.

AIR-TO-AIR MUNITIONS

Air-to-air missiles are an essential component of our air superiority and surface attack missions. Not only are they essential for gaining and maintaining control of the air, but they help protect our attack aircraft. We must be able to engage the enemy at long range, but also defeat him at close range should the situation dictate. Radar-guided missiles provide long-range, first-shot capability, while the heat-seeking missiles are essential in the close-in dogfight. The Air Force is pursuing missile development and procurement in both areas.

AIM-120A Advanced Medium Range Air-to-Air Missile (AMRAAM). AMRAAM is the Tactical Air Forces' (TAF) highest priority munitions program. It is essential in our effort to upgrade the air superiority capabilities of our current and future fighter force. Current inventory radar missiles (AIM-7 Sparrow) must be continuously guided to their target by the launch aircraft, requiring the launch aircraft to keep its radar antenna pointed at the target until missile impact. This severely restricts the aircraft's post-launch maneuvering and allows only one target to be attacked at a time. The AMRAAM has an active radar seeker that can operate independently of the aircraft radar. Consequently, the pilot can launch an AMRAAM at one target, maneuver as necessary to evade enemy threats, engage and launch at another target, and continue maneuvering -- all while the missiles are independently homing in on their respective targets. This capability, essential to survival in the increasingly lethal threat environment, was successfully demonstrated in a May 1990 test. A single F-15 aircraft, armed with four AMRAAMs and operating in an intense electromagnetic jamming environment, simultaneously engaged and destroyed four separate targets.

AMRAAM has been our most successful missile development program. However, like most large development efforts, there were problems identified in testing. The most persistent of these problems was captive carry reliability. Three independent "red teams" were formed in March 1990 to study the problem. They identified vendor quality/manufacturing problems as the cause of recent failures. A get-well plan was instituted in August 1990, and captive carry reliability flight testing of vendor improvements is in progress to verify they meet all the demanding performance criteria.

AIM-9. The AIM-9, with its many variations, has been our only short-range, heat-seeking missile for over 20 years. Current versions provide an all-aspect dogfight capability throughout the visual air combat arena. However, even the latest version, the AIM-9M, has limitations that potential enemies are learning to exploit. Consequently, we are looking for a follow-on missile able to overcome these deficiencies. Originally we planned for the Advanced Short-Range Air-to-Air Missile (ASRAAM), built by the United Kingdom, to provide that capability. However, due to extensive program delays, the Air Force can no longer procure ASRAAM in a timely, cost-effective manner. Thus, the Air Force and Navy are jointly pursuing a follow-on capability. The Joint Short-Range Missile Program Office is committed to complementary efforts addressing current inventory deficiencies and continuing an improved, evolved AIM-9 design.

AIR-TO-GROUND MUNITIONS

The Air Force requires a mix of quality air-to-surface munitions to achieve combat objectives under day, night, and adverse weather conditions. We need a mix of standoff munitions and direct attack weapons: standoff munitions to attack enemy air defenses and heavily defended targets, and direct attack weapons to provide more extensive target coverage at lower cost. We must procure and stockpile sufficient quantities of air-to-surface weapons to sustain our forces in case of supply disruption or until the industrial base can match consumption. For these reasons, we are continuing development and procurement of several munitions.

Sensor Fuzed Weapon (SFW). SFW fills our requirement for a multiple-kills-per-pass, wide-area munition that can defeat tanks, armored vehicles, and other support vehicles. The SFW consists of a Tactical Munitions Dispenser (TMD) containing 40 heat-seeking warheads, each capable of independently detecting and attacking targets. SFW testing is demonstrating excellent performance, exceeding the TAF's multiple-kills-per-pass requirement. The program is on schedule to complete development in FY 91 and procurement will begin in FY 92.

AGM-130 (Powered GBU-15). This product improvement to the GBU-15 glide bomb provides launch aircraft with the capability to deliver 2000-pound bombs with pinpoint accuracy, while the aircraft remains outside terminal defenses. In FY 92, the Air Force completes development of the AGM-130 day/night (infrared) version and integration on the F-15E, and continues production of the AGM-130 TV version.

GLOBAL MOBILITY/REACH

As illustrated by recent events in the Middle East, the Air Force offers the National Command Authority the quickest, longest range, leading edge forces capable of meeting national objectives. Our airlift and air refueling assets enhanced the rapid response of combat forces and clearly demonstrated their importance as true force multipliers. Airlift provides the means to get our forces to where they are needed when they are needed. No matter how well trained our people are and how good our equipment is, they are useless if they cannot get to the battle in time to make a difference. Airlift deploys, employs, and sustains joint and allied forces. Air refueling provides the lifeline to deploy joint forces, and increases the range and lethality of combat aircraft once in the theater of operations.

AIRLIFT

Strategic mobility lies at the heart of a credible deterrent posture in the emerging security environment -- without the capability to project forces, there is no conventional deterrent. As forward forces decline, but global interests remain, lift will be even more important to our ability to project combat power. To provide mobility for US forces, the nation has historically relied on a balance of the complementary capabilities of the mobility triad: airlift, sealift, and prepositioning. Each has advantages and disadvantages -- we capitalize on each method's virtues to compensate for the others' limitations. Airlift is an ideally suited mobility tool for an environment of uncertainty with widely dispersed potential flashpoints.

Strategic airlift forces provide the United States with the capability to project power quickly and decisively throughout the world. The ability to carry troops and/or cargo, air refuel, and airland or airdrop forces reduces dependence on forward-basing while retaining the ability to meet the evolving needs of our national security policy. For example, in less than 36 hours, airlift deployed 9,500 soldiers to Panama during Operation Just Cause, spearheading a successful operation which also featured the largest night combat airdrop since World War II. Likewise, during the first six weeks of Operation Desert Shield, airlift delivered more ton-miles than during th entire 65 weeks of the Berlin Airlift. During both operations, airlift has been a real success story, illustrating that during these times of increased global instability and regional uncertainty, it is an indispensable national asset which can respond quickly and effectively to contingencies anywhere in the world.

C-17. The workhorse of today's strategic airlift fleet, the C-141, is rapidly reaching the end of it's service life and must be replaced. The C-17 will not only replace but modernize the nation's airlift capability. This dual-mission-capable aircraft will be able to perform the entire spectrum of strategic and theater airlift missions. The air-refuelable C-17 combines the advantages of a strategic airlifter, such as range, speed, and payload (including outsized cargo), with those of a theater airlifter, such as survivability, ability to operate from short, unimproved airfields, agility and enhanced

maneuverability in the air and on the ground, and the ability to employ various methods of airdrop. The C-17 will provide direct delivery, increased airfield availability, greater throughput, and reduced operating costs, thereby providing unparalleled flexibility as we enter an uncertain future.

While the Secretary of Defense's Major Aircraft Review (MAR) decision in April 1990 decreased the initial purchase of C-17s from 210 to 120 aircraft, it also reaffirmed the need for this vital asset. As Secretary Cheney testified to Congress, the MAR analysis clearly showed "the C-17 offered the most capability at least cost in every case." Not uncommon in programs of this scale, there have been problems with development of this aircraft. Program delays and an effort to reduce concurrency deferred additional procurement funding pending first flight of the first production aircraft and resulted in a new procurement profile. Nevertheless, significant progress has recently been made with assembly of the first test aircraft completed in December 1990. While several key challenges still remain, recent indications show the program to be headed in the right direction. All major milestones developed since re-baselining the program in November 1989 have been met with the first flight on track for June 1991. Airlift is a national asset in need of attention and the C-17 remains our most cost-effective solution.

Theater Airlift Modernization. The C-130 continues to be the primary theater airlift aircraft in the inventory. Capable of short-field landings, airdrop, and low altitude parachute extraction system (LAPES) missions, the C-130 remains a vital link in the total airlift equation and a major contributor in Operations Just Cause, Desert Shield, and Desert Storm. Even though the C-130 has undergone several upgrades (models A through H), the average aircraft age now exceeds 25 years. With the MAR decision to reduce the C-17 buy, the C-17's contribution to theater airlift will be reduced. In light of this reduction, modernization of other theater airlift assets is required. We examined various modernization alternatives and recently programmed for additional C-130Hs beginning in FY 92.

Today's active/ARC mix for theater airlift is a fiscally and operationally effective mix of 37-percent active and 63-percent ARC. Today's mix fully exploits the cost effectiveness of the ARC's low peacetime operating tempo while providing an active duty force sufficiently responsive to meet peacetime training and limited contingency requirements. The current mix also sustains the active force required to meet overseas permanent duty and rotational requirements and provides a training ground for the more complex Special Operations Forces' C-130s. ARC training costs and associated operating tempo can remain low as long as this active pool provides the recruiting base from which ARC units can obtain experienced crewmembers.

Civil Reserve Air Fleet (CRAF). The purpose of CRAF is to provide additional airlift for passengers and specific cargo during emergencies. Participation is voluntary; and when carriers are activated, they provide aircraft, aircrews, support personnel,

and facilities to the Military Airlift Command (MAC).

Until August 18, 1990, the CRAF had never been activated. On that date, CINCMAC activated Stage I of the CRAF (approximately 40 aircraft) to assist in the massive airlift to the Middle East. In the first four months of Operation Desert Shield, CRAF and other civilian contract aircraft flew over 1000 missions, moving over 124,000 passengers (61-percent of total) and 44,000 tons of cargo (20-percent of total), validating the military utility of using commercial aircraft to augment the military. On January 16th, Secretary Cheney approved activation of Stage II, providing approximately 180 aircraft to help meet the airlift emergency. While CRAF certainly cannot replace dedicated airlifters, it has proven to be a valuable method to augment airlift capability, particularly for moving passengers.

AERIAL REFUELING

Aerial refueling increases the nation's flexibility to respond in a timely manner across the entire spectrum of conflict. As markedly demonstrated during Operations Just Cause, Desert Shield, and Desert Storm, the ability to provide air refueling to combat and combat support aircraft is a true force multiplier that expands the reach and combat capability of our forces. During the first four months of Operation Desert Shield, tankers flew over 10,600 sorties providing 278,000,000 pounds of fuel on 18,700 separate aerial refuelings. This capability to refuel inflight enhances the flexibility of air power by increasing the range of our forces and extending our presence in combat areas. It also enables the United States to reduce its reliance on forward basing and to bypass areas where overflight rights are denied.

Tanker Enhancements. The aerial refueling capability of the tanker fleet is being increased with the cost-effective KC-135R modernization program. This rephased program will re-engine the KC-135, providing a 50-percent improvement in refueling offload capability compared to the KC-135A. This modification includes 25 system updates which improve aircraft reliability, maintainability, and supportability, and allow the aircraft to meet federal noise-pollution standards. With its enhanced effectiveness, the KC-135R allows the United States to retain its global reach.

In an effort to increase tanker efficiency, operational flexibility, fighter throughput, and joint/combined service interoperability, the Air Force is pursuing a multipoint initiative that expands on the existing KC-10 multipoint program. When refueling fighter aircraft in employment operations, tanker requirements are typically driven by time and distance constraints -- that is, within a given tanker refueling orbit, only a certain number of aircraft can cycle through the refueling point on our current tankers. Additional offload points -- known as multipoint capability -- can increase the number of fighters that can be refueled during the available time, thus increasing operational efficiency and flexibility.

The multipoint initiative involves both fighters and tankers and utilizes the probe and drogue refueling

system employed by the Navy, Marine Corps, and allied nations. The Air Force plans to add wing-tip drogue pods to KC-135R tankers. This will provide multipoint capabilities to a larger portion of our tanker force and reduce interoperability problems when refueling probe-equipped fighters. Fitting probes to F-15s and F-16s will allow Air Force fighters to take advantage of multipoint tankers (although all of the fighters will retain their boom slots for maximum flexibility). The multipoint initiative promises to increase tanker efficiency, operational flexibility, and interoperability.

SPACE AND C³I SYSTEMS

Consistent with Air Force Space Policy, we are committed to integrate space functions throughout the full spectrum of our capabilities and to continue to provide dependable, survivable, and effective control of the "high ground of the 21st century." Space continues to grow in importance to the nation. The Air Force plays an important leadership role in advancing technologies, systems, and the infrastructure to exploit the advantages inherent in space-based systems: strategic warning; global coverage; low vulnerability; the capability to react rapidly to evolving situations; and the ability to convey information to national command authorities and operational forces almost instantaneously. Highly capable command, control, communications, and intelligence systems, including ground, airborne, and space-based communications networks, warning systems, command facilities, and information systems, are all necessary elements for effective force management.

SPACE C³ SYSTEMS

Our space assets provide the services significant capabilities in the areas of warning, surveillance, communications, navigation, weather, and a variety of other information. General Carl Steiner, then commander of Army forces involved in Operation Just Cause, emphasized that "space doesn't just help... I cannot go to war without space systems." Likewise, field commanders in the Middle East and elsewhere are currently being provided with more real-time data than ever before--information critical to planning, supporting, and executing tactical and strategic operations worldwide.

Warning. The Defense Support Program (DSP), the nation's space-based early warning system, provides tactical warning and attack assessment (TW/AA) of ballistic missile attack as well as near-real time surveillance of space launches and nuclear detonations. Commensurate with the Strategic Defense Initiative Organization's (SDIO) decision to pursue Brilliant Pebbles, management and funding responsibility for a follow-on space-based TW/AA system was recently transferred to the Air Force. DSP will provide the nation's space-based TW/AA until the follow-on system is developed and deployed.

Surveillance. The Space Surveillance Network continuously monitors all militarily significant space activities (such as space and ballistic missile launches, nuclear detonations, and orbiting satellites) and is of critical importance to DOD. Similarly, DOD validated the need for a space-based, wide-area surveillance system (SBWAS) and underscored the specific needs of the combatant commands for wide-area surveillance, targeting, and tracking. However, based on Congressional direction, the future course of the SBWAS program is currently being reassessed within the Air Force and the DOD.

Communications. Reliable worldwide communications across the entire spectrum of conflict is essential for success in any military operation. The Air Force manages, operates, and

develops space-based communications systems, including the Defense Satellite Communications System (DSCS) and Milstar.

DSCS provides super-high frequency satellite communications for secure voice, high volume, and high-data-rate transmissions, allowing worldwide military command and control, crisis management, as well as day to day presidential, intelligence, and diplomatic traffic. DSCS III, the latest satellite design, adds flexibility through electromagnetic pulse hardening and increased resistance to jamming. Although the constellation currently remains below the required size, two launches planned for FY 91 and FY 92 are expected to achieve the full capability necessary to support combat forces around the globe.

Improved communications capabilities are needed for assured command, control, and communications during all phases of potential military conflict. Milstar will fill that void by providing tactical and strategic forces with assured anti-jam, low probability of detection, and interoperable communications in the Extremely-High Frequency regime. A restructured Milstar remains DOD's highest priority C^3 program, with reduced capabilities for nuclear war but enhanced tactical applicability and reduced costs to comply with Congressional direction.

Navigation. The Navstar Global Positioning System (GPS) provides highly accurate navigational data to users worldwide, regardless of weather conditions, on a 24-hour basis. GPS greatly enhances capabilities to conduct air, land, and naval forces operations anywhere in the world and has vividly demonstrated its revolutionary impact among the Army, Navy, and Air Force units deployed in the Middle East. Even though the full 24-satellite constellation will not be complete until FY 93, Operation Desert Shield/ Storm forces already rely on GPS for accurate and reliable navigation information that is proving indispensable, especially in the featureless desert and gulf waters.

Weather. The Defense Meteorological Support Program (DMSP), a multi-user Air Force program, continues to be DOD's most important source of global weather data. Data is processed by Air Force Global Weather Central, the Navy's Fleet Numerical Oceanography Center, and by tactical terminals deployed throughout the world. DMSP was the source of precise weather data critical to the successful deployment and employment of forces during Operations Just Cause and Desert Shield, and continues to play a vital role in Operation Desert Storm.

SPACE SUPPORT

Support to space activities encompasses the full spectrum of launching, deploying, maintaining, and controlling space assets. We have provided the backbone of the nation's capabilities for space support for more than thirty years and are uniquely qualified to evolve these essential assets to support the security needs of the nation beyond the turn of the century.

Space Launch. Following the Titan 34D and Challenger accidents in 1985 and 1986, we initiated a major space launch recovery program, foc-

used on expendable launch vehicles (ELV), to provide assured access to space for critical national security payloads. The Delta II was initially launched in 1989 and the nine subsequent successful launches have been critical in deploying the Navstar GPS constellation. The Titan IV also achieved initial launch capability in 1989. Since then it has had three successful launches and restored the Defense Support Program constellation to the capability required by USCINCSPACE for assured TW/AA. A third new ELV, the Atlas II, is scheduled for initial launch in mid-1991 with a DSCS III communications satellite on board. Although the Atlas II acquisition and DSCS modification schedules were compressed, the launch is expected to take place as planned.

Other significant launch recovery efforts include organizational changes and *infrastructure investment.* To achieve an increased operational focus, space launch operations were transferred to Air Force Space Command. The responsibility for specific launch vehicle types are being transferred as the vehicles and launch complexes reach maturity. In addition, the increased use of ELVs requires further investment in the aging space support infrastructures on both coasts.

Advanced Launch Development. Virtually every review of military, civil, and commercial space launch requirements and capabilities in the last five years has concluded that continued reliance on the aging technology of the current expendable boosters and the space shuttle would limit our ability to meet national goals. Most recently, the Advisory Committee on the Future of the United States Space Program (Augustine Committee) recommended significantly expanded technology development, with particular attention devoted to engines and the acquisition of a robust space transportation system. Based on the Augustine Committee recommendations, renewed emphasis the development of a next generation launch vehicle will begin this year. The program will continue to be jointly funded and managed by the Air Force and NASA.

Satellite Control Operations. To support national and DOD satellites in orbit and to meet the goal of assured mission support from space, we maintain a global network of satellite control stations. This Air Force Satellite Control Network (AFSCN) provides reliable spacecraft command and control support, assured satellite telemetry reception of both the mission payload and spacecraft status, and reliable launch and on-orbit tracking for all DOD operational and other space systems.

National Aero-Space Plane (NASP). The NASP program, a component of our science and technology effort, will develop the technological basis for runway-launched space transportation vehicles capable of single-stage-to-orbit and for aircraft capable of hypersonic flight in the atmosphere. This joint DOD/NASA, technology-only undertaking will develop technologies applicable to a new generation of flight vehicles. These technologies will be developed first in ground-based facilities with follow-on flight research based upon program progress in the mid- to late-1990s.

STRATEGIC DEFENSE INITIATIVE (SDI)

The Air Force is currently working with the SDIO to evaluate the technical feasibility of selected defensive systems. We are the executive agent for several SDI program elements: the Brilliant Eyes space-based surveillance system, the command center and battle management support functions, and space-based weapon concepts. Brilliant Eyes could support the Air Force space surveillance mission. In addition, we are conducting advanced research to investigate options for sensors and weapon systems.

STRATEGIC C^3 SYSTEMS

The credibility of US nuclear deterrence requires positive communications between surveillance and warning systems, the national leadership, and our strategic retaliatory forces, guaranteeing receipt of critical messages affecting survival, prompt response, replanning, or strike termination. In the past, C^3 systems have not received the same priority as the weapon systems they support. However, recent improvements coupled with planned modifications and new systems will provide the flexibility, speed, reliability, and endurance required to ensure the Triad can respond to any situation.

In addition to Milstar, discussed previously, there are several other programs which will improve emergency action message (EAM) dissemination to our strategic forces. The Aircraft Alert Communications Electromagnetic pulse upgrade will provide electromagnetic-pulse-screened rooms at 24 SAC command posts. We are modernizing the Minimum Essential Emergency Communication Network, which links airborne command centers and strategic nuclear forces, diminishing their susceptibility to nuclear effects. Other enhancements also include a receive-only Miniature Receive Terminal that will provide the Triad's bomber leg access to this survivable communications net. Selected command posts and designated DSCS ground terminals will receive the Single Channel Transponder Injection Subsystem, to enhance uplink dissemination of EAMs at frequencies and modulations less susceptible to jamming and high-altitude nuclear burst effects. The Automated EAM Processing and Dissemination System will automate the current manual method for encoding and decoding EAMs to the nuclear forces of all services, greatly improving speed and accuracy.

Among the most survivable C^3 elements are the Worldwide Airborne Command Posts' E-4B National Emergency Airborne Command Post (NEACP) and EC-135 aircraft. CINCSAC's airborne command post, known as "Looking Glass," altered its alert posture from continuous airborne alert to a combination of air and ground alert in the summer of 1990. In addition, seven airborne command posts assigned to various CINCs will be consolidated under CINCSAC to reduce costs, commencing in FY 93.

TACTICAL C^3I SYSTEMS.

Tactical C^3I assets are critical to war plan execution. Without C^3I, the battle is lost. Air Force efforts in support of this area include the Joint Tactical Information Distribution Sys-

tem (JTIDS), upgrades to the E-3 Airborne Warning and Control System (AWACS), SENTINEL BYTE, and the Tactical Air Forces Linked Operations/ Intelligence Centers Europe Capability (TAFLC).

JTIDS. JTIDS provides secure, jam-resistant digital links between command and control platforms, weapons systems, surface air defense units, and naval vessels. JTIDS' ability to provide timely target information will increase situational awareness, reduce dual targeting, and assist commanders in optimizing their limited resources. The highest priority systems to receive JTIDS are the command and control platforms.

E-3 AWACS. The E-3 AWACS -- the theater commander's "eyes and ears" -- provides air surveillance, warning, control, and battle management critical to the successful employment of air power across the broad spectrum of conflict, from drug interdiction, to theater contingencies such as Operation Desert Storm, to global conflict. We are continuing our strong commitment to maintain the operational effectiveness of AWACS as it performs worldwide missions. The FY 92 budget supports continued development of an E-3 electronic support measures system (a cooperative development program with NATO), integration of JTIDS Class 2 and Global Positioning System terminals, and a computer memory upgrade. In addition, the radar system improvement program will nearly double the E-3 radar detection range, significantly improving performance against low radar cross section targets, and providing other improvements that will maintain the effectiveness of the E-3 radar beyond the year 2000. The FY 92 budget also supports continued production of improved HAVE QUICK anti-jam voice communications for AWACS. These modernizations will maintain the tactical and strategic viability of AWACS worldwide. The ability of AWACS and JSTARS to monitor both ground and air activities offers unique potential as a deployable, non-lethal form of deterrence.

SENTINEL BYTE. SENTINEL BYTE standardizes communications interfaces, intelligence information exchange formats, and intelligence application software for unit level use Air Force-wide, enabling unit intelligence systems to communicate with automated planning systems to generate accurate and timely operationally relevant tactical threat displays.

TAFLC. Theater forces have a need to rapidly (on a near-real-time basis) exploit time sensitive and high-volume, multi-sensor information. As collection means and communications improve, the ability to manually process the information in a timely manner is falling behind the requirement for an effective operational response. This program will develop and field a baseline TAFLC to correlate and aggregate multi-sensor data, provide precise locations of opposing force structures, and provide ground battle situation displays to support the tactical commanders. TAFLC will be interoperable with the Army All Source Analysis System and will support a common view of the battlefield. Initially TAFLC will be fielded on Tactical Air Command's contingency tactical air control automated planning system in FY 92, with follow-on applications to United States Air Forces Europe and Pacific Air Forces in FY 93.

MANPOWER AND PERSONNEL

Throughout the 1990s, recruiting, training, retaining, and motivating quality people will continually challenge the Air Force. The value of our people is intrinsic to our readiness, modernization, sustainability, and force structure decisions. We must continue to recruit and retain the best and the brightest -- more important in a smaller force. We depend on the excellence and dedication of the Active, Guard, Reserve, and civilian professionals to preserve our national security. This total force represents the most important element of our warfighting capability. As changes occur, we must maintain the delicate balance of force structure, manpower and infrastructure.

A shrinking pool of 18 year olds and relatively low unemployment will challenge our recruiting efforts into the middle of the decade. Although the Air Force is shrinking in size and continuing to meet its enlisted and line officer recruiting goals, competition from the private sector is already affecting officer retention. Major difficulties continue, for example, in retaining pilots and physicians. We cannot, therefore, lessen our efforts to provide a competitive compensation package. This includes adequate pay and allowances, satisfactory government quarters or housing allowances, full permanent change-of-station reimbursements, quality health care, and other quality of life benefits.

FORCE STRUCTURE ADJUSTMENTS

Manpower Reductions. In response to Congressionally directed fiscal guidance, end-strength goals, and the changing world environment, and while ensuring our capability to meet national security objectives, the Air Force has made significant streamlining decisions affecting manpower. Between FY 91 (FY 91 President's Budget (PB)) and FY 92 (FY 92 PB), the Air Force reduced military manpower by more than 43,000 spaces. Although limited by Congressional mandates to draw down end strength to 415,000 by FY 95 and to use the FY 90 officer-to-enlisted ratio as a guide in future restructuring, the vast majority of the reductions were accomplished by programmatically drawing down force structure; streamlining initiatives through the major commands, numbered air forces, air divisions, and field operating agencies; and revisiting military manpower utilization, e.g., the Manhour Availability Factor. These reductions bring our military end strength to its lowest level in over 40 years, with this trend continuing in FY 93 and beyond.

Further end strength cuts mandate continuing FY 91's voluntary reductions and tightened initiatives into FY 92. These measures include constraints on officer and enlisted accessions at historically low levels, lower high-year-tenure policies for many enlisted grades, tightened reenlistment controls for first-term airmen, continuing the officer early-out program, and waiving some time-in-grade and time-in-commissioned-service requirements for officer retirements.

Further reductions may compel us to make broad nonprogrammatic cuts using Selective Early Retirement Boards, reductions in force, and date of separation rollbacks.

Although Congress has allowed DOD to manage civilian levels by programming dollars vice end strength in recent years, civilian manpower must first and foremost be driven by requirements. Through review of civilian manpower requirements and utilization (e.g., hiring restrictions in FY 91 and the extension through FY 92), streamlining initiatives, and resultant changes from the programmatic force structure drawdown, the Air Force identified 35,000 civilian manpower spaces for reduction. Programmed civilian end strength drops from 258,741 in FY 91 (FY 91 PB) to 222,897 in FY 92 (FY 92 PB). Hiring restrictions alone may not achieve these reduced levels, and deeper cuts will cause significant adverse actions at some locations and potentially Air Force-wide.

Total Force. The Air Force Total Force Policy, formalized in 1973, has developed a balanced mix of active and reserve component forces that efficiently uses all available resources and ensures maximum combat capability at minimum cost. In the years to come, the proportion of the Air Reserve Component (ARC) will grow in almost every mission area as we take maximum advantage of ARC capabilities. At the same time, we must maintain an efficient balance between active and reserve forces that can meet both peacetime and contingency taskings. The success of this balanced approach is best exemplified by Operations Desert Shield and Desert Storm where ARC fighter, tanker, airlift, medical and support units were employed. In Congressional testimony, Chairman of the Joint Chiefs of Staff General Colin Powell described the application of the Total Force Policy to Desert Shield as follows: "To summarize, the success of the Guard and Reserve participation in Desert Shield cannot be overemphasized. Their participation has been a significant factor in affording us flexibility and balance and reinforces the policies and decisions made over the last 10 years to strengthen the total force concept."

As budget reductions force cuts across the spectrum of Active and Reserve components, force mix decisions will be continuously reviewed to optimize mission and cost effectiveness. Factors reviewed include overall defense guidance, peacetime and wartime activity rates, readiness requirements, active force levels, training requirements, manpower efficiency, and unit beddown considerations. The FY 92 PB projects a 26.5 tactical fighter wing equivalent force of 15.25 active and 11.25 ARC. This balance provides for rapid contingency response and a sufficient stateside rotation base to limit extended overseas tour lengths.

Even though the ARC proportion of our missions is increasing, the total ARC force structure is decreasing. In FY 92, Air National Guard drill strength will decrease by nearly 300 positions, and the Air Force Reserve will be cut back by approximately 6,000 drill positions, which include 2,257 Individual Mobilization Augmentee positions.

Base Closure. Air Force base closures currently consist of three separate and distinct parts. The first, the 1988 Base Closure Commission findings, identified five major stateside bases for closure. These closures will cost $1.5 billion. However, they are expected to save approximately $1.9 billion in FYs 92-95 and $410 million annually thereafter. Procedures for the second part of stateside closures are addressed in the Defense Base Closure and Realignment Act of 1990. DOD will forward the initial list of recommended base closures to the Commission and Congress by April 15, 1991. However, funding to capitalize the new Base Closure Account will be required before any of the closures can begin. The final part of the base closures effort focuses on overseas forces. Since overseas installations are owned by the host nation, overseas actions are actually withdrawals of US personnel and equipment rather than closures. We have programmed withdrawals from 10 major, 13 minor and two support-site overseas installations. These withdrawals will result in planned net savings of approximately $2.9 billion in FYs 92-97.

RECRUITING AND RETENTION

Military Pay. A principle underlying implementation of the volunteer force of the early 1970s was that military pay must be kept comparable with private sector wages. Comparable wages are fundamental to attracting sufficient numbers of high quality volunteers, protecting the investment in training, and retaining a highly technical and skilled force. While a double-digit pay comparability gap has not dampened retention, the growing inflation gap erodes the standard of living and encourages members to seek employment opportunities elsewhere. Therefore, unless future pay raises better offset private sector wage growth and inflation, the stage is being set for serious retention problems, even in the face of a force drawdown. While achieving comparability remains our long-term goal, our current emphasis is on keeping pace with inflation and recapturing the purchasing power of our people's pay.

Among other more specific legislation we support, we seek: to restore Variable Housing Allowances and Basic Allowances for Quarters to levels specified and implicit in statute to reduce members' out-of-pocket housing costs; to eliminate the basic allowance for subsistence inequity between officer and enlisted personnel in travel status under field or sea duty; and to authorize payment of per diem to members who incur expenses in the performance of directed official duty within the limits of the permanent duty station.

Aviator Retention. Studies have shown that it takes about $1 million to produce a mission-ready pilot. Many more millions of dollars are spent giving our pilots experience and retaining sufficient numbers to fill our line, staff, and supervisory positions. The economic comparisons favor funding retention incentives (i.e., Aviator Continuation Pay and Aviation Career Incentive Pay) and maintaining a balanced pilot force over reacquiring, training, and upgrading new pilots.

We have worked with Congress over the past several years on possible solutions to the pilot retention problem. The Aviation Career Improve-

ment Act, implemented by the FY 90 Authorization Act, is a comprehensive package which addressed this issue. While welcoming most of the Act's provisions, we have developed a legislative proposal to amend current statutes to deal with the continuing slippage in pilot retention. For FY 92 we request authority to increase the bonus to $20,000 per year, extend contract lengths two years to counter increasing potential for separations, and make a non-contract option available for those pilots reluctant to accept an increased service obligation.

We are also continuing to work retention challenges through a variety of other initiatives which, like the pilot bonus, are being used to meet immediate retention needs. However, because the pilot shortage is likely to persist, we need to focus on long-term programs to improve the core of military and family life, benefiting not only pilots, but all our personnel. With the impending force drawdown, future program changes must consider the potential impact on retention of quality people.

Medical Professionals Retention. The Air Force and Congress have been increasingly concerned with the serious decline in retention rates of health care professionals. We have a chronic problem attracting physicians, particularly specialists. Many factors, both monetary and non-monetary, make it difficult for the Air Force to compete with the private sector for highly qualified physicians.

Special pays better enable us to attract and retain qualified health professionals by making military salaries more competitive with, but not comparable to, salaries in the civilian sector. Most recently, the FY 91 National Defense Authorization Act replaced the temporary Medical Officer Retention Bonus with a multiyear bonus for physicians that should have a positive effect on retention once it is implemented in conjunction with an expanded Incentive Special Pay (ISP). The authorization act expanded ISP authority to additional nurse specialties and extended Board Certification Pay (BCP) to more non-physician health professionals. In addition, retention pay was created for optometrists. We support these initiatives and would like to extend ISP to nurse midwives, as a minimum. We are also working to identify additional BCP-eligible specialties.

We continue to pursue non-monetary initiatives to improve physician retention. A recent survey noted that in addition to inadequate pay, lack of support personnel was another primary reason physicians left the Air Force. In an effort to redress this situation, Congress appropriated $20 million to hire additional civilian medical support personnel. Despite a hiring freeze and some salary restrictions, we have already filled two-thirds of these positions. However, it is too early to measure the effect on retention.

Civilian Personnel. Since FY 88 we have experienced significant turbulence in the civilian personnel program because of Congressional funding reductions, fiscally constrained budgets, and Defense Management Review Decisions. We expect to see continued turbulence as force reductions and realignments mandate further reductions in civilian personnel strength.

DOD is committed to programmatically reducing the civilian work force based on mission and force requirements. To posture the work force for reductions, DOD imposed a hiring freeze in January 1990 which was extended through March 31, 1991. In order to achieve the necessary reductions, some involuntary separations have been necessary in Air Force Logistics Command (AFLC) and may be required elsewhere. However, we will try to minimize the impact of these reductions-in-force (RIF) on employees, when possible, by encouraging separations through voluntary early retirement and outplacement programs. As the two commands that have a high percentage of civilian employees, AFLC and Air Force Systems Command, are integrated into the new streamlined Air Force Material Command, funding for the remaining civilian positions will become more critical.

QUALITY OF LIFE

Availability of Health Care. The availability of quality health care is one of the major concerns of our families. Over the past 10 years, the number of beneficiaries has risen to approximately three million. Difficulties in providing timely care for these people are aggravated by a number of conditions, but the major factor affecting the availability of timely medical appointments continues to be physician shortage.

Several years ago, CHAMPUS was implemented to provide financial assistance when medical services must be provided by civilian physicians. We have recently implemented other major initiatives designed to improve access to quality health services and to help contain costs. One program currently being tested is catchment area management (CAM). It provides local medical facility commanders the authority and funding to provide or arrange health care for patients from a variety of locally available resources. Other initiatives being pursued include a Department of Veterans Affairs and Air Force resources sharing program, alternative use of CHAMPUS funds, management efficiencies programs, and partnerships where over 500 providers augment military treatment facility staffs.

COMBAT READINESS AND SUSTAINABILITY

The current rock-solid readiness and sustainability levels, bequeathed us from the planning and budgeting of the early 1980s, are the highest ever achieved by the Air Force, even though the indicators show the beginning of a reversing trend. The current readiness level is clearly validated by the on-going Operation Desert Shield/Storm. Aircraft mission capable rates have been averaging better than 90 percent and logistics support functions are performing like clockwork. Despite the success of our supportability in Southwest Asia, methods for providing readiness and sustainability are undergoing significant reevaluation as a result of changes in the economic and world environment. Our portion of the FY 92 President's Budget (PB) addressed here, does not take into account the activity associated with Desert Shield/Storm. Consequently, the predominant influences are the reduction in force structure and initiatives resulting from Defense Management Report Decisions (DMRDs).

Fiscal Year 1991 is a year of transition. Many of the first round DMRDs began implementation during this year. Some force structure was reduced and, in some cases, accelerated. This budget submission accounts for calculated financial impacts as best anticipated during its development. It reflects our commitment to ensuring the remaining force structure is capable of providing the same per unit readiness and sustainability as we currently have in the forces in Southwest Asia.

To improve resource application, several management concepts are also changing. For example, revolving funds, such as the Air Force Stock Fund and the Airlift Service Industrial Fund, are to be consolidated under the Defense Business Operations Fund (DBOF). The focus of such an initiative would be to improve accountability for resources by emphasizing cost per unit output.

LOGISTICS

Operation and Maintenance (O&M). The O&M appropriation is our premier readiness and sustainability account. The major drivers behind the requirements in this account are the force structure and programmed activity in the major force programs. The FY 92 O&M budget profile has changed considerably as compared to past budgets. Logistics O&M funding was restructured to move all resources related to the wholesale supply operation to the stock fund. This means that portions of resources traditionally included in central O&M accounts, such as spares procurement operations and second destination transportation, have been realigned to the stock fund. O&M resources previously provided to Air Force Logistics Command (AFLC) for this support are now allocated to the operating commands for them to purchase these support services from AFLC through the revolving fund. As a result of this initiative, O&M funds in AFLC have been reduced significantly. Advantages of this realignment are more accurate

requirements through shorter budget lead-time, greater participation and accountability for users, management flexibility in buy and repair decisions and significant potential savings. These savings are reflected in the O&M budget.

Depot Maintenance. Our field units perform 70 percent of all repair actions on mission systems. The remaining 30 percent are accomplished through the Depot Maintenance Industrial Fund (DMIF). The depot maintenance budget reimburses the DMIF for programmed depot maintenance actions on aircraft, missiles, engines, and other major end items such as ground communication equipment, fire trucks, and weapon system embedded computer software. It also funds Interim Contractor Support (ICS) and Big Safari (a classified program).

The dominant factors that determine depot maintenance requirements are force size and activity, and system reliability. Since depot maintenance is programmatic, underfunding this account without corresponding reductions in activity levels and force structure results in backlogs both in the field and at the depots. As we restructure or terminate some new acquisitions and modifications, depot maintenance for the remaining force structure becomes more important.

This program is a substantial portion of the Air Force and AFLC total obligation authority. Because of its size, it has, in the past, absorbed significant reductions in funding as a consequence of the provisions of Gramm-Rudman-Hollings, Congressional programmatic/non-programmatic reductions, and Air Force/AFLC internal adjustments. These reductions caused major fluctuations in the backlog and moved Congress to establish a floor on depot maintenance in FYs 88 through 91. Although protecting the account in this manner was intended to improve readiness and sustainability, it has the potential to do just the opposite. Legislating mandatory minimum spending levels removes our flexibility to respond to unforeseen requirements and creates imbalances in other resources.

The requirements for the depot maintenance central account have undergone a significant restructuring from past budget profiles. Just like procurement of depot level reparables (DLRs), the repair funding and accounting for DLRs were transferred to the stock fund under a DMRD initiative. Similarly, the funds that were centrally managed by AFLC for this activity have been transferred as well. This transfer accounts for a major decrease in depot maintenance funding and requirements.

For every decision which reduced force size and operating tempo, the depot maintenance program has been programmatically down-sized. In addition, the depot maintenance account has received further decrements in anticipation of future efficiencies from AFLC internal management actions and DMRDs. Savings are envisioned as we raise depot utilization rates to near 100 percent, compete more work in the private sector, and streamline overhead costs. The DMRD that transferred DLRs to the stock fund also projected a savings based on the expectation of reduced demand for depot repairs. These savings are reflected as manpower

reductions in both the revolving funds and appropriated fund activities.

Despite the reductions made in this year's depot maintenance budget, we remain committed to ensuring the readiness and sustainability of our combat forces. This budget preserves the same high level of capability for units programmed to exist during the Future Years Defense Plan (FYDP), as is being demonstrated by squadrons participating in Desert Shield/Storm today.

War Reserve Material (WRM). The significant role WRM plays in successful force projection has been vividly demonstrated during operations in Southwest Asia. The WRM posture remains one of the most critical logistics factors of deterrence, and responsive and prolonged power projection. The current posture, still relatively robust from healthy funding in the mid-1980s, has begun to erode from partial to no funding since FY 88. Since a large percentage of WRM requirements are for new acquisitions and much of the remaining requirements are new items from modification, the force drawdown and retirement of older weapon systems do not help the WRM posture. In fact, WRM does not significantly contribute to the inventory growth problem that the Air Force, DOD and Congress have focused on during the past five years. As a consequence, the FY 92 budget submission provides a large-step increase for procuring WRM when compared with the current FY 91 appropriation. Although this request does not ameliorate the devastating FY 91 cut, it arrests the reversing trend and provides a modest, but solid, baseline for programming a recovery over the FYDP.

Some of the prime systems this WRM funding will support are new aircraft like the C-17 and the F-15E. Because there were no funds approved for FY 91 and long lead times to procure aircraft parts, many of these wartime spares will lag behind aircraft deliveries. This highlights the need to protect WRM funding from further cuts. The FY 92 PB also funds other critical sustainability items like WRM rations and non-rotatable, shelf-life items associated with contingency hospitals and aeromedical staging flights. All WRM items programmed in this request are geared to sustaining our weapon systems and airmen for force projection, deterrence and, should deterrence fail, combat.

Stock Fund. The Air Force Stock Fund (AFSF) is a revolving fund which buys inventory, adds a surcharge to cover expenses, and sells to both appropriated and non-appropriated funds customers. In principal, the AFSF operates on a break-even basis by accruing sufficient revenue from sales to cover expenses. In practice, stocks which are acquired to be held in inventory and not sold (such as WRM) and some start-up expenses are funded by direct appropriation to the AFSF. Annual budget requests, therefore, include requests for stock fund obligation authority and for a relatively smaller amount of budget authority.

As mentioned earlier in discussing O&M and depot maintenance, the stock fund increases as the funds transfer from other accounts. Both FY 91 and FY 92 are transition years

in which the using commands still do not reimburse the stock fund for reparables received. The FY 93 portion of this budget submission reflects the transfer of those funds to the using commands, primarily by augmenting flying hour accounts. Through their purchases, the using commands will then reimburse the stock fund's cost of doing business. A new cost that will also be covered by stock fund sales is the financing of AFLC's Logistics Improvement Program. This program encompasses a number of automated data processing (ADP) improvements which will help offset overall cost reductions in logistics.

Numerous DMRDs directly or indirectly affect stock fund operation. For example, one DMRD consolidated the defense supply depots by proposing the transfer of all DOD supply depots to the Defense Logistics Agency (DLA). This will affect financing of material handling and storage services provided to the AFSF. Another DMRD consolidated Inventory Control Points by transferring consumable item management to DLA. For AFSF, this DMRD would phase out the Systems Support Division, requiring those items to be obtained (after paying DLA surcharges) through the General Support Division. Finally, the superposition of the Defense Business Operations Fund over all revolving accounts will result in many changes to how we have done business in the past.

This budget submission reflects the appropriate reductions in customer and personnel accounts commensurate with the anticipated efficiencies and savings of these and other internal management improvements. It has also been carefully crafted to ensure it does not negatively impact readiness and sustainability.

Defense Business Operations Fund (DBOF). The FY 92 PB begins the implementation of the DBOF. The DBOF is designed to work much like the existing stock and industrial funds today. The purpose of this initiative is put more of the Air Force and DOD operations on a more business-like basis. This would aid in the control of operating costs and facilitate decision making.

The first phase of this initiative, which is implemented with this budget, comprises four actions. First, our existing stock and industrial funds are disestablished and reconstituted under a single DOD revolving fund, the DBOF. We retain responsibility for the Air Force components (AFSF, DMIF, ASIF, and the Laundry and Dry Cleaning Industrial Fund) within four existing "business areas" (supply operations, depot maintenance, transportation, and base support). Second, the budget reinstitutes and expands on the same concept as the old Asset Capitalization Program once used successfully in the DMIF. In essence, this means that the DBOF business activities would be financially responsible for capital equipment and facility needs of their operations. They would be reimbursed by charging the cost of these capital improvements in the price of their products and services, just as a private sector does today. MILCON projects will be included for the first time under this concept. However, we intend to request separate congressional approval for the individual projects. Third, this budget implements reimbursement for the operating costs through the DBOF

of both new and existing Defense Agencies (for example, Defense Finance and Accounting Service, Defense Contract Management Center, Defense Contract Audit Agency and Defense Reutilization and Marketing Service). Finally, we have included productivity savings of one percent per year (compounded yearly) beginning in FY 93 to account for the improved efficiencies expected as a result of DBOF management. Studies are on-going to identify additional "business areas" for inclusion in subsequent budgets.

Real Property Maintenance (RPM) and Backlog of Maintenance and Repair (BMAR). The Real Property Maintenance Activity (RPMA) provides resources for operating, maintaining, and repairing Air Force installations. To ensure bases are ready to support wartime operations, RPMA resources are largely devoted to mission essential services and the purchase or operation of utilities. The remaining RPMA funds are used for contracted facility projects to preserve and extend the useful life of the air base infrastructure, consisting of hangars, shelters, missile silos, airfield surfaces, and other mission and base support facilities.

Our FY 92 RPM funding request represents a balance between correcting long standing deficiencies, while accounting for force structure reductions and attendant base/facility divestiture. Many of our facilities are more than 30 years old and are deteriorating faster than the maintenance and improvement program can accommodate. Due to overall budgetary constraints, RPM funding cannot be increased sufficiently to arrest BMAR growth, which is expected to increase to $1.8 billion by the end of FY 92.

The Base Closure Act and the reduction of forces overseas presents an opportunity to increase the cost-effectiveness of existing resources by consolidating some activities and closing under-utilized bases. However, fiscal constraints on the military construction program put additional importance on RPM to extend the useful life of current facilities. The FY 92 PB accounts for every forecasted base closure as well as withdrawal from overseas facilities. It should also be realized that RPMA does not appreciably increase capital investment, but rather ensures that past investments remain functional now and in the future.

Command, Control, Communications, and Computers (C^4). The C^4 infrastructure is more important than ever in meeting future challenges in an era of declining budgets, smaller forces, and less forward basing. C^4 systems intertwine warfighting capabilities with the corporate information flow necessary to operate effectively and efficiently. Increasing interoperability improves battlefield capabilities and decreases the costs associated with procuring and maintaining equipment. Decision support systems provide critical tools to link functional systems, providing the field commanders information needed to make battlefield decisions. These systems effectively integrate intelligence, force status, support capability, weather and other data on a real-time basis.

We are also committed to improving software development and

management, and continuing its modernization program. The use of the Ada computer language and open systems architecture are the key to reducing life cycle costs and are being incorporated wherever possible. The DOD's Corporate Information Management (CIM) initiative will ensure that computer systems can be utilized across the services. With continued support, C^4 systems can provide the operational leverage and cost reductions essential for meeting other Air Force challenges. Some of our manpower reductions taken in support functions, like logistics, are dependent on CIM funding and implementation of specific systems.

TRAINING

T-1A Trainer Aircraft. The T-1A is the cornerstone of our plan to return to Specialized Undergraduate Pilot Training (SUPT) and an integral part of the DOD 1989 Trainer Aircraft Master Plan submitted to Congress in February 1989. This aircraft will replace the T-38 in the tanker-transport track of pilot training. It significantly reduces training costs and enabling us to produce high quality graduates with skills specifically tailored to the needs of the gaining commands. Implementing SUPT with the T-1A will also substantially reduce the number of aircraft eventually acquired to replace the T-38 fleet, providing further long term savings. This budget re-sizes the program to reflect the smaller future force.

Air Force Flying Hour Program. Due to programmed force structure reductions, programmed flying hours for FY 92 are less than FY 91. However, they are consistent with the guidelines established in 1988 that effectively linked flying hours to force structure levels. These guidelines were baselined on FY 87 levels of activity, which were determined to provide the minimum flying hours needed to maintain an acceptable capability for a given force structure and ensure aircrew proficiency in the unit's wartime mission. The flying hour program's execution rate over the past seven years exceeds 99 percent which illustrates the program is not overfunded. The FY 92 PB's flying hour program reflects a balance between the requirements for full combat capability and fiscal reality. As we draw down forces in a changing environment, this minimum essential training will not diminish in importance.

Although the total number of flying hours has decreased, we are encountering rising costs per flying hour due primarily to increased fuel costs. For example, the average cost per flying hour is higher in FY 91 than FY 90. Because of this increase in cost per flying hour, growth in the flying hour program should be measured in terms of total flying hours programmed rather than dollar outlays.

FACILITIES

Military Construction (MILCON). The MILCON budget takes into account the impacts of programmed force structure reductions and related base closures and withdrawals. This year's MILCON budget funds facilities that are essential to our current force structure and provides modest investment for the beddown of new missions. This carefully scrubbed

program will ensure the Air Force can continue to provide responsive and requisite combat capabilities well into the 21st Century. While plans are still being finalized, the Air Force continues to support development of Crotone. SACEUR/USCINCEUR has said: "If I only had two wings remaining in Europe, one would be located at Crotone." The North Atlantic Council recently reaffirmed NATO's support for the base; funds from the NATO Common Infrastructure Program will be used for construction.

Military Family Housing. The cost, quality, and availability of adequate family housing remains a major concern for us since housing directly affects morale. The FY 92 PB continues revitalization of our military family housing inventory which has an average age of 30 years. Even with this budget request, it will take 26 years to bring the backlog of 67,000 units up to the standards commonly found in the civilian community. Success in obtaining maximum improvements possible with this year's budget is contingent on Congress' support of our "whole house" program. Although Congress raised the statutory cost limit from $40,000 to $50,000 per unit per year, we anticipate that our aggressive program will still require substantial waivers. We heartily endorse the requirement for economic analysis to accompany waiver requests and are confident the economic justification of our whole house concept will be strongly supported.

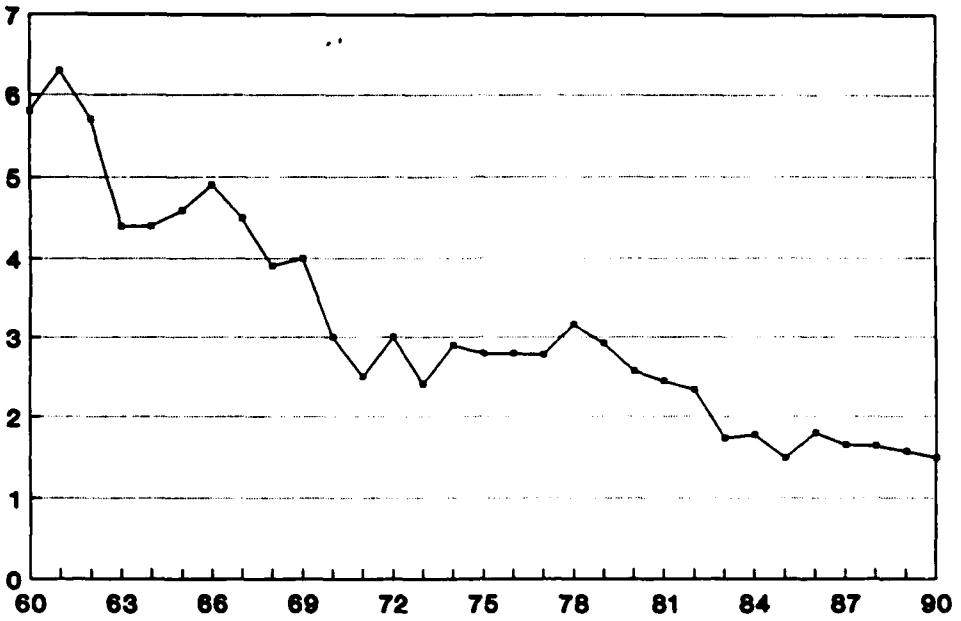
ENVIRONMENTAL QUALITY

The Air Force continues its strong commitment to protecting and enhancing the environmental resources at our installations. The FY 91 budget for environmental protection reached nearly $750-million and this budget request approaches $1-billion for both FY 92 and FY 93. This increase matches the growth in Installation Restoration Program requirements as more sites transition from study to cleanup. We expect to fund all category 1 and 2 compliance projects listed in OMB's Circular A-106 Report.

Our focus for FY 92 and beyond will be pollution prevention, personnel training, hazardous materials/wastes reduction, and site restoration cleanups. Additionally, we will continue to emphasize Environmental Compliance Assessment and Management Program audits to identify potential environmental discrepancies before they become violations. We are also continuing our highly successful Commander's Environmental Leadership Course in both FY 92 and 93. Its syllabus was created to educate our senior officers on the demands and sensitivities of environmental compliance. Thus ensuring they can fulfill the Air Force's commitment to the protection of our environment.

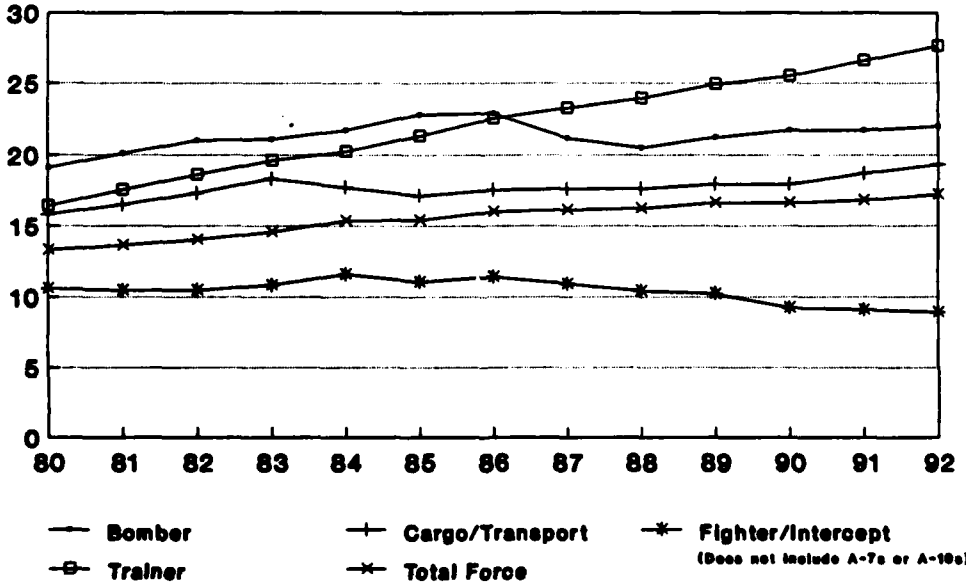
Appendix A

USAF CLASS A MISHAP RATE, 1960 - 1990
MISHAPS PER 100,000 FLT HRS



Source: SAF/IGA

AIRCRAFT INVENTORY
ACTUAL/PROJECTED AVERAGE AGE



Source: AF/PRPR

SUMMARY OF APPROPRIATIONS (TOA)

(Then year $ Billions)

APPROPRIATIONS	FY 91	FY 92
Aircraft Procurement	9.4	10.9
Missile Procurement	5.7	5.8
Other Procurement	7.6	8.1
RDT&E	11.7	15.2
MILCON		
AF	0.9	1.1
AFR	0.0	0.0
ANG	0.2	0.1
O&M		
AF	20.9	20.4
AFR	1.1	1.1
ANG	2.3	2.3
MILPERS		
AF	20.0	18.9
AFR	0.7	0.7
ANG	1.1	1.1
Stock Fund	0.9	0.0
Family Housing	0.9	1.1
TOTAL TOA*	83.4	86.8

*Numbers may not add due to rounding

SELECTED KEY PROGRAMS

(Then Year $ Millions)

	RDT&E		PROC		QTY	
	FY 91	FY 92	FY 91	FY 92	FY 91	FY 92
AIRCRAFT (3600) (3010)						
B-2A	1735	1563	2348	2911	2	4
C-17	536	577	460	1990	0	6
F-15	67	120	1530	170	36	0
F-16	26	175	2062	1161	150	0
C-130H			0	366	0	8
TTTS			156	167	28	45
MH-60G	0	0	37	24	4	6
MISSILES (3600) (3020)						
Peacekeeper	7	3	535	195	12	0
AMRAAM	18	31	535	768	600	1000
Maverick	0	0	7	5	0	0
HARM	1	0	30	113	120	465
SRAM II	149	166	10	11	0	0
SPACE SYSTEMS (3600) (3020)						
DSCS	16	14	64	56	0	0
Navstar/GPS	60	66	181	216	0	0
DMSP	48	28	148	108	1	2
DSP	274	19	326	193	1	0
Titan	128	144	207	296	2	0
Medium Launch Vehicle	56	46	270	222	5	4

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION TOA

BUDGET ACTIVITY ($ BILLIONS)	FY 91	FY 92
Tech Base	0.8	0.9
Advanced Tech Dev	0.7	0.8
Strategic	3.5	4.4
Tactical	3.4	5.0
Intel/Com	2.0	2.4
Def Wide Msn Spt	1.3	1.6
TOTAL*	11.7	15.1

*Numbers may not add due to rounding

STRATEGIC ($ MILLIONS)		
ICBM Modernization	565	816
MILSTAR	0	1061
SRAMII	149	166

TACTICAL ($ MILLIONS)		
C-17	536	577
ATF	955	1637
JTIDS	37	16
AMRAAM	18	31
Joint STARS	190	312

AIRCRAFT PROCUREMENT BY BUDGET ACTIVITY

(Then Year $ Billions)

	FY 91		FY 92	
BUDGET ACTIVITY	QTY	AMOUNT	QTY	AMOUNT
Aircraft	34	6.7	59	7.0
Modifications		1.3		1.8
Spares & Repairs Parts		1.5		2.1
TOTAL*		9.5		10.9

*Numbers may not add due to rounding

AIRCRAFT PROCUREMENT BY WEAPON SYSTEM

(Then Year $ Millions)

	FY 91		FY 92	
WEAPON SYSTEM	QTY	AMOUNT*	QTY	AMOUNT*
B-2A	2	2348	4	2911
F-15E	0	1530	0	170
F-16C/D	0	2062	0	1161
C-130	0	0	8	366
TTTS	28	156	45	167
MH-60	4	37	4	24
C-17	0	460	0	1998
C-27	0	80	0	0

*Includes weapon system only

MISSILE PROCUREMENT BY BUDGET ACTIVITYTY
(Then Year $ Billions)

BUDGET ACTIVITY	FY 91 AMOUNT	FY 92 AMOUNT
Ballistic Missile	0.5	0.2
Other Missiles	1.2	1.7
Modifications	0.1	0.2
Spares & Repair Parts	0.1	0.1
Other Support	3.8	3.7
TOTAL*	5.7	5.9

*Numbers may not add due to rounding

MISSILE PROCUREMENT BY WEAPON SYSTEM
(Then Year $ Millions)

WEAPON SYSTEM	FY 91 QTY	FY 91 AMOUNT*	FY 92 QTY	FY 92 AMOUNT*
Peacekeeper	12	535	0	195
AGM-65 Maverick	0	7	0	5
HARM	120	30	465	113
AMRAAM	600	535	1000	768
SRAM II	0	10	0	11
DMSP	1	148	2	108
DSP	1	326	0	193
Space Boosters	2	207	0	296
Medium Launch Vehicle	5	270	4	222

*Includes weapon system only

OTHER PROCUREMENT BY BUDGET ACTIVITY
(Then Year $ Millions)

BUDGET ACTIVITY	FY 91	FY 92
Munitions & Associated Equip	0.4	0.3
Vehicular Equip	0.2	0.2
Electronic & Telecom Equip	1.2	1.6
Other Base Maint & Spt Equip	6.0	5.9
TOTAL*	7.8	8.0

*Numbers may not add due to rounding

OTHER PROCUREMENT MISCELLANEOUS
(Then Year $ Millions)

BUDGET ACTIVITY	FY 91	FY 92
Munitions & Associated Equipment		
20MM (TRG & Combat)	46	0
30MM (All Types)	34	44
BSU-49/50 Infl Retarder	15	5
FMU-139 Fuze	33	37
Sensor Fuzed Weapon	0	109
Bomb Hard Target 2000 Lb	12	21
Vehicular Equipment		
5 Ton Dump Truck	2	6
Runway/Street Cleaner	4	23
Electronics & Telecommunications Equipment		
Weather Observation/Forecast (3070)	45	60
MAC Command & Control (4070)	14	17
Over-the-Horizon Backscatter Radar (3120)	17	1
Automatic Data Processing Equipment (4010)	23	86
Range Improvements (4190)	48	52
Joint Tactical Communications Program (5700)	16	48
Spares (790A/K)	109	162
Tactical Air Control System Improvements (3040)	157	682
SAMTO Test Ranges I&M (4600)	47	61
Satellite Control Facility (4430)	11	20
USCENTCOM (5140)	5	5
Wideband System Upgrade (6070)	14	5
Minimum Essential Emergency Communication Net (6250)	0	18
Other Base Maintenance & Support Equipment		
Chemical/Biological Defense Program	43	35
Medical/Dental Equipment	84	75
Mobile Electric Generators	4	0
Air Base Operability	5	13
Mobility Equipment	8	5
Base Procured	41	33

PERSONNEL END STRENGTHS
(In Thousands)

	FY 91	FY 92
Active Duty Military	508.6	486.8
Civilian		
Direct Hire	227.6	213.3
Indirect Hire	11.4	9.6
Selected Reserve		
AFR	85.6	81.2
ANG	117.0	118.1

PERSONNEL COST*
(Then Year $ Billions)

	FY 91	FY 92
Active Duty Military	20.0	18.9
Civilian**	5.8	5.8
Selected Reserve		
AFR	0.7	0.7
ANG	1.1	1.1
AF TOA	28.6	28.2

* Does not include personnel support (medical, training, BOS tail, recruiting)
** Includes Active, Guard, and Reserve but excludes Industrial Fund Portion and R&D

THE AIR FORCE AND U.S. NATIONAL SECURITY:

GLOBAL REACH—GLOBAL POWER

A WHITE PAPER

June 1990

FOREWORD

Extraordinary international developments over the last few years have created the potential for a significantly different security environment as we approach the beginning of the twenty-first century. These changes demand fresh thinking about the role of military forces. That thinking has begun under the guidance of the Secretary of Defense.

While there is much that is uncertain about the future, we are firmly convinced that the United States will continue to need first class land, sea, and air forces to protect its vital interests. Within that context, each Service will face tough and legitimate questions on appropriate capabilities to meet changing national needs. The following provides an overview of evolving Air Force thinking and planning in response to that challenge.

Donald B. Rice
Secretary of the Air Force

THE AIR FORCE and U.S. NATIONAL SECURITY: GLOBAL REACH—GLOBAL POWER

Since the close of World War II, the national security focus of the United States and much of the free world has been dominated by the threat posed by the Soviet Union—the only nation with the capability to threaten U.S. national survival. A number of dynamic and rapidly changing factors—from the extraordinary developments in the Soviet Union and Eastern Europe to the spread of sophisticated military capabilities—are creating the potential for a significantly different world environment in the 21st century. This paper provides a perspective on how the unique characteristics of the Air Force—speed, range, flexibility, precision, and lethality—can contribute to underwriting U.S. national security needs in the evolving world order. It also challenges Air Force members, and others in the defense establishment to think about how we as a Nation can best address the role of military forces for the future. And finally, the concepts outlined here, which guided the development of our most recent program and budget recommendations, provide a framework to conduct future Air Force planning.

Changes in Europe and the Soviet Union do not promise a tranquil world nor an end to threats to American interests around the globe. The world of the 1990s and beyond is likely to be characterized by a combination of political instability, serious economic dislocation, and widespread military power. While the Soviets appear to be shifting focus toward long-standing internal economic, political, and societal problems, they will retain and in some cases significantly improve their formidable military strength. Soviet policy declarations reflect changes in Soviet intentions, but the ultimate direction of Soviet change is far from clear.

We also face security challenges in other, even less predictable circumstances. The United States has important security interests around the world: promoting freedom and democracy; sustaining a healthy and growing U.S. economy (which requires protecting key strategic resources and lines of communication); nurturing defense commitments and security relationships; and reducing the flow of illegal drugs. By one count the developing world since World War II has endured, on average, more than 25 civil and international conflicts each year. Many developing nations around the world possess formidable arsenals of growing sophistication: Syria fields more main battle tanks than any European NATO nation save the Federal Republic of Germany; Iraq maintains a larger tank force than *any* European NATO state; the North Koreans possess more artillery pieces and multiple rocket launchers than any NATO nation including the United States. The continued spread of sophisticated weapons—nuclear and chemical weapons, ballistic missiles, advanced tactical aircraft, modern tanks, and cruise missiles—pose a wide variety of potential threats to U.S. security.

The combination of continued and emerging threats to national security interests, proliferation of sophisticated weapons, and reduced numbers of overseas U.S. forces in an unstable world presents new

challenges for U.S. military forces. The likelihood that U.S. military forces will be called upon to defend U.S. interests in a lethal environment is high, but the time and place are difficult to predict.

U.S. NATIONAL SECURITY STRATEGY

In the face of this uncertainty, the fundamental U.S. national security objective remains the preservation of the United States as a free and independent nation, with its people, values, and institutions secure. That basic objective, and our other national security objectives, are supported by interrelated political, economic, and defense strategies. As the President has recently reiterated, the foundation of our defense strategy is deterrence—deterrence based on a mix of nuclear and conventional forces, strong allies, forward defense, and power projection capabilities.

As the *National Security Strategy of the United States* (March 1990) lays out, deterring nuclear attack will remain the first priority. That document also makes clear that, as the leader of the world's democracies, we have an inescapable role to play in ensuring the stability of the international balance. While we will continue to have important commitments and interests around the world, those in the following areas will drive the requirement for our forces:

- Europe will continue to be an area of vital interest. We will have a continuing commitment to the European security framework—though at reduced force levels.

- As the Pacific continues to grow in importance, our security interests in that vast area will become more diverse and less tightly focused on the traditional threat.

- In the Persian Gulf, our objectives will remain to support friendly states and prevent a hostile power—any hostile power, not necessarily the Soviet Union—from gaining control over the region's oil supplies and lines of communication.

- Superpower commitments. To maintain influence over the vital determinants of its national well-being in this uncertain world, the United States will remain a key player—in this hemisphere and elsewhere on the global scene.

As long as the Soviet focus remains on internal matters and regional conflicts and tensions remain localized, the risk of global war between the superpowers will remain low. This state of affairs results from a successful national security strategy and supporting military posture over the past forty years. As General Colin Powell, the Chairman of the Joint Chiefs of Staff observed: "We must remember how we got to this historic turning point in history—our systemic strength and the strength of our allies has gotten us here. And a crucial dimension of that strength is our well-trained, proud, and ready military force." To maintain this state of affairs, U.S. forces will protect U.S. security interests by providing the

correct balance of military capabilities—forces capable of maintaining deterrence and protecting our national interests. As we search for that correct balance we can neither adopt the unrealistic assumption that *nothing* has changed, nor the historically naive presumption that *everything* has changed.

Maintaining stable nuclear deterrence vis a vis the Soviet Union will depend on arms control policies that enhance the stability of the strategic balance and a modernized mix of nuclear systems that hold critical Soviet assets at risk. At the same time, the threat posed by emerging nuclear weapons proliferation in other nations will pose new challenges.

Conventional capabilities will remain essential to deter and contain local conflicts that could threaten U.S. interests and allies. Addressing these threats by long term occupation of the offending country, or continuous presence in every potential location, is highly unlikely. Instead, our probable response will be to stop or contain the offending behavior and isolate the threat. An ability to maintain constant awareness in potential adversaries that they are always within our reach broadens the spectrum of deterrence. Given this and the unpredictability of the future, our force planning calls for an increased emphasis on force projection capabilities—even more flexible, rapidly responding, precise, lethal forces with global reach.

Quality Forces

To support the strategy, we will continue to stress high quality modern forces (although with reduced force size). Quality people are critical to high quality forces. History shows that the human dimension, the dimension of ready, well trained forces, has been vital to success on the battlefield. People programs must remain at the top of our priority list.

Along with quality people, United States forces have long depended on the force multiplier effects and competitive advantages of advanced technology to provide the maximum warfighting potential from smaller forces. Aerospace technologies form the cutting edge of innovation. For example, in the late 1970s through the 1980s, the United States invested heavily in stealth technologies. We are now starting to reap the benefits of high payoff investments in a truly revolutionary set of technologies. Investment in these advanced technologies will provide United States forces decisive capabilities against potentially well-equipped foes at minimum cost in casualties—increasingly important in an era in which we believe the American people will have low tolerance for prolonged combat operations or mounting casualties. Prudent R&D investment will also help avoid strategic surprise as the Soviets and others continue to pursue modernized forces.

Aerospace R&D developments strengthen more than our military muscle. They also strengthen economic elements of our national power. The United States has become an aerospace nation. It leads the world in terms of cutting edge aerospace technology in both the military and

commercial sectors. The fact is that the military and economic elements of national power are united in the Air Force. Changes that affect aerospace forces will significantly affect the muscle of our economic power.

THE U.S. AIR FORCE & THE EVOLVING SECURITY ENVIRONMENT

The dynamics of the future will require us to carefully craft complementary forces. That process has begun under the leadership and direction of the Secretary of Defense. Each Service provides unique capabilities to meet national security challenges. The Air Force is fully committed to orchestrating its forces and operations with those of the other Services. At the same time, air, naval, and land forces are fundamentally and necessarily different. Maximizing the contributions of each will result from exploiting individual Service strengths where each fits best in contributing to future security objectives.

Understanding the inherent attributes of the Air Force and aerospace power and how both contribute to achieving national objectives is critical. Over the last 40 years our attention has focused most intensely on the potential requirements of a major conflict in Europe. Because of this focus, the characteristics and capabilities of the Air Force to meet the demands at other levels of security interest may be less well understood. Air Force characteristics, capabilities, and forces contribute across the spectrum of conflict (see Figure 1).

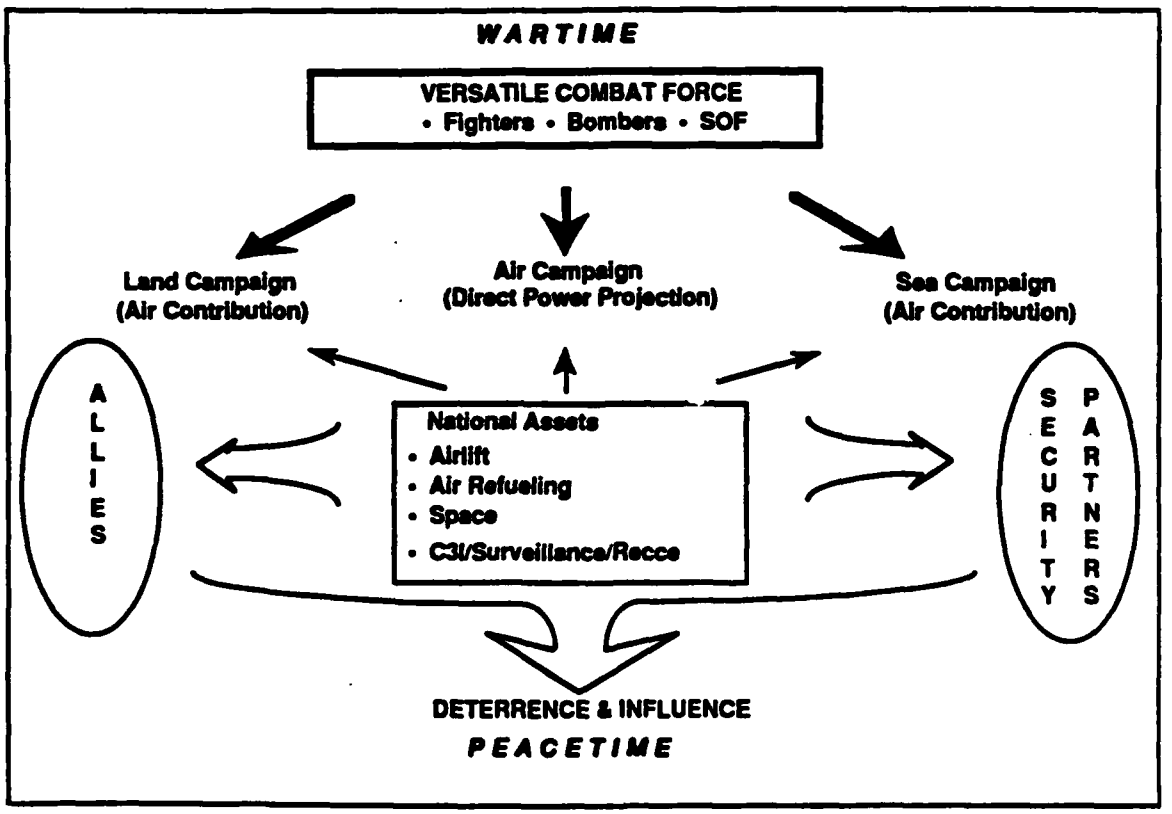


Figure 1—Spectrum of Air Force Operations

In a wartime situation with forces actively engaged in combat, the Air Force provides versatile lethal force. To meet the needs of the joint force commander, we conduct independent, parallel, and supporting operations in conjunction with other Service components. Air Force capabilities also act in conjunction with engaged allied forces, help security partners, and deter conflict during peacetime.

The strengths of the Air Force rest upon its inherent characteristics of speed, range, flexibility, precision, and lethality—characteristics which are directly relevant to the national interest in the future. The following objectives, their associated forces, and Air Force attributes provide a planning framework to support our Nation's defense strategy:

- *SUSTAIN DETERRENCE* — Nuclear Forces
- *PROVIDE VERSATILE COMBAT FORCE* — Theater Operations & Power Projection
- *SUPPLY RAPID GLOBAL MOBILITY* — Airlift and Tankers
- *CONTROL THE HIGH GROUND* — Space & C3I Systems
- *BUILD U.S. INFLUENCE* — Strengthening Security Partners and Relationships

SUSTAIN DETERRENCE — Nuclear Forces

The Strategic Arms Reduction Talks (START) treaty will set the limits on the nuclear force structures of both signatories and form the framework within which our forces contribute to global security and stability. The Soviets are vigorously pursuing strategic modernization programs while posturing their forces for compliance with likely treaty restrictions. In the face of Soviet forces with the continuing capability to threaten our existence, we must provide forces to sustain high-confidence nuclear deterrence. We will develop and deploy forces that will best meet our nuclear deterrent needs today and hold the greatest promise for meeting uncertain future threats.

The triad concept will remain fundamental. The triad has provided an effective deterrent for three decades and its success has led to a broad national consensus that we should continue to maintain a balanced triad composed of modernized, effective individual legs. Each leg of the triad possesses unique and complementary characteristics which synergistically provide a retaliatory capability that no adversary could hope to successfully overcome.

START will result in balanced and reduced offensive forces, but the mission of deterrence will endure. The fundamental goal of the United

States in shaping the nuclear balance is to increase stability—to reduce incentives for either side to launch an attack. Accordingly, we are modernizing the bomber force, the most stabilizing element of the triad, and are reducing warhead densities for fixed base missiles. Emphasis on developing a credible and capable strategic defense will also continue.

Regionally, even with reduced conventional force levels and changes in Eastern Europe, the U.S. will need modern theater nuclear forces as an important deterrent aspect of the Atlantic Alliance's agreed strategy of flexible response. Air-launched capabilities provide a credible option to sustain extended deterrence and flexible response wherever regional nuclear threats might arise.

PROVIDE VERSATILE COMBAT FORCE

In contrast to fairly stable nuclear deterrent objectives, more fundamental changes are likely to occur in the conventional arena. There will remain areas in the world with the potential demand for large scale protracted operations. However, theater and conventional forces will also need to be structured to respond quickly to threats from individual, widely dispersed states working their own agendas. In those more frequently occurring scenarios, use of military forces will be primarily in sharp, powerful, short duration operations. U.S. forces must be able to provide a rapid, tailored response with a capability to intervene against a well-equipped foe, hit hard, and terminate quickly. The implication for U.S. forces is a requirement for fast, agile, modernized conventional capabilities.

Political changes in Eastern Europe have reduced the threat of a short-warning Warsaw Pact attack and force reductions resulting from successful CFE negotiations should reduce it further. The probability of a major war in Europe in the near to mid-term appears lower than at any time in the post war era—but the instability resulting from political and economic retrenchment presents new challenges, ranging from questions of alliance cohesion to issues of traditional ethnic and nationalistic difficulties. It is important that the U.S. remain engaged in the European security framework. Forces that have been held in check by the discipline of the bi-polar confrontation may be released. The difficult economic problems in the Soviet Union and Eastern Europe and the likelihood of a widening have/have-not gap are, in themselves, destabilizing. Further, far too many uncertainties are present to predict the demise of the Soviet Union as a significant military threat, directly or indirectly.

In developing our future force structure, it is vital that we retain the capability to respond to the many possible paths of future Soviet direction or emergence of other major threats. Reserve components are particularly useful in this regard, especially as increased warning time may allow us to maintain some reserve forces at a more economical operational tempo. Not only are they a force in reserve against a global threat, they can be a reinforcing wave in the event of a major regional conflict. But the reserve concept is not a panacea. Our global responsibilities require capabilities

independent of the need for mobilization and the political baggage sometimes inherent in that process. Active forces of the highest quality will be essential to respond quickly with precision and effectiveness.

THEATER OPERATIONS & POWER PROJECTION

The ability to concentrate force in a responsive manner over great distances—to change the military and/or political conditions necessitating the response—is a key attribute of the Air Force. The Air Force's speed, range, and flexibility enable us to rapidly apply combat power against vital elements of an enemy's structure. Speed limits exposure to threats and significantly reduces the time needed to accomplish a mission. Range provides the ability to operate in any direction over great distances, unimpeded by surface features such as mountains and oceans. Flexibility provides the ability to perform a variety of actions, produce a wide range of effects and influences, and to adapt to changing circumstances and environments. This ability to rapidly project power, as well as readily adapt to changing circumstances and environments, will be increasingly important in the future.

Joint/Combined Operations with Ground Forces

Joint/Combined operations with U.S./Allied ground forces will remain a fundamental need. Air forces share with ground forces spatial control of contested areas and the airspace above them. The main objectives of joint surface-air operations are to neutralize or destroy enemy capability to resist, to limit his freedom of action and to disrupt his scheme of operations while at the same time enhancing our capabilities and shaping the battle to friendly force advantage. Theater air forces, as a first priority, accomplish those functions which afford the greatest opportunity for conclusive results in achieving the theater mission.

The Air Force conducts a wide variety of tasks to support the theater commander in accomplishing these objectives. One of the first considerations of a theater commander is control of the air. Control of the air (Air Superiority) protects surface forces and provides freedom of action for surface forces and air forces. Since the advent of modern airpower, no major conflict has been won without control of the air. Air attack over the battlefield (Close Air Support and Battlefield Air Interdiction) provides direct and indirect air support of ground forces against enemy forces. By delaying, destroying, and disrupting enemy follow-on forces and materiel (Interdiction), we achieve a leveraged effect upon the enemy, and ensure a favorable friendly-to-enemy ground force ratio at the point of contact.

Because of the flexibility and striking power of air forces, the tasks they perform have a profound influence on the outcome of theater operations. Airpower's speed, range, and lethality allows rapid shifting of effects, concentrating firepower wherever the joint force commander needs it—from the close battle, across the length and breadth of the theater, to its deepest reaches. As clearly demonstrated by American forces in multiple

engagements over many years, and by the Israelis in more recent experience, tactical airpower can prove decisive and have strategic impact.

Similarly, the flexibility to shift effects is also provided by theater airlift through the rapid delivery, reinforcement, and resupply of forces at the most needed locations. This ability to deliver forward enhances deterrence, or speeds the entry of forces into battle.

The U.S. Air Force may also assist allied ground forces engaged along with, or independent of, U.S. ground forces. Korea could be an example of aiding allied forces with only limited U.S. ground forces. In a similar vein, the effect of Air Force presence in assisting allied ground forces was demonstrated in the Philippines (December 1989). USAF F-4s assisted in preventing the overthrow of the Aquino government. They did so by providing a deterring presence, thereby maintaining strategic U.S. interests without firing a shot.

Presence and Direct Application of Force

While complementary forces of all the Services will be essential—the Air Force offers, in most cases, the quickest, longest range, leading edge force available to the President. Conventional airpower offers exceptional flexibility across the spectrum of conflict as an instrument of national resolve. The Air Force can deter, deliver a tailored response, or punch hard when required—over great distances—with quick response. We can provide a presence, or put ordnance on a target worldwide in a matter of hours. These power projection capabilities of the Air Force will become even more vital for protecting U.S. national security interests in the future.

Long range bombers armed with conventional weapons can rapidly reach any location on the globe (see Figure 2). In 1983's BRIGHT STAR exercise, B-52s launching from bases in the U.S. precisely delivered conventional ordnance to a target range in Egypt, then returned nonstop to their bases. Bombers can autonomously deliver massive ordnance payloads with high precision and low risk of loss. Six B-2s, operating from the United States with the support of six tankers, could conduct an operation like the 1986 Libya raid—which utilized two carrier battle groups, an Air Force F-111 squadron, and numerous supporting assets. Only a few highly survivable aircraft would be placed at risk. The 1986 operation involved 119 aircraft and 20 ships. And long range bombers could execute such operations without reliance on forward bases or overflight rights.

The bomber's long range means that the United States can project power and enhance presence in a very short time—and often at lower cost relative to other options—regardless of conflict location. In the Persian Gulf area or deep in other theaters, long range bombers can threaten or hit targets in the crucial first hours or early days of a conflict. They may be the only assets capable of doing so.

WITH ONE REFUELING AND A LARGE CONVENTIONAL PAYLOAD, LAND-BASED BOMBERS CAN COVER THE ENTIRE GLOBE FROM AS FEW AS THREE SECURE BASES

"It obviously would give us significant conventional capability...the ability to reach from a handful of bases virtually anyplace on the globe"
Richard B. Cheney

"...immense value as an in-theater force multiplier."
CINCPAC

Figure 2—The Global Reach of Long Range Bombers

Our ready and flexible tactical air forces can also be tailored to provide a quick and appropriate response to support U.S. national policy. On a day-to-day basis, our forward-based forces provide a presence lending stability to regions of vital interest. These modern fighter forces can respond anywhere in the world on short notice. With an emphasis on lean and deployable forces, tactical air forces can move forward with very little baggage compared with the massive, persistent firepower they deliver. An F-15E squadron can both provide presence and deliver over 400,000 pounds of ordnance per day—do it rapidly, and concentrate it or deliver it across a wide area.

Typically, land-based fighter forces require forward basing to sustain power projection options. But when the interests of allies are threatened, basing will normally be made available—and our fighter forces can deploy within hours. When American soldiers were attacked by ax-wielding North Koreans in 1976, 54 fighters were deployed from the U.S. and were all in place, on the other side of the world—ready to fight—in less than 24 hours. In August 1983, an F-15 fighter force package deployed to Africa, again in less than 24 hours, in response to the unsettled political situation in that region. The quality of our fighter aircraft, weapons, and aircrews, as well as the staying power of these forces, will be key in filling power projection needs in the future.

Not only does the Air Force directly apply combat power rapidly, it enables other forces to respond rapidly as well. As illustrated by Operation

JUST CAUSE (Panama, 1989), speed of response can be critical. The major contribution of the Air Force to this operation was *responsive* employment of combat air forces and *rapid* movement of air and ground forces to project power and defend national security interests. When the Secretary of Defense and the JCS were directed to act by the President, they deemed a quick response imperative. Within 48 hours of receipt of the execute order, *ordnance was on target* and *troops were over the drop zone*. The responsiveness and speed of movement directly contributed to the success of the operation and greatly reduced U.S. casualties.

Complementary Air Force and Naval Operations

The future holds significant opportunity for complementary Air Force and naval operations that capitalize on the unique characteristics of both. Air forces share with naval forces control of access. Air Force quick response capabilities can provide immediate presence to areas of concern anywhere in the world, while carriers steam to provide more enduring presence, if required. Conversely, the capabilities of air defense vessels can be used to supplement defenses in littoral zones, freeing up land-based air assets to conduct other critical missions.

Similarly, land-based air can be used in conjunction with naval forces to meet land attack demands. For example, a squadron of B-52s can double a carrier task force's offensive punch while taking advantage of the battle group's defense and suppression assets. The EL DORADO CANYON raid (Libya, 1986) is an excellent example of air and sea forces operating in complementary fashion to meet the needs of the contingency situation.

Land-based air provides critical and unique capabilities in the maritime environment. The last three CINCPACs have strongly supported the need for long range conventional strike and counter-air assets to operate in conjunction with fleet operations. One recently described B-52s as of "immense value as an in-theater force multiplier ...." B-52s possess a mine delivery capability unmatched by any other system. Those same aircraft provide a quick response anti-ship capability (8 Harpoons on each aircraft moving at 450 Knots), and a valuable surveillance capability. For example, two B-52s can surveil 448,000 square miles of ocean on a standard maritime patrol sortie—an area the size of the South China Sea.

While naval forces will maintain a predominant interest in sea control, land-based air has significant potential to contribute—as history shows. During WWII, air attacks accounted for the single largest cause of warships sunk, and land-based air accounted for 61 percent of those. In the future we can best achieve specific military and political objectives by capitalizing upon the advantages of both land-based air and naval forces.

Special Operations/Low-Intensity Conflict

Within the special operations/low-intensity conflict (SO/LIC) arena the Air Force is committed to supporting special operations and maintaining necessary SOF assets. As an example, the Air Force will be

capitalizing on the potential capability of the A/OA-10 to support SO/LIC operations—in addition to the specialized special operations aircraft we are currently acquiring. Beyond specialized SOF assets, conventional Air Force capabilities are essential to SO/LIC missions. For example, surveillance, air cover, air refueling, airlift, and precision attack were all involved in supporting special operations during JUST CAUSE.

In the low-intensity conflict arena, counter-narcotics operations will become increasingly important. The Air Force is committed and postured to employ surveillance assets and other capabilities to help stem the flow of narcotics threatening the fabric of our society. Our airlift, surveillance, intercept, interdiction, and firepower assets enable surface special operations forces to operate while uniquely contributing to the anti-drug effort.

SUPPLY RAPID GLOBAL MOBILITY — AIRLIFT AND TANKERS

As forward forces decline but global interests remain, airlift will be even more in demand. Increased instability and uncertainty will heighten the importance of the ability to respond quickly. While increased warning time for Europe will allow for a reduction in European-based forces, it does not obviate the need for airlift. Increased warning time for a European war may allow us to use more sealift to return forces to Europe. But given the magnitude of force withdrawals under consideration (in several areas, not just Europe) and the scope of the uncertainty we face in unpredictable areas around the world, airlift and sealift cannot be viewed as competitive—they are complementary.

In the more likely contingency scenarios, airlift provides vital speed and flexibility. When an operation needs to be carried out quickly, airlift will be the key player. Unfortunately, discussions on airlift often focus on warning time, blurring other key issues. In reality, warning time is as unpredictable as the range of possible contingencies—but the need to concentrate force at the critical point at the critical time is a constant. Even increased warning time does not necessarily produce a corresponding increase in reaction time. The warning time for JUST CAUSE was measured in months; the reaction time in hours. And when that decision to act is made, the ability to cope with surge requirements up front makes the critical difference between success and failure. Our airlift's ability to meet peak demand was vital to the joint force commander's ability to act decisively in Panama.

While the JUST CAUSE experience is instructive, it is not typical of the demand. For that operation, we had a highly developed infrastructure in theater with over half the forces in place. Deploying forces traveled lightly—even for light forces. The objective area was very close. Next time, the challenge may be tougher, but the requirement for timeliness may be even more critical. The 1973 Arab-Israeli War provides an example of the importance of timeliness, particularly for our more uncertain future world. Sealift was important—it delivered 74% of the total resupply of Israel—but the combat phase was over before the first ship arrived. The key

contribution to Israeli success was airlift's ability to deliver essential assets (things like TOW and Maverick anti-tank missiles, artillery ammunition, and major aircraft components and spare parts) when they were critical to combat.

Faced with the potential of reduced overseas bases for all U.S. forces, the concept of global reach becomes increasingly important and highlights aerial tankers as a critical asset in meeting future needs. Air Force tankers refuel Air Force, Navy, Marine and many allied aircraft, leveraging all Service capabilities on land, sea, and in the air.

Aerial refueling increases the range, on station times, and ordnance capabilities of receiving aircraft—true force multiplication. As an example, land-based Air Force tankers flew almost 300 sorties during Operation ERNEST WILL (Persian Gulf, 1987-1989) refueling naval air over the Straits of Hormuz. These sorties allowed the fleet to operate in waters suitable to reduce exposure to potential threats. The increased emphasis on rapid response and global reach will only enhance the value of our tanker force. Tankers were also force multipliers in JUST CAUSE. Airlift aircraft could deliver their loads and clear the ramp for the next aircraft more rapidly because they could refuel after takeoff.

CONTROL THE HIGH GROUND — Space & C^3I Systems

The advance of technology has lifted man above the surface where he fought for millennia, to the air, which has progressively become the dominant medium over the last 75 years, and increasingly, into space—the high ground of the future.

Rapid technological advances provide the means to exploit the military advantages inherent in space-based systems: global coverage, relatively low vulnerability, and autonomous operations. Smaller force levels and access to fewer forward bases will increase dependence on the force multiplying capabilities of space systems. Space-based communications assets provide for global, secure, and reliable command and control of forces. Space-based navigation aids will enhance global deployments of air, land, and sea forces, as well as provide pinpoint weapons system accuracies. Space-based surveillance systems will provide unprecedented warning and threat assessments to battle commanders, regardless of the location of conflict. Finally, space systems will help monitor the world situation to avoid surprise and ensure compliance with arms control agreements. Collectively, these capabilities add up to global knowledge and situational awareness.

Space systems will also remain immune to all but the most sophisticated threats. Currently, only the Soviet Union has a capability to threaten U.S. satellites, but even their capabilities must contend with increasingly effective U.S. survivability measures added to many of our satellites, command links, and ground support elements. The result is that space systems will continue to be dependable, survivable and effective, especially as the threat of a direct U.S.-Soviet confrontation declines.

Additionally, space systems are operationally highly autonomous. Periodic communication between the satellites and CONUS-based controllers maintain satellite constellations in a fully mission ready state. Advanced technology and manufacturing have produced satellites that are long-lived and reliable. The combination of high reliability, endurability, survivability, and autonomy make space systems a cost-effective choice for providing critical warfighting capabilities.

With the positives previously listed on our space systems, we also have deficiencies we must work to correct. Clearly we need increased launch capacity to ensure unimpeded access to space. We need to develop anti-satellite capabilities to ensure that we can deny an adversary unimpeded use of his space systems against our forces. And finally, to ensure we fully realize the value added by controlling the high ground, we must build a space-based wide area surveillance system. Such a system will pay great dividends as we try to contain the diversifying global threats.

Historically, the Air Force has been the principal provider of space systems for the Defense Department, and the Air Force remains uniquely postured for that role. The Air Force has the infrastructure, approximately 90% of DoD's space experienced personnel, and the budget commitment (approximately 80% of the DoD space budget) required to provide space-based support of global military operations.

Airbreathing Air Force assets complement our space systems in keeping tabs on the rapidly evolving world scene and providing key warfighting capabilities. AWACS today and JSTARS in future are rapidly deployable assets that can serve as the "eyes and ears" of the joint force commander. Related airborne command posts and airborne relays play a critical role by providing the capability to rapidly establish key elements of theater command and control systems—thus meeting the battle commander's most urgent needs in rapidly evolving scenarios.

BUILDING U.S. INFLUENCE — Strengthening Security Partners and Relationships

Security assistance provides the capability to enhance security conditions, strengthen security partners, and project U.S. influence to build democracies, with limited or no use of U.S. forces. The Air Force is well postured to contribute toward these national objectives. Security assistance allows us to influence events and protect national interests in areas where more visible means of intervention are not viable. Our efforts assisting the Colombian Air Force with counter-narcotics operations are an example. In particular, relatively modern Air Force aircraft, which we will be retiring in light of our own force reductions, will be in heavy demand. These aircraft are sought after security assistance items. They provide advanced capability to the recipient and influence to the United States.

Air Force training and logistics aid are politically acceptable in many situations where other forms of influence are not welcome. At the same time, complementary force planning with security partners offers potential

to maximize coalition capability. And the Air Force's capacity to increase training of allied and friendly air forces offers opportunity to strengthen relationships. It's only partially in jest that USAF trained pilots—who range from Prince Bandar (Saudi Arabian Ambassador to the United States) to line German fighter pilots—call themselves "half Texan." The increased training of allies would also provide a cost-effective way for us to maintain a higher training base for surge, if necessary.

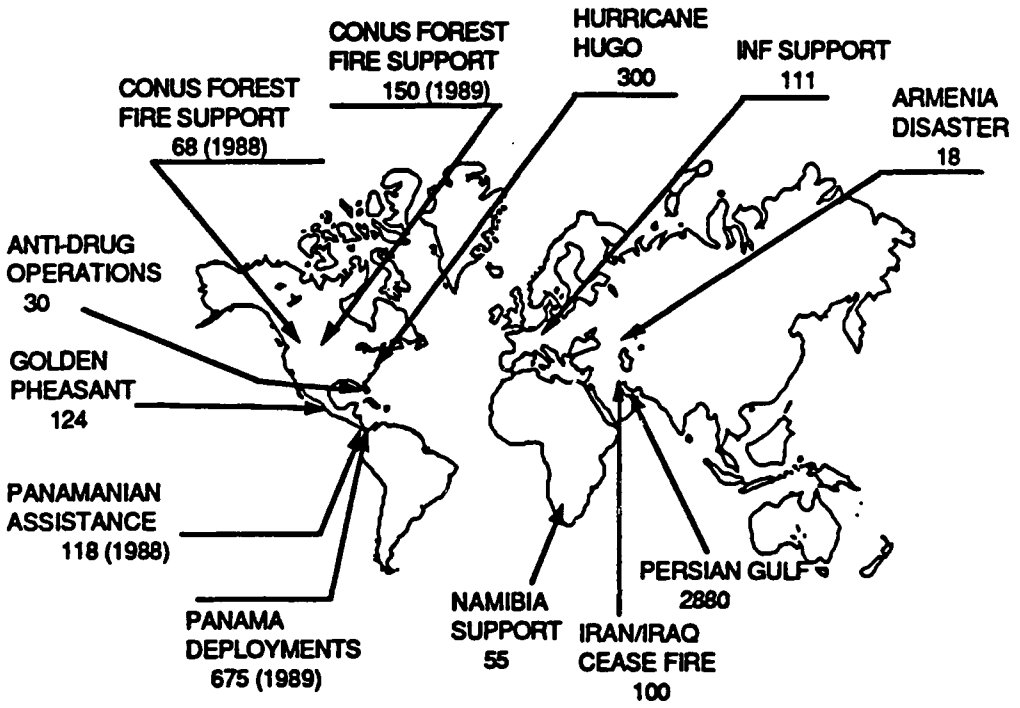


Figure 3—Contingency and Humanitarian Airlift Examples —1987-89
(C-141 Load Equivalents)

Air movement provides a capability greater than just moving troops and cargo would imply. It provides a tool for building trust and confidence and spreading goodwill around the world. It gives the U.S. a unique ability to achieve many strategic objectives. The Berlin Airlift of 1948 is a classic example, as is the Israeli resupply in 1973. Less well known is the example of Algeria in 1980. On October 10, 1980, two Algerian earthquakes killed thousands. Within about 36 hours, the Air Force began delivering 340 tons of disaster relief supplies. This action, carried out for humanitarian purposes, strengthened international bonds. Later that fall, it was Algeria that led mediation efforts which resulted in the January release of U.S. hostages in Iran. As shown in Figure 3, these kinds of lower visibility contingencies and disaster relief efforts are frequent. These actions strengthen allies, provide humanitarian assistance, and allow the United States to influence events important to our national security and the security of the free world.

Long-range surveillance aircraft, such as AWACS, also provide the means to accomplish national objectives in situations where a large

presence is inappropriate, or not possible. Packages of surveillance assets are able to deter adversaries by letting them know we are watching their every move. Recent examples of AWACS deployments (Saudi Arabia, Egypt, Chad) show that non-lethal deterrence can be effective and can provide dramatic increases in allies' capabilities. JSTARS will increase that capability by allowing us to monitor and direct ground as well as air operations in addition to its primary contribution of allowing us to concentrate firepower responsively.

In the 1980s alone, the Air Force was called upon no less than 150 separate times to serve at the Nation's behest. In this decade, the Air Force has conducted contingency air operations in 26 different nations and over the world's oceans. Further, we have supported humanitarian, disaster relief or rescue operations over 60 times in 49 different nations in those same years. Perhaps more important than numbers, however, is force effectiveness. A Brookings Institute Study—*Force Without War*—concluded that since the end of World War II, land-based aircraft have been more effective in achieving positive outcomes than any other forces. In the future, the capabilities of our aerospace forces will become even more vital to U.S. national security as the need for rapid response and long reach increases.

CONCLUSIONS

In light of the changing global security environment, the Air Force focus is on evolving U.S. national security needs—not simply on fiscal constraints, though they too are real. Defense requirements cannot be viewed independent of our economic base.

The United States has become the world's foremost aerospace power. The Air Force is inextricably intertwined with the aerospace industry—one of the largest and most profitable in our economy, and the largest single source of U.S. trade surpluses. This combination of Air Force capabilities with the pre-eminence of our aerospace industry constitutes our aerospace power.

The Air Force is building a force with agile and responsive capabilities tailored for the world we see unfolding before us. We will continue developing these capabilities—planning the "pieces" of our Air Force to complement each other, complement the capabilities of the Army, Navy, and Marines, and create optimum power to underwrite our national security strategy.

Air Force unique capabilities must be exploited, along with those of the other Services, to address the exigencies of evolving national security policy. We see a window of opportunity to become even more useful to the Nation. With the Air Force's range and rapid reaction, we are prepared to meet the challenges of the future...to provide **Global Reach—Global Power.**