



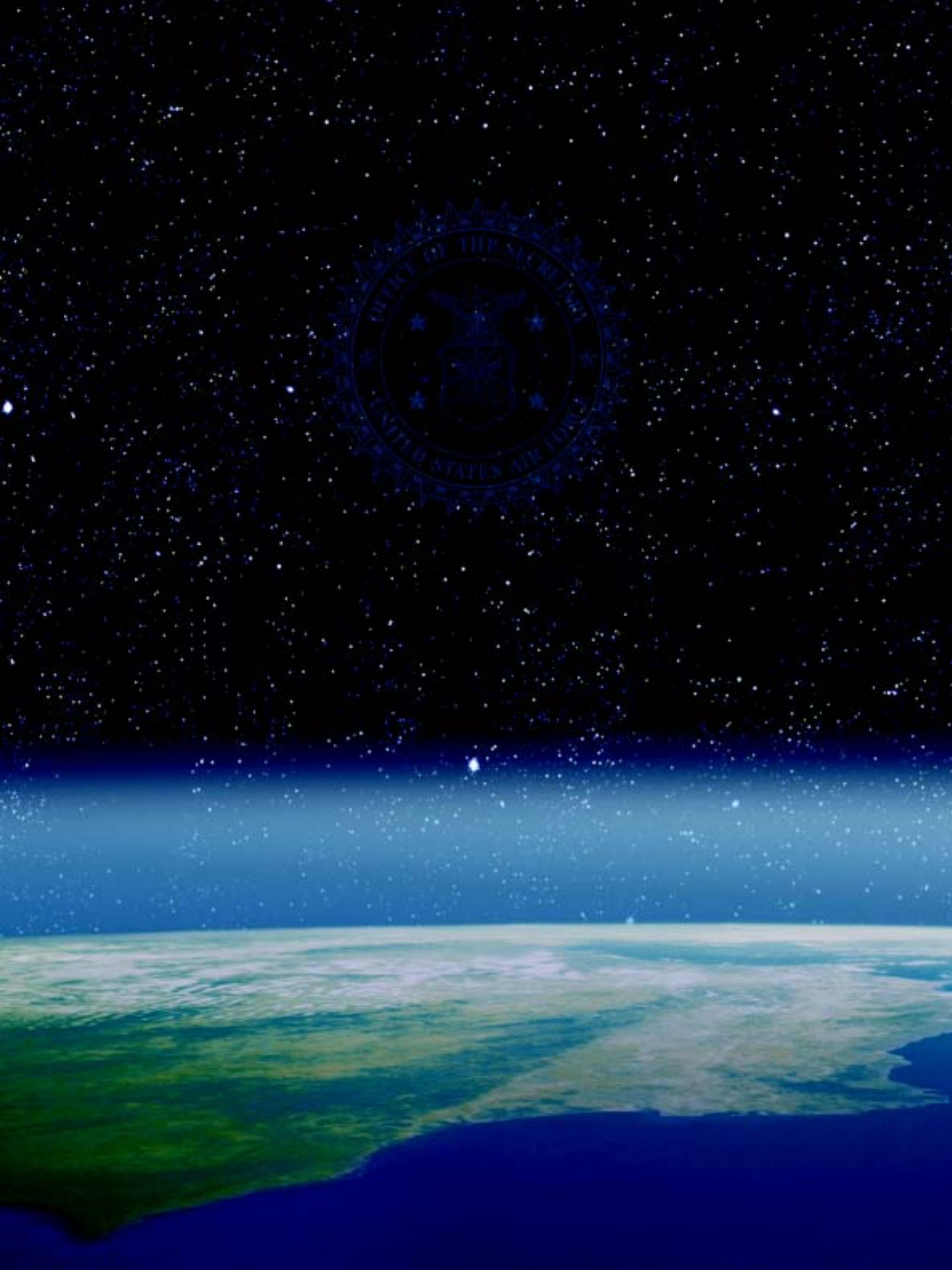
**UNITED STATES AIR FORCE**  
**Posture Statement**  
**2001**

## Report Documentation Page

<b>Report Date</b> 00DEC2001	<b>Report Type</b> N/A	<b>Dates Covered (from... to)</b> -
<b>Title and Subtitle</b> United States Air Force Posture Statement 2001	<b>Contract Number</b>	
	<b>Grant Number</b>	
	<b>Program Element Number</b>	
<b>Author(s)</b>	<b>Project Number</b>	
	<b>Task Number</b>	
	<b>Work Unit Number</b>	
<b>Performing Organization Name(s) and Address(es)</b> Public Affairs Resource Library 1690 Air Force Pentagon Washington DC 20330-1690	<b>Performing Organization Report Number</b>	
<b>Sponsoring/Monitoring Agency Name(s) and Address(es)</b>	<b>Sponsor/Monitor's Acronym(s)</b>	
	<b>Sponsor/Monitor's Report Number(s)</b>	
<b>Distribution/Availability Statement</b> Approved for public release, distribution unlimited		
<b>Supplementary Notes</b> The original document contains color images.		
<b>Abstract</b> America is an aerospace nation. During the last 100 years, U.S. air and space competence has revolutionized the conduct of warfare, providing near-instantaneous global reconnaissance and the ability to precisely strike any target, anywhere, across the full spectrum of engagement, from combat operations to humanitarian aid. This competence has contributed to our ability to deter wars, as well as our ability to win them. However, in this new century, we find that rogue nations, the proliferation of weapons of mass destruction, and the rapid spread of information technology have the potential to threaten our national interests. This changing security environment presents us with both unique challenges and opportunities.		
<b>Subject Terms</b>		
<b>Report Classification</b> unclassified	<b>Classification of this page</b> unclassified	
<b>Classification of Abstract</b> unclassified	<b>Limitation of Abstract</b> SAR	

**Number of Pages**

72

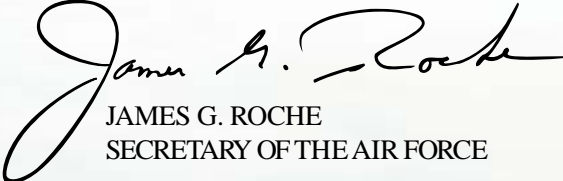




America is an aerospace nation. During the last 100 years, U.S. air and space competence has revolutionized the conduct of warfare, providing near-instantaneous global reconnaissance and the ability to precisely strike any target, anywhere, across the full spectrum of engagement, from combat operations to humanitarian aid. This competence has contributed to our ability to deter wars, as well as our ability to win them. However, in this new century, we find that rogue nations, the proliferation of weapons of mass destruction, and the rapid spread of information technology have the potential to threaten our national interests. This changing security environment presents us with both unique challenges and opportunities.

The Department of Defense is in the midst of numerous studies and analyses—the results of which will undoubtedly influence our future aerospace strategy. We must develop a force structure that, when teamed in joint or combined operations, will be effective in maintaining the peace and preserving freedom. We must also deepen and enrich the bonds of trust with the men and women who serve in the Air Force in order to attract and retain the very best individuals. We must continue to improve our policies, practices, and processes to make our Service more effective and efficient. Finally, we must pay special attention to the shrinking industrial base, and evaluate ways to improve our current acquisition processes to ensure innovative future capabilities for the Nation.

I am pleased to submit to you the 2001 Air Force Posture Statement. I want to thank the President of the United States and the Congress for their outstanding support. I am truly honored to have the opportunity to lead the Air Force and to serve with its outstanding men and women.

  
JAMES G. ROCHE  
SECRETARY OF THE AIR FORCE





During the past decade, our nation has witnessed a fundamental change in the conduct of warfare. The Air Force has molded and transformed aerospace power into a crucial component of joint operations. Despite a decade of decreasing manpower and increased operational deployments, the Air Force has emerged as a force of choice for fast, flexible, and decisive military engagement.

Our success is directly attributable to our outstanding people, and they remain our highest priority. They are our nation's best and brightest. In order to improve the stability and predictability of their lives, we transformed ourselves into an Expeditionary Aerospace Force — the EAF — a revolutionary way to package forces for contingency operations. Our vision remains an integrated aerospace force providing rapid aerospace dominance across the full spectrum of military operations through *global vigilance, reach, and power*.

We respectfully submit this 2001 Air Force Posture Statement to recount our accomplishments during the past year and outline our plans for the future. Without the steadfast support of the President and Congress, our past successes would not have been possible. With your continuing support, we will build upon those successes.

A handwritten signature in black ink that reads "Michael E. Ryan".  
MICHAEL E. RYAN, GENERAL, USAF  
CHIEF OF STAFF



# Table of Contents

Chapter 1 - Overview .....	1
Chapter 2 - America's Air Force in 2000 .....	5
The Expeditionary Aerospace Force .....	5
Aerospace Operations .....	7
Chapter 3 - America's Future Air Force .....	17
The Global Security Environment .....	17
Our Vision .....	18
Our Strategic Plan .....	18
The Total Force .....	18
Aerospace Integration .....	20
Evolving the Full-Spectrum EAF .....	21
Operations in the Future Global Security Environment .....	21
Homeland Security .....	22
Urban Operations .....	23
Science and Technology Commitment .....	24
Conclusion .....	25
Chapter 4 - Roadmap to the Future .....	27
People .....	27
Readiness .....	34
Modernization .....	38
Aerospace Superiority .....	38
Information Superiority .....	42
Precision Engagement .....	47
Global Attack .....	48
Rapid Global Mobility .....	50
Agile Combat Support .....	52
Innovation and Adaptation .....	53
Conclusion .....	55
Chapter 5 - Reforming Business Practices .....	57
Leveraging Information Technology .....	57
Competitive Sourcing .....	58
Privatization .....	58
Acquisition Reform .....	58
Partnership with Industry .....	59
Planning, Programming, and Budgeting System Reform .....	59
Financial Reform .....	60
Logistics Transformation .....	60
Depot Maintenance Strategy .....	60
Conclusion .....	61
Chapter 6 - Closing Thoughts .....	63



# Chapter 1 Overview

As we transition to the new century, even the new millennium, we will use this posture statement to reflect on what the Air Force accomplished during 2000, where we want to go in the future, and how we plan to get there.

We're a service emerging from a decade of continuous transformation. During this period, we have molded and transformed aerospace power into a crucial component of joint operations. We defined ourselves with "integrity first, service before self, and excellence in all we do" and developed ourselves to be "fast, flexible, and decisive."

*"We have molded and transformed aerospace power into a crucial component of joint operations."*

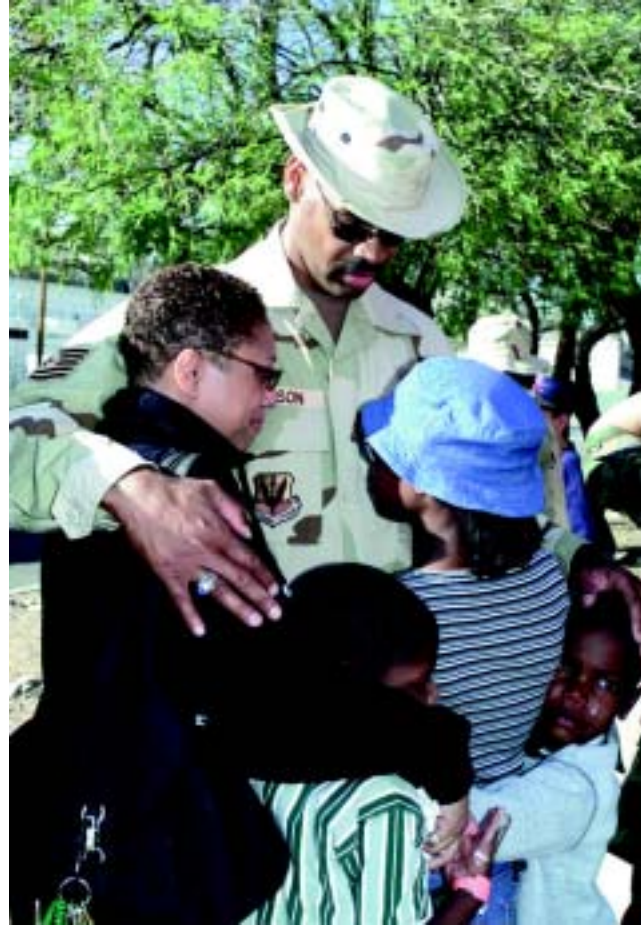
It was also a time that took a heavy toll on our people and our systems. Therefore, we are developing new initiatives in our *People, Readiness, and Modernization* programs. If we are to continue to protect America's interests with aerospace power, we must implement these initiatives.

## **People**

The state of the economy has exerted considerable pressure on our ability to retain and recruit the right people. Frankly, it is difficult to compete with the financial compensation available in the private sector. Consequently, taking care of our people is our top priority. Taking care of people starts with their professional lives, so that they are satisfied with the work they do and know they're accomplishing something important. It also, of course, means providing them attractive compensation, benefits, housing, and facilities that show we value their efforts and care about their families.

## **Readiness**

Our dominance of the full spectrum of operations tends to overshadow what has happened to our readiness. Responding across this full spectrum of



*We must recruit the individual but retain the family.*

operations necessitates we have a certain number of units ready to deploy in the first thirty days of conflict. This is the basis of our readiness requirement of 92%. Since 1996, our worldwide combat force readiness rates have decreased 23 percentage points to a rate of 68% in April 2001. Furthermore, our overall Air Force readiness is lower than any time since June 1987. We are capable of winning today; however, we are concerned about these trends in readiness indicators. A major factor in the decline is the increasing age of our aircraft. For example, our flying hours have remained relatively constant over the past five years, but their cost has increased by over 45% after inflation. Older aircraft are simply more difficult to maintain as mechanical failures become less predictable, repairs become more complicated, and parts become harder to come by and more expensive. But, even with these contributing factors, we had the best year in our history for aviation safety, a clear measure of our people's professionalism.

## **Modernization**

Today, the average age of our aircraft is almost 22 years old. Even if we execute every modernization

program on our books — which amounts to procuring about 100 aircraft per year in the near future — our aircraft average age continues to rise, reaching nearly 30 years old by 2020. In order to level off this increasing trend, we would have to procure about 150 aircraft per year. To actually reduce the average age of our aircraft, we would need to procure about 170 aircraft per year. Similarly, where as industry replaces or totally renovates their facilities on a 50-year cycle, competing priorities have resulted in a 150-year facilities recapitalization rate. We are in a position where we can only address the most urgent repair issues, while our backlog of real property maintenance continues to grow. We are working to slow down the aging of our fleet and infrastructure, but the climbing costs of operations and maintenance, as well as competing modernization effectiveness goals, continue to prevent that from happening. Consequently, we do not have the procurement funding to recapitalize our fleet and facilities to the extent that we would like.

However, even with these challenges, we have molded and transformed aerospace power into a crucial component of joint operations. Because of this, we have expanded our vision for the future. Our new *Vision 2020 — Global Vigilance, Reach and Power* captures the philosophy that transformed us into a “force of choice” for rapid expeditionary operations. Our strategic plan institutionalizes this vision by linking the

## Core Competencies

**Aerospace Superiority-** The ability to control what moves through air and space...ensures freedom of action.

**Information Superiority-** The ability to control and exploit information to our nation’s advantage...ensures decision dominance.

**Global Attack-** The ability to engage adversary targets anywhere, anytime... holds any adversary at risk.

**Precision Engagement-** The ability to deliver desired effects with minimal risk and collateral damage... denies the enemy sanctuary.

**Rapid Global Mobility-** The ability to rapidly position forces anywhere in the world... ensures unprecedented responsiveness.

**Agile Combat Support-** The ability to sustain flexible and efficient combat operations...is the foundation of success

capabilities we need in the future with what we do best — our core competencies.

Nothing illustrates our culture of transformation better than the Expeditionary Aerospace Force — the “EAF.” In October 1999, the heavy demand for



*Modernization of our aircraft is essential to ensuring future Air Force capabilities. In order to maintain our asymmetric advantage and ensure aircrew safety, we must take action to halt the rapidly increasing age of our fleet. The venerable KC-135 (shown above) now averages close to 40 years of age.*



*We enhance the quality of life of our members by using the EAF to effectively package aerospace capabilities for predictable operational deployments.*

aerospace power drove us to restructure our forces so we could inject some stability and predictability into the lives of our people. By December 2000, we had completed the first full rotation cycle of the EAF. In the span of less than two years, we succeeded in restructuring ourselves into a more sustainable, flexible, and responsive force. We now give the Commanders-in-Chief (CINC) expeditionary aerospace packages that are tailored and trained-to-task to meet their full mission requirements.

***“In the span of less than two years, we succeeded in restructuring ourselves into a more sustainable, flexible, and responsive force.”***

In 2000, we were involved in the full spectrum of operations — from famines, fires, and hurricanes to major contingency operations. Yet, the diversity of these missions didn't stifle us; it stimulated our creativity. We're already light and lean, so now we're pushing the envelope with technologies that will revolutionize the way we deliver aerospace power for the nation. We are developing directed energy weapons capable of effects at the speed of light; unmanned aerial vehicles that reduce the risk to our people while giving us greater capability at a lower cost; space technologies that radically increase the effectiveness of our aerospace operations; and aircraft like the F-22 that are more survivable and lethal than our current fighters.

We don't wait until we're forced to improve — innovation and adaptation are our heritage.

Our creativity also extends to how we conduct business inside our organization. We are realizing significant cost efficiencies by benchmarking the best in commercial and government business practices and adapting them to our unique environment. We are leveraging technology by integrating our people, operations, and oversight into a globally-connected, enterprise-wide, and secure information network. We are conducting manpower and program competitions to take advantage of the best opportunities for outsourcing and privatization. And we're improving the way we plan, program, acquire, and protect our air, space, and information systems. Our reinvention teams have saved more than \$30 billion during the last decade. Of course better business practices aren't a choice; they're necessary to maximize the returns on our nation's investment.



*Operation ALLIED FORCE proved the overwhelming advantage of rapid aerospace dominance.*

This posture statement will give you a good idea about where we've been, where we're going, and what's necessary to remain the world's best aerospace force. Aerospace power is America's asymmetric advantage, and we're determined to make sure America keeps it.



## Chapter 2 America's Air Force in 2000

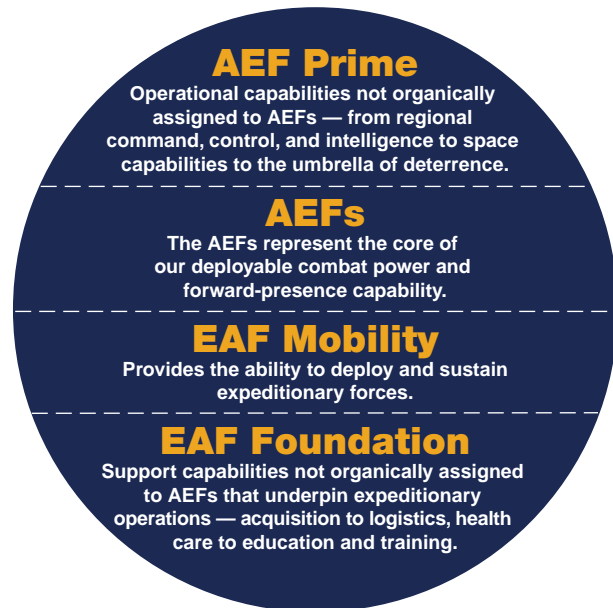
In 2000, we participated in the full spectrum of military operations — from deterrence and combat contingency operations to humanitarian aid and disaster assistance. Across this spectrum, it was Global Vigilance, Reach, and Power that was essential for assuring U.S. national security and international stability. We provided global vigilance using our intelligence, surveillance, and reconnaissance (ISR) assets; force protection measures; and deterrence missions. Our mobility assets and pre-positioned munitions contributed to our global reach. Finally, we displayed global power in Iraq and the Balkans with our unmatched capability to create precise military effects when called upon or threatened. These three facets of aerospace power are interdependent, collectively providing *rapid aerospace dominance* for America. Perhaps most importantly, all these accomplishments were against the backdrop of a pivotal transformation in the way we structure our forces to support expeditionary operations. This chapter will describe these efforts during the past year.

### ***The Expeditionary Aerospace Force***

This year we completed our organizational transformation to an Expeditionary Aerospace Force — the EAF — a groundbreaking approach to organizing aerospace capability. Given the demand for aerospace forces over the past 10 years, we designed a capability-based force structure to ensure that on-call, rotational forces can effectively meet both our steady-state and “pop-up” commitments, while giving our people more predictability and stability in their deployment schedules. We began implementing the initiative in October 1999, and successfully completed the first full rotation of our ten Aerospace Expeditionary Forces — the AEFs — in December 2000.

***“...Expeditionary Aerospace Force — the EAF — a groundbreaking approach to organizing aerospace capability.”***

## **EAF Structure**



*The EAF combines all aspects of aerospace power.*

The EAF includes both deployable and non-deployable warfighting and support forces. Our deployable AEFs are 10 packages of aerospace power. They provide us with the rotational base required to conduct multiple, concurrent small-scale contingencies, immediate crises, and “pop-up” engagements. These AEFs must be fully resourced to provide the full spectrum of aerospace power capabilities required by the warfighting CINCs. Our AEF Prime forces include those operational capabilities not organically assigned to the AEFs. They comprise our nuclear alert, regional command and control, and space operation forces, without which we could not meet our steady-state and contingency commitments. The AEFs are deployed and sustained by a robust mobility force called EAF Mobility. EAF Mobility is the nation’s fastest system to transport the most urgent cargo, from troops and equipment to humanitarian aid. Underlying the AEFs, AEF Prime, and EAF Mobility is EAF Foundation — the acquisition, medical, depot, training, and infrastructure resources needed to keep the other parts of the EAF operating.

The EAF offers predictability for commanders to reconstitute, train, and organize their assigned forces to better meet their upcoming contingency requirements. Two AEFs are on-call every 3 months

within the full-rotation period of 15 months. Additionally, two Aerospace Expeditionary Wings (AEW) supplement these AEFs, alternating on-call duties every 120 days for “pop-up” conflicts. Two AEFs and one AEW represent about 20% of our combat forces, which equates to the maximum commitment the Air Force can maintain indefinitely without adversely impacting training or readiness. If tasked beyond this level, we would conduct surge operations as required. Upon completion of large-scale operations, the EAF would then reconstitute before beginning a new rotational cycle. From now on, we will use the EAF to provide Joint Force Commanders trained-to-task, capability-based packages to meet their specific requirements.

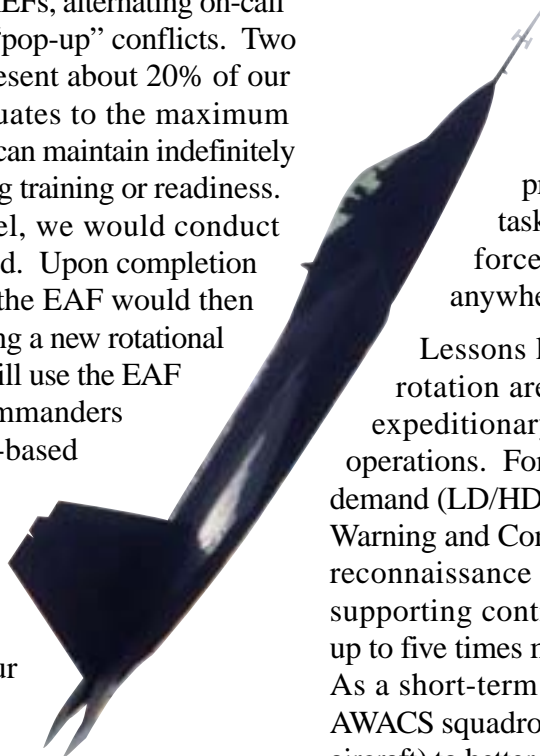
*AEFs offer many operational advantages:*

- An AEF is fast — our goal is to deploy one AEF, or about 120 aircraft and 10,000 airmen, within 48 hours, and we strive to provide up to 5 AEFs in 15 days.
- An AEF is light and lean — our global command and control infrastructure allows high-fidelity operational support in near real-time from the continental U.S. This enables a “reachback” capability that helps minimize the deployment of

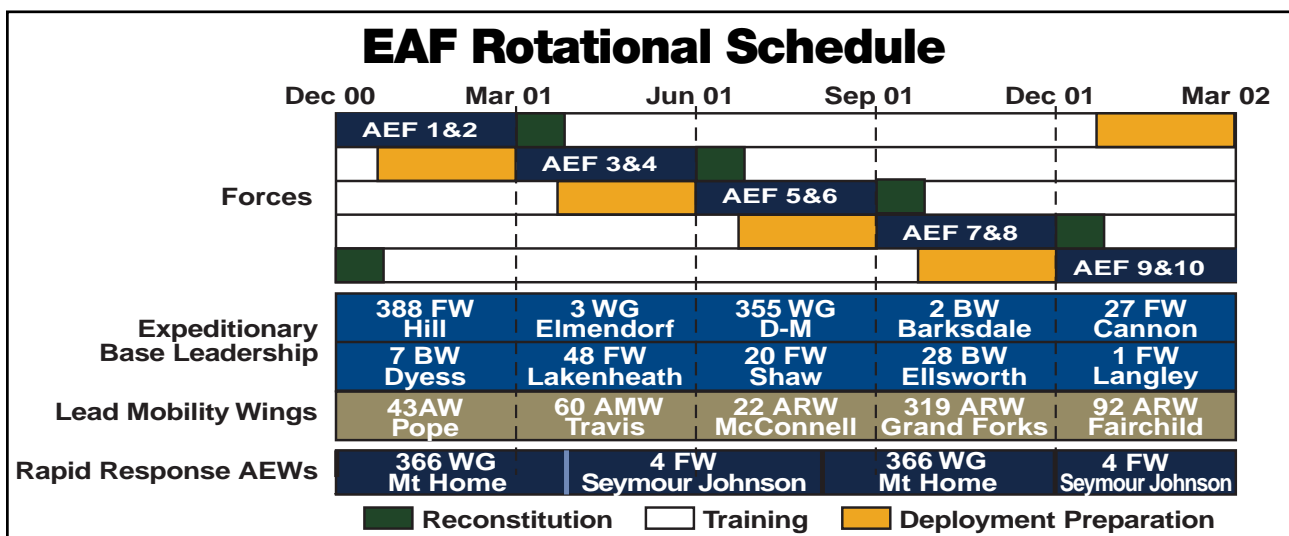
supporting equipment and personnel and simplifies force protection.

- An AEF is lethal — it is capable of striking more than 200 targets per day.
- An AEF is flexible — we provide a tailored, trained-to-task, strategically relevant force that rapidly projects power anywhere in the world.

Lessons learned from the first EAF rotation are improving the force’s expeditionary structure and concepts of operations. For example, our low density/high demand (LD/HD) platforms, such as the Airborne Warning and Control System (AWACS) and U-2 reconnaissance aircraft, have been strained by supporting continuous operations — deploying up to five times more frequently than other forces. As a short-term remedy, we stood-up another AWACS squadron (without procuring additional aircraft) to better align the squadrons with the AEF rotation. For the long-term, instead of procuring more LD/HD platforms, we are developing transformational solutions to perform these missions more effectively, while providing more persistence over the target area. For example, we are exploring the transition of the U-2 and other over-tasked ISR missions to unmanned aerial vehicles (UAVs), common wide-body (multi-radar) aircraft, and/or space-based assets. These future



### EAF Rotational Schedule



Two AEFs are on-call every 3 months within the full-rotation period of 15 months. Every 120 days, the two AEWs rotate into a standby status for “pop-up” conflicts.

## Low Density/High Demand (LD/HD) Assets Global Force Management Policy

**HH-60G** — *Pave Hawk* combat search and recovery helicopter

**HC-130N/P** — *Combat Shadow* combat search and recovery version of the C-130 *Hercules*

**E-3B/C** — *Sentry* Airborne Warning and Control System (AWACS)

**EC-130E** — *Commando Solo* airborne radio and television broadcast aircraft

**EC-130H** — *Compass Call* Airborne Command, Control, and Communications (ABCCC) aircraft

**RC-135J** — *Rivet Joint* electronic intelligence and warfare aircraft

**U-2R** — *Dragon Lady* high altitude surveillance aircraft

**E-8B** — *JSTARS* Joint Surveillance Targeting and Attack System

**RQ-1** — *Predator* unmanned aerial vehicle

capabilities should arrest some of the operations tempo issues facing our most critical LD/HD assets.

The success of the EAF depends on the vital contributions of all the components of the Total Force — active, Guard, Reserve, civilians, and contractors. The stability of the 15-month cycle

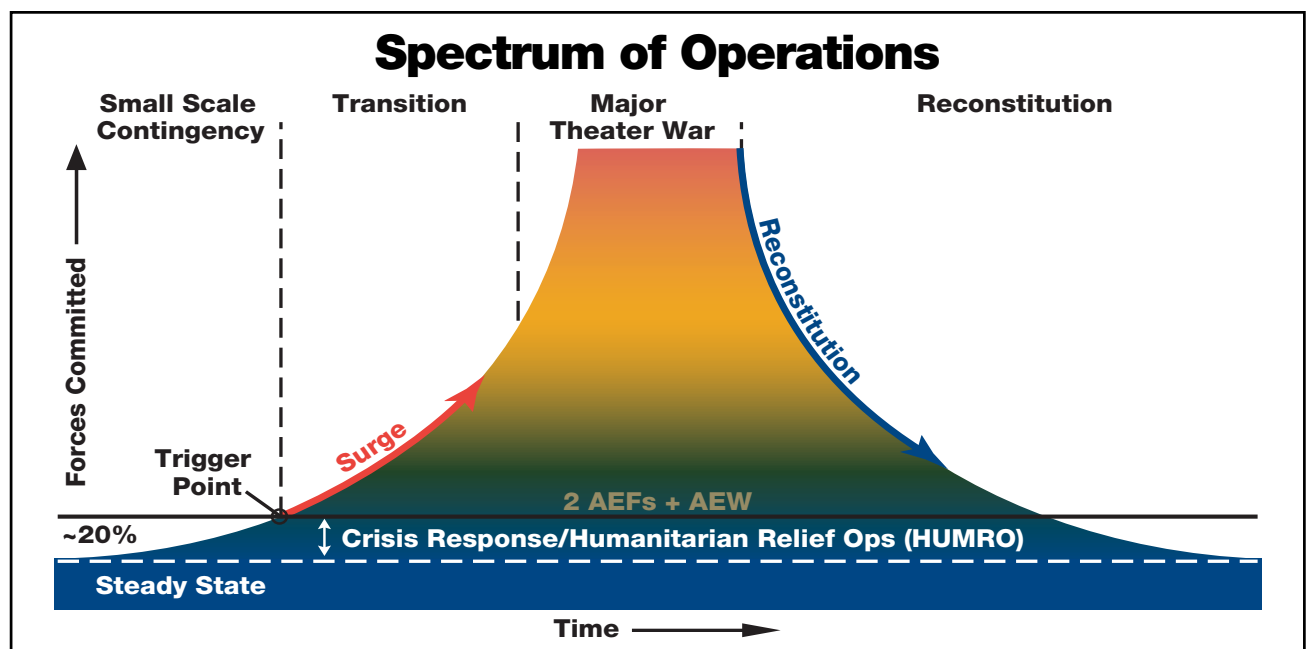
has allowed the Air Force Reserve and Air National Guard to meet (or even exceed) their programmed 10% tasking to the EAF. Our reserve components currently provide the EAF about 7% of its expeditionary combat support, 20% of its combat forces, 33% of its air refueling assets, and 44% of its intratheater airlift.

## Aerospace Operations

Aerospace power can bring a rapid halt to human suffering or attacking forces. Our presence in struggling regions of the world, like East Timor and Mozambique, brings help where it is needed, builds goodwill, improves international relations, and provides valuable real-world training. Alternatively, we can create military effects against our adversaries, like we have done in the Balkans and Southwest Asia.

***“Aerospace power can bring a rapid halt to human suffering or attacking forces.”***

Our aerospace forces have the flexibility and agility for simultaneous engagement across the full spectrum of military operations. We are prepared to maintain regional stability, protect national interests, and help win America’s wars whenever called. The following are a few of the operations in which we participated this year.



Any commitment greater than two AEFs and one AEW would require us to conduct surge operations.

## Operation STABILISE

When the province of East Timor attempted to break away from Indonesia, the resulting conflict caused thousands of residents to flee their homes. The U.N. relied on our airlift to deliver the manpower and supplies to stabilize the region. Intertheater airlift, provided by C-5s, C-141s, and C-17s, transported 1,580 Thai peacekeepers to the region. Intratheater C-130H aircraft from Elmendorf AFB, Alaska, flew over 600 hours transporting more than 1,800 personnel and 1,250 tons of combat support equipment and humanitarian aid to Dili and Komorro in East Timor.



*Air Force loadmasters secure an Australian military trailer inside their C-130 aircraft during Operation STABILISE. We provided logistics, communications, and planning support to international forces in East Timor.*

## Operation ATLAS RESPONSE

In March 2000, flooding devastated Mozambique, driving hundreds of thousands of people from their homes. We responded as part of Joint Task Force ATLAS RESPONSE, flying more than 600 sorties that delivered 970 tons of crucial supplies. Crews flying C-130s and C-17s transported nearly 2,000 non-governmental relief workers to Maputo, Mozambique's capital city, and Beira, the country's second largest city. Rescue and special operations crews played a key role ensuring supplies were distributed properly.

### Balkan Operations

In 2000, we conducted 16%, or about 2,000 of the 12,000 combat sorties flown in the Balkans

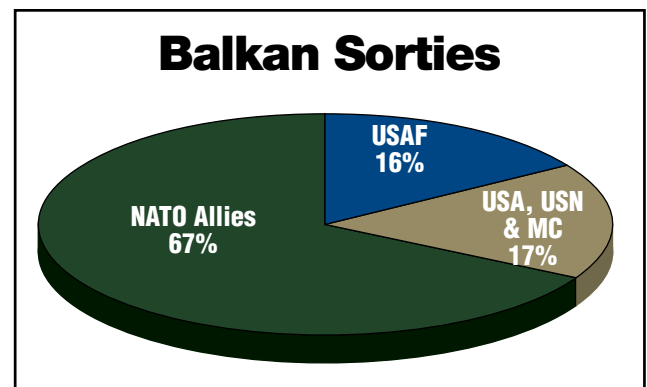


*Three HH-60 Pave Hawk helicopters lift off from Hoedspruit Air Force Base, South Africa, headed to Beira, Mozambique, where they distributed relief supplies and rescued stranded flood victims as part of Operation ATLAS RESPONSE.*

in support of the Kosovo Forces (KFOR) and Stabilization Forces (SFOR). Yet this statistic significantly understates our contribution to these Balkan operations. Our fighter, tanker, command and control (C<sup>2</sup>), ISR, and airlift aircraft; C<sup>2</sup> facilities; combat search and rescue forces; special operations units; UAVs; and space-based resources were indispensable to the performance of all joint and coalition operations.

### United States Wildfire Relief

Our people played a pivotal role fighting the worst wildfires to ravage the western United States in 50 years. In 48 airlift missions, we transported 330 tons of cargo and over 5,900 Army, Marine, and civilian firefighters to Idaho, Montana, and California. Three Air National Guard and one Reserve C-130 aircraft, equipped with the Modular



*In addition to flying 16% of the combat sorties, we provided 100% of the special operations sorties, 71% of the tanker sorties, and 38% of the airlift sorties.*

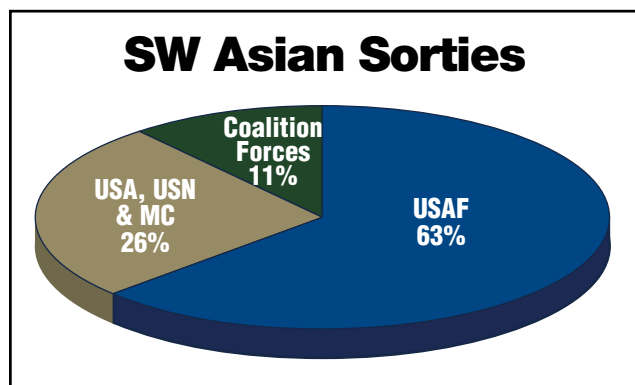


*The Air National Guard has taken the lead to procure the next generation Modular Airborne Fire Fighting System (MAFFS).*

Airborne Fire Fighting System (MAFFS), flew 870 missions and dropped almost 2.3 million gallons of fire suppressant across 19 states within a six-month period.

### Southwest Asian Operations

During 2000, we maintained a continuous presence of 8,000 airmen in Southwest Asia in support of Operations NORTHERN WATCH and SOUTHERN WATCH. Our aerospace superiority assets (including air, space, and information systems) produced an environment that permitted more than 23,000 coalition combat sorties without a single combat loss. Of these sorties, 63%, or 14,500, were flown by the Air Force. We responded



*More than 63% of these sorties were flown with our assets, while the Army, Navy and Marine Corps flew approximately 26% of the sorties during the same period. Coalition forces flew the remaining 11%.*

to Iraqi no-fly zone violations and air defense threats with precision-guided munitions (PGMs), destroying a significant portion of Iraq's anti-aircraft artillery systems, threat radars, and command centers.

### Northeast Asian Operations

As the nation marks the 50<sup>th</sup> anniversary of the Korean War, we continue to maintain a significant presence in South Korea and Japan, and conduct joint and combined exercises with the host nations. COPE THUNDER, executed in early 2000, provided realistic training for aircrews, operations and logistics personnel, and selected C<sup>2</sup> operators by exercising complex combat operations across the Pacific Theater. We also participated in exercise ULCHI FOCUS LENS, the world's largest annual joint and combined computer simulation war game



*Exercises such as COPE THUNDER, coupled with our ongoing presence in Northeast Asia, promote stability and foster positive relationships in the region.*

conducted with the Republic of Korea's national mobilization exercise "ULCHI."

### Deterrence

America deters potential aggression by maintaining the ability and resolve to use overwhelming force against any adversary. We maintain this posture through our expeditionary, rapid global mobility, nuclear, and space forces. The bomber, with its unique strengths of flexible payload, global range, and in-flight retargeting or recall, is the cornerstone of our conventional and nuclear force projection capability. Additionally, the land-based intercontinental ballistic missile (ICBM) provides a quick-reaction and highly

reliable force with a mission capable rate above 99%.

### **Counter-Nuclear, Biological, Chemical Operations**

The potential use of weapons of mass destruction (WMD) against America and its allies is one of the most complex threats facing the DoD. Our balanced response to the proliferation of WMD, as outlined in our recently completed Air Force Counter-Nuclear, Biological, and Chemical (NBC) Operations Doctrine document, integrates the four pillars of counterproliferation — proliferation prevention, counterforce strategies, active defense efforts, and passive defense measures. Proliferation prevention restricts the spread of NBC weapons through political and diplomatic efforts, such as export controls and treaty agreements, but may also include denial operations when directed by the National Command Authorities. Counterforce operations include attacking an adversary's NBC weapons and their associated production, transportation, and storage facilities prior to their use. Active defense focuses on intercepting



*We are the lead Service for the ongoing Restoration of Operations project, a joint advanced concept technology demonstration (ACTD) exploiting mature technologies to cope with chemical or biological attacks.*



*Augmenting our sensor capabilities, our Global Expeditionary Medical System (GEMS) is a worldwide medical surveillance network that detects trends in deployed patients' symptoms and diagnoses to determine exposure to biological warfare agents.*

conventional and unconventional NBC delivery systems before they reach friendly forces. Finally, passive defense measures, including force protection, protect our people from the effects of an NBC attack and enable sustained aerospace combat operations.

Our counter-NBC operational readiness initiative sets Air Force-wide standards for readiness, identifies shortfalls, and develops capabilities to effectively cope with NBC attacks. This initiative includes our recently developed counter-NBC roadmap and chemical warfare concept of operations (CW CONOPS). The roadmap is an innovative investment strategy that cuts across all facets of Air Force plans and programs to increase counterproliferation visibility. The CW CONOPS, developed by our Pacific forces, is a plan to help us maintain high-paced operations during NBC attacks on air bases.

## Force Protection

Force protection comprises the activities that prevent or mitigate hostile actions against our people and resources when they are not directly engaged with the enemy. In 2000, our force protection personnel made 41 vulnerability assessments that were used to improve our physical security, the safeguarding of our food and water supplies, and our ability to respond to WMD incidents both at home and abroad. We developed a surface-to-air missile (SAM) footprint mapping capability, which couples site-specific topography with the effective range of hand-held SAMs, to direct security forces to probable threat locations. We have also instilled a force protection mindset in our people by incorporating force protection into the curriculum at all levels of professional military education and as part of Warrior Week during basic training. Protecting our people remains a top priority at all command levels.

## Information Assurance and Network Defense

Information assurance (IA) and computer network defense are the strategy and means to deliver crucial information securely to the warfighter. We are in a daily battle for information superiority. Our air tasking orders, flying schedules, maintenance and logistics records, C<sup>2</sup>, and other operational functions are carried over our networks, making them a key target for potential



*Our Force Protection Battlelab, in cooperation with the Air Combat Command Surgeon, developed the rapid biological agent identification (RAPID) initiative to identify biological agents within hours instead of days. RAPID's detection of an impending salmonella outbreak at Prince Sultan Air Base, Saudi Arabia, limited the spread to only 3% of the base population.*

adversaries. In 2000, we developed a plan to integrate operations, people, technology, and oversight through an enterprise-wide, network-centric concept. This plan includes operations and information protection; automated and dynamic detection and response; consolidated situational awareness and decision support; and IA in deployed and classified environments. For

*In support of the AEFs, we organized and equipped the 820<sup>th</sup> Security Forces Group to provide stand-alone, rapidly deployable forces capable of securing operations at forward locations.*



example, we monitor and evaluate network anomalies detected by our automated security incident measurement system (ASIMS). This system recognizes the latest hacking techniques to ensure early warning of attempted penetrations into our systems.

### **Intelligence, Surveillance and Reconnaissance**

Our air-breathing and space-based ISR assets combine to provide America global vigilance by exploiting the high ground and actively monitoring the entire globe for emerging threats and treaty compliance. They provide an integrated capability to collect, process, and disseminate accurate and timely information that allows our decision-makers to rapidly analyze and respond to changing global conditions, and enables us to obtain and maintain decision dominance. In 2000, our ISR assets monitored Iraqi compliance with U.N. sanctions as part of Operations NORTHERN and SOUTHERN WATCH and were key to providing critical real-time decision-making information to NATO leaders in the Balkans.

### **Counter-Drug Operations**

We are actively supporting the National Drug Control Strategy. Our AWACS and other ISR assets, with tanker support, detect suspected drug traffickers in the South American source zone and monitor their activities through the Caribbean transit zone to their arrival and apprehension in the United States. Air National Guard forces



*With a range of 4,000 miles, the U-2 is the premier platform for high-altitude, airborne reconnaissance.*

conduct the majority of our counter-drug missions, employing an impressive variety of capabilities from intelligence and airlift to ground-based radar and fighter interception. The Guard's domestic counter-drug operations focused on state and federal law enforcement support, interdiction, eradication, and drug demand reduction. The Reserve was also an important participant, flying patrol missions, and providing mobile training teams, intelligence, and linguists. In 2000, the Reserve provided 68 personnel, flew 105 missions, and conducted 15 mobile training team deployments in support of worldwide counter-drug operations.

Our civilian auxiliary, Civil Air Patrol (CAP), joined the nation's counter-drug program in 1986, partnering directly with U.S. Customs and the Drug Enforcement Administration. Since then it has flown thousands of hours a year in support of counter-drug efforts. During 2000, CAP efforts prevented approximately \$3 billion worth of narcotics from entering the U.S. — a great all-volunteer accomplishment. The active, Guard, Reserve, and CAP are crucial partners in the nation's "war on drugs."

### **Security Assistance**

Cooperative foreign relationships are crucial to building multinational coalitions, securing international access, and sustaining our commercial defense industry. In 2000, we managed more than 3,800 contracts for sales of aircraft, spare parts, munitions, and training valued at over \$103 billion. These contracts included sales of over



*Our active, Guard, Reserve, and CAP forces have been continuously engaged in our nation's war on drugs by making significant contributions to interdiction, eradication, and drug-demand reduction.*



*Foreign military sales are crucial to building multinational coalitions, securing international access, and sustaining our commercial defense industry.*

240 F-16s to the United Arab Emirates, Greece, Israel, and several other countries. Through the foreign military sales and international military education and training programs, we trained approximately 4,600 international students in warfighting and professional military education.

Our international armament cooperation program co-developed and fielded interoperable weapon systems that effectively leveraged DoD resources by cost-sharing, employing foreign technical expertise, and securing larger economies of scale (reducing the cost per unit). Under this program, we have reached more than 360 agreements with our allies and coalition partners involving research and development, production, equipment loans, and scientific and technical information exchanges.

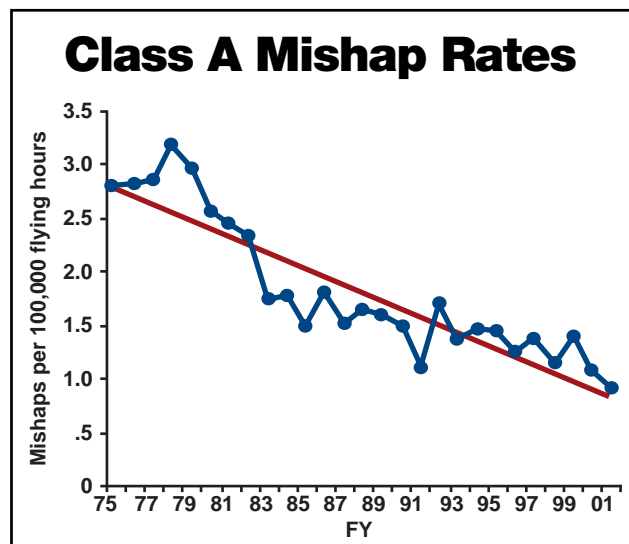
### Safety

The safety of our people is a principal concern in all our operations. A combination of increased funding for aircraft improvements and the use of operational risk management yielded positive results in several safety categories. We had the lowest flight mishap rate in our history — 1.08 major mishaps per 100,000 hours of flight time. On the ground, we had our second lowest annual number of off-duty fatalities, with 50 (24% below our 10 year average of 65), and on-duty fatalities, with 6.

***“...the lowest flight mishap rate in our history...”***

We continue to build on this success with innovative safety tools such as bird avoidance warning systems; an automated system to expedite

mishap collection methods that supports operations and acquisition decision making; and a quality assurance system that ensures fleet-wide flight safety deficiencies are rapidly corrected.



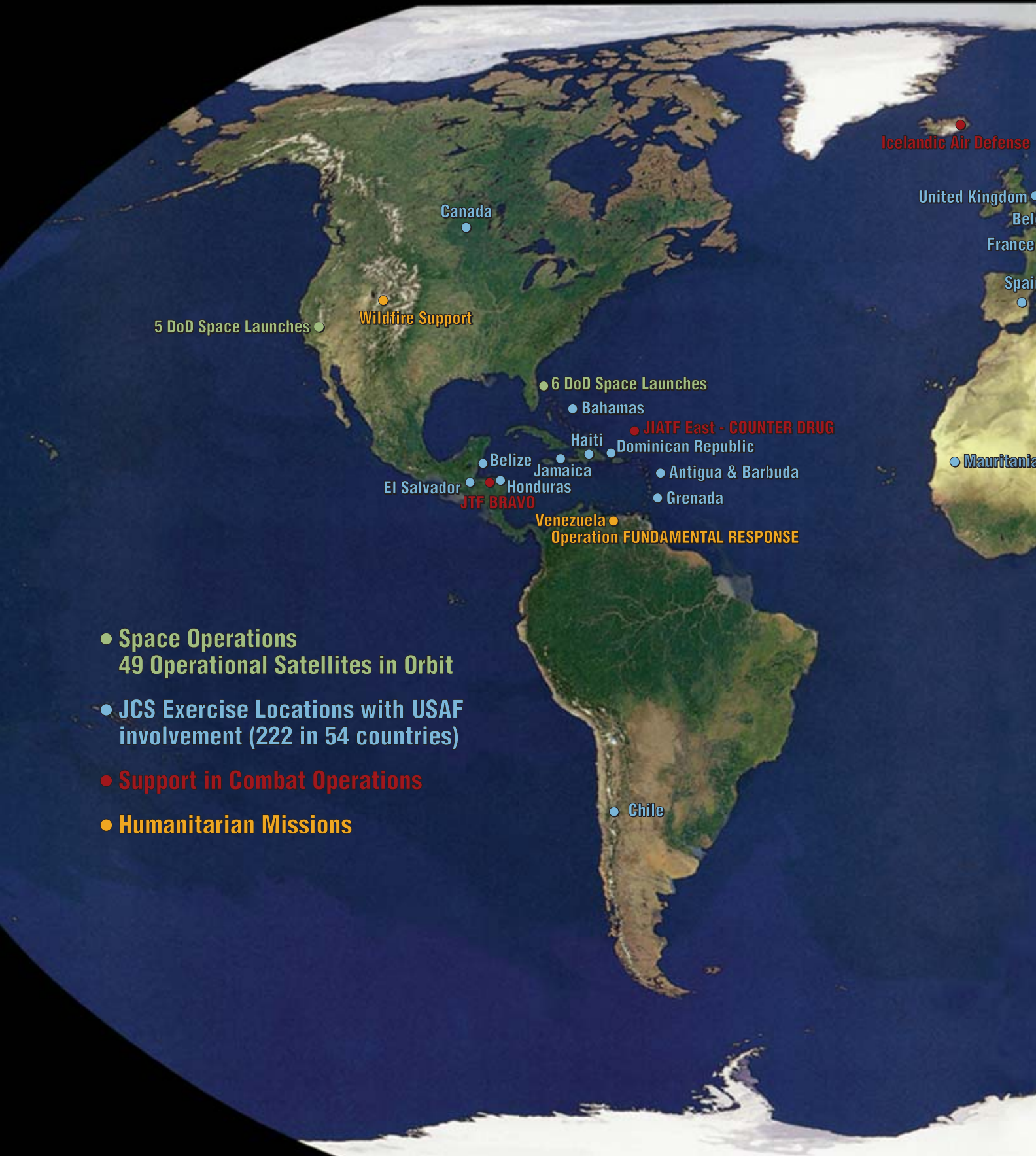
*Class A mishaps include any mishap resulting in more than \$1 million in damage, a fatality or permanent total disability, or destruction of an Air Force aircraft. In 2000, we had the lowest flight mishap rate in our history.*

### Conclusion

In 2000, we honored our tradition of operational excellence — firmly establishing our position as the National Command Authorities’ frequent choice for fast, flexible, and precise military response. We also have done something difficult for many large organizations — we overcame the inertia of the status quo, improving both how we operate and the quality of life for our people. We are now an Expeditionary Aerospace Force — organizationally transformed to sustain America’s aerospace advantage. Through global vigilance, reach, and power, we wield the unprecedented ability to observe events around the globe, rapidly reach out to influence them, and if necessary, bring to bear the force needed to secure our national objectives.

In this chapter we recounted some of our activities during the past year. In the next chapter we will move from the present to the future. Specifically, the discussion will turn to our understanding of the type of capabilities we must pursue to successfully contend with the future security environment.

# USAF Participation in Operations Across the Spectrum of Conflict in FY00



- **Space Operations**  
49 Operational Satellites in Orbit
- **JCS Exercise Locations with USAF involvement (222 in 54 countries)**
- **Support in Combat Operations**
- **Humanitarian Missions**



**87,000 Air Force people providing overseas presence either forward based or forward deployed**

Antarctica  
Operation DEEP FREEZE ●



## Chapter 3

# America's Future Air Force

The history of the Air Force is marked by an unshakable dedication to the promise and potential of aerospace power as envisioned by our early pioneers. This enduring commitment has kept us on the cutting edge through continual organizational, operational, and technological transformation. We no longer narrowly focus on one overarching adversary, but rather on *full-spectrum* employment of the Total Force whenever our nation calls. In the new strategic environment, we integrate air, space, and information to dominate the entire vertical realm. Indeed, we have transformed ourselves from a forward-based, organizationally stovepiped force structure to a forward-deploying, integrated expeditionary force structure. Moreover, we accomplished this through a steady, well-planned process of continuous innovation. Given the increasing complexity of warfare and an ever-changing adversary, expeditionary aerospace power offers an expanded range of strategic and operational options across the entire spectrum of engagement. Our commitment to technologies such as stealth, precision standoff weapons, and information warfare offers America new strategic options with less risk. This continuous transformation will preserve the nation's vital role in world leadership and the ability to defend its interests around the globe.

### ***The Global Security Environment***

Today's security environment is unique in American history. We do not have a "peer competitor," nor are we likely to see one in the near future. At the same time, we face a number of uncertainties and potential challenges that threaten America's security and interests. These threats include regional hegemonies, asymmetric and transnational threats, and crises that may require intervention for humanitarian purposes.

A hostile power, for example, may attempt to dominate a region by intimidating our allies or pursuing interests contrary to our own. Such a power may use anti-access strategies that attempt

to deny our ability to deploy stabilizing military force. Today, we see many potential adversaries developing theater ballistic missiles and other anti-access capabilities to achieve this goal. Renegade actors may use asymmetric means such as terrorism, information warfare, or weapons of mass destruction to radically enhance their disruptive capabilities at a relatively low cost. We experienced such a tragedy in 1996 when 19 deployed airmen were killed during the Khobar Towers bombing in Saudi Arabia. Other transnational or small-scale contingencies, including ethnic conflicts, international criminal activity, or insurgencies, may threaten our interests or the safety of our citizens (e.g., illicit drug activity in Latin America). Non-state actors and criminal organizations will continue to threaten American interests through sophisticated technical means or by physical attack. Crises that can spill over state borders that require humanitarian assistance, such as environmental disasters, will persist. We recently responded to the floods in Africa and the earthquakes in India.



*The proliferation of ballistic and cruise missile technology is creating an increasingly dangerous strategic environment.*

Space is an area where threats might emerge in the coming decade. Some of our potential adversaries have the ability to improve both their offensive and defensive military capabilities with commercially available space and information technologies. At the same time, they may try to neutralize our space assets, especially as space becomes more vital to our military, civil, and commercial interests.

Ultimately, any national-level response is predicated on the ability to rapidly adapt military capabilities and operational concepts to precisely achieve the desired objectives. We demonstrated this ability during Operations DESERT STORM and ALLIED FORCE, and we will be even more formidable in the future. Should deterrence fail, aerospace power is a *force of choice* for rapid response with minimum risk to U.S. personnel and non-combatants.

## **Our Vision**

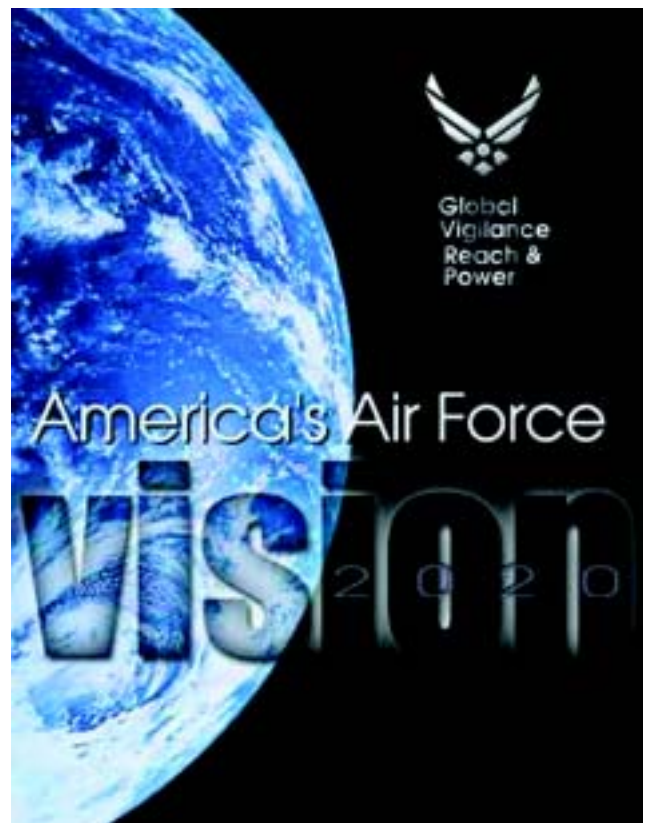
Our vision, *America's Air Force: Global Vigilance, Reach, and Power — Vision 2020*, published in June 2000, provides a template for the ongoing transformation of the Air Force and aerospace power into the 21<sup>st</sup> century. Our vision underscores that people — our Total Force — are the foundation of the Air Force. We describe an aerospace domain best exploited by an integrated air, space, and information force. We present our forces in capability-based packages, called Aerospace Expeditionary Forces (AEF), each built upon the pillars of aerospace expertise, our core competencies — Aerospace Superiority, Information Superiority, Global Attack, Precision Engagement, Rapid Global Mobility, and Agile Combat Support. In the end, our vision focuses us on our mission: *To defend the United States and protect its interests through aerospace power.*

## **Our Strategic Plan**

We believe that aerospace power will be, indeed must be, increasingly called upon as the nation's military instrument of choice in an uncertain world. No other option is as fast, flexible, or necessary to the execution of joint operations.

***“...aerospace power will be...increasingly called upon as the nation's military instrument of choice...”***

The Air Force Strategic Plan is the broad framework to institutionalize our vision. It anticipates the future security environment and provides guidance on major force modernization and investment strategies by identifying fourteen critical future capabilities based upon the Air Force



*Our vision reflects our dedication to continual transformation, innovation, and adaptation.*

core competencies and support areas. It is our roadmap to the future.

## **The Total Force**

Our Total Force builds on a foundation of high standards and strong cooperation among our

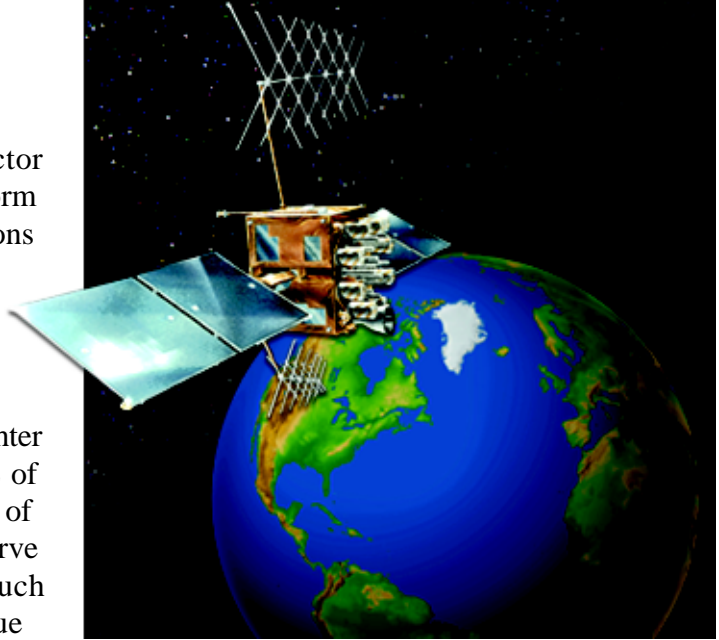


*During contingency operations, our Guard and Reserve personnel work side-by-side with their active duty counterparts.*

<b>CORE COMPETENCIES</b>	<b>Critical Future Capability Statements</b>
Aerospace Superiority	<ul style="list-style-type: none"> <li>• Rapidly dominate (within days) adversary air forces and air defenses to allow joint and coalition forces freedom from attack, freedom to maneuver, and freedom to attack.</li> <li>• Consistent with international agreements, render an adversary's cruise, land attack cruise, and ballistic missile assets ineffective before launch or soon after through timely and effective interaction with national and theater missile defense assets.</li> <li>• Protect our space assets and deny, when directed, an adversary's ability to exploit space.</li> </ul>
Information Superiority	<ul style="list-style-type: none"> <li>• Provide continuous, tailored information within minutes of tasking with sufficient accuracy to engage any target in any battlespace worldwide.</li> <li>• In conjunction with joint and national capabilities, ensure our use of the information domain remains unhindered by all attempts to deny, disrupt, destroy, or corrupt it; also ensure our ability to attack and affect an adversary's information and information systems in pursuit of military objectives.</li> </ul>
Global Attack	<ul style="list-style-type: none"> <li>• Create desired effects within hours of tasking, anywhere on the globe, including locations deep within an adversary's territory.</li> <li>• Provide deterrence against WMD attack and coercion by maintaining a credible, land-based nuclear and flexible conventional strike force.</li> </ul>
Precision Engagement	<ul style="list-style-type: none"> <li>• Create precise effects rapidly, with the ability to retarget quickly against large target sets anywhere, anytime, for as long as required.</li> </ul>
Rapid Global Mobility	<ul style="list-style-type: none"> <li>• Provide the airlift, aerial refueling, and enroute infrastructure capability to respond within hours of tasking to support peacetime operations or a crisis (up to an MTW) while maintaining the capability to rapidly swing high-priority forces to another MTW.</li> </ul>
Agile Combat Support	<ul style="list-style-type: none"> <li>• Build an aerospace force that enables robust, distributed military operations with time-definite sustainment.</li> </ul>
<b>CORE COMPETENCY SUPPORT AREAS</b>	<b>Critical Future Capability Statements</b>
Quality People	<ul style="list-style-type: none"> <li>• Build a professional cadre to lead and command expeditionary aerospace and joint forces.</li> <li>• Implement innovative concepts to ensure we recruit and retain the right people—active duty, reserve, guard, and civilian forces—to operate our aerospace force in the future.</li> </ul>
Innovation	<ul style="list-style-type: none"> <li>• Achieve an unrivaled degree of innovation founded on effective integration and testing of new concepts, non-materiel innovations, advanced technologies, and synergistic experimentation.</li> </ul>
Command and Control	<ul style="list-style-type: none"> <li>• Assess, plan, and direct aerospace operations anywhere from multiple locations in near-real-time, across the spectrum of operations and levels of command.</li> </ul>

active, Reserve, Guard, civilian and contractor personnel. Simply stated, we could not perform our mission without the combined contributions of all components.

On any given day, members of the Guard and Reserve work side-by-side with their active duty counterparts. Today, our Guard and Reserve assets account for 38% of our fighter force, 60% of our air refueling capability, 71% of our intratheater airlift, and significant portions of our rescue and support resources. The Reserve is the sole provider of unique capabilities such as aerial spray, space shuttle helicopter rescue support, and hurricane hunting, while the Guard provides 100% of our homeland air defense capability. Additionally, the Guard and Reserve have an increasing presence in the bomber force and in space, intelligence, and information systems. Guard and Reserve units provide essential support for training new pilots, manning radar and regional control centers, performing flight check functions at our depots, and conducting space operations. Equally important, our civilian members and contractors provide specialized administrative, technical, and managerial expertise that complement the functions performed by uniformed members. Without these combined skills, we could not operate as an expeditionary force. In the future, we will foster an even closer and more interdependent partnership between all of our components through new organizational structures and more interactive and flexible career patterns.



*Our domain stretches from the earth's surface to the far reaches of our satellites' orbits in a seamless operational medium.*

## **Aerospace Integration**

Our domain stretches from the earth's surface to the far reaches of our satellites' orbits in a seamless operational medium. However, even with the best aircraft and spacecraft optimized for their respective environments, the aerospace effects we create hinge on our people and their ability to rapidly and continuously integrate our air, space, and information systems. Accordingly, we have modified our command organizations to take full advantage of the resulting synergy.

In September 2000, for example, we designated the Aerospace Operations Center (AOC) as a "weapon system" of the future. This hub of advanced networks will gather and fuse the full range of information in real-time — from the strategic to the tactical level — giving Joint Force Component Commanders *actionable knowledge* to rapidly employ their forces in the battlespace.

***"... the aerospace effects we create hinge on our people and their ability to rapidly and continuously integrate our air, space, and information systems."***

Effectively employing integrated aerospace power requires commanders who exploit the entire aerospace continuum, both on a regional and global scale. This new paradigm of



*Victory in the future will depend on our ability to develop leaders who understand the true power of integrated systems.*



*The full-spectrum EAF will include 10 aerospace expeditionary forces of equal capability.*

employment must be instilled in the minds of airmen at all levels of Air Force professional military education. To help achieve this end, we created an Aerospace Basic Course for newly commissioned officers to ensure they understand the different elements of aerospace power. Similarly, our Developing Aerospace Leaders initiative is determining the best way to cultivate the skills needed to lead in a dynamic, changing environment. We are infusing air, space, and information operators into all key command and training courses to expand their breadth of experience and core knowledge. Finally, our Space Warfare Center established a space aggressor squadron to increase the awareness of threats from space-capable adversaries and improve our ability to defend against them.

### ***Evolving the Full-Spectrum EAF***

Providing the flexibility needed for full-spectrum operations requires continued efforts to round out the capabilities of our AEFs to make them virtually interchangeable. Currently, our 10 AEFs are not equal in capability. For example, only three of the ten AEFs are equipped with long-range, precision standoff strike capabilities, and only nine have an F-16CJ squadron for suppression of enemy air defenses.

As the EAF continues to mature and technologies advance, we will expand the capabilities each AEF can provide. We will enlarge the battlespace an AEF can control; enhance our ability to do real-time, adaptive targeting; and dramatically increase the number of targets

an AEF can engage in a day. Finally, we will improve our expeditionary combat support capabilities — effective, responsive logistics are the key to sustaining expeditionary forces and operating from austere locations.

### ***Operations in the Future Global Security Environment***

The changing security environment requires us to change the way we plan and operate. Aerospace power's ability to perform effects-based operations (i.e., focusing on achieving desired effects versus creating target lists) means we can support the joint force commander in ways unimaginable only a few years ago. Our ongoing transformation enables our long-range, standoff, all-weather precision, and stealth capabilities to rapidly counter any adversary's attempt to deny us access to a theater.



*The proliferation of asymmetric threats requires vigilance at home and abroad.*



*In World War II, it took 1,000 B-17 sorties dropping 9,000 bombs to ensure destruction of one target. During Operation ALLIED FORCE, one B-2 with 16 bombs hit 16 different targets.*

***“Through long-range stealth, precision standoff weaponry, and information operations, we are able to project substantial effects without subjecting our forces to substantial risk.”***

This global strike capability, combined with responsive logistics, will then help to achieve the

rapid halt of human suffering or threatening forces. Lastly, the massing of joint firepower at the time and location of our choosing will create the conditions that permit the safe deployment and employment of our joint forces. Once deployed, our force protection measures will provide defense against asymmetric threats. Through long-range stealth, precision standoff weaponry, and information operations, we are able to project substantial effects without subjecting our forces to substantial risk. Aerospace power’s inherent versatility and precision form a large part of this tremendous capability, giving our leaders unprecedented strategic initiative and flexibility now and in future operations. Aerospace power is the nation’s asymmetric advantage.

### ***Homeland Security***

The Air Force has always contributed to homeland defense by deterring aggressors, intercepting intruders, and providing ballistic missile warning. However, defending our homeland has assumed new and daunting dimensions with the increased threat of terrorism, the spread of information warfare techniques, and the proliferation of weapons of mass destruction. Our traditional defenses are often incomplete against these unconventional threats.

We are significant supporters of a multi-layered missile defense system incorporating space-based elements that provide effective, affordable, global protection against a wide range of threats. Future space capabilities like the Space Based



*The Airborne Laser will engage boost-phase ballistic missiles while the F-22 will defend against cruise missiles. Together, they will provide complementary capabilities that significantly improve the security of our nation.*



*Members of the Small Portable Expeditionary Aeromedical Rapid Response (SPEARR) development team set up a module during a field test.*

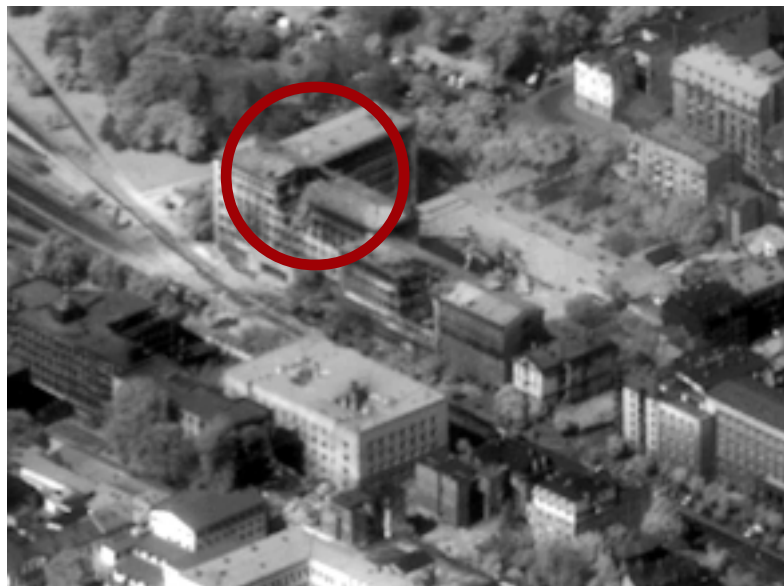
Infrared System (SBIRS) will greatly enhance our ability to track and engage ballistic missiles, while space-based radar technologies (if transitioned into deployed systems) will track fixed and mobile ballistic missile launchers. The Airborne Laser (ABL) will engage boost-phase ballistic missiles, while the F-22, working with advanced ISR systems, will defend against cruise missiles. The Air Force expects to be a principal player in any future missile defense system.

The Total Force brings a variety of capabilities to the defense of our homeland. The Air National Guard is positioned to ensure the air defense of the nation while providing critical resources like airlift, command and control, and disaster preparedness response forces to other lead agencies and the Joint Forces Civil Support Teams. Our Air Force Medical Service is acquiring a variety of modular packages that can be used to support civilian authorities requesting our assistance at home or abroad. The Small Portable Expeditionary Aeromedical Rapid Response or “SPEARR” teams deploy ten highly trained specialists within two hours of notification with the capability to provide a broad scope of care, including initial disaster medical assessment, emergency surgery, critical care, and patient transport preparation. In February 2001, we participated in a three-day bioterrorism exercise, Alamo Alert, in San Antonio, Texas. This tabletop exercise explored city, county, state, and federal responses to the release of a biological agent. We will use the lessons learned from this exercise

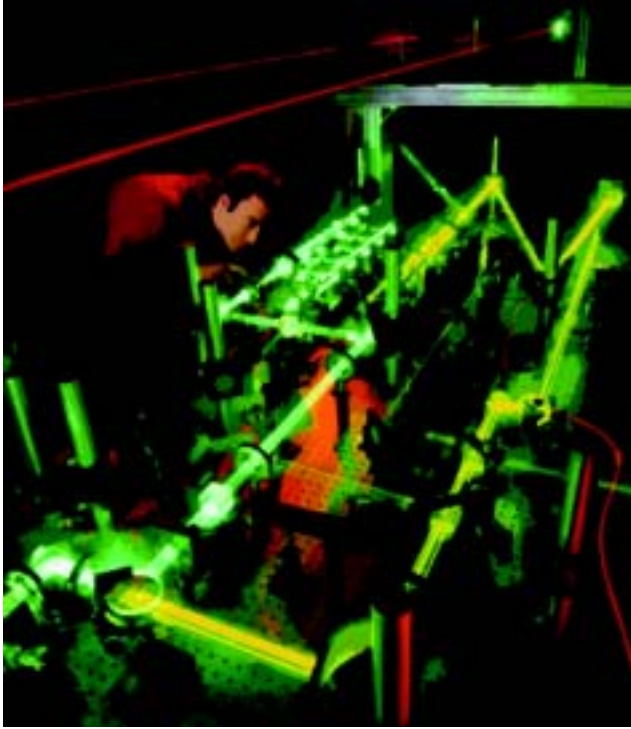
to merge the disaster response plans of different agencies so they will work together more effectively. Developing a robust homeland defense strategy is critical to the nation. The Air Force stands ready today, as in the past, to contribute our special capabilities, as well as develop new technologies that can aid civil authorities in combating any threat or attack to our homeland.

## ***Urban Operations***

By 2015, half the world’s 7.2 billion people will live in urban centers. The growing migration to cities means an increased likelihood that military targets will be in close proximity to non-combatants. We must, therefore, place special emphasis on producing precise, predictable effects with minimal collateral damage to surrounding structures. Advances in target identification and precision weapons delivery have propelled us from committing multiple aircraft for each target during World War II (e.g., 1,000 B-17 sorties dropped 9,000 bombs to destroy one target in 1943) to utilizing a single aircraft to neutralize multiple targets during Operation ALLIED FORCE (e.g., one B-2 with 16 bombs hit 16 different targets in 1999). We are pioneering a new class of non-kinetic weapons that will create the desired effects without death and physical destruction.



*Advances in stealth technology and precision-guided munitions provided the Air Force with the capability to conduct combat operations in an urban environment. This advantage was demonstrated in Operation ALLIED FORCE.*



*Our S&T efforts are focusing on time sensitive targeting; C<sup>2</sup> and improved information systems; survivability (defensive technologies); lethality and neutralization (offensive technologies); and improved power generation, propulsion, and aerospace vehicles.*

Large-scale conflicts will always include some degree of devastation, but non-kinetic weaponry and precision effects provide expanded options for our nation's leaders across the entire spectrum of conflict. Precision effects also offer the potential to significantly reduce the duration of a conflict by concentrating our force on high-value military targets. This minimizes collateral damage, unintended consequences, and the accompanying pressures such problems bring to coalition cohesion.

***“We are pioneering a new class of non-kinetic weapons that will create the desired effects without death and physical destruction.”***

### **Science and Technology Commitment**

Our commitment to a strong science and technology (S&T) program is fundamental to maintaining aerospace dominance in the 21<sup>st</sup> century. We continue to invest in a broad and balanced set of technologies derived from basic research, applied research, and advanced technology development on a continuum of maturity levels from short- to long-term. This time-scaled approach keeps emerging capabilities in the pipeline and fosters revolutionary developments.

***“The Air Force S&T community is working closely with operators and strategic planners to explicitly link research activities with our core competencies...”***

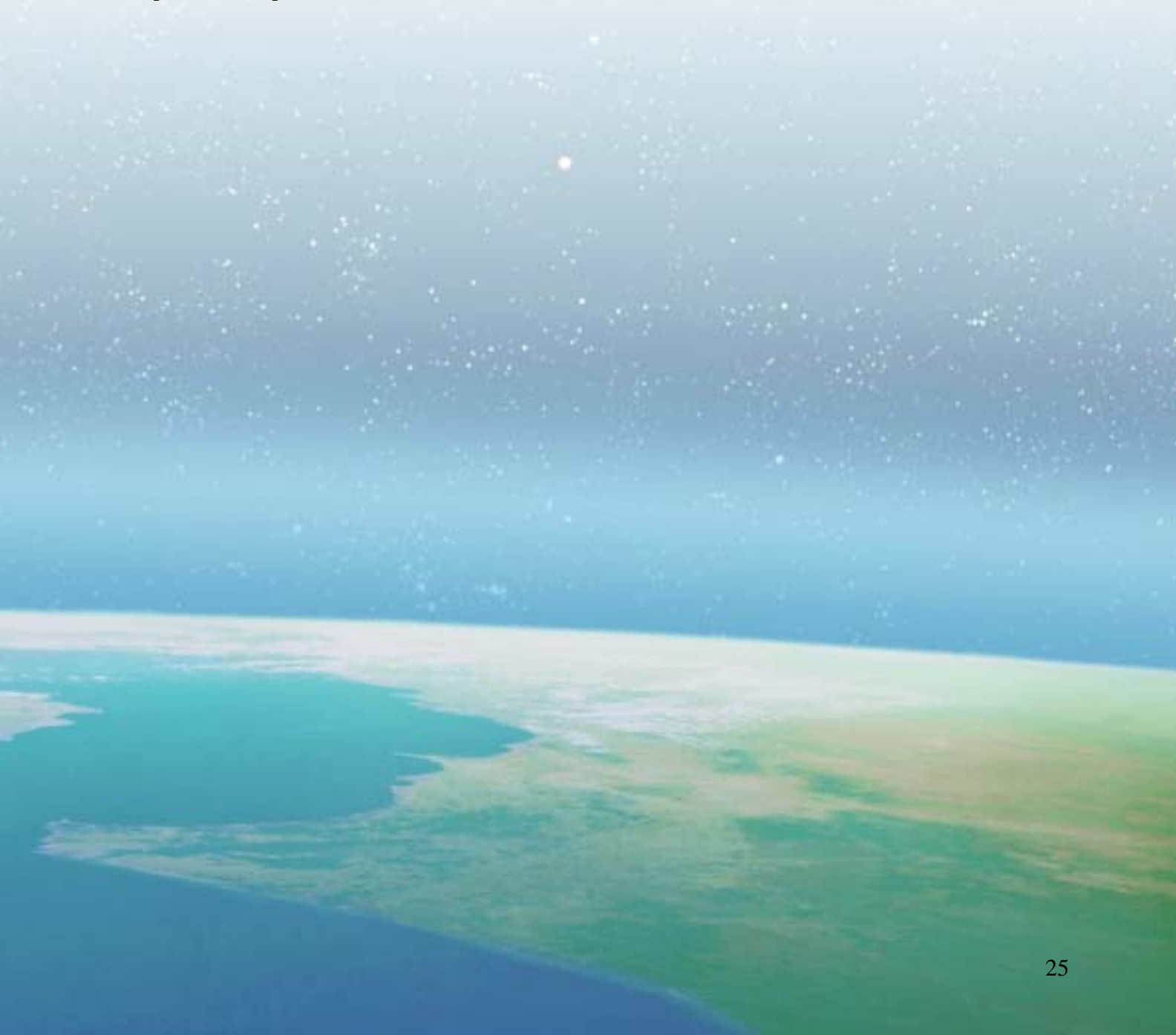
The Air Force S&T community is working closely with operators and strategic planners to explicitly link research activities with our core competencies, critical future capabilities, and future concepts of operation. This effort has produced S&T goals in the areas of time sensitive targeting; improved command, control, and information systems; survivability (defensive efforts); lethality and neutralization (offensive efforts); and improved power generation, propulsion, and vehicles. In accordance with the FY01 National Defense Authorization Act, we are also conducting a major review of our S&T program to identify both short-term objectives and long-range challenges.

No matter how strong our commitment to S&T, however, our efforts will be jeopardized if we don't protect our developing technologies. We are taking aggressive measures to safeguard existing and emerging technologies from compromise that would degrade combat effectiveness, shorten the expected combat life of a system, or stall program development.

## **Conclusion**

We have adapted to the new strategic environment by incorporating new technologies, operational concepts, and organizational structures — the definition of transformation. For the good of the nation, we cannot afford to stop with the transformation we have already achieved. Given the increasing complexity of warfare and the access potential adversaries have to new technologies, we now need to move ahead even more quickly. If we emphasize those force elements that have the flexibility to respond to the new strategic challenge, we can realize order of magnitude increases in capability. For example, America can support the full spectrum of operations at lower cost in dollars

and manpower by emphasizing stealth, precision standoff weapons, and information technologies that mark a qualitative shift in military operations. Those same forces have relevance across the entire spectrum of conflict. If we exploit the aerospace capabilities that have emerged since our current war plans were established, we may not be faced with having to shrink from our responsibilities as a global power. Capitalizing on America's asymmetric advantage — aerospace power — we can expand America's strategic options at less risk. However, there's a bill for this tremendous capability. We must fully fund our aerospace power force — the force that gives America a capability that is truly unique among nations.





## Chapter 4

# Roadmap to the Future

In order to remain the world's preeminent aerospace force, we must continue our transformation and work through the financial hurdles before us. A strong economy has made retaining and recruiting an all-volunteer force extremely difficult, but we have taken significant steps to reduce the downward trends. The increasing cost of readiness (including operations and maintenance) is consuming the funds required to modernize our systems and our infrastructure. We have developed a responsible, time-phased plan to modernize our force without sacrificing readiness or capability goals. However, even if the plan is approved after Secretary Rumsfeld's review, we do not have the modernization funds to fully execute it. Finally, through constant innovation and adaptation, we are linking emerging technologies with our future concepts of operation in order to evolve our aerospace capabilities while providing the nation the most effective return on its investments. Taking care of our people, improving readiness, and procuring upgraded and new, integrated systems are crucial to ensuring we can deliver rapid aerospace dominance well into the 21<sup>st</sup> century.

### **People**

Force structure drawdowns and a high demand for U.S. military presence around the globe have had a significant impact on our Total Force — active, Reserve, Guard, civilians, and contractors. Last year, at any given time, an average of 13,000 Total Force members were deployed around the world. Another 76,000 people were stationed overseas on permanent assignment. Retaining our military people is the first step in maintaining our combat capability and readiness, and will help alleviate many of our current recruiting and training problems. We need help to ensure our civilian work force is properly sized and shaped. We also continue to address the quality of life and quality of service concerns of all our people by creating better living and working environments for them. Finally, we are developing leaders who understand the full spectrum of expeditionary



*A Texas Air National Guard technician checks an F-16's landing gear. The Total Force consists of more than 695,000 highly skilled active duty, Reserve, Guard, and civilian personnel.*

and integrated operations and the importance of giving every member an equal opportunity to serve and succeed. All of these actions are crucial to sustaining the foundation of our force — Air Force people.

### **Retention**

We are unique among the Services in that we are a retention-based force. We depend on retaining highly trained and skilled people to sustain our readiness posture for rapid global deployment. By meeting retention goals, we can reduce our current recruiting and training requirements, and build and maintain our technical expertise. However, we expect the economic climate will continue to make retaining our skilled enlisted and officer personnel difficult over the next several years. About 7 out of every 10 enlisted airmen will make a reenlistment decision between now and 2004. Exit surveys show the availability of civilian jobs as the primary reason our people decide to separate from the Air Force. To retain these people, we must continue to improve compensation; not only in terms of pay, but also by reimbursing the out-of-pocket expenses incurred during frequent moves, deployments, and other temporary duty. The viability of the

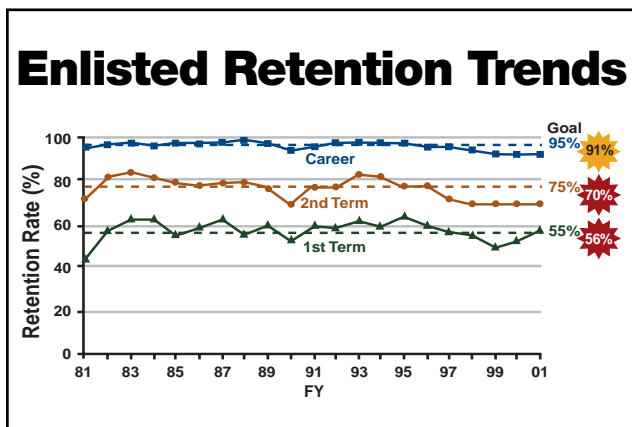


*Our Total Force depends on our ability to attract and retain sufficient numbers of high-quality, motivated people. We must effectively size, shape, and maintain the Total Force to execute our military commitments.*

all-volunteer force depends on military service remaining a competitive career option. We will continue to retain our people through quality of life initiatives.

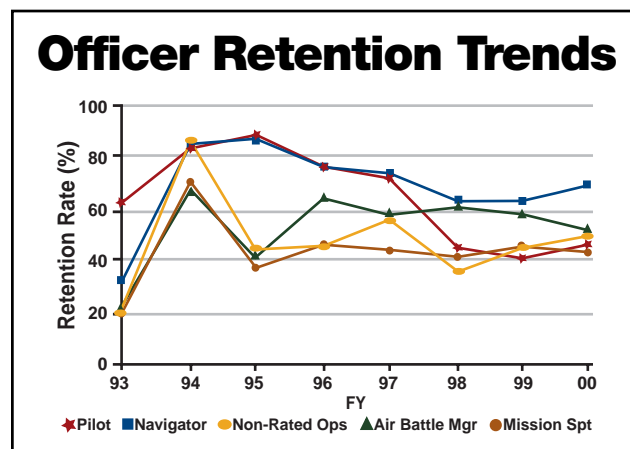
In 2000, we held two retention summits chartered to identify the reasons people decide to leave the Air Force and to develop solutions to retain them. From the summits, we produced and are implementing 19 initiatives to improve retention, including establishing career assistance advisors at our bases to maximize the benefits of performance feedback sessions and provide selective reenlistment program counseling.

With respect to officer retention, we closely monitor the officer cumulative continuation rate (CCR), or the percentage of officers entering



*While 73% of enlisted members eligible to reenlist elected to stay with the Air Force in FY00, it was the third year in a row retention rates remained below goal for all three reenlistment categories.*

their 4th year of service (six years for pilots and navigators) who will complete their 11th year of service given existing retention patterns. In FY00, the pilot CCR dropped to 45% from the high of 87% in FY95. Non-rated operations and mission support officer retention rates have also dropped over the past two years. In fact, retention rates have decreased for several high-tech specialties — developmental engineers, scientists, communication officers, and acquisition managers are in high demand. Conversely, navigator and air battle manager rates improved in FY00, rising to 69% and 51% from last year's rates of 62% and 45%, respectively.



*We project a shortage of about 1,200 pilots (9% of our pilot requirement) by the end of FY01.*

We aggressively use bonuses to retain our members. For example, a flexible aviation continuation pay (ACP) program is integral to our multi-faceted plan to retain pilots. Under a provision of the FY00 National Defense Authorization Act (NDAA), we began offering ACP payments through 25 years of aviation service at up to \$25,000 per year, and expanded eligibility to pilots below the rank of brigadier general. This resulted in a substantial increase in additional years of service commitment. The FY01 ACP program includes two enhancements for first-time eligible pilots: the up-front lump sum payment cap was raised from \$100,000 to \$150,000 and up-front payment options were expanded. These changes were made to enhance the attractiveness of longer-term agreements.

Seventy-six percent of our enlisted skills are now targeted with reenlistment bonuses, and we are



*Aviation Continuation Pay (ACP) is helping us “hold the line” on current shortages until we can benefit from the positive effects of increased pilot production and the newly implemented 10-year active duty service commitment for pilot training.*

considering bonuses for some non-rated line officer categories. The need to widen our bonus footprint, coupled with current below-goal retention rates, is strong evidence that the basic pay structure is too low. The addition of the officer and enlisted critical skills retention bonus of up to \$200,000 during a career, which was authorized in the FY01 NDAA, should help retain those people with skill sets in high demand by the civilian sector. We have also targeted our enlisted members with those crucial skills by increasing special duty assignment pay to \$600 per month.

Our Guard and Reserve have also taken steps to address retention problems by authorizing special pay and enlistment bonuses for critical enlisted specialties, ACP for active Guard and Reserve pilots, and special salary rates for full-time Reserve component military technicians. Implementation of the EAF concept will also help alleviate some of their retention challenges by providing advanced deployment notice to civilian employers.

### **Recruiting**

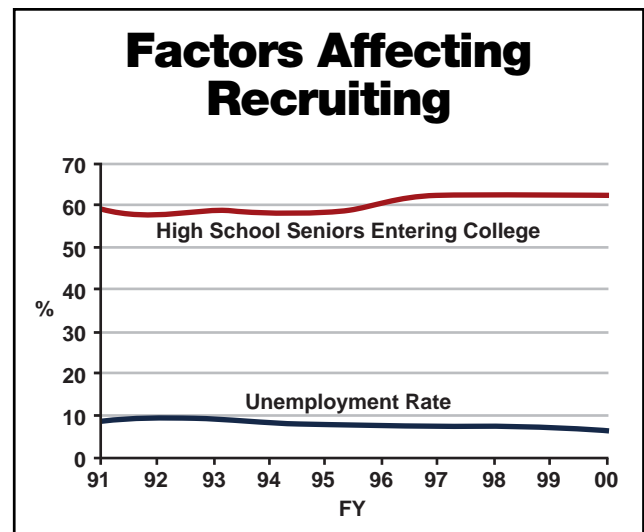
We missed our enlisted recruiting goal only twice since the inception of the all-volunteer force in 1973: FY79 and FY99. In FY00, we waged an all-out “war” to recruit America’s best — and won. We exceeded our enlisted recruiting goal of 34,000 by almost 400 without lowering our standards. We still require 99% of our recruits to have high school diplomas, and nearly 73% of our recruits score in the top half of all scores on the Armed



*The Guard and Reserve are performing an increasing number of active duty days each year — averaging 33.3 days per year (with some pilots performing up to 120 days per year) in addition to drill weekends and annual training days.*

Forces Qualification Test. In addition, we brought 848 prior-service members back on active duty, compared to 601 in FY99 and 196 in FY98.

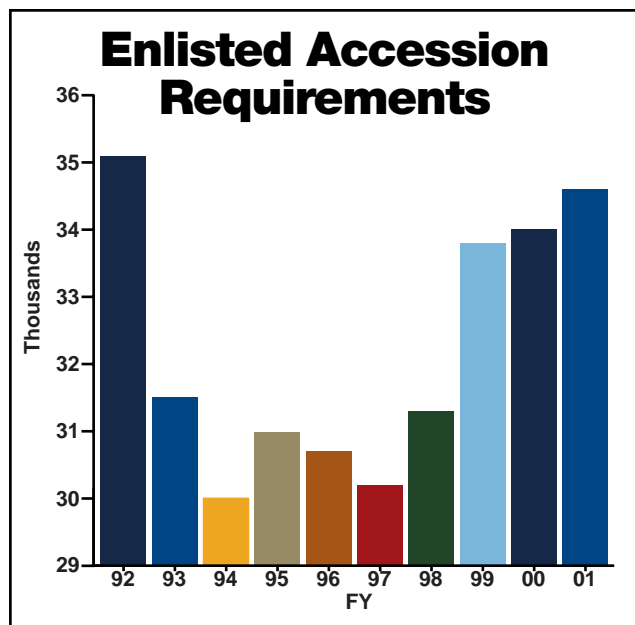
Successful recruiting means enlisting airmen whose aptitudes match the technical requirements



*We have experienced a period of strong economic growth, record low unemployment levels, and widening opportunity and financial assistance for higher education. This unprecedented combination of factors has hampered our ability to recruit the high-quality people needed to sustain the aerospace force.*

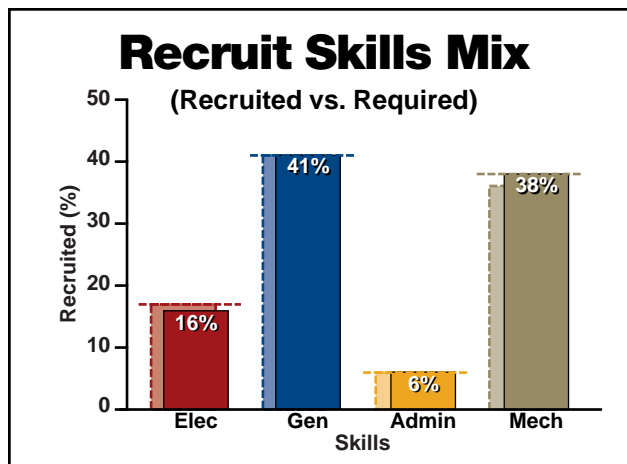
we need. Although we met our overall recruiting goals in FY00, we fell about 1,500 short of our goal of 12,428 recruits with mechanical aptitudes. In response, we are developing a targeted program to highlight the many opportunities we offer to mechanics, as well as a “prep school” to increase the number of airmen qualified to attend courses in areas such as jet engine repair and avionics maintenance. These efforts are paying off — through the first four months of FY01 we have met or exceeded our monthly goal for mechanically skilled recruits.

As with our retention efforts, we are using bonuses to improve recruiting. An increase in the enlistment bonus to \$20,000 for our hard-to-fill critical skills positions proved successful — 68% of our bonus-eligible recruits selected a 6-year initial enlistment in FY00. We also introduced a \$5,000 “kicker” to encourage new recruits to enlist during our most difficult recruiting months: February, March, April, and May.



A historical comparison of our accession requirements since 1992 (FY01 goal is 34,600).

Additionally, we held a comprehensive review of our recruiting and accessions processes. One of the most important initiatives that came out of this review was to increase our recruiter force. Therefore, we augmented our permanent recruiters with temporary duty personnel for periods of 120 days. This action resulted in an



Successful Air Force recruiting is more than a number — it also means enlisting airmen whose aptitudes match the technical skills we need.

extra 1,100 recruits during the spring and summer of 2000. We increased the number of recruiter authorizations from 1,209 to 1,450 in FY00, and we project 1,650 recruiter authorizations by the end of 2001. The active duty drawdown has also created an additional recruiting challenge for our Guard and Reserve components. As a result, the Air Force Reserve is increasing its recruiting force in FY01 by 50 recruiters (to 564), and the Air National Guard is adding 65 recruiters (to 413) over the next three years.

Officer recruiting is not immune to the economic factors affecting enlisted recruiting. As of March



This past spring and summer, we sent approximately 270 former recruiters to the field. The results were almost immediate: 12,000 contacts, 10,000 interviews, and over 1,100 recruits.

2001, the Reserve Officer Training Corps (ROTC) anticipates shortfalls of 400 officers in FY02 and 280 in FY03 (against a yearly goal of 2,000). We are considering several initiatives to attract more candidates, including offering cadets contracts after their freshman year rather than waiting until the end of their sophomore year, as well as recommending legislation to permit an officer accession bonus and to increase enlisted commissioning opportunities. In FY00, we achieved 97% of our line officer accession target, even though FY00 production was 5% above FY99 and 21% greater than FY98.

Recruiting health-care professionals has also been challenging. Many medical, dental, nurse, and biomedical specialties are critically short. For example, only 80% of our clinical pharmacy positions are filled. In 2001, for the first time, we will be offering a \$10,000 accession bonus to pharmacists who enter active duty.

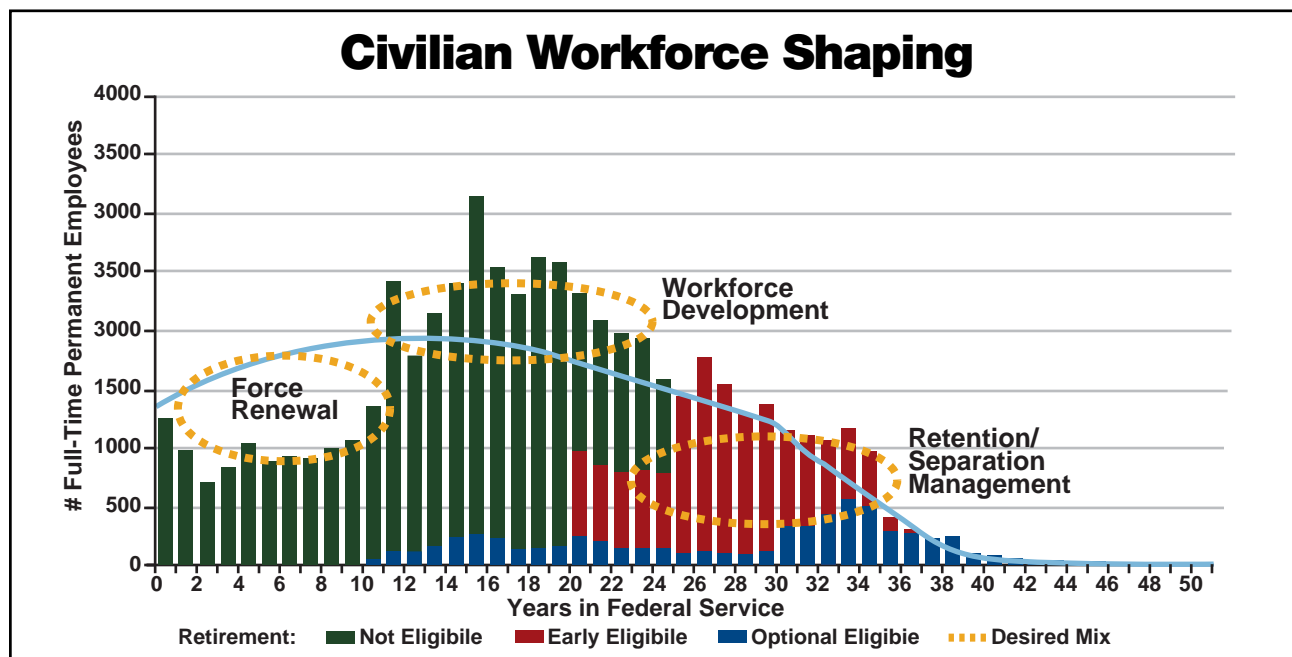
Finally, we launched a multi-faceted marketing campaign, including television and movie theater advertising. Our ads depict the teamwork, dedication, and technological sophistication that characterize the Air Force. The Air Force Reserve and Air National Guard also launched a national campaign that includes television, radio, and outdoor advertisements.



An Air Force dentist examines a young boy's teeth while deployed as part of the U.N. peacekeeping mission in East Timor. The Air Force is currently short about 60 dentists.

### Civilian Workforce Shaping

In 1989, approximately 17% of our civilians were in their first five years of service. Today, that figure is less than 10%. In the next five years, more than 40% of our civilian career workforce will be eligible for optional or early retirement. Compounding this problem, the downsizing of the



We need a combination of renewal, workforce development, and separation management actions to properly shape the civilian workforce.

past decade has skewed the mix of civilian workforce skills. While we are meeting mission needs today, without the proper civilian force shaping tools, we risk not being ready to meet tomorrow's challenges.

We have developed several initiatives to address our civilian workforce concerns. These initiatives include finding new ways to attract and recruit civilian employees; developing streamlined, flexible, and expedited hiring processes; supporting pay flexibility to better align salaries with those of private industry; and increasing the availability of student loan repayment programs.

We also realize that we must renew the mid-level civilian workforce to meet the demands of an increasingly technical force. We will accomplish this through job proficiency training, leadership development, academic courses, and retraining. Further, we believe that funding civilian tuition assistance programs, as we do for our military people, and having the flexibility to pay for job licenses and certifications, will help our shaping efforts.

However, we must also use separation management tools to create vacancies so the civilian work force

is continuously refreshed with new talent and contains the right skills mix. These tools include pay comparability, and extending special voluntary separation incentive pay (VSIP) and voluntary early retirement authority (VERA) for workforce restructuring. We also need an incentive to provide employees the option to offset all or part of the early retirement penalty to their annuity through a lump-sum payment to the civil service retirement and disability fund.

### Quality of Life

For the first time in five years, we are adding manpower and workplace environment to our core quality of life priorities. Updated wartime planning factors and real-world operations validated our increased manpower requirements. Meeting our existing mission requirements with our current end strength is wearing out our people. We need to increase our end strength by 12,000 personnel above our FY00 level, primarily in the combat, combat support, low density/high demand, and high-tempo areas.

### Eight Quality of Life Initiatives

1. Manpower
2. Workplace Environment
3. Fair and Competitive Benefits
4. Balanced TEMPO
5. Safe, Affordable Housing
6. Quality Health Care
7. Enriched Community and Family Programs
8. Enhanced Education Opportunities



*To meet the needs of an increasingly technical aerospace force, we need the right mix of new, mid-level, and senior civilian employees with the proper skills mix.*

A good quality of life is central to attracting and retaining our people. The FY01 NDAA provided a 3.7% pay raise, one-half percent above private sector wage growth, and a targeted pay raise for our mid-level enlisted members ranging from \$32 to \$58 per month. While these are positive developments, military pay, particularly for mid-grade NCOs and officers, remains below

comparable private sector salaries. In FY01, our members' out-of-pocket housing expenses will be reduced from 18.9% to 15%, but at significant cost to our budget. A goal of zero out-of-pocket housing costs by FY05, as directed by the former Secretary of Defense, will be difficult to fund within current projections. To help reduce out-of-pocket moving expenses, the NDAA equalized dislocation allowances for our lower ranking enlisted force, and authorized advanced payment of temporary lodging expenses and a pet quarantine reimbursement up to \$275.



*Housing, like this new on-base development at McChord AFB, WA, is one of our eight quality-of-life initiatives.*

Providing our people with safe, affordable accommodations improves their quality of life and, in turn, increases retention. Our dormitory master plan will build or replace dormitory rooms throughout the Air Force. We continue to pursue a private room policy for our airmen. Currently, 86% of our unaccompanied airmen housed on base have a private room with a shared bath. We also plan to replace, improve, or privatize over 10,000 family housing units. In addition, ensuring our members have adequate officer and enlisted visiting quarters and temporary lodging facilities remains a high priority. Constructing and maintaining sufficient numbers of on-base facilities yields significant savings in moving and travel costs while aiding force protection.

Another important component of quality of life is health care. The year 2000 was a milestone year for our health-care program, with many changes taking effect in 2001. TRICARE was expanded to include 1.4 million Medicare-eligible beneficiaries, retirees, and their family members beginning in October 2001. By enrolling in Part B Medicare, they can now visit any civilian health-care provider and have TRICARE pay most, if not all, of what Medicare does not cover. Other legislation extends TRICARE Prime Remote to immediate active duty family members stationed in remote areas (i.e., areas not within 50 miles of a military treatment facility); eliminates TRICARE co-payments for active duty family members; establishes chiropractic care for active duty members; reduces the TRICARE catastrophic cap to \$3,000 per year; and improves claims processing.



*October 2000 Ground Breaking ceremony for a child development center at Dyess AFB, TX. With 55,000 children enrolled, our quality child-care system allows our people to focus on the mission, rather than worry about their families. We are currently able to meet about 65% of our active duty child-care requirements.*

Enhancing community and family programs is crucial to retention since 62% of our force is married. This year we created the Community Action Information Board (CAIB) to bring together senior leaders to review and resolve individual, family, and installation community issues impacting our readiness and quality of life. We recognize the economic benefits our members and their families receive from youth programs, family support centers, fitness centers, libraries and other recreational programs which support and enhance the sense of community. We also continue to support the commissary benefit as an important non-pay entitlement.

Even with the EAF, our tempo can make educational pursuits difficult. Our learning resource centers and distance learning initiatives address this situation by offering deployed personnel education and testing opportunities through CD-ROM and interactive television. We support lengthening the Montgomery GI Bill contribution period from one to two years in order to ease the financial burdens of new airmen. Additionally, we have joined with the other Services, the Department of Labor, and civilian licensing and certification agencies to promote the recognition of military training as creditable towards civilian licensing requirements.



*At Basic Military Training, all airmen participate in Warrior Week, which builds the mental and physical foundation they need to meet the challenges of an expeditionary force.*



*The Community College of the Air Force allows airmen to combine college credits, military education, and experience to earn an associate's degree.*

## **Training**

Training the world's best Air Force is challenging in today's rigorous, expeditionary environment. Recruits face a demanding basic training course, and newly commissioned officers and selected civilians attend the Aerospace Basic Course to establish a fundamental knowledge of aerospace power and the profession of arms. However, lower enlisted retention rates are increasing our training burden. Fewer experienced trainers are available to train entry-level personnel. Additionally, the increased number of accessions (due to lower retention) stress our training facilities and personnel. During accession surge periods, our technical training centers operate at over 100% capacity by triple-bunking students in two-person dorm rooms. Despite these challenges, our technical training schools are meeting their mission. By increasing

our use of technology and streamlining training processes, we are producing fully qualified apprentices. Recognizing training as a continuous process, we are using emerging technologies to establish a training management system capable of documenting and delivering the right training throughout a member's career.

## **Equal Opportunity**

We strive to build and maintain an environment that is free from unlawful discrimination and harassment and reflects the rich diversity of our nation. Equal opportunity, diversity, and fair and equitable treatment of our people have evolved from law to a strategic readiness imperative. Ensuring that every airman is given equal access and equal opportunity to achieve his or her full potential is vital to our readiness equation. Creating and sustaining an environment where individuals are respected and valued is key to mission performance and force sustainment. These issues require constant attention and support. Accordingly, we are committed to attracting, recruiting, hiring, accessing, developing, managing, rewarding, and retaining a diverse and high-quality Air Force that reflects all segments of American society.

## **Readiness**

Total Air Force readiness has declined 23 percentage points since 1996. We attribute this decay to the problems associated with supporting the oldest aircraft fleet in Air Force history; the inability to retain an experienced workforce; and

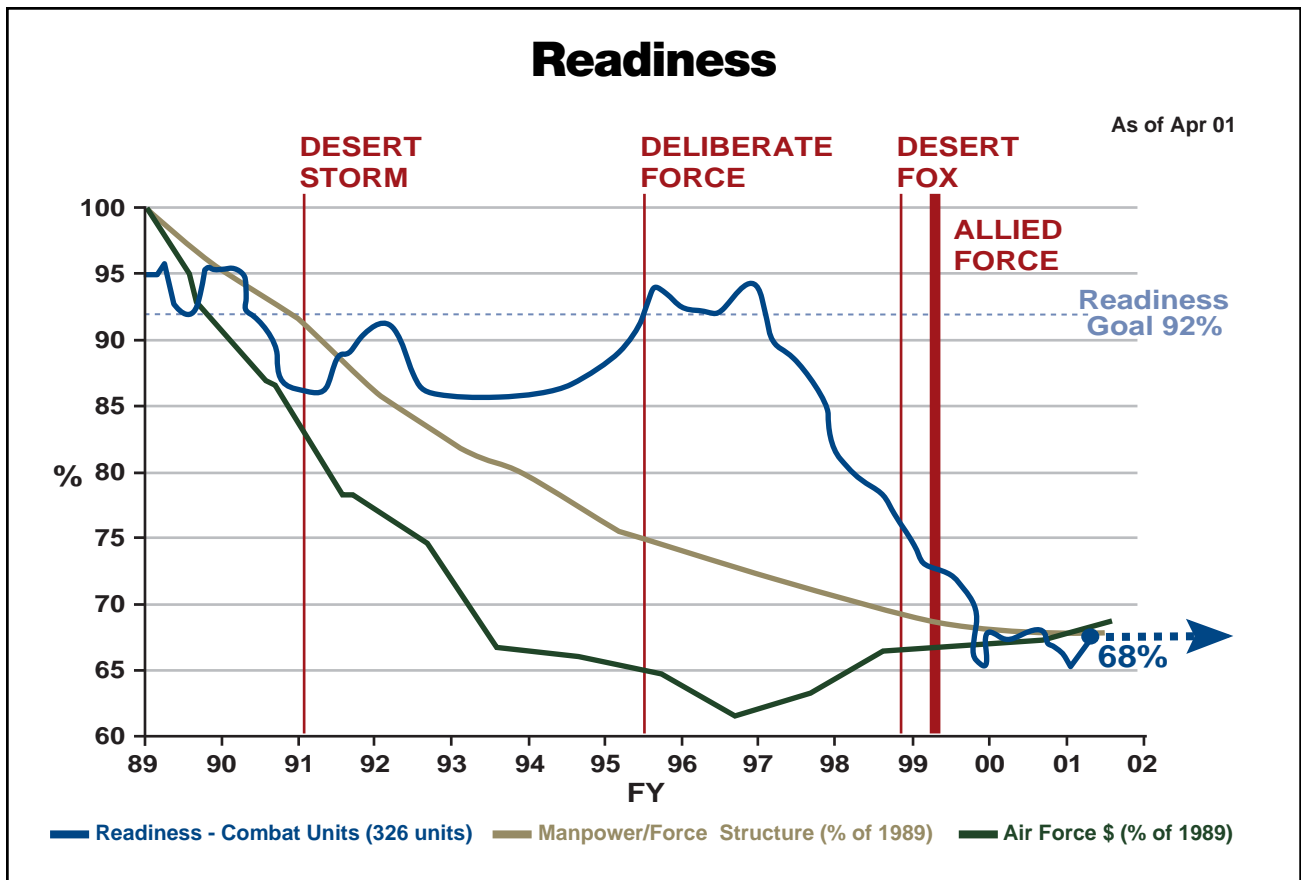
constrained resources and spare parts. With recent financial assistance from the Administration Office of the Secretary of Defense (OSD) and Congress, we are turning our spare parts problems around. However, as our fighter, ISR, combat search and rescue, mobility, and tanker aircraft continue to age, they need more frequent and substantial repairs, driving up readiness costs. This, in turn, reduces the number of aircraft available for missions and creates higher demands on the remaining fleet. Reversing this trend will take additional funding and a concerted recapitalization effort. In addition, the maintenance tasks and materiel growth inherent in supporting our aging aircraft fleet have increased our depot workload. Limited depot infrastructure investment over the past decade, coupled with constrained funding, adds to our already significant challenges in meeting readiness requirements. We are also experiencing infrastructure shortfalls in our facilities (i.e., bases), vehicles and support equipment, and communications infrastructure. However, our environmental program remains on track. Overall, we are committed to improving

readiness, but it must be in concert with our people, infrastructure, and modernization programs.

### Spare Parts

Sufficient inventories of weapon system spare parts are crucial to mission readiness. Lack of spares puts a severe strain on the entire combat support system, creating increased workload for our logistics personnel and reducing the number of mission-capable aircraft available to our operational forces. When our logistics system suffers parts shortages, maintenance personnel must either cannibalize parts from other equipment or aircraft to serve immediate needs, or accept degraded readiness while they wait out long-delivery times for backordered parts.

Recent improvements in spare parts funding are turning this situation around. Through internal funding realignment, the Administration, OSD and congressional plus-ups, we were able to spend an additional \$2 billion for spare parts over the past two years. This helped replenish inventories drained during Operation ALLIED FORCE. During the summer





*Although aircraft cannibalization rates appear to have stabilized over the past two years, cannibalization makes it difficult for our maintainers to keep aircraft mission ready. We are dependent upon their extraordinary professionalism and competence.*

2000 program review, the DoD fully supported our efforts to fill shortfalls in the spare-parts pipeline which were impacting operational requirements. Additional Administration and OSD support for FY02 includes full funding of the flying hour program and our airlift readiness spares packages, and increased funding to reduce the spares repair backlog.

One of our greatest readiness challenges is managing the consequences of an unprecedented older aircraft fleet. Today, the average aircraft is approximately 22 years old. Even with currently programmed procurements, this figure will continue to rise, reaching nearly 30 within the next 15 years. Buying spare parts for aging aircraft is similar to buying them for aging vehicles. The older the vehicle, the more expensive the part due to obsolescence and a reduced vendor base. Maintaining an aging fleet with more expensive spare parts is one of the costs reflected in the increasing cost per flying hour. Over the past five years, our flying hours required for training and readiness have

remained relatively constant, but the cost of executing our flying hour program has risen over 45%.

### **Facility Infrastructure**

Our available resources do not cover the maintenance requirements of our facilities. Presently, we are able to sustain only day-to-day recurring maintenance and periodic system repairs on our real property, creating a backlog of required maintenance. The replacement or renovation of existing real property is now on a cycle exceeding 150 years, compared with the industry standard of 50 years. Military construction has also been reduced drastically since the mid-1980s (from the high of about \$1.8 billion in FY86 to the current \$596 million in FY01).



*Grand opening of the Aviano Base Exchange — the most expensive DoD construction effort in 2000.*

Reductions in Air Force manpower and force structure have also left us with too much infrastructure. As a result, we are required to spend scarce resources on unneeded facilities while struggling to maintain acceptable operational readiness levels. We must be allowed to close unnecessary installations and then reinvest the savings in Real Property Maintenance (RPM), base-operating support, family housing, and military construction.

### **Vehicles & Support Equipment**

Over the past eight years, the vehicle replacement program has been significantly underfunded. This

situation has created approximately \$552 million in deferred vehicle requirements for more than 27,000 special-purpose, construction, tactical, and material-handling vehicles. While our major commands are pursuing temporary solutions, like general-purpose vehicle leasing, refurbishment programs, and reducing excess vehicle requirements wherever possible, failure to replace aging vehicles will directly impact our combat capability.

Our support equipment program is only 58% funded. This follows an historical trend of inadequate funding. We have about \$134 million in deferred funding for maintenance stands, aircraft de-icing trucks, munitions-handling equipment, military working dogs, and Harvest Eagle and Harvest Falcon equipment used to erect bare bases. Missions in the Balkans and Southwest Asia have exacerbated equipment shortfalls. Addressing this funding gap will improve our readiness.



*Our vehicle replacement backlog requires that we extend the life of our special-purpose vehicles whenever possible.*

## Communications Infrastructure

Information technology (IT) advancements over the past decade have revolutionized aerospace power. From desktop computing to near-instantaneous worldwide access to information, our communications technologies enable information dominance and create “actionable knowledge” for our commanders. The ability of forward-deployed commanders to rapidly and reliably reach back to a large number of combat support capabilities at home base, streamlines



*We have lowered our IT costs by partnering with industry and consolidating electronic mail and data servers across our major commands.*

expeditionary operations by reducing airlift requirements and the size of our deployed footprint. A vital piece of our “infostructure” is our global information grid, an interconnected, network-centric information environment that provides information on-demand to our policymakers, warfighters, and supporting personnel. This infostructure gives us the means to meet our future information requirements.

***“...reachback...streamlines expeditionary operations by reducing airlift requirements and the size of our deployed footprint.”***

## Environmental Cleanup

Our environmental program stands on four main pillars: environmental compliance, pollution prevention, environmental restoration, and resource

conservation. The goal at our active installations is to have cleanup remedies in place for all our high-risk sites by 2007 and for all sites by 2014.

The environmental program for our closed and closing bases focuses on expedient cleanups that stress public health, responsible environmental stewardship, and the transfer of property for redevelopment. We continue to streamline processes, reduce costs, and promote community participation in decision-making. We are on target to complete all of our environmental cleanups by 2005, except for McClellan AFB, CA, which is targeted for 2015. Still, we require continuing investment to ensure properties are ready for permanent transfer to civil authorities.



*An environmental engineer with the 5th Civil Engineering Squadron, Minot AFB, ND, checks the connection of two hoses. He was part of a multiservice construction crew building a school in Teguiipa, Bolivia.*

## **Modernization**

Our modernization plan includes retiring the C-141 and procuring the C-17, buying our future air superiority fighters, considering tanker replacements, upgrading conventional bombers and precision guided munitions (PGMs), and developing new C<sup>2</sup> and ISR systems. An important step in achieving

these priorities involves sustaining and modernizing relevant, capable space forces, with emphasis on the development of the Space Based Infrared System (SBIRS), the Global Positioning System (GPS), the Evolved Expendable Launch Vehicle (EELV), and secure communication satellites. We must also upgrade our space launch ranges and satellite control network. The next several pages describe our modernization programs aligned under each of our core competencies.

## **Core Competency Aerospace Superiority**

Aerospace superiority is the ability to control the entire vertical dimension, from the surface of the Earth to the highest orbiting satellite, so the joint force has freedom from attack and freedom to attack. Aerospace superiority is the crucial first step in achieving rapid aerospace dominance. In the 21<sup>st</sup> century, aerospace superiority depends on strike and defensive platforms, such as F-22 and the Airborne Laser (ABL), and ISR platforms, such as Global Hawk and SBIRS, seamlessly integrated through real-time information sharing and appropriate space control measures.

**The F-22**, with its revolutionary combination of stealth, supercruise (i.e., supersonic-cruise without afterburner), maneuverability, and integrated avionics, will dominate the skies. The F-22's advanced capabilities will allow it to penetrate an adversary's airspace even if anti-access assets are in place, destroying the most critical air defense capabilities, thus permitting follow-on forces freedom of movement.

***“The F-22, with its revolutionary combination of stealth, supercruise, maneuverability, and integrated avionics, will dominate the skies.”***

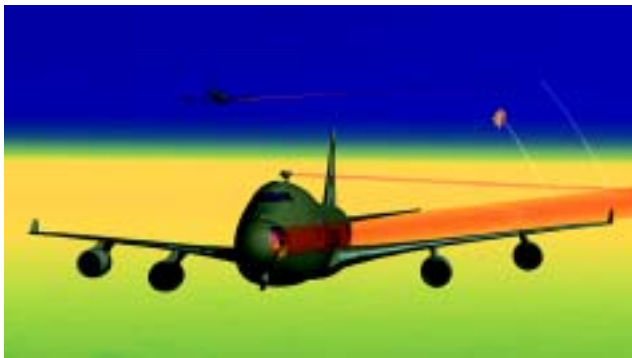
Additionally, the F-22 will serve as the enabling platform for the Joint Strike Fighter (JSF) and other systems engaging enemy ground targets. In 2000, during continued envelope expansion flight testing, the F-22 successfully launched an Advanced Medium-Range Air-to-Air Missile (AMRAAM) and an AIM-9 infrared-guided missile from its internal side weapons bay, and began testing Block 3.0 avionics software.



*The F-22 radar uses an active, electronically-scanned antenna array of 2,000 transmitter/receiver modules to provide a leap in agility, radar cross section, and bandwidth over anything else flying today.*

The F-22 has successfully met all congressionally mandated criteria necessary to enter low-rate initial production (LRIP) following Defense Acquisition Board approval. Entering operational service in 2005, this leap in technology is crucial to preserving the nation's most important military advantage for future warfighters: the capability to rapidly obtain and maintain aerospace dominance.

**The Airborne Laser (ABL)** is a transformational boost-phase intercept weapon system that will



*The Airborne Laser (ABL) will destroy ballistic missiles in the boost-phase with directed energy. The ABL is a revolutionary force protection and homeland defense capability.*

contribute significantly to the missile defense architecture. In January 2000, we began modifying a Boeing 747 to become the first of two ABL prototypes. This prototype successfully completed critical design review in April 2000. With the modifications completed in the third quarter of FY01, ABL is progressing toward a demonstration against a theater ballistic missile. This revolutionary capability will bring equally revolutionary changes in warfighting.

**The Space Based Laser (SBL)** has the potential to provide continuous boost-phase intercept for ballistic missile defense. To pursue this capability, the SBL integrated flight experiment (IFX) project will determine the feasibility and utility of this approach, focusing on risk reduction, the sustainment of critical technologies, and system architecture studies.



*The Space Based Laser (SBL) Integrated Flight Experiment (IFX) will reveal the challenges of integrating precision optics and high-energy lasers onto our spacecraft.*

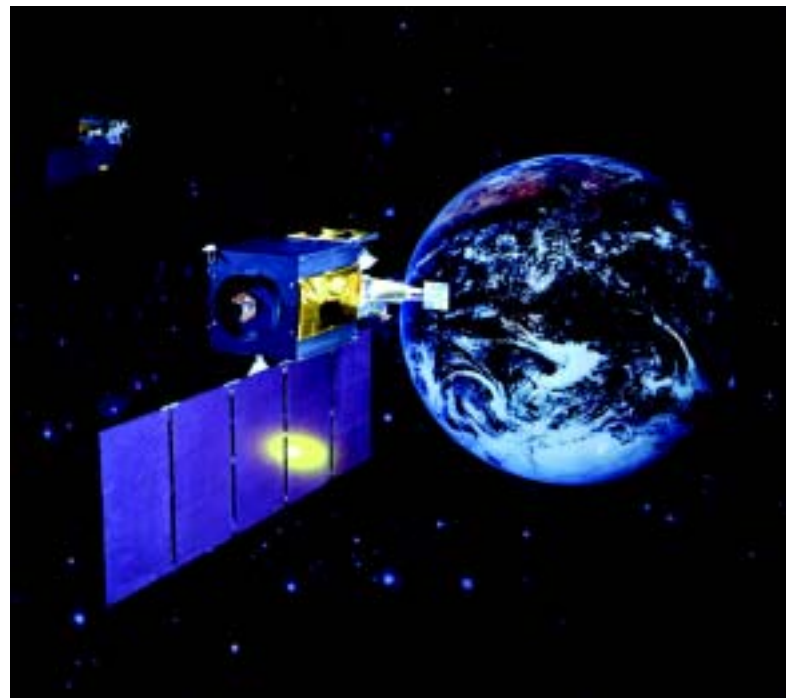
***“The Space Based Laser has the potential to provide continuous boost-phase intercept for ballistic missile defense.”***

The program is currently making excellent progress in high-energy laser beam control; acquisition, tracking and pointing technologies; and overall systems integration.

**The Space Based Infrared System (SBIRS)** significantly improves on the missile warning capability of the 1993 Talon Shield upgrade to the Defense Support Program (DSP) missile detection and warning network of satellites. DSP has provided strategic missile warning for North America for nearly 30 years. Beginning in 1993, the DSP project upgraded processing techniques to provide a theater missile warning capability that includes timely and accurate detection and tracking of tactical ballistic missiles and other theater threats. SBIRS significantly improves on the missile warning capability of Talon Shield by consolidating the nation's infrared detection systems into a single architecture, meeting our security requirements for missile warning, missile defense, technical intelligence, and battlespace characterization.

***“Space Based Infrared System...consolidating the nation’s infrared detection systems into a single architecture, meeting our security requirements for missile warning, missile defense, technical intelligence, and battlespace characterization.”***

SBIRS High, SBIRS Low, and DSP, and will operate through a consolidated ground segment. DSP currently employs satellites to provide early detection and warning of missile launches and nuclear explosions to the National Command Authorities. The last three DSP satellites will be placed into orbit between FY01 and FY03, and subsequently operated from the new SBIRS mission control station. The SBIRS High component, currently in engineering and manufacturing development (EMD), is on track for the first delivery of a highly elliptical orbit (HEO) sensor in FY02 and the first launch of a satellite into geosynchronous orbit (GEO) in FY05. The SBIRS Low component, now in the program definition/risk reduction phase, consists of low earth orbiting (LEO) satellites with the first launch planned for 2006. We are working hand-in-hand with the Ballistic Missile Defense Office to make the SBIRS program a



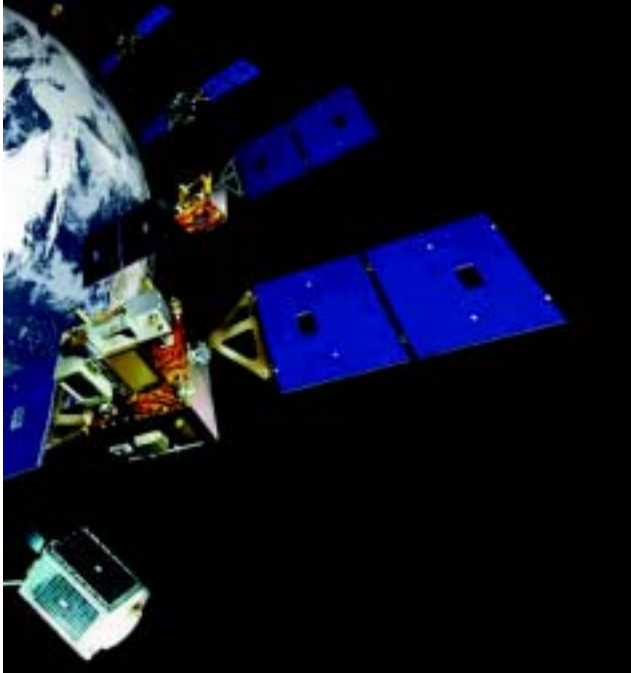
*Combining multiple orbit profiles, SBIRS will be a key component in the nation’s next-generation missile defense system.*

success. In total, we will operate 2 SBIRS HEO, 4 GEO, and between 20 and 30 LEO satellites.

#### **Miniature Satellites**

On July 19, 2000, the Air Force Research Laboratory launched MightySat II, a test satellite weighing only 266 pounds. The MightySat series of experiments are designed to quickly and inexpensively explore, demonstrate, and transition space technologies from the drawing board to operational use. MightySat II demonstrates advanced technologies for hyperspectral remote sensing and on-board processing that could eventually help military commanders detect and identify hidden targets. The MightySat series are building blocks for more advanced satellite concepts, such as TechSat-21.

***“MightySat II demonstrates advanced technologies for hyperspectral remote sensing and on-board processing that could eventually help military commanders detect and identify hidden targets.”***



*The MightySat II series of spacecraft will provide us with a benchmark for efficiently testing emerging space technologies to ensure their readiness for operational missions.*

This concept will employ three micro-satellites flying in formation to act as an integrated “virtual” satellite, enabling revolutionary remote sensing capabilities such as ground moving target identification.

### **Assured Access to Space**

Achieving and maintaining superiority throughout the entire aerospace continuum requires an operational space launch and maneuver capability that can deploy to orbit with the same speed and flexibility as our other aerospace forces. The

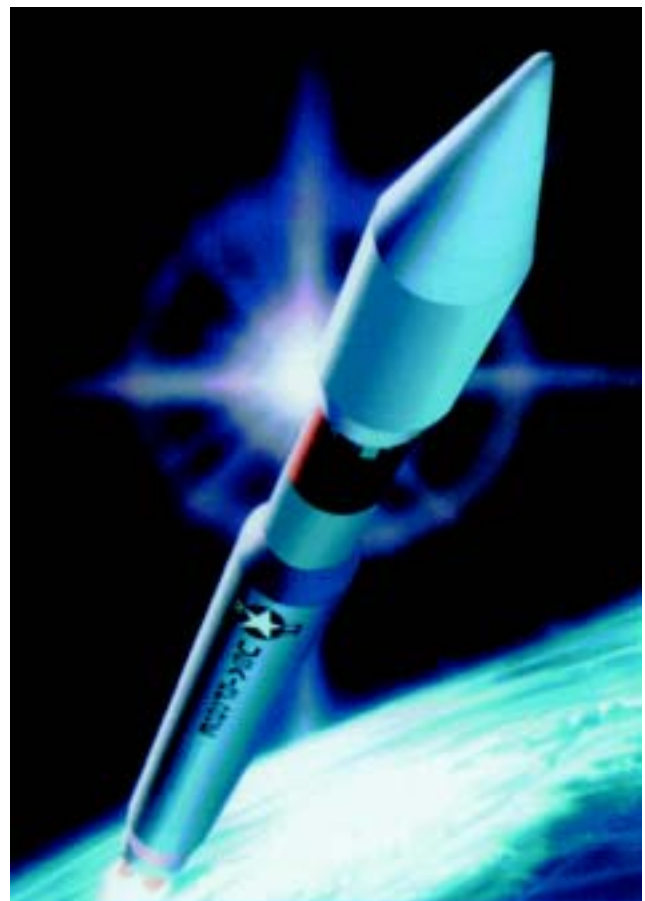


*The EELV is the first step in providing the nation a rapid spacelift capability at a reduced cost. It consists of two independent launch systems.*

Evolved Expendable Launch Vehicle (EELV) will soon replace the current Titan, Atlas, and Delta launch vehicles to ensure America’s spacelift capability until 2020. It consists of two independent launch systems: the Boeing Delta IV and Lockheed Martin Atlas V. The first EELV launch is scheduled for 2002. Our EELV partnership strategy with industry will meet military, government, and commercial spacelift requirements at 25% to 50% lower cost than current systems. In the future, we envision reusable launch vehicles that will provide launch on demand, high sortie rates, reduced operations costs, and increased operational flexibility in support of space mission areas.

### **Space Control**

We are committed to exploring innovative ways of modernizing space-based technologies. Utilizing residual resources from the midcourse space experiment (MSX) satellite, Air Force Space Command (AFSPC) transitioned this advanced concept technology demonstration into a space-



based space surveillance sensor. The Space Based Visible (SBV) sensor provides critical positional data on orbiting objects to ensure battlespace awareness.

During the past year, we activated the first-ever space control unit — the 76th Space Control Squadron at Peterson AFB, Colorado. The 76th SPCS is an offensive and defensive counterspace technology unit responsible for exploring emerging space control capabilities, including concepts of counter-communications and counter-surveillance/reconnaissance, and the development of a satellite attack, threat detection, and reporting architecture.

### Combat Search and Rescue

Combat search and rescue (CSAR) forces, identified by DoD as low density/high demand (LD/HD) assets, recover downed combat aircrews and other isolated people from hostile territory and return them to friendly control. The age of our CSAR platforms, and their lack of compatibility with our advances in strike, C<sup>2</sup>, ISR, communications and other systems, jeopardize our ability to fulfill our operational commitments beginning in 2010. For example, the A-10 aircraft does not have the latest airborne receivers required to perform the on-scene command role during combat rescue missions. In 2010, our HH-60s (search and rescue helicopters) will reach the end of their service life and require either a service



*We are conducting an analysis of alternatives to determine the best way to maintain our CSAR capability in conjunction with new strike and ISR platforms.*

life extension program (SLEP) or replacement. Our near-term enhancements include equipping HH-60Gs with over-the-horizon data receivers and improved defensive systems. We are also

improving our CSAR force structure by converting 10 WC-130Hs (weather observation aircraft) into HC-130s (rescue/tanker transports) and transferring eight HH-60s and five HC-130s from the Reserve to the active force. We have established the new combat rescue officer (CRO) career specialty to improve the leadership of the CSAR mission area. The first CRO commanded pararescue squadron will stand up in May 2001.

### **Core Competency** **Information Superiority**

Information superiority, like aerospace superiority, means our information systems are free from attack while we have freedom to attack an adversary's information systems. Information superiority enables us to provide tailored, accurate targeting information from a sensor to a shooter within minutes. It assures U.S. and allied forces have a clear picture of the battlespace and can operate freely in the information domain while denying the enemy the same.

***“Information superiority enables us to provide tailored, accurate targeting information from a sensor to a shooter within minutes.”***

Information superiority includes the ability to gain, exploit, attack, and defend information. Integral elements include capabilities in information-in-warfare (e.g., ISR, weather, communications) and information warfare (e.g., electronic warfare, psychological operations, computer network attack and defense).

### Command and Control

Our operational and tactical command and control (C<sup>2</sup>) airborne platforms and ground systems organize and direct ISR efforts and tactical forces to successfully apply combat power. Our C<sup>2</sup> assets include the aerospace operations center (AOC) with its decentralized component control reporting centers (CRC), the Airborne Warning and Control System (AWACS), and the Joint Surveillance Target Attack Radar System (JSTARS).

As the primary element of the Theater Air Control System (TACS), the AOC is responsible for

planning, executing, and assessing the full range of aerospace operations. By fusing the data from a vast array of C<sup>2</sup> and sensor systems, the AOC creates a comprehensive awareness of the battlespace so the Joint Force Air Component Commander (JFACC) can task and execute the most complex aerospace operations across the entire spectrum of conflict.



*The AOC is responsible for planning, executing, and assessing the full range of aerospace operations.*

Especially significant among these operations are time sensitive targeting, which provides rapid reaction to the threat, and theater battle management, which blends C<sup>2</sup>, rapid intelligence collection, analysis, and dissemination with positive control of airspace and the tasking of combat forces to coordinate the entire air battle with joint and coalition partners and component commanders. We have recently designated the AOC as a “weapon system” and are working on efforts to standardize its capabilities. Our continued efforts in equipment baselining, personnel training, and documentation are the precursors to a full AOC system modernization effort. The emergence of the AOC as a fully developed, standardized weapon system will revolutionize the operational level of warfare.

***“The emergence of the AOC as a fully developed, standardized weapon system will revolutionize the operational level of warfare.”***

The CRC is the JFACC’s ground tactical execution node for C<sup>2</sup> and battle management. It provides

wide-area surveillance, theater air defense, identification, data link management, and air battle execution. The current system was developed in the 1970s and must be replaced. The CRC replacement, the Battle Control System, will exceed year 2010 requirements for time sensitive targeting, open system architecture, small deployment footprint, remote operations, multi-sensor fusion, and AEF responsiveness.

The Theater Battle Management Core Systems (TBMCS) is an integrated, automated C<sup>2</sup> and decision support tool that offers the senior aerospace commander and subordinate staffs a single point of access to real- or near-real-time information necessary for the execution of higher headquarters taskings. TBMCS will support a full range of functions including threat assessment, target selection, mission execution, battle damage assessment, resource management, time sensitive target identification and prosecution, and defensive planning.



*The E-4B National Airborne Operations Center (NAOC) provides the National Command Authorities a highly survivable command, control, and communications center from which to direct U.S. forces during a national emergency.*

## **Communication**

Information superiority, and by extension, all our core competencies depend on the availability of a robust, worldwide communications capability. Unfortunately, our military satellite communication (MILSATCOM) systems can not fully keep up with the growth of theater requirements. Over the next ten years, our need for secure communications is expected to increase 15-fold over current

capacity, while wideband requirements are projected to soar to 20 times the current capacity. In an environment of extremely high worldwide demand and competition, commercial providers simply cannot supply us with the protected bandwidth, security, or coverage necessary to fully support military operations.

MILSATCOM systems, notably the Defense Satellite Communications System (DSCS) and the Military Strategic and Tactical Relay System (MILSTAR), support contingency and ongoing operations. The first DSCS SLEP satellite, launched in January 2000, provides users a 200% increase in military wideband communications capacity compared to legacy DSCS III satellites. It also increases the overall reliability of the military wideband constellation. Early in 2001, the MILSTAR constellation received a third operational satellite, to provide jam-resistant communications for tactical operations. Furthermore, a complete modernization of protected communications (advanced extremely high frequency) and wideband communications (advanced wideband) is underway. These are positive steps toward ensuring space superiority and information superiority today and in the future.



*We require additional MILSATCOM capability to lessen our dependence upon expensive and highly sought-after commercial bandwidth.*

While the long-haul communications provided by satellites is crucial to operations, transporting

information to in-garrison and deployed units is equally vital. Theater deployable communications provide lightweight multiband satellite terminals that allow our deployed forces to reach back on the Global Command and Control System–Air Force (GCCS–AF) via the Combat Information Transport System — our high-capacity fiber-optic backbone. This capability allows combat forces to quickly deploy with a smaller support structure. We are also implementing innovative emerging technologies to maximize bandwidth availability. This is especially critical given the commercial expansion into the frequency spectrum used by the military.

### **Information Warfare**

We have fielded eight information warfare flights (IWF) to date, providing combatant commanders with full-spectrum information warfare (IW) planning for offensive, defensive, kinetic, and non-kinetic applications. We plan to field at least one additional IWF to support U.S. Special Operations Command. Each IWF integrates offensive counterinformation, defensive counterinformation, and information-in-warfare functions to gain, exploit, attack, and defend both information and information systems. We recognize the potency of psychological operations and, therefore, include it in our strategic planning as part of our IW capabilities.

### **Intelligence, Surveillance, and Reconnaissance**

Currently, our limited numbers of airborne ISR systems are in extremely high demand. The RC-135 Rivet Joint, U-2, and Predator UAV were



*Global Hawk's capability to loiter on-station for 24 hours gives us the persistence a manned platform simply cannot provide.*

indispensable during Operation ALLIED FORCE, providing real-time PGM target data, threat warning, and battle damage assessment. UAV systems, such as Global Hawk and Predator, promise to expand our ISR collection capability while reducing the need to place our people in harm's way.

Global Hawk successfully completed a military utility assessment and is poised to move forward as a formal Air Force acquisition program with the delivery of production vehicles in FY03.

***“UAV systems, such as Global Hawk and Predator, promise to expand our ISR collection capability...”***

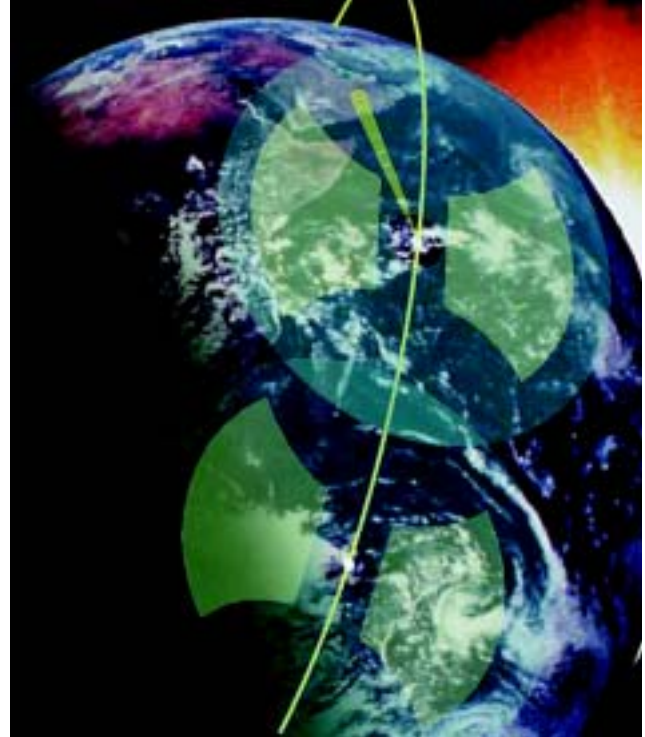
The Predator continued to demonstrate impressive expandability with the integration of a laser illuminator for PGMs and the recent successful launch of a Hellfire-C missile against a ground target. Additionally, we are nearing completion of a major upgrade to the U-2's sensors, cockpit, defensive, and power systems.

### **Space-Based Radar Capability**

We are evolving information superiority assets into space. New sources and methods of space-based ISR are being explored to provide nearly continuous overflight of enemy targets to complement airborne and ground-based sensor platforms. We are partnering with other Services, agencies, and the National Reconnaissance Office (NRO) to develop a roadmap for future space-based radar (SBR) capabilities.

***“Space-based radar capability would skip a generation of sensor technology to provide precision weapons data and a nearly continuous deep, denied-area look at ground moving targets.”***

SBR is a pioneering approach to providing near-continuous, worldwide surveillance that would complement JSTARS and other ground moving target indication and imagery systems. SBR capability would skip a generation of sensor technology to provide precision weapons data and a



*In coordination with other agencies and Services, we are developing a space-based radar roadmap.*

nearly continuous deep, denied-area look at ground moving targets. Furthermore, as a space-based asset, SBR would not be limited by overflight restrictions, basing issues, lengthy personnel deployments, crew fatigue, or terrain masking.



*In addition to being able to detect, locate and track large numbers of ground vehicles, the JSTARS radar has a capability to detect helicopters, rotating antennas, and low, slow-moving, fixed-wing aircraft.*

From a collection perspective, SBR would move us to the ultimate high-ground.

### **Joint Surveillance Target Attack Radar System**

The JSTARS provides battle management, C<sup>2</sup>, and ground moving-target detection. We are replacing the on-board computers with commercial-off-the-shelf equipment by 2005 under the JSTARS Computer Replacement Program (CRP). The CRP

is the foundation of all JSTARS communications and sensor upgrades, and should reduce life-cycle costs and minimize the number of obsolete parts. However, due to fiscal constraints, we are enhancing only 2/3 of the fleet with the capacity to simultaneously transmit voice and data through beyond-line-of-sight satellite communications by 2005. Finally, the multi-platform Radar Technology Insertion Program (RTIP) will replace the current JSTARS radar with an advanced electronically scanned array radar that has five to ten times the air-to-ground surveillance capability, reduces target revisit times, improves moving-target track capability, and enhances radar resolution.

### **Airborne Warning and Control System**

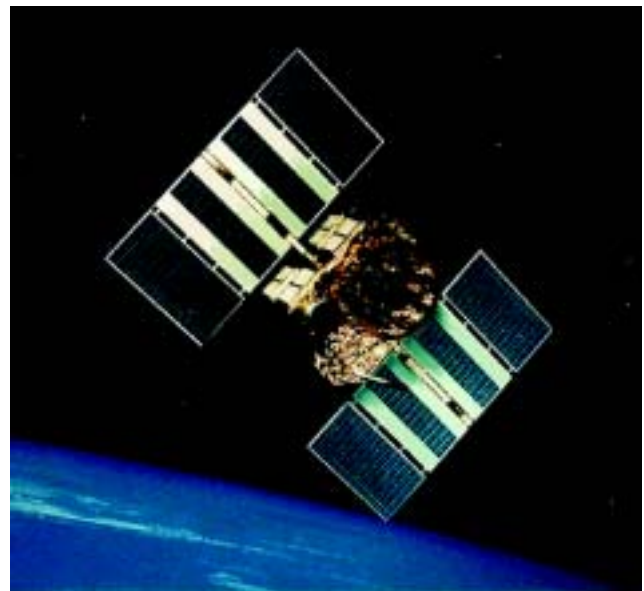
The AWACS remains the premier air battle management and wide-area surveillance platform in the world. Still, aging aircraft issues, obsolete technologies, and the proliferation of advanced adversary systems necessitate several upgrade programs. An improved radar system will become operational this year, with fully upgraded capability slated for FY05. The next computer and display upgrade will replace the 1970 vintage processors with an open architecture system. Finally, a satellite communications access program will provide improved connectivity with regional and national C<sup>2</sup> centers.



*A long-term AWACS replacement is required, but development lead-times will force us to upgrade the current AWACS well into the next decade.*

### **Global Access, Navigation, and Safety**

In 1996, we began the most comprehensive avionics modernization effort in our history — the Global Access, Navigation, and Safety (GANS)



*The GPS constellation provides uninterrupted navigation capability by using 24 satellites that ensure continuous worldwide access.*

program. It comprises an unparalleled avionics procurement and installation effort to update the navigation and safety equipment in our aircraft and in many ground systems. GANS includes the Joint Precision Approach and Landing System; the Air Traffic Control and Landing System; modernization of our Global Air Traffic Management (GATM) capabilities; and updated avionics to include navigation, safety, and installation of Global Positioning System (GPS) capability. In May 2000, GPS selective availability was turned off, thereby providing the same accuracy to civil and military users. This increased accuracy will significantly enhance the capabilities of systems using GPS. In 2000, we built a strategic GANS implementation plan to synchronize our efforts with those of the Federal Aviation Administration (FAA) and International Civil Aviation Organization (ICAO). In the future, GANS will define the operational requirements for upgrading all our ground and air traffic management systems to preserve unimpeded worldwide operations within domestic and international airspace systems.

We project that more than 99% of our aircraft will complete the congressionally mandated GPS upgrade by the 2005 deadline. Additionally, through our GPS Modernization/Navigation Warfare (NavWar) Program, we began development

of navigation warfare upgrades that will be fielded in GPS ground and space segments beginning in FY03. These and future upgrades will allow us to better protect the ability of American and allied forces to employ GPS on the battlefield while denying it to our adversaries and minimizing potential impacts to civilian users.

## **Core Competency** **Precision Engagement**

Operation ALLIED FORCE demonstrated the need to strike targets in adverse weather conditions with precision. Our new generation of guided weapons couples GPS with an inertial navigation system to put bombs precisely on targets, day or night, in nearly all weather conditions. Weapons with this capability, such as the Joint Air-to-Surface Standoff Missile (JASSM), Joint Standoff Weapon (JSOW), Joint Direct Attack Munition (JDAM), and Wind Corrected Munitions Dispenser (WCMD) are among our high-priority precision engagement programs.

***“Our new generation of guided weapons couples GPS with an inertial navigation system to put bombs precisely on targets, day or night, in nearly all weather conditions.”***

JASSM is a precise, stealthy, standoff missile that will enable us to destroy heavily defended, hardened, fixed, and relocatable targets. As a result of acquisition reform initiatives, JASSM will be delivered below the objective unit price of \$400K, after a development period that will be 35% shorter than comparable missile programs. JASSM is currently undergoing flight tests with production deliveries scheduled to begin in 2003.

JSOW is an accurate, adverse-weather, unpowered, glide munition. We are currently procuring two variants, the AGM-154A and AGM-154B, which are capable of destroying soft and armored targets at ranges of up to 40 nautical miles.

JDAM employs GPS guidance, incorporated in a tail kit, to deliver general-purpose or penetration warheads in adverse weather with near precision. We will use JDAM on multiple platforms to destroy

high-priority, fixed, and relocatable targets. The first operational use of a 2,000-pound JDAM was from a B-2 during the first night of Operation ALLIED FORCE.



*The F-22 will employ the 1,000-pound JDAM against anti-access and air defense systems.*

We are currently developing a MK-82 (500-pound) JDAM — a small bomb that will multiply kills per sortie by increasing the number of PGMs that can be carried. For example, the same B-2 that carried up to 16 2,000-pound JDAMs in Operation ALLIED FORCE will now be able to carry up to 80 500-pound JDAMs. This 500-pound JDAM capability, planned for initial deployment in FY04, is the first step in the Air Force’s transition to miniature munitions.

***“...500-pound JDAM — a small bomb that will multiply kills per sortie by increasing the number of PGMs that can be carried.”***



*The WCMD enables combined-effects munitions to be released from high altitude — maintaining precision while limiting the risk to aircrew.*

WCMD has an inertial-guided tail kit that enables us to accurately deliver the Combined Effects Munition, Sensor Fuzed Weapon, and the Gator Mine Dispenser from medium to high altitude in adverse weather. WCMD-equipped weapons became operational in late 2000.



*The Conventional Air-Launched Cruise Missile (CALCM) replenishment program is on track with delivery of the last CALCM scheduled for December 2001.*

In summary, munitions recapitalization is one of our top priorities. A decade of high operations tempo has depleted our large Cold War reserve munition stockpiles. Acquisition of JDAM, JASSM, JSOW, and WCMD will increase PGM capabilities over the next few years; however, shortages of legacy munitions and consumable munitions items (e.g., bomb bodies, rockets, chaff, flares, training ammunition, and practice bombs) will continue to hamper training and operations.

## Core Competency

### **Global Attack**

Global Attack is the ability to engage targets anywhere, anytime. Global attack programs include the development of the Joint Strike

Fighter (JSF), improvements to our legacy fighters, and the modernization of the B-1, B-2, and B-52 bombers with PGM capabilities. Additionally, modernization of strategic platforms such as the Minuteman III, the Air-Launched Cruise Missile, and the Advanced Cruise Missile ensures the viability of two legs of the nuclear triad.

### **Joint Strike Fighter**

The Joint Strike Fighter (JSF) program will develop and field an affordable, lethal, survivable, and highly common family of stealthy, next-generation, multi-role, strike-fighter aircraft for the Air Force, Navy, Marine Corps, and our allies. It will provide a twenty-four hour, adverse-weather, precision-engagement capability not provided by our legacy systems. The JSF would help us limit our aging fleet problems. With a set of fully validated and affordable joint operational requirements in place, the competing contractors are completing the concept demonstration phase. The EMD phase is expected to begin in the fall of 2001. Partner countries will share the cost of JSF development, including the United Kingdom, which signed an agreement in January to contribute \$2 billion to the program. Several parallel negotiations are underway with other potential international partners.



*The unprecedented commonality of the JSF variants (over 70% by airframe weight) significantly decreases procurement costs while increasing interoperability between the Services and our international partners. Above are the two competing JSF demonstrators.*



*At the same time our aging legacy fighters are becoming prohibitively expensive to maintain and operate, the proliferation of inexpensive, but advanced aircraft available to our adversaries is closing our lead in technological superiority.*

### **Legacy Fighter Modernization**

Our legacy fighters, including the F-15, F-16, and A-10, provide a potent mix of air-to-air and air-to-surface capability. The recent addition of GPS-guided PGMs on the F-117 gave it an adverse-weather capability. However, these aging platforms are growing more expensive to maintain and operate, and their combat effectiveness is expected to eventually decline as projected surface-to-air and air-to-air threats appear. The introduction of the stealthy F-22 and JSF will maintain America's technological advantage, ensuring the ability to defeat emerging threats while replacing aging force structure with modern combat systems.

***“...introduction of the stealthy F-22 and JSF will maintain America's technological advantage, ensuring the ability to defeat emerging threats while replacing aging force structure with modern combat systems.”***

One of our Guard and Reserve's top modernization priorities is incorporating precision targeting pods

into their F-16 aircraft. From 1998 through 2000, we outfitted all of our Reserve units and selected Guard units with LITENING II pods. This acquisition gave the Guard and Reserve's F-16s a critical precision strike capability while moving them closer to the configuration of the active F-16 force. Beginning in FY01, the Guard will join with the active force in procuring the Advanced Targeting Pod (ATP). Collaborative programs between our active and reserve components increase our overall procurement flexibility and close the gap in combat capability.

### **Bomber Modernization**

Our bomber modernization efforts will continue to increase the lethality and survivability of our bomber force by enhancing precision strike and electronic combat capabilities. We are applying the lessons learned from Operation ALLIED FORCE by enhancing the flexible targeting and



*Stealthy, high-altitude, and long-range — the B-2 is the most survivable aircraft ever built.*

electronic connectivity of the B-2 using electronic data-link and UHF satellite communications. We are committed to integrating the MK-82 500-pound JDAM into the B-2, enabling it to strike up to 80 targets per sortie. Further, we are fielding the MK-84 2,000-pound JDAM on the B-1 and developing the capacity for both the B-1 and the B-52 to deliver JSOW, JASSM, and WCMD. Communications, avionics, situational awareness, electronic countermeasures, and defensive system upgrades would also improve bomber effectiveness.



*Minuteman and Peacekeeper modernization are dependent upon Start II deactivation requirements and congressional prohibitions from expending dismantlement funds.*

## **Intercontinental Ballistic Missiles**

Ongoing modernization of the Minuteman III (MM III) intercontinental ballistic missile (ICBM) force and a clear policy decision regarding the future of the Peacekeeper (PK) ICBM are crucial to the viability of ICBMs through 2020. For example, we could dismantle our PK ICBMs and then retrofit up to 350 MM IIIs with warheads currently on PKs to avoid a costly life-extension program on the Minuteman system. This replacement effort would ensure that our newest warhead, with the most modern safety features, remains part of the ICBM force. However, continued delays in START II Treaty ratification, and the resultant delay in a PK deactivation decision, make it difficult to implement this program and are causing increased maintenance challenges that could eventually cause degradation of our ICBM force.

## **Core Competency Rapid Global Mobility**

Rapid Global Mobility ensures the nation has the global reach to respond quickly and decisively anywhere in the world. As the number of

***“Airlift and tanker aircraft give the United States the ability to rapidly reach out and influence events around the world.”***

forward-deployed forces has declined, the need for immediate response to overseas events has risen. Airlift and tanker aircraft give the United States the ability to rapidly reach out and influence events around the world. Yet, some of these platforms are reaching the end of their service life. To prepare for the future, the Mobility Requirements Study (MRS-05) and Tanker Requirements Study (TRS-05) were commissioned to determine long-term military airlift and aerial refueling requirements.



*The MRS-05 study examined the number and mix of mobility systems required to meet the nation's airlift needs.*

MRS-05 ascertained the mobility requirements to support the nation's military needs with moderate risk. Additionally, the TRS-05, baselined from MRS-05, will inform our decision-makers on the number of tankers needed to carry out future military operations. The KC-135 fleet now averages about 40 years old, and operations and support costs are escalating as structural fatigue, corrosion, systems supportability, and technical obsolescence take their toll. The KC-135 Economic Service Life (ESL) Study was completed in December 2000. This study provided specific KC-135 milestones, as well as information on projected sustainment costs and operational availability. In FY01, using the KC-135 ESL study and TRS-05 as baselines, an aerial refueling analysis of alternatives



*The KC-135 averages 40 years old. We are considering a service life extension program (SLEP) for the existing fleet, replacement with a commercial aircraft, or replacement with a developmental aircraft.*

will examine options and timing for replacing the aging KC-135.

The procurement of the full complement of C-17s and the continued modernization of the C-5, C-130, KC-10, and KC-135 fleets will enhance the viability of our mobility forces. Extensive efforts to modernize the C-5's avionics and propulsion systems should keep this aging platform operational for the future.

Modernization of the C-130 fleet (for intratheater airlift) is proceeding with a two-pronged approach. We are procuring new C-130Js to replace 150 of our most worn-out 1960s-era C-130E combat delivery aircraft. The C-130J provides increased range, performance, and cargo capacity compared with the current C-130E/Hs. The remainder of our C-130 fleet will undergo an avionics modernization program (AMP) modification. AMP includes state-of-the-art avionics that will eliminate the need for a navigator and will increase reliability, maintainability, and sustainability. The C-130 AMP modification will make the aircraft compliant with GATM standards and navigational safety requirements.

The Air Force has begun a large aircraft infrared countermeasures (LAIRCM) initiative to counter increasingly prolific man-portable air defense systems (MANPADS). LAIRCM will use state-of-the-art technology to provide active defenses for airlift- and tanker-sized aircraft against widely deployed shoulder-launched surface-to-air missiles.

LAIRCM will build on existing systems designed for helicopters and small, fixed-wing aircraft. It will add new missile warning and tracking systems to locate and direct a laser at an incoming missile. Operational capability is expected on the first C-17s in FY04. Additional airlift and tanker aircraft will be outfitted with this system in the near future.



*Thirty-eight T-119 aircraft loaders were used to move more than 53,000 tons of cargo during Operation ALLIED FORCE.*

Rapid Global Mobility is dependent upon the T-119 60K mobility aircraft loader. It is essential for expediting on-load and off-load and maximizing throughput at any location. The next generation small loader (NGSL), a replacement for existing 25K loaders and wide-body elevator loaders, will provide the versatility to load wide-body commercial aircraft and support mobility operations at forward bases.

### **Integrated Flight Management Modernization**

Air Mobility Command's (AMC) Mobility 2000 (M2K) program is a comprehensive systems integration and C<sup>2</sup> architecture modernization initiative to increase the efficiency and responsiveness of airlift and air refueling operations. M2K will revolutionize AMC's C<sup>2</sup> data flow and connectivity, data processing, database management, and information display capabilities. By leveraging GATM system installation and digital datalink technologies, AMC will realize near-real-time global, end-to-end data connectivity between the Tanker Airlift Control Center and all AMC mission aircraft. The implementation of M2K programs began in 2000 and will continue into 2006.

## Spacelift Range Modernization

The Spacelift Range System (SLRS) modernization program is replacing aging and non-supportable equipment; using automation to improve reliability and efficiency; reducing the cost of operations; and standardizing equipment on the Eastern and Western launch ranges. To date, the completion of new downrange satellite communication links, a new fiber-optic network, and new range scheduling systems are providing government and commercial users more flexibility at the spacelift ranges. The congressionally directed National Launch Capabilities Study concluded that once completed, the SLRS modernization program, coupled with the EELV program, would meet the future launch demands of national security, civil, and commercial payloads.

The White House-led Interagency Working Group on the future utilization of U.S. space launch bases and ranges developed a strategic direction for the spacelift ranges. The Air Force was instrumental in shaping that strategic direction as well as the findings and conclusions contained in the Group's report. Through this effort, we have been expanding and formalizing partnerships with states, spaceports, and the Departments of Transportation and Commerce to better consider the spacelift requirements for civil and commercial launches while ensuring our capability to meet national security requirements now and in the future. At the same time, we are examining options for the use of non-federal funding to improve the space launch ranges.

### CV-22

The CV-22 is our designation for the special operations variant of the V-22 Osprey — a vertical/short-takeoff and landing airplane designed for long-range, rapid penetration of denied areas in adverse weather and low visibility. With twice the range and speed of a conventional helicopter and its state-of-the-art avionics system, the CV-22 will be able to complete most of its missions under the cover of darkness without being detected. We will use the CV-22 to infiltrate, exfiltrate, and resupply special operations forces and to augment personnel recovery forces when needed. The CV-22 is currently in the EMD phase with two test vehicles designated for flight tests through 2003.



*The SLRS modernization program will make our ranges more responsive to future launch demands.*

## Core Competency Agile Combat Support

The goal of Agile Combat Support (ACS) is to improve the responsiveness, deployability, and sustainability of combat aerospace forces. Our four basic objectives are to become more rapidly deployable; develop a more responsive planning and execution capability; improve agile combat support C<sup>2</sup>; and develop an agile, responsive, and survivable sustainment capability. We are making gains in the process of right-sizing deployment teams so they are postured better for expeditionary needs. We have developed expeditionary site planning tools that help tailor our deployment capability based on assets prepositioned in the forward theater. We are gradually introducing bare base assets and other types of support equipment into our inventory. We've invested in infrastructure and prepositioning to improve the reception and beddown capabilities of our bomber forward-operating locations. We have fielded an integrated deployment system at all of our wings that improves the responsiveness of our deployment process. Our information technologies, such as the virtual logistics suite hosted on the Air Force Portal, will help provide real-time situational awareness for ACS command and control.

Through efforts like our logistics review and logistics transformation initiatives, we are reengineering our processes to achieve an agile, effective, well-integrated logistics chain that is responsive to EAF requirements. These are all examples of initiatives that will help achieve our four ACS objectives; however, our ACS capability must be improved even more to fully support our

EAF vision. For example, we need to fix readiness shortfalls in key logistics resources including people, skills, spares, munitions, bare base assets, and vehicles. We need to improve our capability to rapidly develop deployment and sustainment plans for fast-breaking contingencies. Finally, we are making enhancements to our ACS command and control capability to make it more responsive, better integrated, and sufficiently robust to support EAF needs. These agile combat support initiatives are crucial to sustaining current and future combat operations.



*Our enhanced beddown capabilities include this Harvest Falcon equipment, part of a 1,100-person housekeeping set of tents, electrical generators, and billets.*

### **Aircrew Training Requirements**

We are actively updating the way we train. The Joint Primary Aircraft Training System (JPATS), including the T-6A aircraft, will replace the Air Force T-37 and the Navy T-34 primary trainers and their associated ground-based training systems beginning in June 2001 at Moody AFB, GA. We will continue to upgrade the T-38 advanced trainer aircraft with new avionics representative of current fighter systems while modernizing the propulsion system to improve engine reliability, safety, efficiency, and performance. Finally, we are making significant strides in developing simulated environments that produce training effects comparable to authentic environments. Our groundbreaking distributed mission training (DMT) system seamlessly links aircrew training devices at diverse locations, allowing aircrews to train as they fight.



*Distributed Mission Training (DMT) provides a realistic training environment at a lower cost by linking multiple simulators at geographically separated locations.*

### **Ranges**

Ranges provide the critical airspace we need to test and train on our weapon systems. As modern aircraft continue to fly faster and deliver munitions from a greater distance, our ranges and associated test and training systems must evolve to meet our changing needs. We will balance our need to test and train with our responsibilities to the public and the environment. We are completing modifications to our range and airspace structure that will significantly enhance local training for our forces at Mountain Home AFB, ID, Dyess AFB, TX, and Barksdale AFB, LA. We are also working to further advance the integration of space and information operations into our ranges. This includes capitalizing on a common infrastructure across the test and training spectrum.

### **Innovation and Adaptation**

We have a proud heritage of innovation and adaptation. We are carefully linking emerging technologies with our future concepts of operation to evolve our aerospace core capabilities while providing the nation the most effective return on its investments.

### **Experimentation and Wargames**

We conduct experiments and wargames to evaluate near- and far-term aerospace capabilities and operational concepts. Joint Expeditionary Force Experiment (JEFX) 2000, conducted at various

locations throughout the U.S. in September, focused on ways to integrate support functions into expeditionary operations and technologies to conduct time sensitive targeting. The wargame Global Engagement (GE) is held every other year to explore the potential capabilities of joint aerospace power and alternative force structures 10 to 15 years into the future. In June 2000, GE-V explored operational concepts and alternative force structures designed to deny and degrade an adversary's strategic decision-making ability and accelerate the transition from halt to win. GE-V also demonstrated aerospace power's unique capability to ensure access to operational areas where the enemy employs robust anti-access strategies. We are currently conducting a year-long analysis of GE-V in areas such as time sensitive targeting, space control, information operations, and forward logistics support. During odd-numbered years, we conduct an aerospace future capabilities wargame that takes a longer view, striving to shape our decisions and strategic direction by testing alternative concepts, systems, and force structures that may appear 20 to 25 years into the future. These wargames have produced new aerospace concepts, such as standoff warfare and reach-forward C<sup>2</sup> capability, which continue to mature through follow-up analysis and subsequent wargames.



*Former Chairman of the Joint Chiefs of Staff, General John Shalikashvili, USA retired, (right), and Lieutenant General Joe Hurd, USAF retired, (left), discuss the implications of GE-V during the wargame's after action session.*



*The Space Based Space Surveillance Operations (SBSSO) ACTD utilizes a soon-to-be de-orbited satellite to identify objects in earth orbit. About 80% of "lost" space objects have been identified during the past year.*

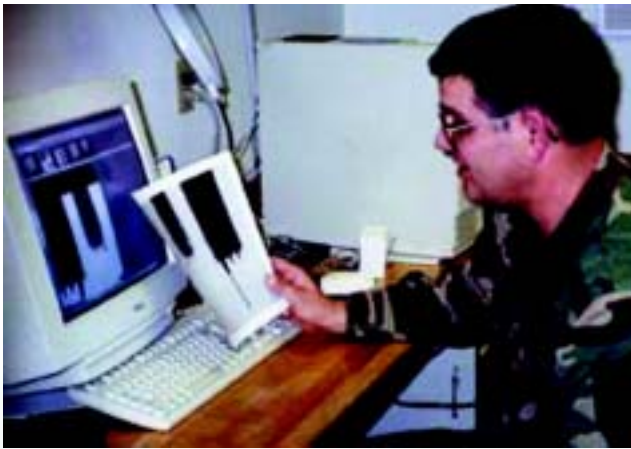
### **Advanced Concept Technology Demonstrations**

Advanced concept technology demonstrations (ACTDs) marry new operational concepts with mature technologies in order to meet warfighter needs in two to four years at a reduced cost. The high altitude UAV ACTD, Global Hawk, which has successfully transitioned to a formal acquisition program, is targeted for accelerated production and is expected to provide a follow-on capability for the U-2. The Miniature Air Launched Decoy (MALD), another ACTD system scheduled to enter production in FY01, will augment our electronic warfare capability to protect valuable strike packages.

***"The high altitude UAV ACTD, Global Hawk, which has successfully transitioned to a formal acquisition program, is targeted for accelerated production and is expected to provide a follow-on capability for the U-2."***

### **Battlelabs**

Since their inception in 1997, the battlelabs have developed over 100 initiatives, including the



*Our seven battlelabs identify innovative operational concepts which exploit mature technologies. Employing digital x-ray equipment to inspect aircraft began as a successful battlelab initiative.*

application of commercial scheduling software for the Air Force Satellite Control Network, telecommunications firewalls for base phone systems, and the use of speech recognition to reduce mission planning time. The recently commissioned Air Mobility Battlelab joined the ranks of the Air Expeditionary Force Battlelab, Command and Control Battlelab, Force Protection Battlelab, Information Warfare Battlelab, Space Battlelab, and Unmanned Aerial Vehicle Battlelab, with a charter to rapidly identify and assess innovative operational and logistics concepts.

### **Joint Test and Evaluation**

The Air Force plans to remain at the forefront of the joint test and evaluation (JT&E) process.

JT&E programs are a means to bring two or more of the Services together to evaluate systems interoperability under realistic conditions. We are the lead service on five JT&Es in the areas of close air support; joint command, control, ISR sensor management techniques; cruise missile defense capability; GPS vulnerabilities; and electronic warfare in joint operations.

### **Conclusion**

Our future hinges on continued advances in people, readiness, and modernization programs. Retention and recruitment of people will stay challenging in the near-term, but we will remain focused on the quality of life of our members. Similarly, we are concerned about readiness, but until we solve our aging aircraft troubles, improving our readiness will remain difficult. We believe we have developed a sound recapitalization plan to address our aging aircraft problem, but if the plan is approved, we would require additional funding to execute it. Modernization brings increased readiness, along with new technologies and enhanced capabilities. We will continue to innovate and adapt our revolutionary advances in space technology, directed energy, and unmanned aerial vehicles, to name only a few. Our efforts span the gamut of the world's most diverse, flexible, and powerfully integrated aerospace force. We must balance and fund our people, readiness, and modernization programs to ensure aerospace power for America well into the future.



## Chapter 5

# Reforming Business Practices

The budget constraints of the past decade have forced us to take a hard look at our business practices. We have undertaken aggressive efforts to realize cost efficiencies by benchmarking the best business and management practices, whether in government or industry, and then adapting them to our unique environment. During the past year, we made significant progress in improving how we do business in everything from competitive sourcing of personnel positions to the flow of information within the Air Force Headquarters.

### ***Leveraging Information Technology***

We made some tremendous progress in 2000 in the way we plan for, acquire, and protect our information technology (IT). We started by creating the position of Principal Deputy Assistant Secretary of the Air Force for Business and Information Management to centralize IT decision-making and implement an Air Force-wide process to assess our IT investments in preparation for future budgeting efforts.

Driving our IT efforts is our “One Air Force, One Network” strategy, a multi-layered approach to integrating operations, people, technology, and oversight through an enterprise-wide, network-centric concept. Included in this strategy is the establishment of the Air Force Portal, the consolidation of our servers, and improvements in information assurance (IA). The Air Force Portal will provide all our members with a platform-independent, single logon capability to meet practically all their information needs. Currently, network-based access allows our members to logon anywhere in the world, supporting over 75 applications. The migration of most of our critical databases is planned for the near future.

In 2000, we saw the initial consolidation of our servers improve the utilization of our computer resources. We have created teams of experts at central sites and reduced our exposure to outside threats. Our goal is to have one base from each major command completed by August

2001 and all bases by September 2002. Our strategy advances IA through standardized practices and procedures; integrated network operations and information protection; automated and dynamic detection and response; consolidated situational awareness and decision support; and enhancements for deployed and classified environments. We are committed to IA as our top information warfare priority for long-term investment.



*Our biggest IT challenge remains the funding of our base IT infrastructure, especially the fiber-optic cable backbone. Cost savings obtained through our consolidation and integration efforts will mitigate some of our “infostructure” funding requirements.*

Finally, our Global Combat Support System-Air Force (GCSS-AF) is key to integrating our critical combat support information systems and processes across functional areas. GCSS-AF incorporates the Air Force Portal, allowing customer specific access while permitting the customization of information within our business information systems. Together, GCSS-AF and the Air Force Portal will provide the warfighter, supporting elements, and other Air Force members with timely and accurate data and the capability to transform this data into meaningful information. Seamlessly incorporating combat support into war planning allows military planners to improve their course of action development, analysis, and collaborative planning; and it measurably streamlines our business processes.

## **Competitive Sourcing**

Our public/private manpower competitions are a defense reform initiative success story. In 2000, we began new competition studies impacting 2,895 positions, as required by Office of Management and Budget Circular A-76. The A-76 circular calls for the review of government functions meeting specified criteria, and competition with private-sector firms to determine the most efficient and cost-effective method to perform the work. In 2000, we concluded 30 competitions that covered 5,534 positions. These competitions resulted in 46% of the work being contracted, and the remainder being performed by the most efficient government organization. Both results yielded significant cost savings. As of April 2001, we have completed 48% of the A-76 competitions targeted by the 1997 QDR and the Defense Reform Initiative. Our annual top-to-bottom review of our manpower authorizations identified an additional 3,491 positions as eligible for competition.

## **Privatization**

### **Utilities**

Defense Reform Initiative Directive (DRID) #49 directed the privatization of all utility systems by September 30, 2003, except those needed for unique mission or security reasons, or when privatization is uneconomical. This

included two interim milestones: determining the feasibility of privatizing each system by September 30, 2000, and releasing all requests for proposals by September 30, 2001. Currently, we have completed the first milestone by determining whether or not to pursue privatization for each system (i.e., water, wastewater, electrical, and natural gas). This evaluation resulted in 434 systems becoming candidates for privatization. We continue to assess our options, and are now preparing the requests for proposal that are required to meet the second milestone.



*The renovation and construction of military housing units is key to our quality of life initiative to provide safe, affordable housing.*



*Our personnel are working hand-in-hand with commercial utilities to privatize 434 Air Force utility systems.*

## **Housing**

The 1996 National Defense Authorization Act provided legislation to privatize military family housing. Privatization efforts are underway to meet the goal of eliminating inadequate military family housing units by the year 2010. We have awarded 4 of 9 pilot projects to privatize 6,280 housing units. During FY01-04, we plan to privatize over 21,000 housing units at 22 additional installations. Our privatization efforts are part of our overall housing revitalization program outlined in our Family Housing Master Plan.

## **Acquisition Reform**

Today's environment demands continuous acquisition reform. We have consistently led the

way with new acquisition initiatives, or “Lightning Bolts,” and reinvention teams, which succeeded in saving more than \$30 billion during the last decade. Today, we are institutionalizing acquisition reform through new initiatives, such as the use of cost as an independent variable and reduction of total ownership cost, which improve acquisition affordability. In addition, we’ve recently developed an acquisition cycle-time reduction initiative known as the warfighter rapid acquisition process.

***“We have consistently led the way with ... ‘Lightning Bolts’ and reinvention teams that succeeded in saving more than \$30 billion during the last decade.”***

This initiative has the potential to speed up the development and deployment of innovative solutions to warfighter requirements by two to five years. Our motto of “faster and smarter” continues to guide us as we build upon the successful efforts of the past.

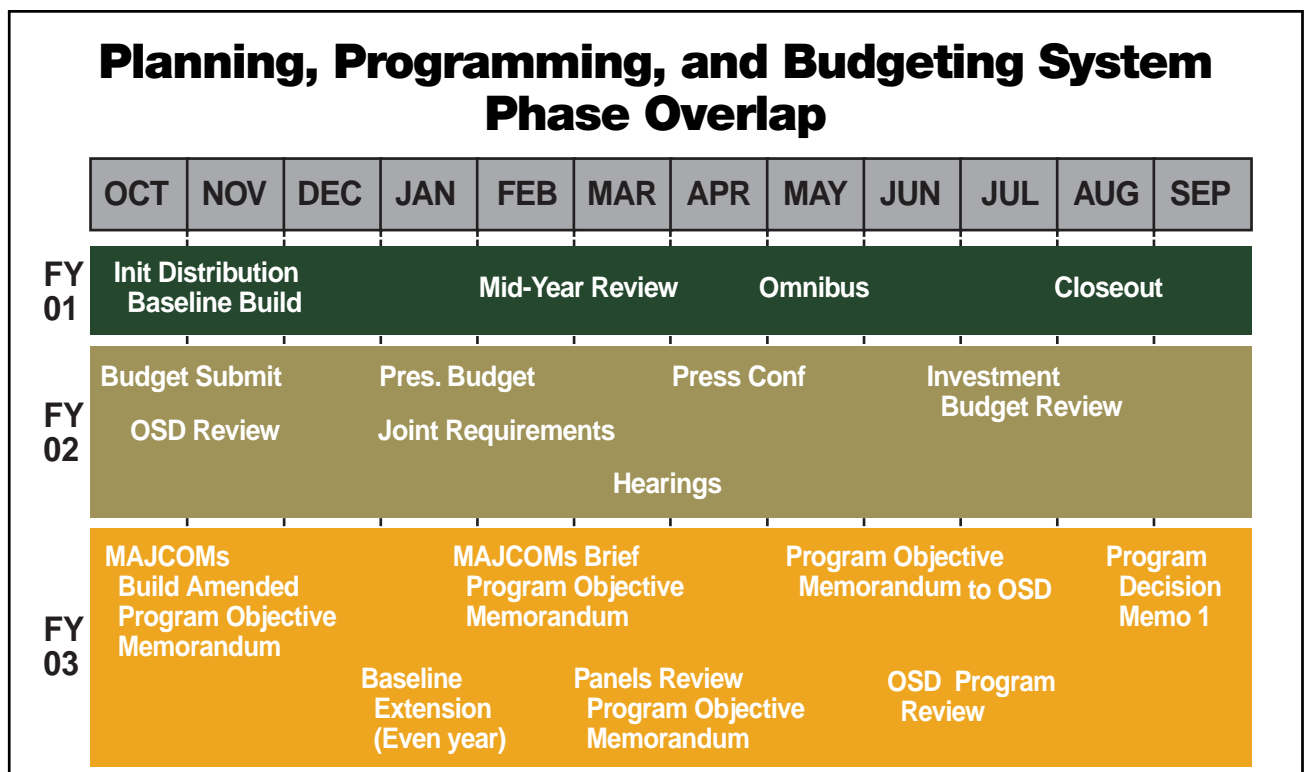
### **Partnership with Industry**

We have consistently counted on industry to deliver superior products at reasonable prices. Now, we

are institutionalizing partnering between industry and the warfighter. Initiatives such as teaming on proposals (TOPS) and total system program responsibility (TSPR) allow us to establish these partnerships early in the acquisition process. Integrated product teams extend this relationship throughout the acquisition life cycle. The process of alternative dispute resolution is now a part of all major acquisition projects, reducing the threat of expensive claims. We are reaching out to industry to maintain robust, rewarding, and healthy relationships. In our partnerships with industry, we are also developing a blueprint for defense reform that will guide future reform initiatives throughout the government. This blueprint was unveiled in February 2001. We will continue to look for new areas in which we can improve our partnership.

### **Planning, Programming, and Budgeting System Reform**

We are reengineering the Air Force Resource Allocation Process (AFRAP) to better link strategic planning, requirements generation, programming and budgeting, while providing a consistent focus on capabilities throughout the process. This new process will have a more rigorous and consistent analytical underpinning than earlier methods.



We are planning to give our major commands an explicit slice of total obligation authority with the flexibility to program funds to best meet their own priorities. We believe this approach will improve the accountability and visibility of our resource requirements during the DoD and congressional review and funding processes.

### **Financial Reform**

We continue to make progress toward achieving auditable financial statements as required by the Chief Financial Officer (CFO) Act. An Air Force integrated process team is resolving issues related to the reduction of erroneous or unsupported obligations. This, in turn, will enable us to achieve an auditable statement of budgetary resources. We are making efforts to validate at least four of our crucial inputs that provide the foundation for unqualified audit opinions on Air Force financial statements. All these efforts will provide better



*Our combined civilian and military finance team is working to make the Air Force more financially agile and accountable.*

financial information for Air Force commanders and managers.

### **Logistics Transformation**

The Defense Planning Guidance, DoD Logistics Strategic Plan, and Defense Reform Initiative Directive #54 (Logistics Transformation) all identified a requirement for the services to modernize their logistics programs. Accordingly, we initiated a logistics transformation effort designed to improve overall combat capability. Through improved supply chain management practices, this effort gives the warfighter a complete picture of the enterprise's supply, maintenance, and sustainment support activities affecting readiness. Reengineered logistical support concepts will directly support warfighter readiness with a tailored sustainment strategy for a downsized, but expeditionary force structure, that is within the budgets currently projected across the FYDP.

### **Depot Maintenance Strategy**

Over the past year, we conducted a comprehensive review of our depot maintenance strategy to ensure our capability is properly sized for both wartime and peacetime utilization. Our current depot posture and future planning has been influenced by the downsizing of our operational force; the reduction of our organic infrastructure; a more active and robust private sector; the introduction



*As a result of recent reviews and our experiences in Operation ALLIED FORCE, our depot strategy will ensure that we possess an organic "core" capability sized to support potential military operations.*

of new technologies; and recent depot legislation changes. This review reaffirmed that depot maintenance is a critical element of our overall warfighting capability. Our recent experience in support of Operation ALLIED FORCE once again proved the wisdom of having a ready and controlled source of depot maintenance. As a result, our depot strategy will ensure we possess an organic “core” capability sized to support potential military operations. In addition, we recognize the need to efficiently utilize our organic facilities during peacetime. To that end, our depots are allowed to pursue repair workload beyond their “core” requirements that is awarded through public/private competitions when doing so would increase their “core” production efficiencies or offer a “best value” source of repair.

## ***Conclusion***

In a time when the Air Force was asked to do more with less, we succeeded in reinventing our business approaches to capitalize both on the inherent strengths of our enterprise and the best practices found in the private sector. We are at the forefront of apportioning positions between military and civil service functions and those that can be accomplished by contract personnel. We are becoming interconnected with a single, Air Force-wide network that puts crucial information at everyone’s fingertips. We are reforming the acquisition process and partnering with industry, not only delivering products faster but assuring superior quality as well. In the last decade, our better business practices have saved billions of dollars, allowing us to revolutionize the application of aerospace power.



## Chapter 6

# Closing Thoughts

From the beginning of powered flight almost 100 years ago to the space-related operations we conduct today, we have demonstrated that we are an innovative and adaptive force. We were born of change and it remains a part of our nature. We will continue exploring new technologies and operational concepts to identify those that offer potential for evolutionary or revolutionary increases in capability.



In a world that is globally-connected, national security and international stability are vital foundations of America's prosperity. Ensuring security and stability requires global vigilance, reach, and power — global vigilance to anticipate and deter threats, strategic reach to curb crises, and overwhelming power to prevail in conflicts and win America's wars. We are postured to provide balanced aerospace capabilities across the full spectrum of military operations, but in order to maintain America's aerospace advantage we must recapitalize our force.

Our success as an aerospace force is founded on recruiting the finest men and women available and then retaining them. We must size, shape and operate the force to best meet the needs of our nation. Through the structure of our ten Aerospace Expeditionary Forces, we provide the Commanders-in-Chief (CINC) with trained-to-task forces, while adding predictability and stability to the lives of our airmen. We owe our people the education, equipment, and training to perform the missions we ask them to do. Finally, to keep our aerospace advantage, we must modernize and replace our worn out, aging, and increasingly difficult to maintain systems and infrastructure.



