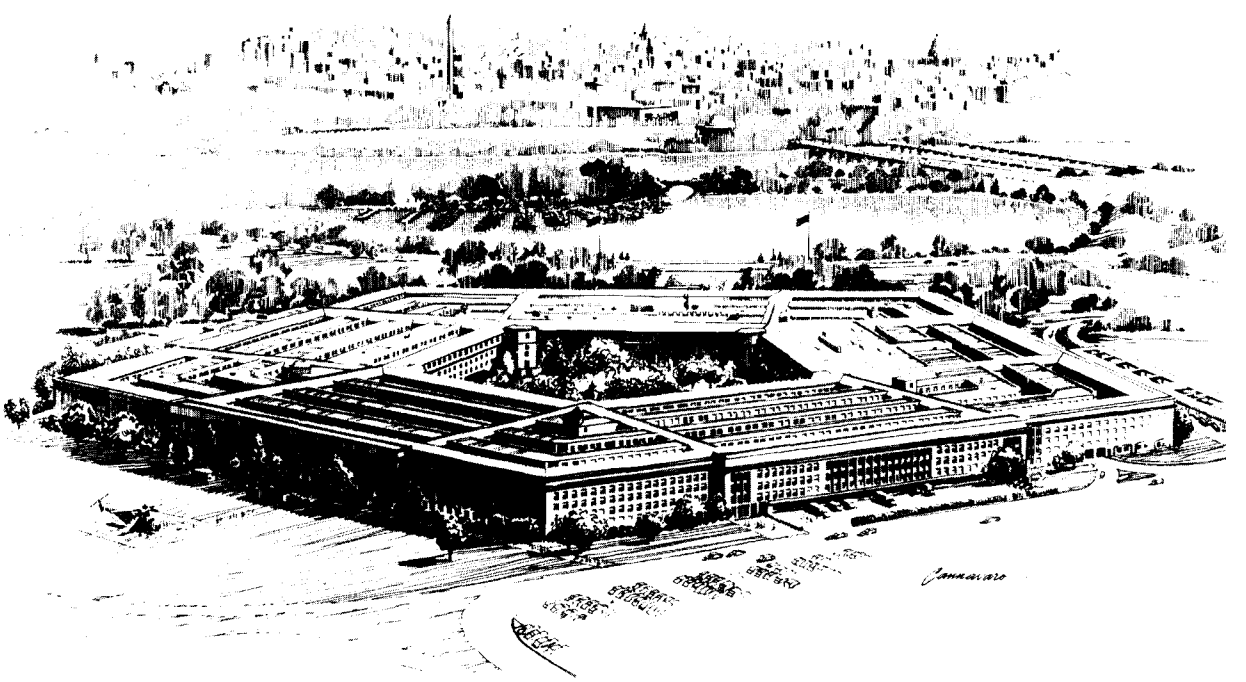
Annual Report

to the President and the Congress



William S. Cohen
Secretary of Defense

1999

The Annual Defense Report fulfills the requirements of Section 113(c) and (e) of Title 10 of the United States Code and Section 405 of the Department of Defense Reorganization Act of 1986 (Public Law 99-433).

Cover drawing of Pentagon was created by Don Cannavaro ©Cannavaro 1981. All rights reserved. Reprinted with the permission of Don Cannavaro. Permission for further duplication must be obtained from author.

Report of the Secretary of Defense to the President and the Congress

1999

TABLE OF CONTENTS

MESSAGE OF THE SECRETARY OF DEFENSE v

PART I: Strategy

CHAPTER 1 - THE DEFENSE STRATEGY 1

The Security Environment 1
The President's National Security Strategy 3
The Defense Strategy 4
Regional Applications of the Strategy 10
Conclusion 14

CHAPTER 2 - THE MILITARY REQUIREMENTS OF THE DEFENSE STRATEGY 15

Shaping the Security Environment 15
Responding To Crises 15
Characteristics of a Full-Spectrum Force 17
Conclusion 21

PART II: Today's Armed Forces

CHAPTER 3 - STRUCTURING U.S. FORCES TO IMPLEMENT THE DEFENSE STRATEGY 23

The Unified Combatant Commands 23
The Geographic Commands 24
The Functional Commands 26
Other Commands 28
Conclusion 29

CHAPTER 4 - READINESS 31

America's Force is Ready 31
Readiness and the National Security Strategy 32
Readiness Challenges 32
Meeting the Readiness Challenge 35
Conclusion 35

CHAPTER 5 - CONVENTIONAL FORCES 37

Threats 38
Force Structure 40
Investment 49
Conclusion 65

CHAPTER 6 - STRATEGIC NUCLEAR FORCES AND MISSILE DEFENSES 67

Strategic Nuclear Forces 67
Missile Defenses 71
Conclusion 75

CHAPTER 7 - INFORMATION SUPERIORITY AND SPACE 77

Chief Information Officer 78
C^4ISR and Space Forces 80
Intelligence, Surveillance, and Reconnaissance 87
Intelligence 89
Security and Information Operations 90
Conclusion 92

CHAPTER 8 - TOTAL FORCE INTEGRATION 93

The Total Force 93
The Imperative for Total Force Integration 94
Achievements and Initiatives 94
Conclusion 101

CHAPTER 9 - PERSONNEL AND QUALITY OF LIFE 103

Recruiting High Quality Individuals 103
Improving Force Management 106
Women in the Military 107
Civilian Personnel 108
Quality of Life 110
Health Care 117
Conclusion 119

PART III: Transforming U.S. Armed Forces for the 21st Century

CHAPTER 10 - THE REVOLUTION IN MILITARY AFFAIRS AND JOINT VISION 2010 121

The Transformation Strategy 121
The Revolution in Military Affairs 122
Information Superiority and Technological Innovation 122
Joint Vision 2010 123
Service Visions of Future Warfare 125
Conclusion 126

CHAPTER 11 - NEW OPERATIONAL CONCEPTS 127

Navy Concept - Network-Centric Warfare 127
Marine Corps Concept - Ship-to-Objective Maneuver 129
Army Concept - Strategic Preclusion Through Advanced Full-Dimensional Operations 130
Air Force Concept - Expeditionary Aerospace Force 131
Battlefield Operational Concepts 133
Conclusion 137

CHAPTER 12 - TRANSFORMATION 139

Joint Concept Development and Experimentation 139
Assuring Information Superiority 142
Science and Technology - Exploiting New Capabilities 144
Allied and Coalition Efforts 145
Conclusion 146

PART IV: Transforming the Department of Defense for the 21st Century

CHAPTER 13 - DEFENSE REFORM INITIATIVE 147

Business Practices 147
Streamlining the Organization 148
Public-Private Competition 149
Quality of Life Initiatives 149
Conclusion 150

CHAPTER 14 - FINANCIAL MANAGEMENT REFORM 151

Reform and Consolidation of Financial Management Operations 151
Strengthening Internal Controls 152
Adopting Best Business Practices 153
Conclusion 155

CHAPTER 15 - ACQUISITION REFORM 157

Civil Military Integration 157
Defense Acquisition Goals 2000 157
Expanded Single Process Initiative 161
Government Property 161
Past Performance 161
Performance-Based Contracting 162
Price-Based Acquisition 162
Privatization/Outsourcing 163
Statutory Report 163
Total Ownership Cost 163
Work Force Issues 164
Integrating Environment, Safety, and Occupational Health Into the Acquisition Process 165
Conclusion 165

CHAPTER 16 - INFRASTRUCTURE 167

Facility Management 167
Right-Sizing the Base Structure 170
Reducing Toxic Chemicals Releases at Installations 172
Conclusion 173

CHAPTER 17 - INDUSTRIAL CAPABILITIES AND INTERNATIONAL PROGRAMS 175

A Changing Competitive Environment 175
Working With Other Nations 179

Conclusion 181

PART V: The FY 2000 Defense Budget and Future Years Defense Program

CHAPTER 18 - THE FY 2000 DEFENSE BUDGET AND FUTURE YEARS DEFENSE PROGRAM 183

The Defense Topline 183
Priorities in the FYDP and FY 2000 Budget 184
Conclusion 185

PART VI: Statutory Reports

Report of the Secretary of the Army 187
Report of the Secretary of the Navy 197
Report of the Secretary of the Air Force 207
Report of the Chairman of the Reserve Forces Policy Board 219

APPENDICES

A. DoD Organizational Charts
B. Budget Tables
C. Personnel Tables
D. Force Structure Tables
E. Goldwater-Nichols Act Implementation Report
F. Defense Acquisition Workforce Improvement Report
G. Personnel Readiness Factors by Race and Gender
H. National Security and the Law of the Sea Convention
I. Freedom of Navigation
J. Government Performance and Results Act
K. Information Technology Management Goals
L. 1999 Federal Advisory Committee Justifications
M. Resources Allocated to Support and Mission Activities
N. Glossary

Message of the Secretary of Defense

MESSAGE OF THE SECRETARY OF DEFENSE

Events of the past year underscore a truth of our time: A strong and ready U.S. military is indispensable to the peace and security of our nation and the world. During 1998, America's armed forces kept the peace from Bosnia to the Sinai, struck blows against the terrorists who attacked our embassies in Africa and who were planning additional attacks against us, rescued and rebuilt lives in storm-ravaged Central America, and reinforced stability by remaining forward deployed in Europe and Asia. In the Persian Gulf region, U.S. and British forces undertook serious and sustained military action to contain Saddam Hussein and to degrade Iraq's ability to deliver chemical, nuclear, and biological weapons and its ability to threaten its neighbors.

These actions reflect our strategy to both protect America's interests today and to prepare for the threats of tomorrow. That strategy—based on the Quadrennial Defense Review (QDR)—is defined by three key elements: shaping the international security environment, responding to the full spectrum of crises when required, and preparing for the challenges of the future.

America's armed forces remain fully capable of executing this strategy, and the readiness of our forces first to fight in a potential conflict remain high. Nevertheless, ensuring readiness both today and tomorrow has grown increasingly difficult. Forces that would deploy in the later stages of a conflict are less ready, recruiting and retention rates have declined, and modernization schedules are tougher to maintain.

To meet this challenge, President Clinton has proposed that the United States begin the first sustained increase in defense spending in 15 years. The FY 2000 President's Budget makes available additional resources totaling $112 billion over the next six years. This meets the most pressing requirements identified by our senior military leaders by targeting funding in three key areas: people, readiness, and modernization.

TAKING CARE OF PEOPLE

Our budget reflects the imperative of providing a sound quality of life for our uniformed people—our top priority and a key element of ensuring readiness. Initiatives to address recent concerns over retention, recruiting, and quality of life include:

- Increasing retirement benefits so that, after 20 years of service, military personnel will retire at 50 percent of their basic pay regardless of when they entered the military.

- Increasing military pay by 4.4 percent, the largest increase since 1982.
- Increasing up to 5.5 percent those raises associated with promotions by changing military pay tables.

Pay will also increase for military personnel possessing certain critical skills. At the same time, we are improving the quality of life of our forces through upgrades and improvements to barracks and family housing.

PROTECTING READINESS TODAY

Readiness of our first-to-fight forces remains high, and overall our forces continue to be fully capable of executing the National Military Strategy. However, the intensity of military operations, the less-ready posture of later deploying forces, and other concerns require extra measures to ensure readiness. Our budget includes additional funding to ensure that America's armed forces remain ready to meet current missions, such as:

- In Europe, where U.S. military personnel are indispensable to NATO's efforts to cultivate peace and prosperity through efforts in support of peace in Bosnia and the former Yugoslavia, and through acceptance of new members to the Alliance.
- In East Asia and the Pacific Rim, where America's active engagement—including forward-deployed forces and close alliances with Japan, Korea, and others—remains the foundation of stability and security in the region as we pursue a policy of constructive engagement with China.
- In the Persian Gulf region, where U.S. forces maintain a robust presence and enforce the no-fly zones over Iraq.
- In Sub-Saharan Africa, where the U.S. military is pursuing humanitarian and demining efforts to promote the spread of peace and democracy.
- In the Americas, where the U.S. military has strongly supported relief efforts related to Hurricane Mitch, in addition to ongoing assistance and exchanges to support the transition to civilian control of the armed forces and the spread of democracy throughout the hemisphere.

In addition to $1.8 billion for ongoing Bosnia-related operations and $1.1 billion for operations in Southwest Asia, our budget includes funding for Operation and Maintenance accounts which, when adjusted for today's lower troop levels, exceeds 1980s levels. This funding will address the Services' most pressing readiness requirements that could put readiness seriously at risk. It supports:

- Traditionally high pace of operations (operating tempo), flying time, repair parts, and other readiness enhancers.
- Readiness-related maintenance and improvements at DoD facilities.
- Readiness-related modernization in areas such as better maintainability and systems critical to warfighters.

At the same time, we continue to enhance readiness by utilizing our Total Force. We will fully employ the capabilities of the active and reserve components and add over $400 million for FY 2000 for reserve training, operations, and integration of active and reserve components.

PROTECTING READINESS TOMORROW - MODERNIZATION

Our budget enhances support of the Revolution in Military Affairs that is already reorienting our tactics, concepts, doctrines, organizations, and equipment in accordance with the Chairman of the Joint Chiefs of Staff's *Joint Vision 2010*. Indeed, in transforming themselves to meet the growing asymmetric threats of chemical, biological, and information warfare, our forces are enhancing their information superiority and battlefield dominance for decades to come.

Our budget provides $53 billion for procurement—the second annual increase since FY 1998, when we reversed a 13-year decline. These new resources put us on the path to achieving our QDR recommendation to increase procurement funding to $60 billion per year by 2001 and allow for the procurement of:

- Eight next-generation ships for the Navy's shipbuilding plan.
- Additional aircraft such as the F-16, C-17, T-45, and V-22.
- $2 billion in critical combat service support equipment and increased funding for the Army's training ammunition needs.

- $1 billion for critical Marine Corps procurement needs.

Our budget also continues funding for ballistic missile defenses and includes an additional $6.6 billion for the development of a National Missile Defense program designed to defend the United States against a limited strategic ballistic missile attack.

FURTHER SAVINGS - REFORMING AND STREAMLINING

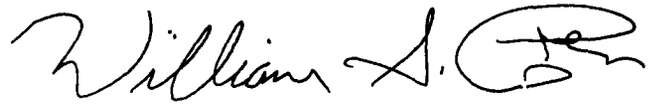
The additional funding in our budget in no way diminishes the Department's requirement to reduce unneeded support activities and infrastructure that continue to siphon needed resources away from readiness, modernization, and the quality of life of our troops.

We will therefore continue to fundamentally transform the support activities of the Department through our Defense Reform Initiative. We are adopting the best business practices of the private sector, consolidating and streamlining organizations, and moving toward paperless contracting. Through competitive sourcing, we expect to save $11.2 billion from FY 1997-2005 and $3.4 billion each year thereafter. At the same time, we will continue to pursue additional savings through reform of the acquisition process.

Our greatest opportunity for savings, however, rests in continued reductions in the excess infrastructure left over from the Cold War. The first three rounds of Base Realignment and Closure (BRAC) already undertaken will yield more than $25 billion in savings through 2003. Another two rounds of BRAC could ultimately save over $20 billion by 2015—savings that can only be realized through the difficult but necessary task of closing unneeded bases and facilities.

CONCLUSION

America's security relies upon a military that can shape and respond to world events, while at the same time preparing for the uncertain challenges of the future. We, in turn, must provide our men and women in uniform with the resources and strategic vision necessary for a rapidly changing global security environment. This report outlines the Department's preparations to provide that support and leadership and, by doing so, protect our citizens, our allies, and our vital interests in the decades to come.



Part I
Strategy

Chapter 1

THE DEFENSE STRATEGY

Since the founding of the Republic, the United States has embraced several fundamental and enduring goals: to maintain the sovereignty, political freedom, and independence of the United States, with its values, institutions, and territory intact; to protect the lives and personal safety of Americans, both at home and abroad; and to provide for the well-being and prosperity of the nation and its people.

Achieving these basic goals in an increasingly interdependent world requires fostering an international environment in which critical regions are stable, at peace, and free from domination by hostile powers; in which the global economy and free trade are growing; in which democratic norms and respect for human rights are widely accepted; in which the spread of nuclear, biological, and chemical (NBC) and other potentially destabilizing technologies is minimized; and in which the international community is willing and able to prevent and, if necessary, respond to calamitous events. The United States seeks to play a leadership role in the international community, working closely and cooperatively with nations that share its values and goals, and influencing those that can affect U.S. national well-being.

THE SECURITY ENVIRONMENT

As the 21st century approaches, the United States faces a dynamic and uncertain security environment. On the positive side of the ledger, the United States is in a period of strategic opportunity. The threat of global war has receded and the nation's core values of representative democracy and market economics are embraced in many parts of the world, creating new opportunities to promote peace, prosperity, and enhanced cooperation among nations. U.S. companies are leading a dynamic global economy. Alliances such as NATO, the U.S.-Japan alliance, and the U.S.-Republic of Korea alliance, which have been and remain so critical to U.S. security, are adapting successfully to meet today's challenges and provide the foundation for a more stable and prosperous world. Former adversaries, like Russia and other former members of the Warsaw Pact, now cooperate with the United States across a range of security issues. Many in the world see the United States as the security partner of choice.

Security Challenges

While the United States is taking full advantage of this period of strategic opportunity and positive change, increased dynamism in the international environment also presents significant challenges to U.S. security. Despite positive signs, the world remains a complex, dynamic, and dangerous place. While there is great uncertainty about how the security environment will evolve, the United States is likely to face several significant security challenges.

Large-Scale, Cross-Border Aggression. Some states will continue to threaten the territorial sovereignty of their neighbors in regions critical to U.S. interest. In Southwest Asia, both Iraq and Iran continue to pose threats to the region and to the free flow of oil from the region. In East Asia, North Korea still poses a highly unpredictable threat due to its repressive totalitarian regime, the continued forward positioning of its offensive military capabilities on South Korea's border, its missile programs, and the enormous political and social pressures resulting from increasingly dire economic and humanitarian conditions. Elsewhere in the region, sovereignty issues and several territorial disputes remain potential sources of conflict. Between now and 2015, it is reasonable to assume that more than one aspiring regional power will have both the motivation and the means to pose a military threat to U.S. interests.

Flow of Potentially Dangerous Technologies. The proliferation of advanced weapons and technologies with military or terrorist uses will continue despite the best efforts of the international community. Of particular concern are the spread of NBC weapons and their means of delivery; information warfare capabilities; and capabilities to access, or deny access to, space. The spread of these weapons and technologies could destabilize some regions and increase the number of potential adversaries with significant military capabilities, including smaller states and parties hostile to the United States. The increasing spread of military technologies and information systems also raises the potential for effective countermeasures to U.S. capabilities. These weapons and technologies could change the character of the military challenges that threaten U.S. national security.

Transnational Dangers. The variety of actors that can affect U.S. security and the stability of the broader international community will continue to grow in number and capability. Increasingly capable and violent terrorists will continue to directly threaten the lives of American citizens and their institutions and will try to undermine U.S. policies and alliances. Over the next 15 years, terrorists will become even more sophisticated in their targeting, propaganda, and political action operations. State-sponsored terrorism will continue to provide vital support to a disparate mix of terrorist groups and movements. The illegal drug trade and international organized crime, including piracy and the illegal trade in weapons and strategic materials, will persist, undermining the legitimacy of friendly governments, disrupting key regions and sea lanes, and threatening the safety of U.S. citizens at home and abroad. Finally, environmental disasters, uncontrolled flows of migrants, and other human emergencies will sporadically destabilize regions of the world.

Threats to the U.S. Homeland. The proliferation of advanced information and military technology increases the likelihood that a growing array of actors could attack the United States, using ballistic missiles, NBC weapons, or information warfare (which could include attacks on U.S. infrastructure through computer-based information networks). Together with the continued threat of illegal drugs, organized crime, and migrant flows, and the threat inherent in the remaining strategic nuclear arsenals of other countries, direct threats to the United States are significant, albeit dramatically smaller in scale than during the Cold War.

Failed States. The U.S. intelligence community expects that more nation states will fail between now and 2015, creating internal conflict, humanitarian crises, and the potential for regional instability. As in the former Yugoslavia, and as today in countries ranging from Albania to the former Zaire, governments will lose their ability to maintain public order or provide for the needs of their people, creating the conditions for civil unrest, famine, massive flows of migrants across international borders, aggressive actions by neighboring states, and even mass killings.

Adversary Use of Asymmetric Means. As the discussion of these challenges makes clear, U.S. dominance in the conventional military arena is encouraging adversaries to use asymmetric means to attack U.S. forces and interests overseas and Americans at home. That is, adversaries are likely to attempt to circumvent or undermine U.S. strengths while exploiting its weaknesses, using methods that differ significantly from the usual mode of U.S. operations. Strategically, an aggressor may seek to avoid direct military confrontation with the

United States, using instead means such as terrorism, NBC threats, information warfare, or environmental sabotage to achieve its goals. If an adversary ultimately faces a conventional war with the United States, it could also employ asymmetric means to delay or deny U.S. access to critical facilities; disrupt command, control, communications, computers, intelligence, surveillance, and reconnaissance networks; attack other critical DoD infrastructure (e.g., logistics, transportation, space systems, etc.); deter allies and potential coalition partners from supporting U.S. intervention; or inflict higher than expected U.S. casualties in an attempt to weaken U.S. national resolve. Further, the potential use of chemical and biological weapons by adversaries is a near-term challenge to U.S. and friendly forces, given current deficiencies in defenses against these weapons. Thus, the United States must adapt its strategy to deal with the asymmetric capabilities that future regional adversaries are likely to bring to bear, from fielding new capabilities to transforming how U.S. forces will operate in the future.

Additional Security Concerns

Potential for a Global Peer Competitor. The United States is the world's only superpower today and is expected to remain so through at least 2015. In the period beyond 2015, there is the possibility that a regional great power or global peer competitor may emerge. Russia and China are seen by some as having the potential to be such competitors, though their respective futures are quite uncertain. China has the potential to assert its military power in Asia. The People's Liberation Army continues to modernize and increase its capability. China has a strategic nuclear arsenal that, while not large, could reach the continental United States. China is likely to continue to face a number of internal challenges, including the further development of its economic infrastructure and the tension between a modern market economy and authoritarian political system, that may slow the pace of its military modernization.

Russia could, in the coming years, reestablish its capability to project offensive military forces along its periphery, but this would require substantial preparation that would be visible to the United States. While Russia continues to retain a large nuclear arsenal with both tactical and strategic weapons, its conventional military capabilities—both in terms of power projection and combat sustainability—have weakened significantly. Russia's future will depend in large measure on its ability to develop its economy, which in turn is dependent upon a stable political environment. Should Russia's political system fail to stabilize over the long term, disintegration of Russia as a coherent state could pose major security challenges for the United States and the international community.

Wild Card Scenarios. In addition to security challenges that the Department projects as likely is the possibility for unpredictable wild card scenarios that could seriously challenge U.S. interests at home and abroad. Such scenarios range from the unanticipated emergence of new technological threats, to the loss of U.S. access to critical facilities and lines of communication in key regions, to the takeover of friendly regimes by hostile parties. While the probability of individual wild card scenarios may be low, the probability that at least one will occur is much higher, with consequences that could be disproportionately high. Therefore, the United States must maintain military capabilities with sufficient flexibility to deal with such unexpected events.

The Imperative of Engagement

Finally, it is important to note that this projection of the security environment rests on two fundamental assumptions: that the United States will remain politically and militarily engaged in the world over the next 15 to 20 years, and that it will maintain military superiority over current and potential rivals. If the United States were to withdraw from its international commitments, relinquish its diplomatic leadership, or lose its military superiority, the world would become an even more dangerous place, and the threats to the United States, its allies, friends, and interests would be even more severe.

THE PRESIDENT'S NATIONAL SECURITY STRATEGY

To meet the challenges and opportunities presented by this security environment, the Administration has developed a National Security Strategy concomitant with U.S. global interests. The United States will remain engaged abroad while supporting efforts to enlarge the community of secure, free-market, and democratic nations and to create new partners in peace and prosperity. While the United States will retain the capability to act unilaterally when necessary, this strategy emphasizes coalition operations to secure basic U.S. national goals, protect and promote U.S. interests, and create preferred international conditions. Indeed, the

nature of the challenges the nation faces demands cooperative, multinational approaches that distribute the burden of responsibility among like-minded states. For example, to effectively curb the proliferation of NBC weapons, the United States must garner the cooperation of other nations that have access to NBC technology and materials. Therefore, it is imperative that the United States strives to build close, cooperative relations with the world's most influential countries.

Maintaining a strong military and the willingness to use it in defense of national interests remain essential to a strategy of engagement. Today, the United States has unparalleled military capabilities. As the only nation in the world able to conduct large-scale, effective joint military operations far beyond its borders, the United States is in a unique position. It is the only country in the world that can organize effective military responses to large-scale regional threats, the cornerstone of many mutually beneficial alliances and security partnerships and the foundation of stability in key regions of the world. To sustain this position of leadership, the United States must maintain ready and versatile forces capable of conducting a wide range of military activities and operations—from deterring and defeating large-scale aggression, to participating in smaller-scale contingencies, to dealing with asymmetric threats like terrorism.

Nevertheless, both U.S. national interests and limited resources argue for the selective use of U.S. forces. The primary purpose of U.S. forces is to deter and defeat the threat of organized violence against the United States and its interests. Decisions about whether and when to use military forces should be guided, first and foremost, by the U.S. national interests at stake—be they vital, important, or humanitarian in nature—and by whether the costs and risks of a particular military involvement are commensurate with those interests. When the interests at stake are vital—that is, they are of broad, overriding importance to the survival, security, and vitality of the nation—the United States will do whatever it takes to defend them, including, when necessary, the unilateral use of military power. U.S. vital national interests include:

- Protecting the sovereignty, territory, and population of the United States.
- Preventing the emergence of hostile regional coalitions or hegemons.
- Ensuring uninhibited access to key markets, energy supplies, and strategic resources.
- Deterring and, if necessary, defeating aggression against U.S. allies and friends.
- Ensuring freedom of the seas, airways, and space, as well as the security of vital lines of communication.

In other cases, the interests at stake may be important but not vital—that is, they do not affect the nation's survival but do significantly affect the national well-being and the character of the world in which Americans live. In these cases, military forces should be used only if they advance U.S. interests, are likely to accomplish their objectives, and other means are inadequate to accomplish U.S. goals. Such uses of the military should be both selective and limited, reflecting the relative saliency of the U.S. interests involved.

When the interests at stake are primarily humanitarian in nature, the U.S. military is generally not the best means of addressing a crisis. In some situations, however, initial use of the military's unique capabilities may be both necessary and appropriate when a humanitarian catastrophe dwarfs the ability of civilian relief agencies to respond or when the need for immediate relief is urgent and only the U.S. military has the ability to jumpstart the longer-term response to the disaster. In such cases, if the United States decides to commit military forces to assist in the situation, the military mission should be clearly defined, the risk to American troops should be minimal, and substantial U.S. military involvement should be confined to the initial period of providing relief until broader international assistance efforts get under way.

In all cases where the commitment of U.S. forces is considered, determining whether the associated costs and risks are commensurate with the U.S. interests at stake is central. Such decisions are also informed by identification of a clear mission, the desired end state of the situation, and the exit strategy for forces committed.

THE DEFENSE STRATEGY

To support the imperative of engagement set forth in the National Security Strategy, the Department of Defense has laid out a strategy and resultant defense program in the 1997 *Report of the Quadrennial Defense Review* that harness U.S. leadership to promote the nation's interests throughout the 1997-2015 period. The strategy requires the Defense Department to help shape the international security environment in ways favorable to U.S. interests, respond to the full spectrum of crises when

directed, and prepare now to meet the challenges of an uncertain future. These three elements—shaping, responding, and preparing—define the essence of U.S. defense strategy between now and 2015.

Shaping the International Environment

In addition to other instruments of national power, such as diplomacy and economic trade and investment, the Department of Defense has an essential role to play in shaping the international security environment in ways that promote and protect U.S. national interests. DoD efforts help to promote regional stability, prevent or reduce conflicts and threats, and deter aggression and coercion on a day-to-day basis in many key regions of the world. To do so, the Department employs a wide variety of means, including forces permanently stationed abroad; forces rotationally deployed overseas; forces deployed temporarily for exercises, combined training, or military-to-military interactions; and programs such as defense cooperation, security assistance (e.g., the International Military Education and Training and Foreign Military Sales programs), and international arms cooperation. DoD's role in shaping the international environment is closely integrated with diplomatic efforts. On a daily basis, U.S. diplomatic and military representatives work together towards U.S. objectives in all regions of the world. In times of crisis, diplomacy is a critical force multiplier when the United States seeks and works with coalition partners and requires access to foreign bases and facilities. Conversely, diplomacy is frequently enhanced when it is supported by the potential for a military response.

Promoting Regional Stability. In regions where the United States has vital and important interests, the U.S. military helps bolster the security of key allies and friends and works to adapt and strengthen core alliances and coalitions to meet the challenges of an evolving security environment. This engagement forms bilateral and multilateral relationships that increase military transparency, enhance cooperation, and advance regional conflict prevention and resolution mechanisms. In addition, the U.S. military often serves as a preferred means of engagement with countries that are neither staunch friends nor confirmed foes. These contacts build constructive security relationships and help to promote the development of democratic institutions today, in an effort to keep these countries from becoming adversaries tomorrow. Through both example and enforcement, U.S. forces encourage adherence to the international norms and regimes that help provide the foundation for peace and stability around the globe, such as nonproliferation and other arms control agreements that support U.S. national security objectives, the development of appropriate conflict prevention and conflict resolution mechanisms, freedom of navigation, and respect for human rights and the rule of law. Promoting regional stability places a premium on building close working relationships with other U.S. government agencies, coalition partners, and nongovernmental organizations.

Preventing or Reducing Conflicts and Threats. U.S. military forces and other DoD resources can be critical to efforts to prevent or reduce threats and conflicts. Their role in conflict prevention is a key rationale for the U.S. commitment to maintain forces overseas, conduct peacetime engagement activities, and fund various policy initiatives. Such preventive measures include focused efforts to:

- Actually reduce or eliminate NBC capabilities, as is being done with the U.S.-North Korean Agreed Framework, the Cooperative Threat Reduction program with Russia, Ukraine, Belarus, and Kazakhstan, and the Chemical Weapons Convention.
- Discourage arms races and the proliferation of NBC weapons, as is being done by DoD efforts to monitor and support agreements like the Nuclear Non-Proliferation Treaty and the Missile Technology Control Regime.
- Prevent and deter future terrorism and reduce U.S. vulnerability to terrorist acts through DoD efforts to enhance intelligence collection capabilities and protect critical infrastructure.
- Reduce the production and flow to the United States of illegal drugs, using DoD manpower and assets in the joint interagency task forces operating overseas and in international air and sea space contiguous to U.S. borders.
- Lessen the conditions for conflict, as has the deployment of U.S. forces in Macedonia.

Relatively small and timely investments in such targeted prevention measures can yield disproportionate benefits, often mitigating the need for a more substantial and costly U.S. response later.

Deterring Aggression and Coercion. The third aspect of the military's key role in shaping the international security environment is deterring aggression and coercion in

key regions of the world on a day-to-day basis through the peacetime deployment of U.S. military forces abroad. The United States' ability to deter potential adversaries in peacetime rests on several factors:

- A demonstrated will and ability to uphold U.S. security commitments when and where they are challenged.
- A declaratory policy that effectively communicates U.S. commitments and the costs to potential adversaries who might challenge these commitments.
- Conventional warfighting capabilities that are credible across the full spectrum of military operations. This credibility is evidenced by U.S. forces and equipment strategically stationed or deployed forward, rapidly deployable power-projection forces, the ability to gain timely access to critical infrastructure overseas, and the demonstrated ability to form and lead effective military coalitions.

The U.S. nuclear posture also contributes substantially to the ability to deter aggression in peacetime. The primary role of U.S. nuclear forces in the current and projected security environment is to deter aggression against the United States, its forces abroad, and its allies and friends. Although the prominence of nuclear weapons in the nation's defense posture has diminished since the end of the Cold War, nuclear weapons remain important as one of a range of responses available to deal with threats or use of NBC weapons against U.S. interests. They serve as a hedge against the uncertain futures of existing nuclear powers and as a means of upholding U.S. security commitments to U.S. allies. In this regard, U.S. nuclear forces based in Europe and committed to NATO provide an essential political and military link between the European and North American members of the Alliance, and permit widespread European participation in all aspects of the Alliance's nuclear role. In addition, the ability to deploy strategic and nonstrategic nuclear systems on a worldwide basis also undergirds the ability of the United States to deter attack against both the United States, its allies, and vital interests. Thus, for the foreseeable future, the United States must retain sufficient nuclear forces—based on flexible and survivable strategic systems—under highly confident, constitutional command and control which safeguards against accidental and unauthorized use. The Department believes these goals can be achieved at lower force levels and continues to take the lead in exploring new arms reduction opportunities. The United States is poised to begin mutual early deactivation of systems which will be eliminated under START II once the Russian government ratifies the treaty, and to begin negotiating further reductions in a START III context as called for by the 1997 Helsinki Joint Statement.

Responding to the Full Spectrum of Crises

Despite the Department's best efforts to shape the international security environment, the U.S. military will, at times, be called upon to respond to crises in order to protect national interests, demonstrate U.S. resolve, and reaffirm the nation's role as global leader. Therefore, U.S. forces must also be able to execute the full spectrum of military operations, from deterring an adversary's aggression or coercion in crisis and conducting concurrent smaller-scale contingency operations, to fighting and winning major theater wars.

Although the United States will retain the capabilities to protect its interests unilaterally, there are often advantages to acting in concert with like-minded nations. Acting in coalition or alliance with other nations, rather than alone, generally strengthens the political legitimacy of a course of action and brings additional resources to bear, ensuring that the United States need not shoulder the political, military, and financial burdens alone. But building and maintaining effective coalitions also present significant challenges, from policy coordination at the strategic level to interoperability among diverse military forces at the tactical level. As the U.S. military incorporates new technologies and operational concepts at a pace faster than that of any other military, careful design and collaboration will be needed to ensure the United States and its allies and partners meet new interoperability challenges. Because coalitions will continue to present both important political benefits and not insignificant military challenges, U.S. forces must plan, train, and prepare to respond to the full spectrum of crises in coalition with the forces of other nations.

Deterring Aggression and Coercion in Crisis. In many cases, the first stage of responding to a crisis consists of efforts to deter an adversary so that the situation does not require a greater response. Deterrence in a crisis generally involves signaling the United States' commitment to a particular country or expressing its national interest by enhancing U.S. warfighting capability in the theater. The U.S. ability to respond rapidly and substantially as a crisis develops can have a significant deterrent effect. The readiness levels of deployable forces may be increased, forces deployed in the area may be moved

closer to the crisis, and forces from the United States may be rapidly deployed to the area. The United States may also choose to make additional declaratory statements to communicate its intentions and the costs of aggression or coercion to an adversary. In some cases, the nation may choose to employ U.S. forces in a limited manner (e.g., to enforce sanctions or conduct limited strikes) to underline this message and deter further adventurism.

Conducting Smaller-Scale Contingency (SSC) Operations. In general, the United States, along with others in the international community, will seek to prevent and contain localized conflicts and crises before they require a military response. However, if such efforts do not succeed, swift intervention by military forces may be the best way to contain, resolve, or mitigate the consequences of a conflict that could otherwise become far more costly and deadly. These operations encompass the full range of joint military operations beyond peacetime engagement activities but short of major theater warfare. They include show-of-force operations, interventions, limited strikes, noncombatant evacuation operations, no-fly zone enforcement, peace enforcement, maritime sanctions enforcement, counterterrorism operations, peace operations, foreign humanitarian assistance, disaster relief, and military support to civilian authorities.

Selective participation in SSC operations can serve a variety of U.S. interests. For example, U.S. forces are sometimes called upon to conduct noncombatant evacuations, protecting U.S. citizens caught in harm's way. The United States might also choose to deploy forces to an intervention or peacekeeping operation in order to support democracy where it is threatened or restore stability in a critical region. In addition, when rogue states defy the community of nations and threaten common interests, the United States may use its military capabilities—for instance, through maritime sanctions enforcement or limited strikes—to help enforce the international community's will and deter further coercion. And when natural disaster strikes at home or abroad, U.S. values and interests might call for the use of military forces to jump-start relief efforts, enabling other elements of the U.S. government or international community to initiate longer-term relief efforts.

Based on recent experience and intelligence projections, the demand for SSC operations is expected to remain high over the next 15 to 20 years. U.S. participation in SSC operations must be selective, depending largely on the interests at stake and the risk of major aggression elsewhere. However, these operations will still likely pose the most frequent challenge for U.S. forces through 2015 and may require significant commitments of both active and reserve forces.

Fighting and Winning Major Theater Wars. At the high end of the continuum of possible crises is fighting and winning major theater wars. This mission is the most stressing requirement for the U.S. military. In order to protect American interests around the globe, U.S. forces must continue to be able to overmatch the military power of regional states with interests hostile to the United States. Such states are often capable of fielding sizable military forces that can cause serious imbalances in military power within regions important to the United States. Allies and friendly states often find it difficult to match the power of a potentially aggressive neighbor. To deter aggression, prevent coercion of allied or friendly governments, and defeat aggression should it occur, the Department must prepare U.S. forces to confront this scale of threat far from home, in concert with allies and friends, but unilaterally if necessary. Toward this end, the United States must have jointly trained and interoperable forces that can deploy quickly from a posture of global engagement—across great distances to supplement forward-stationed and forward-deployed U.S. forces—to assist a threatened nation, rapidly stop enemy aggression, and defeat an aggressor, even in an environment of NBC weapons threat or use.

As a global power with worldwide interests, it is imperative that the United States, now and for the foreseeable future, be able to deter and defeat large-scale, cross-border aggression in two distant theaters in overlapping time frames, preferably in concert with regional allies. Maintaining this core capability is central to credibly deterring opportunism—that is, to avoiding a situation in which an aggressor in one region might be tempted to take advantage when U.S. forces are heavily committed elsewhere—and to ensuring that the United States has sufficient military capabilities to deter or defeat aggression by an adversary that is larger, or under circumstances that are more difficult, than expected. This is particularly important in a highly dynamic and uncertain security environment. One can never know with certainty when or where the next major theater war will occur, who the next adversary will be, how an enemy will fight, who will join the United States in a coalition, or precisely what demands will be placed on U.S. forces. Indeed, history has repeatedly shown the unpredictability of such matters. A force sized,

equipped, and sustained for deterring and defeating aggression in more than one theater ensures the United States will maintain the flexibility to cope with the unpredictable and unexpected. Such a capability is the sine qua non of a superpower and is essential to the credibility of the overall U.S. national security strategy. It also supports the Department's continued engagement in shaping the international environment to reduce the chances that such threats will develop in the first place.

If the United States were to forego its ability to defeat aggression in more than one theater at a time, its standing as a global power, as the security partner of choice, and as the leader of the international community would be called into question. Indeed, some allies would undoubtedly read a one-war capability as a signal that the United States, if heavily engaged elsewhere, would no longer be able to help defend their interests. This, in turn, could cause allies and friends to adopt more divergent defense policies and postures, thereby weakening the web of alliances and coalitions on which the United States relies to protect its interests abroad. A one-war capability could also inhibit the United States from responding to a crisis promptly enough, or even at all, for fear of committing the bulk of U.S. forces and making itself vulnerable in other regions. This fact is also unlikely to escape the attention of potential adversaries.

In this dynamic, uncertain security environment, the United States must continually reassess the environment, the U.S. defense strategy, and the associated military requirements. If the security environment were to change dramatically and threats of large-scale aggression were to grow or diminish significantly, it would be both prudent and appropriate for the United States to review and reappraise its strategy and warfighting requirements.

Preparing Now for an Uncertain Future

The fundamental challenge confronting the Department of Defense is simple, but daunting. U.S. armed forces must meet the immediate demands of a dangerous world by shaping and responding throughout the next 15 years, while at the same time transforming U.S. combat capabilities and support structures to be able to shape and respond effectively in the face of challenges in the future.

The Department must prepare now to meet the security challenges of an unpredictable future. As the nation moves into the next century, it is imperative that it maintain its military superiority in the face of evolving, as well as discontinuous, threats and challenges. Without such superiority, the United States' ability to exert global leadership and to create international conditions conducive to the achievement of its national goals would be in doubt.

To maintain this superiority, the United States must achieve a new level of proficiency in its ability to conduct joint and combined operations. This proficiency can only be achieved through a unified effort by all elements of the Department toward the common goal of full spectrum dominance envisioned in *Joint Vision 2010*, the Chairman of the Joint Chiefs of Staff's conceptual blueprint for future military operations. Implementing *Joint Vision 2010* requires developing the doctrine, organization, training and education, materiel, leadership, and people to support truly integrated joint operations. Achieving this new level of proficiency also requires improving the U.S. military's methods for integrating its forces and capabilities with those of its allies and coalition partners.

The Department's commitment to preparing now for an uncertain future has four main parts:

- Pursue a focused modernization effort in order to replace aging systems and incorporate cutting-edge technologies into the force to ensure continued U.S. military superiority over time.
- Continue to exploit the Revolution in Military Affairs in order to improve the U.S. military's ability to perform near-term missions and meet future challenges.
- Exploit the Revolution in Business Affairs to radically reengineer DoD infrastructure and support activities.
- Insure or hedge against unlikely, but significant, future threats in order to manage risk in a resource-constrained environment and better position the Department to respond in a timely and effective manner to new threats as they emerge.

Pursue a Focused Modernization Effort. Fielding modern and capable forces in the future requires aggressive action today. Just as U.S. forces won the Gulf War with weapons that were developed many years before, tomorrow's forces will fight with weapons that are developed today and fielded over the next several years. Today, the Department is witnessing a gradual aging of

the overall force. Many weapons systems and platforms purchased in the 1970s and 1980s will reach the end of their useful lives over the next decade or so. It is essential that the Department increase procurement spending now so that it can ensure tomorrow's forces are every bit as modern and capable as today's. Sustained, adequate spending on the modernization of U.S. forces is essential to ensuring that tomorrow's forces continue to dominate across the full spectrum of military operations.

Exploit the Revolution in Military Affairs. The U.S. military's modernization effort is directly linked to the broader challenge of transforming its forces to retain military superiority in the face of changes in the security environment and in the art of warfare. Just as earlier technological revolutions have affected the nature of conflict, so too will the technological change that is so evident today. This transformation involves much more than the acquisition of new military systems. It means harnessing new technologies to give U.S. forces greater military capabilities through advanced concepts, doctrine, and organizations so that they can dominate any future battlefield. In the next several years, DoD will seek to further strengthen both the culture and the capability to develop and exploit new concepts and technologies in order to make U.S. military forces more responsive to an uncertain world. Part III describes the Department's Revolution in Military Affairs activities in detail.

Exploit the Revolution in Business Affairs. A Revolution in Business Affairs also has begun. Efforts to reengineer the Department's infrastructure and business practices must parallel the work being done to exploit the Revolution in Military Affairs if the nation is to afford both adequate investment in preparations for the future, especially a more robust modernization program, and capabilities sufficient to support an ambitious shaping and responding strategy through 2015. Measures are aimed at shortening cycle times, particularly for the procurement of mature systems; enhancing program stability; conserving scarce resources; ensuring that acquired capabilities will support mission outcomes; ensuring that critical infrastructures deliver the right services to the right users at the right time; increasing efficiencies; and assuring management focus on core competencies, while freeing resources for investment in high-priority areas.

These measures will require changes in political and public thinking about the infrastructure that supports the flexible U.S. force. That thinking must be flexible as well, open to new solutions, and focused on the bottom-line support for U.S. forces. The Quadrennial Defense Review itself reviewed a large number of options and proposed a number of steps in this area, but much more fundamental work must be done to radically reengineer the Department's institutions. To build the forces envisioned in *Joint Vision 2010*, additional programs will need to be developed in the years beyond the Future Years Defense Program. To afford those programs, the Department will need both the vision and the will to shrink and make dramatically more efficient its supporting infrastructure. Efforts to transform the Department are covered in more detail in Part IV.

Insurance Policies. The fourth element of preparing is taking prudent steps today to position DoD to respond more effectively to unlikely, but significant, future threats, such as the early emergence of a regional great power or a wild card scenario. Such steps provide a hedge against the possibility that unanticipated threats will emerge. The Department should focus these efforts on threats that, although unlikely, would have highly negative consequences that would be very expensive to counter. Although such insurance is certainly not free, in an uncertain, resource-constrained environment, it is a relatively inexpensive way to manage the risk of being unprepared to meet a new threat, developing the wrong capabilities, or producing a capability too early and having it become obsolete by the time it is needed. Such an approach can also provide an opportunity to delay or forego costly investments in future capabilities the United States may not need.

Among the necessary hedging steps are maintaining a broad research and development (R&D) effort; use of advanced concept technology demonstrations; contact with industries specializing in new technologies; and cooperation with allies who may develop new approaches to resolving problems. An additional approach is to develop new capabilities through carefully tailored R&D and acquisition programs. Applying such an approach more broadly against new threats will require ensuring that the U.S. military has the necessary intelligence capabilities for long-term strategic indications and warning, designing a process for validating such insurance requirements across the Department, and developing an insurance program profile and process that can be integrated into overall acquisition processes. Finally R&D programs can be designed to adopt and adapt commercial technologies to military needs.

The Department's activities in all of these areas are only the initial steps in a continuing process. Preparing now for an uncertain future must become a central component of the DoD culture and a continuing focus of the Department's efforts.

REGIONAL APPLICATIONS OF THE STRATEGY

In each region of the world, the Department of Defense undertakes activities in an effort to secure U.S. national security interests. In addition to those universal vital U.S. interests stated earlier, each region presents its own unique opportunities and challenges. The Department's strategies for dealing with these various regional challenges is critical to its overall effort to shape the international environment and remain prepared to respond to the full range of crises. Indeed, how the United States uses force and its forces sends a clear signal to friends and foes throughout the world about its interests, influence, and values.

Europe

U.S. Defense Objectives. U.S. defense efforts in Europe are aimed at achieving a peaceful, stable region where an enlarged NATO, through U.S. leadership, remains the preeminent security organization for promoting stability and security. Further, the United States seeks positive and cooperative Russian-NATO and Ukrainian-NATO relations and strengthened relations with Central and Eastern European nations outside of NATO. The United States desires a region in which all parties peacefully resolve their religious, political, and ethnic tensions through existing security structures and mechanisms. The United States and European nations should work together to counter drug trafficking, terrorism, and the proliferation of NBC weapons and associated delivery systems.

U.S. Regional Defense Posture and Activities. The importance of European security for U.S. interests is made clear by the approximately 100,000 American servicemen and women stationed on the continent and the continuous presence of U.S. naval forces in the Mediterranean. Along with the many routine deployments of U.S.-based forces, these units ensure that the United States maintains an active and prominent role in NATO and in outreach efforts to NATO's partners in the region. European-based U.S. forces are also often the first forces to respond to emerging crises in Europe, Africa, and the Middle East.

DoD activities to strengthen European security extend far beyond the presence or use of American military forces. The United States is intimately involved in the twin processes of NATO adaptation and NATO enlargement. Recognizing recent changes in the international security environment, the former effort seeks to move the alliance away from a static forward defense posture toward more capable and mobile reaction forces that can project power, including for crisis management operations. To maintain NATO's military effectiveness in the new security environment, the Alliance has also undertaken efforts to counter the military risks posed by NBC proliferation. Such activities are crucial to maintaining NATO's relevance as a security institution and avoiding the renationalization of European security policies. NATO enlargement acknowledges the end of the Cold War and seeks to reinforce democratic reforms and stability throughout Europe by enlarging the circle of European nations bound by common interests to a common defense.

NATO enlargement acknowledges the end of the Cold War and seeks to reinforce democratic reforms and stability throughout Europe. The Department will continue to support programs necessary to effectively underwrite NATO enlargement, including the NATO common-funded budgets, the Partnership for Peace program, and related bilateral projects aimed at outreach, democratic reform, and stability in Central and Eastern Europe.

The New Independent States

U.S. Defense Objectives. Through its various programs and activities with the New Independent States (NIS), the United States seeks to ensure that Russia, Ukraine, and the other nations of the region become stable market democracies that are cooperative partners in promoting regional stability, arms control, and nonproliferation in Europe and other regions. Integral to this goal is U.S. support of efforts to secure and stem the export of any former-Soviet NBC weapons, weapons materials, and associated delivery systems or technologies and to eliminate any former Soviet nuclear-capable systems remaining in the other New Independent States. DoD pursues this goal in part by working with the NIS to advance indigenous capabilities to secure borders against unauthorized shipments of weapons of mass

destruction. The United States also seeks to deter potential strategic nuclear threats against its citizens and territory. The United States wants Russia to play a constructive role in European affairs, in partnership with NATO, and to maintain strong relations with an independent Ukraine. The United States further seeks a peaceful resolution to the ethnic and regional tensions in the New Independent States, as well as successful counters to illegal drug trafficking, terrorism, international organized crime, and environmental degradation.

U.S. Regional Defense Posture and Activities. While the United States does not station or routinely deploy forces in the New Independent States, the Department of Defense contributes substantially to overarching U.S. security objectives in the region. In its bilateral foreign military interactions with all the New Independent States, the Department seeks to impart the principles of civilian leadership, defense sufficiency and transparency, and military reform and restructuring. Military interactions also seek to overcome the mutual distrust and suspicion that are a legacy of the Cold War. These bilateral efforts are complemented by multinational efforts, including those conducted through the Partnership for Peace program, the Organization for Security and Cooperation in Europe, and other organizations. The Department will continue to broaden military and civilian defense contacts, support the enhanced security for and dismantlement of Russian nuclear weapons, facilitate reductions in chemical weapons, and conduct combined training and exercises to strengthen interoperability with NATO in order to improve the New Independent States' capabilities for multinational operations.

East Asia and the Pacific Rim

U.S. Defense Objectives. The United States seeks a stable and economically prosperous East Asia that embraces democratic reform and market economics. Central to achieving this goal are the United States' strong alliance relationships within the region, especially with Japan, Australia, and the Republic of Korea (ROK). In addition, it is critical to continue to engage China so that it contributes to regional stability and acts as a responsible member of the international community. The United States desires a peaceful resolution of the Korean conflict resulting in a non-nuclear, democratic, reconciled, and ultimately reunified Peninsula, as well as the peaceful resolution of the region's other disputes, including that between Taiwan and the People's Republic of China. Successful counters to terrorism, illegal drug trafficking, and NBC proliferation are major U.S. goals for the region. Finally, the United States seeks the fullest possible accounting for missing U.S. service personnel in Asia.

U.S. Regional Defense Posture and Activities. The United States is committed to maintaining its current level of military capability in East Asia and the Pacific Rim. This capability allows the United States to play a key role as security guarantor and regional balancer. The United States will continue a forward presence policy, in cooperation with its allies, that reflects its interests in the region and allows for adjustments in the U.S. force posture over time to meet the changing demands of the security environment. Today, the United States stations or deploys approximately 100,000 military personnel in the region. Of these personnel, almost half are stationed in Japan and close to 40 percent are in the ROK. The United States will seek to continue and build upon bilateral and multilateral exercises with key states in the region, including the ROK, Japan, Thailand, the Philippines, and Australia.

The most significant near-term danger in the region is the continuing military threat posed by the Democratic People's Republic of Korea (DPRK). Due to the forward positioning of its offensive military capabilities, its possession of chemical and biological weapons and their means of delivery, and the proximity of Seoul to the demilitarized zone, the North Korean threat to ROK security remains formidable. DPRK ballistic missile development, which may develop the potential to strike even the United States, remains a significant concern. The pressures imposed by increasingly dire economic conditions in the DPRK make this threat all the more unpredictable. The United States remains fully committed to its treaty obligations to assist the ROK in defending against North Korean aggression. The United States also seeks a Korean Peninsula free of NBC weapons—a goal shared with the ROK and other allies and friends in the region. The U.S.-North Korean Agreed Framework froze North Korea's nuclear facilities at Yongbyon and Taechon under International Atomic Energy Agency inspection. The Agreed Framework still provides the best means to secure North Korean compliance with its nonproliferation commitment under the Nuclear Non-Proliferation Treaty. The Department is also working with its Pacific allies to enhance their collective capabilities to deter and defeat use of chemical or biological weapons.

The U.S. security alliance with Japan is the linchpin of its security policy in Asia and is key to many U.S. global objectives. Both nations have moved actively over the past three years to strengthen this bilateral relationship and update the framework and structure of joint cooperation to reflect the security environment. This work has resulted in, most notably, the 1997 release of revised Guidelines for U.S.-Japan Defense Cooperation that outline bilateral cooperation during normal circumstances and for the defense of Japan, as well as provide the basis for more effective bilateral cooperation during a regional crisis that affects Japan's peace and security. U.S. efforts to build on strong alliances with other nations in the region, especially Australia, buttress the U.S. goal of ensuring stability in Southeast Asia and the South Pacific, an area of growing economic and political importance. The continued strengthening of U.S. security dialogues and confidence-building measures with the members of the Association of Southeast Asian Nations (ASEAN) through the ASEAN Regional Forum is one of many ways in which the United States is working to enhance political, military, and economic ties with friends and allies in Southeast Asia. The Asia-Pacific Center for Security Studies is a key U.S. initiative that promotes mutual understanding and cooperation by providing an academic forum for military and civilian decision makers from the United States and Asia to exchange ideas and explore regional security challenges.

The Asian financial crisis has shaken the region's assumptions about uninterrupted economic development. Indonesia's economic and political difficulties in particular will pose challenges to the established order both internally and in the region. The outcome of Indonesia's transition will have an important impact on regional stability and security. Continued U.S. engagement in Indonesia will help promote the stability necessary to manage this difficult period of change.

Because of China's critical importance in the Asia-Pacific region, the United States is working to integrate China more deeply into the international community. Specifically, the United States engages China in order to promote regional stability and economic prosperity while securing China's adherence to international standards on weapons nonproliferation, international trade, and human rights. The United States also seeks greater transparency in China's defense program, including its planning and procurement processes, and will continue to engage China in dialogue aimed at fostering cooperation and confidence-building. Military exchange programs, port visits, and professional seminars contribute to this dialogue and are aimed at building lasting relationships that will foster cooperation and build confidence among U.S. and Chinese leaders.

The Middle East and South Asia

U.S. Defense Objectives. The United States seeks a Middle East and South Asia region at peace, where access to strategic natural resources at stable prices is unhindered and free markets are expanding. The region cannot be stable until there is a just, lasting, and comprehensive peace between Arabs and Israelis and a peaceful resolution to Indian-Pakistani disputes. Nor can stability be achieved until Iraq, Iran, and Libya abide by international norms and no longer threaten regional security. The threat or use of chemical and biological weapons or long-range missiles by these states must be deterred, further proliferation of NBC technologies thwarted, and terrorism successfully countered. The United States must continue working with regional allies and improving U.S. force capabilities to ensure that U.S.-led coalition forces have the ability to fight and win in an NBC environment. Stability in South Asia depends on improved relations between India and Pakistan, and a commitment from both countries to support international efforts to control proliferation of ballistic missiles and NBC technologies and expertise.

U.S. Regional Defense Posture and Activities. Since the Gulf War, the United States has undertaken a number of steps to enhance its military posture in the Middle East and South Asia. The United States military presence in this region includes limited forces stationed long-term, and a larger number of rotational and temporarily deployed forces. An average of 15,000 U.S. military personnel, as well as prepositioned critical materiel, are in the region at any time to help deter aggression and promote stability. These forces conduct a variety of missions, including deterring aggression, enforcing sanctions, ensuring free access to resources, and working with regional partners to improve interoperability and regional nations' self-defense capabilities. The close military relationships developed with friends throughout the Middle East and South Asia, complemented by U.S. security assistance programs, contribute to an environment that allows regional states to more readily and effectively support U.S.

crisis deployments. This contribution is integral to U.S. deterrence efforts.

While the United States cannot impose solutions on the region's disputes, its unique military and political position demands that it play an active role in promoting regional stability and advancing the cause of peace. In conjunction with diplomatic efforts, the U.S. military will continue to use military-to-military contacts as a means of promoting transparency, enhancing the professionalism of regional armed forces, and demonstrating the value of support for human rights and democratic values. Until South Asia's nonproliferation issues are satisfactorily resolved, the U.S. military's role in the region will focus on supporting multinational efforts to stabilize the region and safeguard international nonproliferation norms. The United States will also encourage participation by regional parties, where appropriate, in peace operations to help resolve international conflicts and promote potential regional cooperation.

The Americas

U.S. Defense Objectives. The United States desires all members of the Western hemispheric community to be peaceful, democratic partners in economic prosperity. These nations should exhibit a strong commitment to democratic leadership of their armed forces, constructive civil-military relations, respect for human rights, and restraint in acquisition of arms and military budgets. The United States also believes that the peaceful resolution of the region's territorial disputes is particularly important. Transparency of military holdings and expenditures and the widespread use of confidence- and security-building measures directly and positively affect this goal. The United States also seeks to maintain the neutrality of the Panama Canal and freedom of navigation along the region's sea lines of communication. Finally, successful counters to the region's drug and arms trafficking, terrorism, NBC weapons proliferation, organized crime, and refugee flows are all central to U.S. territorial security and integrity.

U.S. Regional Defense Posture and Activities. Over 50,000 active duty and reserve personnel from the United States pass through the Caribbean and Latin America every year to engage in exercises, nation assistance, instruction in demining operations, and other activities. The United States is currently altering its permanent military presence in Latin America. In 1997, the headquarters of the United States Southern Command completed its move to Florida and will end its military presence in Panama in December 1999.

The Department expends significant energy and time in encouraging the increasing acceptance by militaries in the region of their appropriate role in a constitutional democracy. One highlight of U.S. defense-to-defense efforts in this regard is the biannual Defense Ministerial of the Americas. The Defense Ministerial brings together the defense ministers from the hemisphere's democracies to discuss common concerns, enhancing transparency, reducing suspicions, and promoting an appropriate role for the military in a democratic society.

Transnational threats are particularly troublesome in the Americas. Because illegal drug trafficking and associated criminal activity threaten the United States and its interests in the region, DoD will continue to support other agencies in trying to stop the flow of illegal drugs, both at the source and in transit, and will encourage and assist other nations committed to antidrug efforts. In addition, when directed by the President, the Department will defend or assist other U.S. government agencies in stemming refugee flows when they threaten U.S. interests, including its territorial sovereignty.

Sub-Saharan Africa

U.S. Defense Objectives. The United States seeks a Sub-Saharan Africa where terrorism, organized crime, narcotics trafficking, disease, environmental degradation, and the influence of pariah states no longer threaten the region's nations or others. Africa should be a region at peace, fully integrated into the world economy, where the spread of democracy and respect for human rights have produced a level of stability that allows African states to resolve conflict peacefully and satisfy the basic human needs of their citizens.

U.S. Regional Defense Posture and Activities. Although at present the United States has no permanent military presence in Sub-Saharan Africa, it promotes stability by gaining and maintaining informal access through engagement activities, forming positive relationships with key institutions, and conducting exercises with the region's militaries. For example, the African Crisis Response Initiative (ACRI) is a U.S. training effort aimed at creating partnerships with both regional countries and allies and friends outside the region to train fully interoperable, highly effective, rapidly-deployable African peacekeeping units capable of operating jointly. Battalions in Uganda, Senegal, Ghana, Mali,

Benin, and Malawi have successfully completed initial training, and four battalions have already participated in sustainment training events. The ACRI will train additional units in 1999. In addition, through the President's Front Line States initiative, the United States is providing defensive, nonlethal military assistance to help a number of African countries resist Sudanese-backed insurgencies and contain that nation's sponsorship of international terrorism. In addition, the United States is enhancing its bilateral military relationship with South Africa through the U.S.-South African Binational Commission's defense committee, with the larger goal of enhancing stability through mutually beneficial engagement.

These shaping activities, in addition to enhancing the security of the nations and citizens involved, provide both basing opportunities for conducting noncombatant evacuation operations and humanitarian operations and a foundation for countering state-sponsored terrorism, narcotics trafficking, and the proliferation of conventional weapons, fissile materials, and related technology. Finally, the United States is creating an African Center for Security Studies along the lines of existing centers in other regions (like the Marshall Center in Europe), to provide education and training for senior African military officers and civilian defense officials in democratic civil-military relations and defense management. The United States must continue to work with the continent's nations to help secure U.S. interests.

CONCLUSION

The defense strategy laid out above, and detailed in the *Report of the Quadrennial Defense Review*, provides a path for the United States to protect and promote its national interests in the current and projected security environment. The United States must remain engaged as a global leader and harness the unmatched capabilities of its armed forces to shape the international security environment in favorable ways, respond to the full spectrum of crises when it is in U.S. interests to do so, and prepare now to meet the challenges of an uncertain future. This three-pronged strategy and the military missions inherent in it provide a common foundation for the Department's many disparate programs and activities.

Chapter 2

THE MILITARY REQUIREMENTS OF THE DEFENSE STRATEGY

To meet the near-term requirements of shaping the international environment and responding to the full spectrum of crises, U.S. forces must have a broad range of unmatched capabilities. U.S. forces are sized and shaped not only to meet current threats, but also to succeed in a broad range of anticipated missions and operational environments. The U.S. military is a capabilities-based force that gives national leaders a range of viable options for promoting and protecting U.S. interests in peacetime, crisis, and war.

SHAPING THE SECURITY ENVIRONMENT

U.S. military engagement around the world is both a key means of shaping the international security environment and an important foundation of the U.S. military's ability to respond to crises. The demand for U.S. forces is very high, but manpower and other resources are limited. The challenge to the Department is to prioritize its peacetime activities to ensure that efforts are concentrated on those that are of greatest importance without sacrificing warfighting capabilities. Those priorities vary by region and situation according to the national security interests involved—be they vital, important, or humanitarian—and by the extent to which the application of DoD resources can significantly advance those interests.

Accordingly, each regional commander in chief (CINC), in concert with the Services, annually develops a Theater Engagement Plan that links planned engagement activities to prioritized regional objectives. The theater engagement plan is a comprehensive five-year plan of CINC engagement activities that has been incorporated in the Department's deliberate planning system. The Chairman of the Joint Chiefs of Staff (CJCS) reviews and integrates each theater plan into the global family of theater engagement plans. The CJCS approves this family of plans and then forwards them to the Secretary of Defense for review. This process enhances the Department's effectiveness in articulating, from a global perspective, the CINCs' engagement activities and the associated resource requirements and tempo considerations.

RESPONDING TO CRISES

Smaller-Scale Contingency Operations

U.S. forces must be multi-mission capable, and they must be trained, equipped, and managed with multiple

mission responsibilities in mind. They must also be capable of operating effectively in the face of asymmetric challenges like terrorism, information operations, and the threat or use of nuclear, biological, or chemical (NBC) weapons. Furthermore, U.S. forces must be able to withdraw from smaller-scale contingency (SSC) operations, reconstitute, and then deploy to a major theater war within required timelines. Although in some cases this may pose significant operational, diplomatic, and political challenges, the ability to transition between peacetime operations and warfighting remains a fundamental requirement for virtually every U.S. military unit.

Over time, sustained commitment to multiple concurrent smaller-scale contingencies will certainly stress U.S. forces—for example, by creating tempo and budgetary strains on selected units—in ways that must be carefully managed. SSC operations will also put a premium on the ability of the U.S. military to work effectively with other U.S. government agencies, nongovernmental organizations, and a variety of coalition partners. SSC operations require that the U.S. government, including DoD and other agencies, continuously and deliberately reassess both the challenges encountered in such operations and the capabilities required to meet these challenges.

Major Theater War

At least three particularly challenging requirements associated with fighting and winning major theater wars merit special attention. The first is being able to rapidly defeat enemy forces short of their objectives in two theaters in close succession, one followed almost immediately by another. Maintaining this capability is absolutely critical to the United States' ability to seize the initiative in both theaters and to minimize the amount of territory to be regained from enemy forces. Failure to halt an enemy invasion rapidly can make the subsequent campaign to evict enemy forces from captured territory much more difficult, lengthy, and costly. It could also weaken coalition support, undermine U.S. credibility, and increase the risk of conflict elsewhere. By the same token, a force that is clearly capable of defeating aggression promptly should serve as a robust deterrent by denying would-be aggressors the prospect of success. Thus, the Department must ensure that the appropriate forces and infrastructure are ready and available to project sufficient power to rapidly defeat enemy forces in the early stages of a major conflict.

The threat or use of chemical and biological weapons (CBW) is a likely condition of future warfare, including in the early stages of war to disrupt U.S. operations and logistics. These weapons may be delivered by ballistic missiles, cruise missiles, aircraft, special operations forces, or other means. This requires that U.S. forces continue to improve their capabilities to locate and destroy such weapons, including those in hard and/or deeply buried facilities, preferably before such weapons can be used, and to defend against and manage the consequences if these weapons are used. But capability enhancements alone are not enough. Equally important is continuing to adapt U.S. doctrine, operational concepts, training, and exercises to take full account of the threat posed by chemical and biological weapons and other likely asymmetric threats. Moreover, given that the United States will most likely conduct future operations in coalition with other countries, the United States must also encourage its friends and allies to train and equip their forces for effective operations in CBW environments.

Finally, U.S. forces will transition to fighting major theater wars from a posture of global engagement—that is, from substantial levels of peacetime engagement overseas as well as multiple concurrent SSC operations. In the event of one major theater war, the United States would need to be extremely selective in making any additional commitments to either engagement activities or SSC operations. The United States would likely also choose to begin disengaging from those activities and operations not deemed to involve vital U.S. interests in order to better posture its forces to deter the possible outbreak of a second war.

In the event of two such conflicts, U.S. forces would be withdrawn from peacetime engagement activities and SSC operations as quickly as possible to be readied for war. The risks associated with disengaging from a range of peacetime activities and operations in order to deploy the appropriate forces to the conflicts could be mitigated, at least in part, by replacing withdrawing forces with an increased commitment of reserve component forces, coalition or allied forces, host nation capabilities, contractor support, or some combination thereof. Ultimately, the United States must accept a degree of risk associated with withdrawing from SSCs and engagement activities in order to reduce the greater risk it would incur if the nation failed to respond adequately to major theater wars. In this regard, the Department seeks to better understand the potential of and mechanisms required for force substitution.

Because both the nature of the threats the United States faces and the way in which it will choose to fight future conflicts are changing, the forces and capabilities required to uphold this two-theater requirement will differ from the major regional conflict building blocks developed in the 1993 Bottom-Up Review. Specifically, the accelerating incorporation of new technologies and operational concepts into the force calls for a reexamination of the forces and capabilities required for fighting and winning major theater wars. As U.S. and enemy forces change in effectiveness, these force requirements will change. The Department also needs to better understand the requirements associated with deterring, defeating, and defending against adversaries willing to use chemical and biological weapons and other asymmetric means. Furthermore, the changing security environment requires that the United States reassess the role of strategic reserves, the degree to which it relies on both allies and reserve component forces in major theater wars, the degree to which it swings forces between theaters, and the impact of such factors on the timing of various phases of the campaigns, particularly counteroffensives.

In sum, for the foreseeable future, U.S. forces must be sufficient in size, versatility, and responsiveness in order to transition from a posture of global engagement to fight and win, in concert with regional allies, two major theater wars that occur at roughly the same time. In this context, they must also be able to defeat the initial enemy advance in two distant theaters in close succession and to fight and win in situations where chemical and biological weapons and other asymmetric approaches are employed.

CHARACTERISTICS OF A FULL-SPECTRUM FORCE

The number and variety of military challenges the United States will likely face in the next 15 to 20 years require a force of sufficient size and capability to defeat large enemy conventional forces, deter aggression and coercion, and conduct the full range of smaller-scale contingencies and shaping activities, all in the face of asymmetric challenges. U.S. forces, both active and reserve, must be multi-mission capable, proficient in their core warfighting competencies, and able to transition from peacetime activities and operations to enhanced deterrence in crisis to war. This standard applies not only to the force as a whole, but also to individual units. Such full-spectrum forces require a balanced mix of overseas presence and power projection capabilities.

Overseas Presence

Maintaining a substantial overseas presence posture is vital to both the shaping and responding elements of the defense strategy. Specifically, overseas presence promotes regional stability by giving form and substance to U.S. bilateral and multilateral security commitments. It also helps prevent the development of power vacuums and instability. It contributes to deterrence by demonstrating the country's determination and capability to defend U.S., allied, and friendly interests in critical regions and better positions the United States to respond rapidly to crises. U.S. presence overseas enhances the effectiveness of coalition operations across the spectrum of conflict by promoting joint and combined training, encouraging responsibility sharing on the part of friends and allies, and facilitating regional integration.

U.S. forces and infrastructure overseas visibly support the defense strategy. To optimize U.S. overseas presence posture, the Department continually assesses this posture to ensure it effectively and efficiently contributes to achieving U.S. national security objectives. This means defining the right mix of permanently stationed forces, rotationally deployed forces, temporarily deployed forces, and infrastructure, in each region and globally, to conduct the full range of military operations.

Power Projection

Equally essential to the shaping and responding elements of the strategy is being able to rapidly move and concentrate U.S. military power in distant corners of the globe. Effective and efficient global power projection is the key to the flexibility demanded of U.S. forces and ultimately provides national leaders with more options in responding to potential crises and conflicts. Being able to project power allows the United States to shape and respond even when it has no permanent presence or limited infrastructure in a region.

While the United States must pursue the cooperation of other governments in allowing U.S. forces access to critical infrastructure, it cannot assume that cooperation will always be timely or forthcoming. Accordingly, the United States must be able to establish a military lodgement on foreign territory through a forced entry. A joint forced entry capability ensures the United States will

have access to vital seaports, air bases, and other critical facilities.

Critical Enablers

Critical to power projection and to the U.S. military's unique ability to shape the international security environment and respond to the full spectrum of crises are a host of capabilities and assets that enable the worldwide application of U.S. military power. These critical enablers include:

- Quality people, superbly led by commanders. Soldiers, sailors, airmen, and Marines are the bedrock of the U.S. military. They will be the deciding factor in all future operations. The Department's strong commitment to the quality of life of all its people remains unchanged.

- A globally vigilant intelligence system. Early strategic warning of crises and detection of threats is critical in a security environment complicated by more actors and more sophisticated technology. Equally important is the capability to meet in real time the global needs of U.S. forces deployed in times of threat or crisis.

- Global communications. These allow for the timely exchange of information, data, decisions, and orders, while negating an adversary's ability to interfere in U.S. information systems. Because information systems may be threatened by a variety of adversaries, information assurance must be an integral part of planning for the acquisition of new systems as well as the operation or upgrade of existing systems.

- Superiority in space. Global command, control, communications, computers, intelligence, surveillance, and reconnaissance, navigation support, and meteorological forecasting rely on space-based assets. To maintain the current U.S. advantage in space even as more users develop capabilities and access, the United States must focus sufficient intelligence efforts on monitoring foreign use of space-based assets and develop the capabilities required to protect U.S. systems and prevent hostile use of space by an adversary.

- Control of the seas and airspace. The successful application of military power depends on control of the seas and airspace in the theater of operation and throughout the air and sea lines of communications. Control of sea and air allows the United States to project power across great distances, conduct military operations, and protect U.S. interests around the world. In the event of a conflict, U.S. forces will seek to gain superiority in, and dominance of, the air and sea in order to maintain the freedom to conduct operations and protect both military and commercial assets and strategic lines of communications.

- Strategic Mobility. The United States must be able to project military power across great distances to protect its interests around the world. A robust and effective strategic lift capability is critical to this ability. Preserving the U.S. military's global mobility system is a top priority of the defense strategy, requiring not only the daily diplomacy necessary to ensure U.S. access but also the ability to quickly establish sea and air superiority along U.S. strategic lines of communication.

Without these critical enablers, the United States could not execute its defense strategy.

Capabilities to Respond to Asymmetric Threats

To be a truly full-spectrum force, the U.S. military must be able to defeat even the most innovative adversaries. Those who oppose the United States will increasingly rely on unconventional strategies and tactics to offset U.S. superiority in conventional forces. The Department's ability to adapt effectively to adversaries' asymmetric threats—such as information operations, nuclear, biological, or chemical weapons use, and terrorism—is critical to maintaining U.S. preeminence into the next century.

A growing number of nations are working to acquire ballistic missiles, including missiles that could threaten the territory of the United States. Ballistic missiles could be used to deliver nuclear, chemical, or biological weapons. The increasing availability of sophisticated technology today may enable a nation to develop or acquire, with very little warning time for the United States, an intercontinental range ballistic missile capability. To protect against this growing threat and deter possible adversaries from considering such attacks on American territory, the United States has increased funding for national missile defense (NMD) and will determine in 2000 whether to deploy such a system. The NMD system under development would defend all 50 states against a limited strategic ballistic missile attack such as could be posed by a rogue nation. An NMD system could also provide some inherent capability against a

small accidental or unauthorized launch of strategic ballistic missiles from existing nuclear capable states.

INFORMATION OPERATIONS

Information operations include actions taken to affect adversary information and information systems while protecting one's own information and information systems. The increasing availability of technology and sophistication of potential adversaries demands a commitment to improving the U.S. military's ability to operate in the face of information threats. Defense against hostile information operations will require unprecedented cooperation among Services, defense agencies, commercial enterprises, and U.S. allies. In addition, the United States' ability to protect information must extend to those elements of the civilian infrastructure that support national security requirements.

In recent years, the Department has focused its information operations development efforts on tactical support to warfighting. The Department is now expanding these efforts to the full range of potential national security missions, for both peace and war. The Department has emphasized developing policy for information operations that will aid in the development of integrated requirements and help guide decisions on capabilities that support future information operations. Such capabilities developed in the military and intelligence communities must be fully integrated into military planning and operations.

COUNTERPROLIFERATION ACTIVITIES

DoD's extensive counterproliferation and export control efforts are designed to slow the spread of technologies that can threaten the security of U.S. forces and infrastructure and undermine regional stability. The Department has progressed substantially toward fully integrating considerations of NBC weapons use against U.S. forces into its military planning, acquisition, intelligence, and international cooperation activities. These include efforts to embed counterproliferation in all aspects of the planning and programming process; adapt military doctrine and operational plans to deal with NBC weapons in regional contingencies; mature acquisition programs to ensure that U.S. forces will be adequately trained and equipped to operate effectively in contingencies involving NBC threats; reallocate intelligence resources to provide better information about adversary NBC capabilities and how they are likely to be used; and undertake multilateral and bilateral cooperative efforts with U.S. allies and friends to develop a common defense response to the military risks posed by NBC proliferation. The Quadrennial Defense Review underscored the need for these efforts; accordingly, the Secretary of Defense increased planned spending on counterproliferation by $1 billion over the Future Years Defense Program.

DoD must meet two key challenges as part of its strategy to ensure future counterproliferation preparedness. It must institutionalize counterproliferation as an organizing principle in every facet of military activity, from logistics to maneuver and strike warfare, and it must internationalize those same efforts to ensure U.S. allies and potential coalition partners train, equip, and prepare their forces to operate with U.S. forces under NBC conditions.

To advance the institutionalization of counterproliferation, the Joint Staff and CINCs are developing a joint counter-NBC weapons operational concept that integrates both offensive and defensive measures. This strategy will serve as the basis for refining existing doctrine so that it more fully integrates all aspects of counter-NBC operations. In addition, the Services and CINCs are placing greater emphasis on regular individual, unit, joint, and combined training and exercises that incorporate realistic NBC threats. The Services are working to develop new training standards for specialized units, such as logistics and medical units, and larger formations to improve their ability to perform complex tasks under prolonged NBC conditions. Finally, many counterproliferation-related capabilities must be available prior to or very early in a conflict. The Services are developing capability packages that provide for early deployment or prepositioning of NBC defense and theater missile defense capabilities and personnel into theaters of operations. The timing necessary for the arrival of such capabilities should in part determine whether or not those capabilities reside in active or reserve components.

Unless properly prepared to deal with NBC threats or attacks, allies and friends may present vulnerabilities for a U.S.-led coalition. In particular, potential coalition partners cannot depend on U.S. forces to provide passive and active defense capabilities to counter NBC threats. U.S. counterproliferation cooperation with its NATO allies through the Senior Defense Group on Proliferation provides a template for improving the preparedness of long-standing allies and other countries that may choose to act in concert with the United States in future military coalitions. Similar efforts with allies in Southwest Asia and Asia-Pacific will continue to

ensure that potential coalition partners for major theater wars have effective plans for CBW defense of populations and forces.

Further information on DoD's counterproliferation program can be found in two DoD publications *Proliferation: Threat and Response* and *Report on Activities and Programs for Countering Proliferation and NBC Terrorism.* These and other counterproliferation documents are available on the Internet.

FORCE PROTECTION AND COMBATING TERRORISM

The terrorist threat has changed markedly in recent years, due primarily to five factors: changing terrorist motivations; the proliferation of technologies of mass destruction; increased access to information, information technologies, and mass media; a perception that the United States is unwilling to accept casualties; and the accelerated centralization of vital components of the national infrastructure.

DoD divides its response to terrorism into two categories. Antiterrorism refers to defensive measures used to reduce the vulnerability of individuals and property to terrorist acts. Counterterrorism refers to offensive measures taken to prevent, deter, and respond to terrorism. Both fall under the rubric of combating terrorism. Force protection is the umbrella security program involving the coordinated efforts of key U.S. departments and agencies designed to protect military and civilian personnel, their family members, and U.S. property.

DoD has initiated a wide range of actions designed to enhance antiterrorism, requiring threat and force protection to be constantly evaluated and giving commanders increased resources and flexibility to be fully responsive to changes in the threat. The Department has established programs to expand protection measures worldwide where appropriate. At all levels, the Department has developed and carried out policies, processes, and programs designed to integrate force protection into the culture and institutional fabric of the United States military.

Because intelligence represents the first line of defense, DoD has implemented procedures to improve its collection and use of terrorism-related intelligence, getting the needed product into the hands of the local commander as rapidly as possible. The Defense Intelligence Agency (DIA) is engaged in an aggressive long-term collection and analytic effort designed to provide information that can help local commanders detect, deter, and prevent terrorist attack. Close working relationships between DIA and other members of the national intelligence community are being strengthened, and intelligence exchanges with U.S. friends and allies have been increased.

DoD is also taking steps to improve force protection, including programs for U.S. military forces, family members, and DoD civilians. DoD has actively worked to enhance training and awareness of the terrorist threat facing U.S. forces. In 1998, the Department began to implement a set of worldwide, prescriptive standards for antiterrorism and force protection. Vulnerability assessments conducted by the Joint Staff, combatant commanders, and the Services provided an effective means to evaluate and improve installation commanders' antiterrorism readiness programs. Based on findings in these assessments, the Joint Staff developed a planning tool that provides installation commanders with mechanisms to develop comprehensive, tailored antiterrorism and force protection plans for their specific facilities. The Department also worked with the Department of State to ensure that rigorous force protection programs are provided for U.S. forces overseas.

DoD's counterterrorism capabilities provide the offensive means to deter, defeat, and respond vigorously to all forms of terrorist attack against U.S. interests, wherever they may occur. The Department has significantly increased the resources allocated to these sensitive activities, and efforts are under way to maximize readiness so that U.S. counterterrorism forces are trained and equipped to meet any future forms of terrorism. U.S. counterterrorism forces receive the most advanced and diverse training available and continually exercise to maintain proficiency and to develop new skills. They regularly train with their foreign counterparts to maximize coordination and effectiveness. They also engage with counterpart organizations in a variety of exchange programs which not only hone their skills, but also contribute to the development of mutual confidence and trust.

CONCLUSION

The United States must size, shape, and manage its forces effectively if they are to be capable of meeting the fundamental challenge of the defense strategy—maintaining the near-term capabilities required to support the shape and respond elements of the strategy while simultaneously undergoing the transformation required to shape and respond in the future. For shaping, this means that DoD must continue its efforts to support regional security objectives efficiently and within resource constraints. For responding, it means that U.S. forces must be capable of operating across the spectrum of conflict—meeting the particular challenges posed by smaller-scale contingency operations and major theater wars—and in the face of asymmetric threats. The forces and force policies needed to fulfill the missions described here are detailed in Part II.

Part II
Today's Armed Forces

Chapter 3

STRUCTURING U.S. FORCES TO IMPLEMENT THE DEFENSE STRATEGY

The defense strategy places a broad range of demands on U.S. military forces—shaping and responding to most near-term demands, while at the same time preparing for an uncertain future. Meeting the military requirements of the strategy requires ready, robust, flexible military capabilities that draw on the combined strengths of the Services and support agencies. The U.S. armed forces can only meet the demands of the strategy by seamlessly integrating Army, Navy, Air Force, and Marine Corps capabilities across the spectrum from peacetime to wartime. Nothing short of fully joint armed forces—forces that are joint institutionally, organizationally, intellectually, and technically—will ensure effective integration among U.S. armed forces as they conduct military operations today and in the future.

THE UNIFIED COMBATANT COMMANDS

The National Security Act of 1947 established unified combatant commands, or military commands that have broad continuing missions and are composed of forces from at least two or more military departments. The 1997 Unified Command Plan recognizes nine unified combatant commands, each led by a four-star general or admiral known as a CINC, or commander in chief. Five of these commands are geographic commands with a specific set of missions and an area of responsibility (AOR). Four combatant commands do not have geographic areas of responsibility, but rather have worldwide functional areas of responsibility. The Services provide forces to the CINCs. The CINCs, drawing on guidance from the President and the Secretary of Defense, determine how those forces will be used on a day-to-day basis.

For virtually every region in the world, there is a unified combatant command, led by a CINC whose primary purpose is to use the forces assigned to that command to shape the environment, respond to the full spectrum of crises, and prepare for the future in that region. The geographic CINCs are responsible for planning and conducting all military operations within their theaters of operation. In carrying out these duties, the CINCs may receive assistance from other geographic CINCs, as well as from the functional CINCs. Functional CINCs have worldwide responsibility for specialized areas such as transportation, space, and special forces; they provide these high demand resources to geographic CINCs as appropriate.

THE GEOGRAPHIC COMMANDS

United States European Command

The United States European Command's (USEUCOM) area of responsibility includes more than 14 million square miles and 89 countries. It extends from the North Cape of Norway, through the waters of the Baltic and Mediterranean seas, including most of Europe and parts of the Middle East, to the Cape of Good Hope in South Africa. The Commander in Chief of USEUCOM (USCINCEUR) commands five U.S. components: U.S. Army Europe, U.S. Navy Europe, U.S. Air Forces in Europe, Special Operations Command Europe, and Marine Forces Europe. USCINCEUR is also NATO's Supreme Allied Commander Europe.

While USEUCOM's most visible mission in 1998 was continuing to provide forces to the NATO-led Stabilization Force in Bosnia through Operation Joint Forge, European Command maintains forces that are ready to conduct the full spectrum of military operations. USEUCOM conducted several operations in 1998, including coordinating operation Task Force Able Sentry, the U.S. contribution to the United Nations' Preventive Deployment in Macedonia, evacuating U.S. citizens from Guinea-Bissau, and supporting humanitarian demining efforts in countries from Chad to Rwanda to Zimbabwe.

USEUCOM is responsible for enhancing transatlantic security through support to NATO, promoting regional stability, and advancing U.S. interests in Europe, Africa, and the Middle East. To enhance transatlantic security and promote regional stability, USEUCOM conducts a variety of engagement activities with NATO allies, partner countries, and other friendly nations throughout its AOR. Through these engagement activities, European Command shapes the international environment in ways to promote and protect U.S. interests. In March 1998, for example, USEUCOM military personnel joined other NATO member and partner militaries in Exercise Strong Resolve, which was designed to test NATO's ability to respond to multiple, simultaneous crises in separate locations. Through the Partnership for Peace program, approximately 240 USEUCOM personnel participated in Cooperative Best Effort 98, an interoperability exercise conducted in Macedonia designed to improve light infantry peace support skills among NATO partner countries. Under the auspices of the Joint Contact Team Program, multi-Service military contact teams from USEUCOM live and work in partner countries across Europe and the New Independent States throughout the year, coordinating USEUCOM efforts to encourage democratization, military professionalism, and closer relationships with NATO. These engagement activities provide not only immediate benefits by improving interoperability among U.S. forces and their allied and partner colleagues, but also build and strengthen political-military relationships between the United States and countries in the USEUCOM AOR over the long term.

United States Pacific Command

The United States Pacific Command's (USPACOM) area of responsibility extends from the west coast of the United States mainland to the east coast of Africa, and from the Arctic Ocean to Antarctica, including Alaska and Hawaii. Geographically, USPACOM is the largest of the U.S. unified commands. USPACOM's AOR covers about 50 percent of the earth's surface or more than 100 million square miles, including 43 countries, 10 U.S. territories, and 20 territories of other countries that together make up nearly 60 percent of the world's population. The Commander in Chief of USPACOM (USCINCPAC) commands a total force of about 308,000 military—nearly 20 percent of all active duty U.S. military forces—drawn from all the Services, organized into a headquarters and four component commands: U.S. Army Pacific, U.S. Navy Pacific Fleet, U.S. Marine Forces Pacific, and U.S. Pacific Air Forces.

To shape the environment in the Asia-Pacific region, USPACOM forces conducted over 400 military training exercises with several different nations. These activities included participating in military-to-military exchange programs and providing other assistance to partner nations in the form of security assistance, seminars, and special programs such as the Asia Pacific Chiefs of Defense Conference. In 1998, for example, USPACOM conducted Exercise Foal Eagle in Korea, which provided division level field training with continental United States (CONUS)-based forces participating in a simulated Korean conflict, and Cobra Gold in Thailand, designed to strengthen the Royal Thai Army's national defense capabilities and enhance interoperability between U.S. and Thai forces. Pacific Command also conducted counterdrug operations through Joint Interagency Task Force-West, focusing on interdicting drug flows in the Eastern Pacific and in Southeast Asia. Finally, USPACOM provided educational and military exchange opportunities through courses at the Asia-Pacific Center for Security Studies

and the Center for Excellence in Disaster Management and Humanitarian Assistance, both located in Hawaii.

Like European Command, Pacific Command has forces assigned that can respond to the full spectrum of crises. In 1998, USPACOM forces were called upon to respond to a variety of international situations ranging from demining operations in Laos to airlifting disaster relief supplies to China in the aftermath of an earthquake, to the rapid deployment of forces for possible contingency operations in the United States Central Command (USCENTCOM) area of responsibility. USPACOM also provides forces to Joint Task Force-Full Accounting, a standing Joint Task Force working with representatives from Vietnam, Laos, and Cambodia charged with conducting investigations and remains recovery operations to provide the fullest possible accounting of American citizens still missing as a result of war in Southeast Asia.

United States Central Command

The United States Central Command's area of responsibility includes 25 countries of diverse political, economic, cultural, and geographic makeup in the Middle East, including the Persian Gulf, Central Asia, Southwest Asia, and Northeast Africa. USCENTCOM's AOR is larger than the continental United States, stretching some 3,100 miles east to west and 3,600 miles north to south. The Commander in Chief of USCENTCOM commands five component commands: U.S. Army Forces Central Command, U.S. Central Command Air Forces, U.S. Naval Forces Central Command, U.S. Marine Corps Forces Central Command, and U.S. Special Operations Command Central.

Although continued tensions with Iraq are the major focus for USCENTCOM, this unified command has a broader mission that includes supporting U.S. interests in the region, promoting regional security in cooperation with regional allies and friends, and projecting U.S. military force into the region if necessary. USCENTCOM shapes the regional security environment using a variety of programs, including combined training, military-to-military contacts, educational opportunities, and security assistance. In 1998, USCENTCOM conducted exercises with 19 of the 25 nations in its AOR, including Bahrain, Egypt, Jordan, Kenya, and Saudi Arabia. USCENTCOM conducts Joint Combined Exercise Training with nations in the region which helps develop interoperability and reinforces military-to-military relationships between the United States and host nations. USCENTCOM also coordinates placements for over 2,500 students from countries across the region in a variety of U.S. military courses, schools, and colleges.

Operation Desert Fox, launched in response to Iraq's repeated refusals to comply with UN Security Council resolutions, was the most prominent operation conducted in 1998 by USCENTCOM. Operation Desert Fox significantly reduced Iraq's ability to threaten its neighbors and to produce weapons of mass destruction. USCENTCOM continues to provide robust support to Operation Southern Watch, the United Nations mandated no-fly zone in Iraq and is prepared to respond rapidly to future Iraqi aggression. The Command also participated in humanitarian demining operations in Yemen and rapidly responded to the terrorist attack on the U.S. Embassy in Kenya.

United States Southern Command

The United States Southern Command's (USSOUTHCOM) area of responsibility encompasses 32 countries, represents about one-sixth of the world's land mass, and covers over twelve million square miles, stretching 6,000 miles from Mexico's southern border to Cape Horn. The Commander in Chief of USSOUTHCOM commands approximately 7,000 U.S. military personnel and 4,000 civilians, organized into a headquarters and five component commands: U.S. Army South, Commander in Chief Atlantic Fleet, 12th Air Force, Marine Corps Forces South, and Joint Task Force Bravo. USSOUTHCOM also has a subunified command, Special Operations Command South, and two Joint Interagency Task Forces, JIATF-East and JIATF-South.

Throughout 1998, USSOUTHCOM conducted a diverse set of exercises and operations to advance U.S. interests. To shape the environment and promote regional stability, USSOUTHCOM uses a variety of tools, including military training exercises, security assistance programs, and military-to-military exchange programs. USSOUTHCOM's 1998 exercise program included a disease intervention exercise in Peru, engineering exercises in Honduras and the Dominican Republic, and regional peacekeeping exercises in Central and South America. Counterdrug activities form an important part of Southern Command's shaping mission and include exercises with host nations, intelligence collection, and various efforts to halt the flow of drugs both at the source of production and in the transit zone. In Operation Laser Strike, for example, USSOUTHCOM helped disrupt the production and movement of

illegal drugs and improved multinational drug interdiction capabilities in the region.

Southern Command not only shapes the environment, but also employs assigned forces to respond across the full spectrum of crises in the region. In 1998, USSOUTHCOM conducted humanitarian demining operations in Costa Rica, Honduras, and Nicaragua and supported a variety of humanitarian activities. Southern Command also supported peacekeeping efforts along the border between Peru and Ecuador. To decrease the potential for renewed tensions in Haiti as the UN mission continued to drawdown, USSOUTHCOM provided support to U.S. and UN forces through Exercise Fairwinds/New Horizon. Finally, USSOUTHCOM coordinated all U.S. military assistance in support of disaster relief efforts in Central America in the aftermath of Hurricane Mitch. The Command's Joint Task Force Bravo, based in Honduras, provided command and control for Task Force Hope, the provisional military organization established to provide assistance, which included over 500 personnel, 20 helicopters, four fixed-wing aircraft, and 10 Zodiac inflatable boats. Task Force Hope ensured that over 22,000 pounds of relief supplies were distributed to disaster victims in Central America.

United States Atlantic Command

The United States Atlantic Command's (USACOM) 45 million square-mile area of responsibility includes the Atlantic Ocean west of 17 degrees East (excluding the waters adjoining South and Central America, south of 8 degrees North and west of 30 degrees West), the Arctic Ocean east of 95 degrees West and west of 100 degrees East, and Greenland and other islands, except the United Kingdom and Ireland, in all assigned water areas. USACOM integrates the military capabilities of nearly all forces based in the continental United States through its components: the Air Force's Air Combat Command, the Army's Forces Command, the Marine Corps' Marine Forces Atlantic, the Navy's Atlantic Fleet, and U.S. Special Operations Command Atlantic.

In response to the changing international environment, USACOM has refocused its efforts from serving as primarily a maritime command to becoming the premier trainer, integrator, and provider of CONUS-based forces to fulfill America's worldwide operational requirements. USACOM's mission is to plan for the land defense of the United States and the combined Canada-U.S. land and maritime defense of Canada. USACOM is also responsible for conducting several shaping and responding missions, including joint operations, humanitarian assistance, counterdrug operations, and military support to civilian authorities. Working with U.S. law enforcement agencies and host nations within its AOR, USACOM conducted counterdrug operations and counterterrorism activities throughout 1998. USACOM also provided support to U.S. civilian authorities responding to severe ice storms in the Northeast and assisted the Federal Emergency Management Agency's efforts to provide flood relief support in the Midwest.

USACOM plays a major role in helping prepare U.S. forces today to meet the challenges of tomorrow. The Secretary of Defense recently charged USACOM to spearhead DoD's effort to create and explore new joint operational concepts and conduct joint experiments. These experiments and operational concepts will support the implementation of *Joint Vision 2010*, the conceptual template for harnessing the Revolution in Military Affairs to achieve new levels of effectiveness in joint warfighting. As the executive agent for Joint Concept Development and Experimentation, USACOM will assess selected new operational concepts and design experiments, including wargames, modeling, simulations, and exercises, to test those concepts. After analyzing the results, USACOM will recommend resources and organizational and personnel changes required to turn promising new concepts into concrete improvements in the way the U.S. armed forces operate.

THE FUNCTIONAL COMMANDS

United States Special Operations Command

The Commander in Chief of United States Special Operations Command (USSOCOM) commands over 46,000 active and reserve personnel in four component commands: Air Force Special Operations Command, U.S. Army Special Operations Command, Naval Special Warfare Command, and Joint Special Operations Command. In actual operations, Service component units are normally employed as part of a joint force by the geographic CINCs through the geographic Special Operations Command (SOC). The SOC normally forms a joint special operations task force, which may be employed independently or in support of a larger joint task force.

All U.S. special operations forces (SOF) are assigned to USSOCOM, which prepares special operations forces

to carry out special operations missions. As the unified combatant command responsible for special operations forces, USSOCOM develops SOF doctrine, tactics, techniques, and procedures. USSOCOM also conducts specialized courses of instruction for all SOF, trains assigned forces, ensures interoperability of equipment and forces, and monitors the preparedness of special operations forces assigned to other unified commands. USSOCOM also develops and acquires unique special operations forces equipment, materiel, supplies, and services, and submits program and budget proposals for special operations forces.

Although special operations forces are used most frequently to respond to specific crisis situations, they help shape the international environment through various training programs. For example, in 1998 special operations forces provided training to several African nations as part of the African Crisis Response Initiative. Drawing on their specialized training and equipment, special operations forces also play a unique role in responding to a broad spectrum of conflict worldwide. In the Balkans, SOF personnel in 1998 supported the preventive deployment in Macedonia, the Kosovo Observer Mission, and the NATO-led peacekeeping operation in Bosnia. In the Persian Gulf, SOF contributed to Northern Watch and Southern Watch, the two no-fly zones in the Persian Gulf, and Operation Desert Thunder in Kuwait. In 1998, special operations forces also participated in operations in Asia, Africa, and Latin America, to include providing support to Joint Task Force-Full Accounting, Operation Shepherd Venture, the evacuation effort in Guinea-Bissau, and Operation Safe Border, the border monitoring operation in Peru and Ecuador.

United States Space Command

American military satellite systems—used for communications, navigation, and ballistic missile attack warning information—are controlled by United States Space Command (USSPACECOM). These space-based assets provide important information to geographic CINCs and also support the ability of U.S. forces to respond to crises by ensuring forces have the communications and navigational capabilities they need to function effectively during military operations.

In 1998, USSPACECOM launched and operated satellites that provided critical information to U.S. forces in Bosnia, the Persian Gulf, and other crisis points around the world. Space Command used satellites to keep forces serving in Operations Northern and Southern Watch in Iraq apprised of current weather information and ensure warning of missile attacks. Space Command also enhances the U.S. military's ability to respond to crises by both ensuring the United States has access to and the ability to operate in space and by denying that capability to its enemies.

United States Strategic Command

The United States Strategic Command (USSTRATCOM) has the primary responsibility of overseeing the strategic nuclear force structure in support of U.S. deterrence policy, and is prepared to employ those weapons should deterrence fail. In so doing, USSTRATCOM strengthens America's ability to reduce the potential for conflict in the international environment and deter aggression against its allies and friends. The Commander in Chief of USSTRATCOM (CINCSTRAT) works closely with the Offices of the Secretaries of Defense and Energy in ensuring a safe and reliable nuclear stockpile, and provides weapons of mass destruction planning expertise to U.S. agencies engaged in developing strategic arms control positions with other nuclear nations. USSTRATCOM also provides planning expertise for countering nuclear, chemical, and biological weapons and supports the geographic CINCs in theater planning and in shaping through intelligence collection efforts.

United States Transportation Command

The United States Transportation Command (USTRANSCOM) is the sole manager of America's global defense transportation system and is responsible for coordinating personnel and transportation assets necessary to project and sustain U.S. forces whenever, wherever, and for as long as they are needed. USTRANSCOM supports military operations all over the world, from military exercises to humanitarian activities to major operations such as Desert Fox in the Persian Gulf.

Through its three component commands—Air Mobility Command, Military Sealift Command, and Military Traffic Management Command—USTRANSCOM provides the transportation assets the U.S. military needs to support the strategy. USTRANSCOM provides airlift, sealift, and land transportation to send troops to exercises and other engagement activities critical to the military's shaping mission, and provides the transportation that enables the U.S. military to respond to crises around the world. In 1998, Air Mobility Command assets delivered food and medical supplies to

humanitarian emergencies in Africa and elsewhere, sent troops from the United States to Europe to support Operation Joint Forge in Bosnia, and provided medical and other support in the aftermath of the embassy bombings in Nairobi and Dar Es Salaam. Military Sealift Command assets transported equipment and supplies to exercises like Baltic Challenge and Ulchi Focus Lens in Korea, provided transportation support to counterdrug operations in the Caribbean, and sent troops to Southern Watch, one of the no-fly zones in Iraq. The Military Traffic Management Command provides overland transportation for the U.S. armed forces, primarily in the United States, and coordinates all transportation operations taking place simultaneously through USTRANSCOM.

OTHER COMMANDS

In addition to the nine unified combatant commands, there are also subunified commands and combined commands that play an important role in the U.S. defense strategy. Two of these commands, U.S. Forces Korea and North American Aerospace Defense Command, are particularly unique and warrant further discussion.

U.S. Forces Korea

United States Forces Korea (USFK), a subordinate unified command of USPACOM, is the joint headquarters through which American combat forces would be sent to the Combined Forces Command (CFC), the binational command that has operational control over more than 600,000 active duty military personnel from both the United States and South Korea. In the event of an attack from North Korea, the CFC would provide a coordinated defense of South Korea through its fighting components—the Combined Ground, Air, Naval, and Marine Forces Component Commands. Commander USFK, a four-star U.S. Army general, is also the Commander in Chief, Combined Forces Command, with a four-star Republic of Korea (ROK) army general serving as the deputy. Additionally, Commander USFK serves as the Commander in Chief United Nations Command and visibly represents the will of the UN Security Council to secure peace on the Korean Peninsula.

Joint and combined training exercises are a major tool to shape the international environment on the Korean Peninsula. These exercises demonstrate U.S. and ROK warfighting capabilities, enhance interoperability between these forces, and deter aggression from North Korea. In 1998, USFK participated in Exercise RSOI (Reception, Staging, Onward Movement, and Integration). RSOI demonstrates the ability of the United States to move forces on to the Korean Peninsula and USFK's ability to receive, prepare, and integrate newly arrived forces. Ulchi Focus Lens, a command post exercise, seeks to improve ROK and CFC coordination during transition to war and early conflict. These sophisticated exercises plus robust U.S. modernization efforts for USFK forces provide tangible evidence of U.S. supported resolve for peace and stability on the Korean Peninsula.

North American Aerospace Defense Command

The North American Aerospace Defense Command (NORAD) is a binational combined command that includes Canadian and U.S. forces. This command is responsible for aerospace warning and aerospace control for North America. The Commander in Chief of NORAD (CINCNORAD) also currently serves as Commander in Chief, United States Space Command. In accordance with the binational NORAD agreement, CINCNORAD is responsible through the Canadian Chief of the Defense Staff and the U.S. Chairman of the Joint Chiefs of Staff to the Canadian and U.S. National Command Authorities. Finally, U.S. Element NORAD (USELEMNORAD) is responsible for employing U.S. aerospace forces unilaterally to defend the continental United States, Alaska, and other areas as directed. NORAD's command and control center is located in Cheyenne Mountain, an underground base that is the central collection facility for a worldwide system of sensors designed to provide the CINC, the President of the United States, and the Prime Minister of Canada with an accurate picture of any aerospace threat.

By providing early warning of a potential aerospace attack, NORAD helps deter aggression against North America on a daily basis, a critical shaping mission. In 1998, NORAD continuously monitored North American airspace and alerted National Command Authorities of any potential threats to the continent. By providing early warning of an attack, NORAD also enables United States Strategic Command to respond to such an attack if necessary. In 1998, NORAD monitored several thousand crossings into North American airspace. While most unidentified crossings proved to be only aircraft that lost their way or filed incorrect flight plans, a small percentage of these crossings were drug smugglers. Although early warning of an attack against North America remains the primary mission, NORAD uses its

unique capabilities to work with other unified commands to help identify and respond to drug smuggling activities.

CONCLUSION

The commanders in chief ensure that U.S. military forces actively shape the international environment and respond as needed to a full range of crises, from noncombatant evacuations to major shows of force. Through the CINCs, the United States conducts peacetime engagement activities with nations around the world—building stronger military relationships with allies and friends in the process. These commands also conduct operations around the world, from peace enforcement operations in Bosnia to humanitarian relief operations throughout Africa, to counterdrug operations in South America and the Caribbean. Working as a team with the geographic commands, the functional commands provide essential support for almost every one of these operations.

Chapter 4

READINESS

The demands of today's international security environment mean that the United States requires the best trained, best equipped, and best prepared military forces in the world, capable of performing a wide range of missions effectively. Recruiting, training, retaining, equipping, and providing for these forces is an ambitious undertaking and the number one priority of the Department of Defense. The Department's plan for the FY 2000 budget, and that of successive years, focuses on this priority with pay increases and retirement boosts, as well as many other important readiness initiatives, both short and long term. This will ensure the nation's military readiness is robust well into the next century.

AMERICA'S FORCE IS READY

Today's military is ready. Overall, the U.S. armed forces remain the most capable in the world. The U.S. military is capable of executing the National Military Strategy, including two overlapping major theater wars, while continuing to meet America's many security obligations throughout the world. In the past year, U.S. forces have effectively responded to diverse missions, including evacuating the U.S. embassy in the Congo, executing combat operations in the Persian Gulf, responding to the African embassy bombings, and executing strikes against terrorists in response to those bombings.

The Department's forward-deployed and first-to-fight units have distinguished themselves and the nation in these peacekeeping and contingency operations, and their readiness continues to be high. But in spite of the tremendous success in a number of overseas operations, wear is showing on the military as a whole and beginning to take a toll on readiness. With these signs of strain beginning to appear, the Department, in cooperation with Congress, has plans to relieve the stress on its military forces. The FY 2000 budget, as part of a strong five-year plan, calls for aggressive programs to robust short- and long-term readiness.

Stopping the decline in readiness will take some time, however, as strain and wear have accompanied the Department's success. While the readiness of the armed forces is much higher than during the 1970s and early 1980s, signs of stress have been apparent in readiness indicators and informal field reports. Challenges in recruiting quality people, retaining experienced personnel, maintaining aging equipment, and managing a

historically high operating tempo have led to downturns in readiness. Working together, the Administration, the Department, and Congress have taken aggressive steps to turn around these trends and keep the U.S. military the best in the world.

READINESS AND THE NATIONAL SECURITY STRATEGY

America's leadership in world affairs relies on ready military forces. Because U.S. forces are organized and trained to support the National Security Strategy, they must be prepared for, and on occasion must engage in, operations that support the full spectrum of national interests.

Shaping the International Environment

The U.S. military plays an essential role in building coalitions and shaping the international environment in ways that protect and promote U. S. interests. On a day-to-day basis, U.S. defense efforts help to promote regional stability, prevent or reduce conflict and threats, and deter aggression and coercion.

Responding to the Full Spectrum of Crises

Despite these efforts to shape the international security environment, the U.S. military will, at times, be called upon to respond to crises in order to protect U.S. interests, demonstrate U.S. resolve, and reaffirm the role of the United States as global leader. Therefore, U.S. forces must also be able to execute the full spectrum of military operations. These include deterring an adversary's aggression or coercion in crisis, conducting concurrent smaller-scale contingency operations, and fighting and winning major theater wars. Forces must be ready to meet the demands of the National Military Strategy in terms of:

- Meeting mobilization and deployment timelines.
- Successfully engaging in assigned military operations and tasks.
- Disengaging, refitting, retraining, and redeploying if necessary.

Keeping U.S. forces ready to fight requires an appropriate force structure, modernized equipment, adequate maintenance, training and logistics support, and the requisite trained and motivated personnel. A deficiency in any of these elements can hurt readiness. In managing readiness, the Department strives to maintain a balance among these crucial elements to ensure that forces arrive on time and fully capable to meet mission demands.

READINESS CHALLENGES

Readiness is the foundation of U.S. military credibility as an instrument of national power. Difficult decisions lie ahead to ensure the Department strikes the right balance between near-term readiness, modernization, and providing the good quality of life that military personnel deserve. The need to maintain combat ready forces to deploy on short notice is clear and remains unchanged. Changing threat scenarios, coupled with aging equipment, drive the need for force modernization. But the most critical component of the Department's future systems will continue to be its high quality personnel, and keeping these outstanding people remains a near- and long-term requirement. To that end, improving the quality of life for the nation's soldiers, sailors, airmen, and Marines is a crucial part of the readiness equation. Although the Department's plans should significantly improve readiness, reversing these adverse trends will be neither quick nor easy. Meeting the Department's goals in today's dynamic environment will continue to present challenges.

Challenge: Recruiting the Ready Forces of the Future

U.S. forces are the best in the world, largely because of the quality of the people who comprise those forces. Threats to U.S. security and emerging technology make quality service members more valuable than ever. While the Department is still attracting the best and brightest, the nation's strong economy, the growing anxiety about military pay and retirement, and a declining propensity to serve among young Americans have made recruiting increasingly difficult. To address these rising concerns, the Department, with the full support of the Administration, plans to add $2.5 billion to the personnel accounts in FY 2000. This increase funds pay and retirement benefits for DoD personnel as well as critical recruiting initiatives in all the Services.

Challenge: Retaining the Ready Force

To maintain highly capable forces, it is important to retain individuals needed as middle and senior leaders. Retention issues are emerging as a result of combined

economic and quality of life issues. On recent base visits, Secretary Cohen found among military members concerns with pay, housing, health care, retirement compensation, and the pace of deployments. Retention problems are for the most part not yet threatening readiness, but shortages in certain skills and specialties such as pilots, machinists, and information technology specialists are becoming critical. Congress approved a 3.6 percent pay raise for FY 1999. DoD's budgeted pay raise of 4.4 percent for FY 2000 shows a commitment to keep service members' pay competitive. In addition, an improved military retirement plan further demonstrates the Administration's and Department's resolve to improve the lives of military personnel and make a military career attractive.

Challenge: Managing Time Away From Home

Deployments are part of military life. But as the size of the armed forces has been reduced and as DoD has reduced overseas base infrastructure, the number and frequency of overseas deployments have increased. The impact on military personnel as a result of this increase in tempo has been significant. Spending more time away from home station places greater stress on both individuals and families. Increasing deployments can also place a greater strain on personnel remaining at home because their workload increases dramatically to cover for deployed personnel. This results in a downward training spiral that decreases morale. It is necessary to balance the needs of the military in terms of training, exercises, and peacetime operations with the needs of military families for stability and predictable tempo. To that end, the Department has taken the following steps to better monitor the peacetime tempo of the force:

- Each Service is addressing its specific personnel tempo (PERSTEMPO) concerns and has developed metrics reported on a monthly basis and derived from the following goals:
  - The Army limits the number of deployed days for a single unit, in a single deployment, to 179. While the Army Chief of Staff will consider extensions on a case-by-case basis, the Army goal is no more than 120 days deployed per year.
  - The Navy manages PERSTEMPO through its deployment cycle of a maximum deployed length of six months, with a minimum turnaround time between deployments equal to twice the length of the deployment.
  - The Marine Corps has established the goal of a unit deployment length of six months and seeks a time between deployments equal to twice the length of the deployment.
  - The Air Force has limited the number of deployed days in a single deployment to 179 and has established a goal of military members being away from home station no more than 120 days per year. Expeditionary Air Forces are designed to improve predictability and stability by moving to ten Aerospace Expeditionary Forces (AEFs) that are designed to deploy rapidly.
- The Global Military Force Policy (GMFP) systematically manages low-density, high-demand forces to ensure their capabilities are efficiently allocated to each theater based on prioritized commander in chief (CINC) requirements. This policy also attempts to manage excessive tempo for high demand units, thereby increasing long-term readiness. There are very few of these units, such as the Airborne Warning and Control Systems, yet they are called upon to support almost all contingency operations. GMFP establishes deployment thresholds for these units and makes the Secretary of Defense the approving authority for deployments exceeding the threshold. The policy encourages optimal use of the units across all CINC mission, while discouraging overuse of selected units and maintaining required levels of unit training.
- The Department continues to develop a centralized repository for PERSTEMPO data. When fully operational, DoD will be able to monitor deployment demands placed on service members.

The Department will continue to develop additional initiatives as needed to regulate excessive personnel tempo.

Challenge: Training the Forces

The Department's training objective is to ensure that U.S. forces have the highest quality education and training, tailored to needs, delivered cost-effectively whenever and wherever required. DoD's challenge is to modernize its training policies and processes to ensure that U.S. forces are ready.

JOINT TRAINING

The Joint Training System is the Chairman of the Joint Chiefs of Staff's program to align joint training requirements with assigned missions. The system shapes the way the armed forces train for future military operations and translates the *Joint Vision 2010* concepts into an achievable process. It improves the quality of joint training and the readiness of forces by enabling joint experimentation, joint doctrine, and joint exercises.

SERVICE UNIT TRAINING

Unit training is a key building block to Service readiness. During unit training, individuals and teams complete essential training required for unit readiness. The military departments continue to pursue vigorous unit training programs. To ensure highly ready forces in times of crisis, the Department continues to give special emphasis to unit training resources for first deploying forces.

LEARNING TECHNOLOGY

The Department's training will involve new environments and methods of learning and performance aiding. It will use information technologies to provide an integrated global network of knowledge resources. It will be more distributed, adaptive, and tailored to operational missions and tasks. In particular, DoD will take advantage of key advances in learning technology, which will overcome obstacles that precluded widespread application of training technology in the past. DoD is working diligently to implement technology-based training that can be used across the Department on a broad range of platforms, that is reusable for a number of applications, and that can be delivered over a network. This promises to improve readiness and make training programs more cost-effective.

- Modeling and Simulation. Today's operations involve joint/interservice interactions at organizational levels lower than envisioned in traditionally designed military force structure and doctrine. The Department is using advanced modeling and simulation technology to allow less expensive, more realistic, and more frequent joint command and control training. The Joint Simulation System is the principal simulation network that will guide training units and staffs, joint task forces, CINC staffs, and interagency personnel in the full range of missions across all phases of military operations. It will globally connect training audiences to allow distance training without deployment and will enhance the exploration and evaluation of new operational concepts and joint force experimentation.
- Embedded Training. Because each operation is unique, forces require additional on-the-spot training to prepare for new roles. Embedding training in the unit itself, either on the operational platform or in a deployable training device such as a simulator, allows just-in-time training tailored to the immediate situation.
- Advanced Distributed Learning Methodologies and Technologies. With advanced distributed learning (ADL), the Department can take training, education, and performance mentoring to the learner, and teach or reinforce individual, collective, and joint critical skills anywhere, anytime. ADL learning technologies will permit people to access knowledge as required based on their learning needs. ADL will provide high quality education faster, at lower cost, and enhance readiness.

Challenge: Medical Readiness

Medical readiness, which remains the Military Health System's primary focus, is composed of four interrelated domains: battlefield medicine; protecting the health of the force; medical operations in smaller-scale contingency operations; and medical support of the Department's role in domestic preparedness against weapons of mass destruction. Significant progress has been made in designing a joint health strategy for the next century and in implementing efforts to protect the health of the force. To this end, DoD developed the Joint Health Service Support Vision 2010—Full Spectrum Health, which supports the Chairman's *Joint Vision 2010* and will become the conceptual framework for developing and providing military health services into the 21st century.

Implementing lessons learned from Operation Desert Storm/Desert Shield, the Department has embarked on an aggressive campaign to develop and implement a force health protection (FHP) strategy for sustaining and preserving the health of the force as part of the larger Force Protection Program. This new strategy leverages technology to better monitor and protect the health of deployed forces. It surveys potential water, soil, and air hazards of deployment environments. Health information is collected before and after deployment through survey completions, serum collection, and other tests.

Service members are immunized with appropriate agents to meet biologic threats posed by the environment or the enemy and issued protective clothing and other gear to protect them from harmful agents. Meanwhile, service members are trained how to live, fight, and survive under chemical and biologic warfare conditions. Records of this training become part of the force health protection database.

The comprehensive medical surveillance program, one component of FHP, has been implemented for all operational deployments. In Bosnia, this program proved to be a major factor in the lowest number of non-battle injury incidents of any previous deployment.

A linchpin of FHP is accurate capture of information regarding all service members and then rapid access to it. The Medical Personnel Information Carrier, an electronic medical dog tag, will document important health and exposure information for all deployed personnel and will travel with all members during every deployment. Information will be uploaded prior to deployment and be available in theater. The Personnel Information Carrier is being operationally tested and will be deployed in 1999.

On December 15, 1997, Secretary Cohen approved a plan to vaccinate the armed forces against biological warfare agent anthrax, and on May 18, 1998, he approved implementation of that plan. It is a time-phase implementation plan that requires forces in high threat areas to receive the anthrax vaccination first. Eventually, all 2.4 million military service members in the active and reserve components will receive the FDA-licensed anthrax vaccine. The phased vaccination program will take six to seven years to complete.

Smaller-scale contingencies and DoD's role in support of the consequence management aspect of Domestic Preparedness both carry responsibilities for military medicine. Operations dedicated to humanitarian assistance, disaster relief, and peacekeeping frequently include or are solely supported by military medical personnel. These operations help to build international coalitions and promote U.S. interests, as well as to provide training experiences for medical personnel. Regarding Domestic Preparedness, DoD works in close collaboration with other federal agencies to plan for, and test, a variety of possible medical responses in the event of an attack with weapons of mass destruction.

MEETING THE READINESS CHALLENGE

The Department and the Administration, with congressional support, are meeting these challenges head-on in order to stop readiness declines. The FY 1999 Omnibus Appropriations Bill, already signed into law, added $1.3 billion to readiness accounts in all the Services. Adding to these initiatives is the Administration's and Department's plan to plus up FY 2000 funding by $12 billion, and to increase the FY 2000 to FY 2005 funding for DoD by a total of $110 billion, to turn around the downward readiness trends. Many of these resources will go to each Service's principal readiness shortfalls:

- The Army will increase funds for flying hours, training, improving barracks, and installation improvement.
- Navy funding will increase flying hours, ship maintenance, and spare parts.
- The Air Force increase will fund spare parts, recruiting and retention, and new engines.
- The Marine Corps will replace aging vehicles and buy new communications gear, engineering equipment, and training ammunition.

These resources pave the way for not only stopping readiness declines, but for raising readiness to higher levels. This is a five-year effort that will require continued commitment from both the Department and Congress. The good news is that the downward trends should stop soon.

CONCLUSION

The Department's soldiers, sailors, airmen, and Marines have done a remarkable job managing the changes that have affected them since the end of the Cold War. Even as force structure has declined by more than 35 percent worldwide, the nation has maintained an effective global military presence. The recent additional appropriations reflect the continued dedication and cooperation of the Department, the Administration, and Congress not only to stop declines in readiness, but to reverse the indicators and post positive trends. This will not be easy, as the solutions to readiness issues will require focus and energy over a long period. These efforts will set the stage for future readiness and ensure the United States will continue to have the best trained, best equipped, best led force in the world.

Chapter 5

CONVENTIONAL FORCES

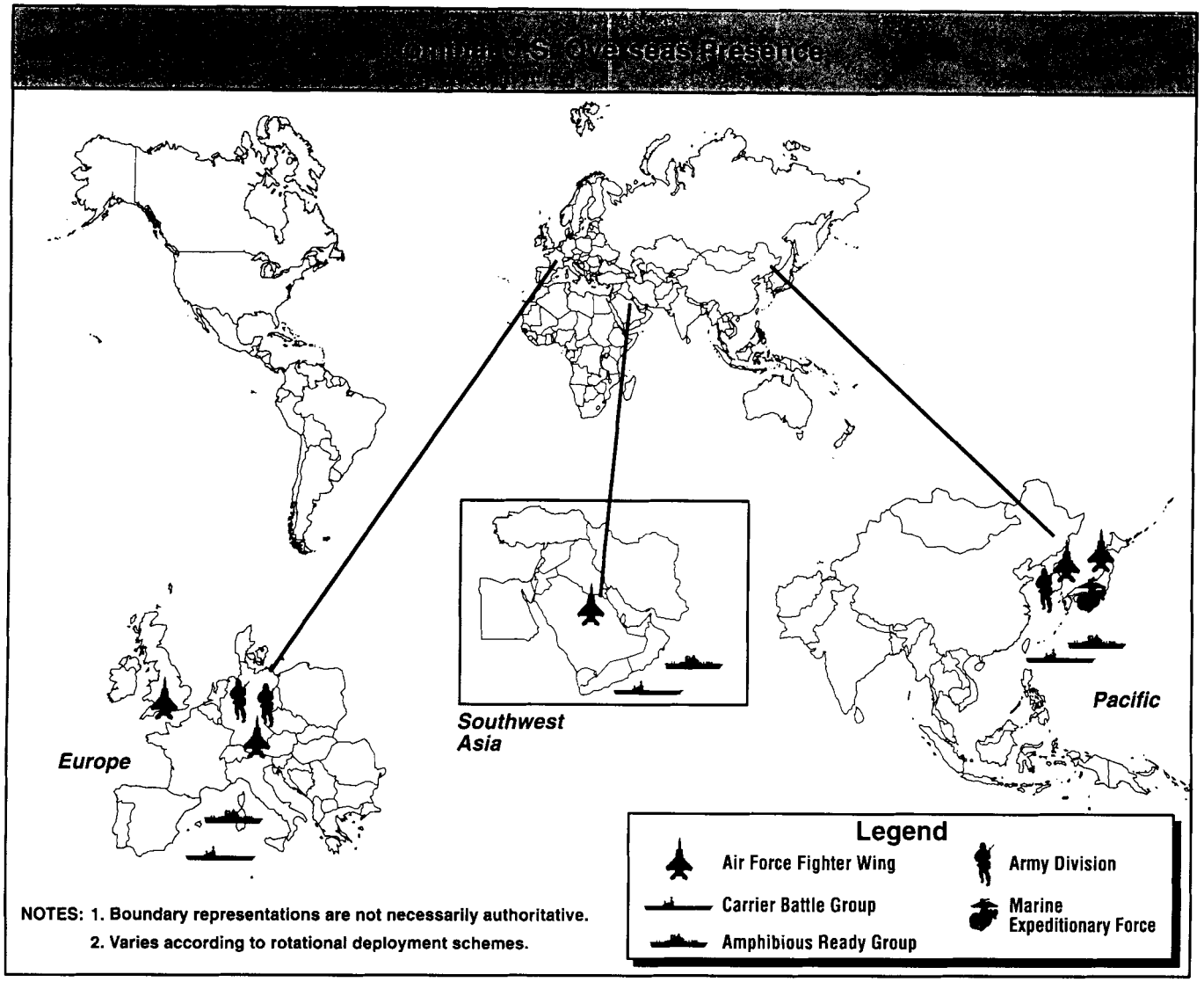
Conventional forces provide the bulk of the nation's military power. They consist of combat and support elements from all four Services, excluding units dedicated to special operations and nuclear deterrence. The major categories of conventional forces are land, naval, aviation, and mobility forces. It is primarily these forces that provide the United States the ability to support the defense strategy, which focuses on shaping the international environment and responding to a full range of crises. Toward these objectives, conventional forces conduct forward presence missions, engage in a range of smaller-scale contingencies, and conduct combat operations up to and including major theater wars.

The FY 2000 President's Budget and associated Future Years Defense Program (FYDP) provide resources to sustain and modernize the nation's forces in both the near and far terms. This chapter describes the capabilities required for executing conventional force missions and the investments vital to maintaining and enhancing those capabilities.

The United States needs to deploy forces routinely abroad to shape the international environment in ways favorable to its interests. Historically, forward deployments have been concentrated in Europe, the Pacific, and Southwest Asia. These deployments include:

- Pacific - One Army mechanized division, one Marine expeditionary force, two Air Force fighter wing-equivalents, one Navy carrier battle group, and one amphibious ready group with an embarked Marine expeditionary unit. Additionally, forward-based forces in the Pacific region include one light infantry division in Hawaii and 1.25 fighter wing-equivalents in Alaska.
- Europe - Forward elements of one Army armored and one Army mechanized infantry division, 2.3 Air Force fighter wing-equivalents, one carrier battle group, and one amphibious ready group with an embarked Marine expeditionary unit.
- Southwest Asia - One Air Force fighter wing-equivalent, one carrier battle group, and one amphibious ready group with an embarked Marine expeditionary unit.

In addition, all four Services periodically deploy forces to forward locations, as needs arise. Such deployments involve both active and reserve component units, with prepositioned U.S. equipment and material contributing substantially to overseas presence. The following chart shows the nominal location of major U.S. conventional force elements.



THREATS

Potential regional aggressors possess a range of capabilities that could pose significant dangers to U.S. military operations. These threats, which are likely to expand in the future as a result of the proliferation of modern military technology, include increasingly capable air-, sea-, and land-based weapons. To ensure quick and decisive victory with minimum casualties, U.S. forces must maintain a substantial advantage over potential adversaries capable of employing advanced weapon systems. U.S. forces simultaneously must be prepared to face the potential challenges of asymmetric threats, such as the use of nuclear, biological, and chemical (NBC) weapons, an increase in terrorism, and information warfare.

Aviation Threats

Near-term threats remain below levels that would put U.S. air superiority at significant risk in a regional conflict. On the other hand, potential adversaries are expected to pose significant future surface-to-air threats that could restrict the rapid application of U.S. air power against key ground targets at the outset of a war.

While the chief potential regional adversaries—Iraq, Iran, and North Korea—have done little in recent years to augment their capabilities against U.S. air forces, they—or other possible future adversaries—may be able to exploit a wide range of advanced air-to-air and surface-to-air technologies and systems available on the international market. Such systems have fallen into the hands of aggressors in years past and may do so again

in the future. Aviation systems and weaponry currently being offered for sale include fighter aircraft, air-to-air missiles, and air defense systems. Properly employed, these systems could pose a difficult challenge to many existing U.S. weapon systems in combat. The further proliferation of advanced weapon systems could drive up U.S. losses in a future conflict, making continued improvements in the nation's military capability imperative. Failure to make such improvements could result in increased U.S. losses in future conflicts as opponents deploy advanced counterair weapon systems.

Given the current U.S. preeminence in air combat capability, potential adversaries are likely to emphasize ground-based air defenses and the hardening and camouflage of ground targets. Several rogue states are making serious efforts to move important military and industrial facilities underground. The secrecy surrounding these projects compounds the difficulty of planning the neutralization of such targets in wartime. Enemy use of decoy targets also can work effectively to dilute or confuse air attacks, if not countered by the adoption of sophisticated, multisensor information-gathering and targeting systems. Finally, the use of unconventional approaches, such as the dispersal of troops or weapons in densely populated urban areas, can limit the application of strike systems like missiles and air-delivered bombs.

Maritime Threats

A maritime threat of increasing concern is the proliferation of advanced submarine technology to countries with an interest in impeding access to international waters. The production of nonnuclear submarines is increasing worldwide, with the most advanced technologies readily available to many nations. Additionally, many smaller navies are now acquiring modern submarines, some for the first time in their histories. Of principal concern are North Korea, which continues to operate the fourth largest number of submarines in the world, and Iran, which is acquiring acoustically-quiet diesel submarines from Russia. Also, China's navy operates the third largest number of submarines in the world, and has cultivated a relationship with Russia that has enabled it to obtain access to some of the most advanced undersea warfare technology.

In the future, the United States must be prepared to face a range of potential naval mine threats far more lethal than those existing today. More than 48 of the world's navies now possess mines and minelaying capabilities. At least 30 countries are actively engaged in the development and manufacture of sophisticated new mines. Of these, 20 are known exporters of mines. An even greater number of nations possess the ability to lay naval mines. Although most of the world's stockpiled mines are relatively old and unsophisticated, they remain lethal and are easily upgraded. Naval power projection missions often require U.S. forces to operate in shallow water (less than 300 feet deep), where mines are most effective.

Sophisticated antiship cruise missiles (ASCMs) remain a major threat to U.S. naval forces. These weapon systems are rapidly increasing in number worldwide. In particular, several Middle Eastern and Asian countries have procured substantial numbers of ASCMs for use aboard missile boats and by coastal defense batteries. Future generations of ASCMs will be supersonic and highly maneuverable in the terminal phases of flight. As a result, U.S. naval forces operating in littoral waters can expect to face a more substantial threat from these missiles in the decades ahead.

Ground Threats

The United States and its allies continue to face the threat of coercion and large-scale, cross-border aggression by hostile states with significant military power. Several types of highly capable weapon systems are becoming both available and affordable for regimes that are unstable or hostile to U.S. interests. These systems include lightweight antiaircraft and antitank missiles, tactical ballistic missiles with improved guidance and payload technologies, modern battle tanks incorporating day-and-night optics, passive defense systems capable of interfering with precision-guided munitions, active defense systems that redirect or destroy incoming projectiles, advanced antitank guided missiles capable of top attacks against tank turrets, and advanced artillery munitions.

Increasingly capable and violent terrorist groups, drug cartels, and international crime organizations directly threaten the lives of American citizens and undermine U.S. policies and alliances. Although irregular forces will be unable to match the combat power of heavy U.S. weaponry, these forces still pose difficult challenges to U.S. forces. The proliferation of modern light arms, a fighting style that could necessitate operations in dense urban environments, and the ability of indigenous forces to conceal themselves within civil populations could negate some of the advantages of U.S. heavy weaponry.

Table 1

Conventional Force Structure Summary

	FY 2000	QDR
Army		
Active Corps	4	4
Divisions (Active/National Guard)	10/8	10/8
Active Armored Cavalry Regiments	2	2
Enhanced Separate Brigades (National Guard)	15	15
Separate Brigades (National Guard)	3	3
Navy		
Aircraft Carriers (Active/Reserve)	11/1	11/1
Air Wings (Active/Reserve)	10/1	10/1
Amphibious Ready Groups	12	12
Attack Submarines	56	50
Surface Combatants (Active/Reserve)	108/8	106/10
Air Force		
Active Fighter Wings	12+	12+
Reserve Fighter Wings	7+	8
Reserve Air Defense Squadrons	4	4
Bombers (Total Inventory)	190	187
Marine Corps		
Marine Expeditionary Forces	3	3
Divisions (Active/Reserve)	3/1	3/1
Air Wings (Active/Reserve)	3/1	3/1
Force Service Support Groups (Active/Reserve)	3/1	3/1

Nuclear, Biological, and Chemical Weapons

NBC weapons delivered by theater ballistic missiles, cruise missiles, artillery, aircraft, special operations forces, or terrorists threaten U.S. security interests and U.S. military forces deployed throughout the world. More than 20 countries possess or are developing NBC weapons, and more than 20 nations have theater ballistic missiles. The warfighting assessments conducted for the Quadrennial Defense Review (QDR) highlighted the significant challenge that the sustained use of NBC weapons could pose to U.S. conventional forces.

FORCE STRUCTURE

Key elements of the conventional force structure are shown in Table 1.

Aviation Forces

Aviation forces of the Air Force, Navy, and Marine Corps—composed of fighter/attack, conventional bomber, and specialized support aircraft—provide a versatile striking force capable of rapid employment worldwide. These forces can quickly gain and sustain air superiority over regional aggressors, permitting rapid air attacks on enemy targets while providing security to exploit the air for logistics, command and control, intelligence, and other functions. Fighter/attack aircraft, operating from both land bases and aircraft carriers, combat enemy fighters and attack ground and ship targets. Conventional bombers provide an intercontinental capability to strike surface targets on short notice. The specialized aircraft supporting conventional operations perform functions such as airborne early warning and control, suppression of enemy air defenses, reconnaissance, surveillance, and combat rescue. In addition to these forces, the U.S. military operates a variety of

transport planes, aerial-refueling aircraft, helicopters, and other support aircraft. Descriptions of those systems are provided in the sections on mobility and land forces.

FIGHTER/ATTACK AIRCRAFT

The Air Force, Navy, and Marine Corps keep a portion of their tactical air forces forward deployed at all times. These forces can be augmented, as needs arise, with aircraft based in the United States.

The Air Force is capable of deploying, as part of its expeditionary forces, seven to eight fighter wing-equivalents (FWEs) to a distant theater in a matter of days as an initial response in a major theater war (MTW). Additional wings would follow within the first month. These forces would operate from local bases where infrastructure exists and political agreements allow. Navy and Marine Corps air wings similarly can be employed in distant contingencies on very short notice; these forces provide a unique ability to carry out combat operations independent of access to regional land bases.

During FY 2000, the aviation combat force structure will include 20.2 Air Force FWEs (72 aircraft each), 11 Navy carrier air wings (50 fighter/attack aircraft each), and four Marine aircraft wings (which are task organized and include varying numbers and types of aircraft). Tables 2, 3, and 4 illustrate the composition of Air Force, Navy, and Marine Corps air wings at the end of FY 2000.

The Air Force has proposed to recast the operational employment of the bulk of its tactical aviation forces through the creation of aerospace expeditionary forces (AEFs). Under this concept, the fighter/attack force, as well as some bomber, tanker, and transport aircraft, will be grouped into ten AEFs for the purpose of specifying day-to-day readiness levels and availability for overseas contingency deployments. Readiness to meet MTW demands will remain unchanged. The main benefit of the AEF process will be the long-term predictability of future deployment prospects, much as the Navy has accomplished with its cyclical overseas deployments. This predictability should greatly aid Service personnel in planning personal and family commitments. The Air Force's basic unit organization—squadrons and wings—will not change. Details regarding AEF composition and procedures are being worked out now, and the first AEF is expected to become operational in FY 2000.

The Air Force is taking steps to improve both near- and long-term force readiness. Expanded funding relative to last year's program for both depot-level repairable items and initial spares will increase aircraft availability across the fleet. Funding additions for engine upgrades, modifications, and component improvements—also across the fleet—similarly will improve force availability. Funding also has been added to support F-15 radars, which otherwise would have become unsustainable in FY 2002. Finally, there has been a considerable increase in funding for enlistment and reenlistment bonuses. These will help not only in retaining today's highly trained aviators but also in attracting the highly qualified personnel needed for the future.

The Navy also is taking steps to improve force readiness, both in the near term and for the long term. Funding increases for F/A-18C/D maintenance and modifications, as well as expanded procurement of infrared targeting pods, will improve force effectiveness over the lives of these aircraft. Significant improvements are being made in Marine Corps AV-8B support, drawing on the findings of the 1998 Harrier Readiness Panel study. Procurement of an additional 41 T-45 and 24 T-6 training aircraft will increase student pilot throughput and help ease current pilot shortages. Boosts in flight-hour funding levels also are expected to reduce fluctuations in readiness as naval tactical aviation forces prepare for deployments.

Efforts to reduce the cost of the tactical aviation infrastructure continue to fall short of goals. Practical difficulties in defining the scope of new programs, as well as restrictions on consolidation and reduction, have eliminated or delayed achievement of some anticipated efficiencies. As foreseen in the Quadrennial Defense Review, however, the Air Force will reduce its U.S.-based air defense force from six to four fighter interceptor squadrons by FY 2000. The two squadrons removed will be reassigned to general purpose fighter roles.

CONVENTIONAL BOMBERS

In a major theater war, bombers would deliver large quantities of unguided general-purpose bombs and cluster munitions against area targets, such as ground units, airfields, and rail yards. Bomber forces also would play a key role in delivering precision-guided munitions (including cruise missiles) against point targets, such as command and control facilities and air defense sites.

Table 2

Composition of Air Force Wings, FY 2000 (Fighter/Attack Aircraft)

Aircraft Type	Mission	Active FWEs	Reserve FWEs	Total FWEs
F-15A/B/C/D	Air superiority	3.4	0.6	4.0
F-15E	Multirole[a]	1.8	0	1.8
F-16C/D	Multirole[b]	6.3	5.6	11.9
F-117	Attack	0.5	0	0.5
A-10	Close air support	0.6	1.4	2.0
Total[c]		12.6	7.6	20.2

Note: FWE quantities are based on the primary mission aircraft inventory (PMAI). PMAI denotes aircraft authorized to combat units for the performance of the units' basic missions; it excludes aircraft maintained for other purposes, such as training, testing, attrition replacements, and reconstitution reserves.

[a] Oriented primarily to the air-to-ground role, but also can be used in air-to-air operations.

[b] Can be used in the air-to-air or air-to-ground role.

[c] FWEs are preliminary and may be increased slightly on a temporary basis to sustain 15 PMAI in individual reserve component F-16 units as they transition between roles or to newer-model aircraft.

Table 3

Composition of Carrier Air Wings, FY 2000 (Fighter/Attack Aircraft)

Wing Type	Aircraft Type (PMAI per Wing)	Number of Air Wings FY 2000
Active	F-14 (12), F/A-18 (36)[a]	10
Reserve	F/A-18 (48)[b]	1
Total[c]		468

[a] Two air wings will maintain a second F-14 squadron in place of a third F/A-18 squadron until those squadrons transition to the F/A-18E in 2001 and 2002.

[b] The reserve air wing includes 48 PMAI F/A-18s, operated by three Naval Reserve squadrons (36 aircraft) and one Marine Corps Reserve squadron (12 aircraft).

[c] Total PMAI shown consists only of Navy F-14s and F/A-18s. The Marine Corps will provide sufficient active F/A-18 squadrons to ensure 36 F/A-18s per deployed carrier air wing. (Actual numbers based on operating tempo requirements of each Service as determined by the Department of the Navy Tactical Aircraft Consolidation Plan.)

Table 4

Composition of Marine Aircraft Wings, FY 2000 (Fighter/Attack Aircraft)

Aircraft Type	Mission	Active PMAI (Squadrons)	Reserve PMAI (Squadrons)	Total PMAI (Squadrons)
F/A-18A/C	Multirole	8	4	12
F/A-18D	Multirole	6	0	6
AV-8B	Close air support	7	0	7
Total				25

The ability of these forces to have an immediate impact on a conflict by slowing the advance of enemy forces, suppressing enemy air defenses, and inflicting massive damage on an enemy's strategic infrastructure will expand dramatically over the next 10 years as new munitions are deployed. The more advanced weapons now entering the inventory or in development will enable bombers to bring a wider range of targets under attack, while taking better advantage of the bombers' large payloads. The rapid-response, long-range capability provided by bombers could make them the first major U.S. weapon system on the scene in a fast-developing crisis. For remote inland targets, bombers could be the only weapons platform capable of providing a substantial response.

The Department has 94 B-52, 93 B-1, and 21 B-2 bombers. (The B-2 figure includes aircraft being modified to the Block 30 configuration.) The number of B-52s is scheduled to be 76 in FY 2000. Of the force totals reported above, 44 B-52s and 54 B-1s are primary mission aircraft, meaning that they are fully funded in terms of operations and maintenance, load crews, and spare parts, and are ready for immediate deployment. An additional 12 B-52s are held ready for nuclear missions. All of the B-52s and B-1s in the inventory, including those in attrition reserve, will be kept in flyable condition and will receive planned modifications. B-1 primary mission aircraft will rise to 70 by 2004, when increasingly capable conventional weapons become available. Bombers will be an integral part of aerospace expeditionary forces; the mix of B-1s, B-52s, and B-2s needed for each AEF is currently under review.

SPECIALIZED AVIATION FORCES

Specialized aviation forces contribute to all phases of military operations. Two of their most important missions are suppression of enemy air defenses and aerial reconnaissance and surveillance. Air defense suppression forces locate and neutralize enemy air defenses. Airborne reconnaissance and surveillance forces are a primary source of information on enemy air and surface forces and installations. These forces bridge the gap in coverage between ground- and space-based surveillance systems and the targeting systems on combat aircraft. Airborne reconnaissance systems fall into two categories: standoff systems, which operate outside the range of enemy air defenses; and penetrating systems, which operate within enemy air defense range. Table 5 summarizes the force levels programmed to be on hand at the end of FY 2000.

Table 5

Specialized Aviation Forces, FY 2000

Electronic Warfare and Air Defense Suppression	
EA-6B	104
Airborne Reconnaissance and Surveillance Systems	
Standoff	
E-2C[a]	61
E-3[a]	29
E-8[b]	5
U-2[b,c]	26
RC-135 S[d]/U[e]/V[c]/W[c]	21
EP-3[c]	11
ES-3[c]	0
RC-12[c]	42
Penetrating[b]	
F-14 (TARPS)	47
F-16 (TARS)	24
F/A-18D (ATARS)	18
RC-7 ARL	6
Pioneer UAV Systems	9
MAE (Predator) UAV Systems	10
Tactical (Outrider) UAV Systems	2
Hunter UAV System	1

Note: Force counts represent PMAI totals.

[a] Performs airspace surveillance, early warning, and fighter control.

[b] Performs ground reconnaissance.

[c] Conducts signals intelligence.

[d] Conducts measurement and signature intelligence.

[e] Conducts electronic intelligence.

Air Force reconnaissance and surveillance aircraft will remain outside the aerospace expeditionary force concept for the time being, based on their relatively small numbers and occasionally very heavy deployment demands. Other approaches, such as increasing the number of crews assigned, will be employed where practicable (and affordable) to moderate the operating tempo of these forces.

Naval Forces

Naval forces conduct forward presence, crisis response, and joint warfighting operations. Major elements of the maritime force include aircraft carriers, amphibious ships, attack submarines, surface combatants, mine warfare ships, and ballistic-missile submarines (discussed in the Strategic Nuclear Forces/Missile Defenses chapter). In addition, the force includes maritime patrol aircraft and sea-based helicopters, as well as ships that perform support and logistics functions.

The FY 2000 budget and associated FYDP support the strategy and operational concepts outlined in the 1997 Quadrennial Defense Review. They provide funds to sustain 12 carrier battle groups (CVBGs), 12 amphibious ready groups (ARGs), 116 surface combatants, and 50 attack submarines through the FYDP period. The maritime force structure will reach 314 ships by the end of FY 2000 and will stabilize at slightly above 300 ships through FY 2005.

Naval Force Levels, FY 2000 — Table 6

Ballistic-Missile Submarines	18
Aircraft Carriers	11/1
Attack Submarines	56
Surface Combatants	108/8
Amphibious Ships	37/2
Mine Warfare Ships	11/5
Logistics Force Ships/Support Force	57
Total Battle Force Ships	314
Selected Maritime Aircraft	
Maritime patrol aircraft squadrons	12/7
Sea-based helicopter squadrons	12/1

Note: Entries with two numbers separated by a slash give active and reserve force counts.

Carrier battle groups consist of a carrier and its air wing, plus various surface combatants and attack submarines. Amphibious ready groups are composed of a large-deck amphibious assault ship, a transport dock ship, a dock landing ship, and an embarked Marine Expeditionary Unit (Special Operations Capable), or MEU(SOC). The Navy deploys a CVBG and an ARG about 75 and 80 percent of the time, respectively, in the Mediterranean; about 75 and 50 percent of the time, respectively, in the Indian Ocean and the Arabian Gulf; and on a nearly continuous basis in the western Pacific, where overseas homeporting arrangements exist. During periods when neither a CVBG nor an ARG is present in a theater, one of these forces is located within a few days' transit time of the region.

The demands associated with maintaining overseas presence and supporting contingency operations play a significant role in determining naval force requirements. The composition and missions of major elements of the naval force structure are described in the sections that follow.

AIRCRAFT CARRIERS

In addition to their extensive forward presence and crisis-response capabilities, aircraft carriers provide a unique forward base for littoral air operations and support facilities for joint force commanders. Operating independent of land-basing restrictions, carriers support joint forces by engaging in attack, surveillance, air defense, and electronic warfare missions against targets at sea, in the air, or ashore.

The FY 2000 budget and FYDP sustain a force of 12 fully deployable aircraft carriers. At the end of FY 2000, the carrier force will consist of nine nuclear-powered vessels—eight of the CVN-68 Nimitz class plus the Enterprise (CVN-65)—and three conventionally-powered units. The conventionally-powered ships include the J.F. Kennedy (CV-67), which functions as a reserve and training asset when not deployed to forward areas. The Harry S. Truman (CVN-75) was commissioned last year and is now preparing for its first deployment.

The next Nimitz-class carrier, the Ronald Reagan (CVN-76), will join the fleet in FY 2003, replacing the Constellation (CV-64). At that time, two conventionally-powered carriers—the Kitty Hawk (CV-63), stationed in Japan, and the Kennedy—will remain in operation. The Kitty Hawk will be retired in FY 2008, when CVN-77 enters service. The first CVNX, slated for construction beginning in FY 2006, will replace the Enterprise (CVN-65) in the FY 2013 time frame. The second CVNX will replace the Kennedy about five years later, when that carrier is about 50 years old.

AMPHIBIOUS FORCES

Forward-deployed naval expeditionary forces containing Marine units embarked on amphibious assault ships contribute both to warfighting and peacetime presence operations. These forces are organized into three-ship amphibious ready groups. The ships can be employed either collectively or individually, depending on operational circumstances. They provide the capability to project forces rapidly into littoral regions and to support other types of contingencies, such as evacuation operations.

The FY 2000 budget and FYDP maintain a 12-ARG force capable of supporting three forward-deployed Marine expeditionary units in peacetime and lifting the equivalent of 2.5 Marine expeditionary brigades (MEBs) in wartime. By FY 2005, the amphibious force

will consist of 38 active and two reserve vessels, including five of the new San Antonio-class LPD-17 amphibious transport dock ships.

ATTACK SUBMARINES

Attack submarines (SSNs) provide unique capabilities for conducting military operations in forward regions. The FY 2000 budget continues the transition of the SSN force to a greater emphasis on littoral missions. Such missions include power projection, support of special operations forces, and antisubmarine warfare (ASW). Attack submarines also conduct extensive open-ocean ASW and surveillance operations. Due to their inherent stealth, SSNs are highly effective in gathering covert surveillance data, conducting crisis response operations, launching covert strikes, and supporting naval task forces.

The SSN force will continue its QDR-directed drawdown, decreasing from 57 submarines at the end of FY 1999 to 50 by the end of FY 2003. The Department is reviewing its longer-term SSN mission and force structure needs; the results of that assessment are expected later this year.

SURFACE COMBATANTS

The surface combatant force includes cruisers, destroyers, and frigates equipped with standoff strike weapons, antiair missiles, guns, and antisubmarine torpedoes. These multimission ships enable U.S. maritime forces to maintain sea and air battlespace dominance in littoral environments. Surface combatants protect carrier battle groups and ARGs, and sustain a maritime presence in areas where full battle groups may not be available. They also provide naval surface fire support, long-range strike capability (using Tomahawk cruise missiles), and integrated theater air defense capabilities.

The FY 2000-2005 program maintains a surface combatant force of 116 vessels, including 108 ships in the active inventory and eight in the reserves. While previous plans had contemplated reducing the reserve combatant force to four units, a decision has been made to retain eight ships due to the continued need for reserve vessels to support peacetime operations, such as drug interdiction.

COMBAT LOGISTICS FORCES

Combat logistics forces provide fuel, food, spare parts, and ordnance to naval task groups at sea. These forces include station ships, which travel with the task groups, and shuttle ships, which ferry material continuously to them from shore bases. In FY 2000, the station-ship force will consist primarily of eight AOE-1 and AOE-6 class fast combat support ships. The shuttle-ship force will comprise 13 oilers, six dry stores ships (T-AFSs), and seven ammunition ships (T-AEs). The first new Auxiliary Dry Cargo Ships (T-ADC(X)) will be procured during the FYDP period. These multiproduct ships, to be manned by the Military Sealift Command, will allow aging T-AE, T-AFS, and AOE-1 vessels to be replaced on a less than one-for-one basis. The T-ADC(X) is slated to enter service in FY 2003.

MARITIME PATROL AIRCRAFT

The maritime patrol aircraft force, consisting of P-3C aircraft, supports forces ashore and naval task groups at sea by conducting antisurface, antisubmarine, surveillance, and mining operations. As described last year, the P-3C force is being restructured to support the transition from open-ocean to littoral operations. At the end of FY 2000, there will be 240 P-3C aircraft in the inventory. The FY 2000 budget reduces the number of aircraft in reserve P-3 squadrons from seven P-3s per squadron to six, consistent with QDR recommendations. The resulting force of 12 active and seven reserve squadrons is considered adequate to meet current and projected peacetime and warfighting needs, pending further review of the impact of terminating the S-3B acoustic mission (discussed later in this chapter).

LIGHT AIRBORNE MULTIPURPOSE HELICOPTER

The Light Airborne Multipurpose Helicopter (LAMPS) MK III system combines the SH-60B helicopter with a computer-integrated shipboard system for deploying sonobuoys, torpedoes, and antiship missiles and processing magnetic anomaly detector information. LAMPS also performs radar surveillance and electronic support functions. SH-60B LAMPS MK III helicopters operating from surface warships support both antisubmarine and antiship missions. The FY 2000 budget continues a reduction of the LAMPS force, including deactivation of SH-2G LAMPS MK I reserve squadrons. At the end of FY 2000, there will be 153 SH-60B aircraft in the inventory.

Land Forces

The diverse and complementary mix of capabilities provided by the Army and the Marine Corps gives military commanders a wide range of options for conducting

ground missions. The Army provides forces for sustained combat operations on land, as well as for power projection and forcible-entry operations. The Marine Corps, as an integral part of the nation's naval forces, provides expeditionary forces to project combat power ashore and to conduct forcible-entry operations in support of naval campaigns or as part of joint task forces. Operationally, a joint force commander employs land forces in close coordination with aviation and naval forces.

ARMY

The Army will continue to maintain four active corps headquarters, 10 active divisions (six heavy and four light), and two active armored cavalry regiments. Light forces—airborne, air assault, and light infantry divisions—are tailored for forcible-entry operations and for operations on restricted terrain, like mountains, jungles, and urban areas. Heavy forces—armored and mechanized divisions equipped with Abrams tanks, Bradley fighting vehicles, Apache attack helicopters, and the Paladin field artillery system—are trained and equipped for operations against armies employing modern tanks and armored fighting vehicles. Light and heavy forces can operate independently or in combination, providing the mix of combat power needed for specific contingencies. Depending on the geographic location of both the forces and the crisis, Army forces stationed overseas provide either an initial or a follow-on source of combat power for regional deployments. For major conflicts, the Army can dispatch a force of up to five divisions plus support elements to any region of the world within 75 days.

The ongoing redesign of Army heavy divisions has resulted in the following changes: one less combat company per combat battalion, a dedicated reconnaissance troop assigned to each brigade, and an increased emphasis on command, control, and information support structures. The Total Army Analysis for FY 2007 will identify additional adjustments to the support needed to sustain Army combat forces across the range of military operations. Pending the study's completion, the Army will work with the reserve components, including representatives of the Adjutants General, to develop possible options for reconfiguring appropriate reserve component units so that they mirror active units and are more relevant to national needs. In FY 2000, the Army National Guard is authorized 350,000 soldiers, organized into 15 enhanced separate brigades, eight combat divisions, three separate brigades, and various support units for divisions, corps, and theaters. The Army Reserve is authorized 205,000 soldiers, assigned primarily to combat support and combat service support units. Table 7 summarizes the Army force structure programmed for the end of FY 2000.

Table 7
Army Force Structure and End-Strength, FY 2000

Active Component	
Divisions	10
Separate brigades and armored cavalry regiments	2
End-strength	480,000
Army National Guard	
Divisions	8
Separate brigades and armored cavalry regiments[a]	18
End-strength	350,000
Army Reserve End-Strength[b]	205,000

[a] Fifteen will be enhanced separate brigades.

[b] Includes all functional areas of combat, combat support, and combat service support.

MARINE CORPS

Marine units are employed as part of Marine Air-Ground Task Forces (MAGTFs) consisting of four elements: command, ground combat, aviation combat, and combat service support. A Marine expeditionary force (MEF) is the largest MAGTF organized for combat, comprising one or more divisions, aircraft wings, and force service support groups. The Corps has three MEFs in the active force, headquartered in California (I MEF), North Carolina (II MEF), and Okinawa (III MEF). Embarked on amphibious ships, Marine Expeditionary Units (Special Operations Capable), consisting of about 2,000 Marines each, are task-organized and forward deployed continuously in or near regions of vital U.S. interest. These forces provide a swift and effective means of responding to fast-breaking crises and can remain on station for indefinite periods of time, ready to intervene or take action if needed. In addition to these general purpose forces, the Marine Corps has formed and employed a significant special capability in its Chemical/Biological Incident Response Force (CBIRF). The CBIRF is a national asset, designed to provide a rapid initial response to chemical/biological

incidents. Table 8 summarizes the Marine Corps force structure programmed for the end of FY 2000.

Table 8
Marine Corps Force Structure and End-Strength, FY 2000

Active Component	
Divisions	3
Wings	3
Force service support groups	3
End-strength	172,148
Reserve Component	
Division	1
Wing	1
Force service support group	1
End-strength	39,624

Mobility Forces

Mobility forces—airlift, sealift, and land- and sea-based prepositioning—move military personnel and materiel to and from operating locations worldwide. These forces include transport aircraft, cargo ships, and ground transportation systems operated by the Defense Department and commercial carriers. By relying on commercial resources to augment military mobility systems, the Department maximizes the efficiency with which it can deploy and support forces abroad, while avoiding the prohibitive cost of maintaining military systems that duplicate capabilities readily attainable from the civil sector.

Airlift aircraft provide for the rapid deployment of troops and materiel to conflict theaters. Sometimes employed in conjunction with prepositioning, airlift delivers the forces needed in the critical early days of a combat operation. DoD has established an intertheater airlift objective of about 50 million ton-miles per day (MTM/D) of cargo capacity. Of that amount, about 20 MTM/D is provided by commercial aircraft, which contribute to military missions as participants in the Civil Reserve Air Fleet (CRAF). The remaining 30 MTM/D of intertheater airlift capacity is provided by military aircraft, which are designed to perform missions that cannot be accomplished by commercial planes. The Department will have an organic strategic airlift capacity of 26 MTM/D at the end of FY 2000.

Sealift contributes primarily to the movement of combat equipment and other cargoes, delivering the majority of the materiel needed to sustain deployed forces over time. DoD will attain a surge sealift capacity of 8.6 million square feet by the end of FY 2000, toward a goal of 10 million square feet. Surge sealift capacity is provided by fast sealift ships, large medium-speed roll-on/roll-off (LMSR) vessels, and the Ready Reserve Force (RRF).

The prepositioning of military equipment and supplies near potential conflict regions reduces response time in contingencies. With material stored on land or afloat at overseas locations, only the troops themselves and a relatively small amount of equipment need be airlifted to the theater at the outbreak of a crisis. Objectives for prepositioning are based on those forces required very early in a conflict to halt an enemy's advance.

AIRLIFT FORCES

Military airlift forces provide a range of capabilities not attainable from civil aircraft. Features unique to military transport aircraft include the ability to air drop cargo and personnel; unload cargo rapidly, even at airfields lacking materiel-handling equipment; and carry outsize loads, such as Patriot missile systems, tanks, or helicopters. Of the cargo that must be airlifted in the early stages of a conflict, more than half is too large to be accommodated by even the biggest commercial cargo planes and must be transported by military aircraft. By the end of FY 2000, the military airlift fleet will consist of 46 C-17s, 104 C-141s, 104 C-5s, and 425 C-130s (all figures denote aircraft assigned for performance of their wartime missions). These aircraft are operated by active, Air National Guard, and Air Force Reserve squadrons.

Commercial aircraft augment military airlift forces in moving troops and standard-sized cargo. Through the CRAF program, the Department gains access to commercial passenger and cargo planes in times of crisis. In return for their participation in CRAF, carriers are given preference for the Department's peacetime passenger and cargo business. CRAF forces are mobilized in three stages, giving DoD access to approximately 60 percent of the passenger capacity in the long-range U.S. commercial fleet and nearly 75 percent of the cargo capacity. In the most demanding deployment scenarios, commercial aircraft would move nearly all of the passengers and more than one-third of the cargo airlifted to a conflict theater.

SEALIFT FORCES

Sealift forces carry the full range of combat equipment and supplies needed to support military operations abroad. These forces include three major types of ships: containerships, used primarily to move supplies; LMSRs and other roll-on/roll-off (RO/RO) vessels, which move combat equipment; and tankers, used to transport fuels.

Sealift capacity comes from three sources: government-owned ships supporting the prepositioning program or maintained in reserve status, commercial ships under long-term charter to the Defense Department, and ships operating in commercial trade.

- The majority of government-owned ships are maintained in the Ready Reserve Force. This 87-ship fleet is composed primarily of RO/RO vessels, breakbulk ships, and tankers held at various levels of readiness. More than half of the ships are able to get under way in four to five days; the remainder can be readied for service in 10 to 20 days.

- Augmenting the Ready Reserve Force are eight fast sealift ships and two hospital ships manned by partial crews. The fast sealift ships can begin loading on four days' notice, while the hospital ships can be readied for deployment in five days.

- LMSRs support both the prepositioning program and surge sealift. Once the full 19-ship LMSR fleet is deployed, these vessels will provide nearly all of the afloat prepositioning space required for Army unit equipment and approximately one-third of surge sealift capacity. Seven LMSRs are already in service; the remaining 12 vessels are slated for delivery by the end of FY 2001.

- To support peacetime operations, the Department charters dry cargo ships and tankers from commercial operators. These ships transport military cargo to locations not normally served by commercial routes.

- The U.S.-flag commercial fleet contains 195 ships with military utility. These include 110 dry cargo ships, 84 tankers, and one passenger ship. Another 175 commercial vessels that could contribute to military missions—81 dry cargo ships, 84 tankers, and 10 passenger ships—are maintained in the effective U.S. control (EUSC) fleet. These ships are owned by U.S. companies or their foreign subsidiaries and are registered in nations whose laws do not preclude the ships' requisitioning for military operations.

A number of the commercial vessels listed above can be made available for military contingencies under the Voluntary Intermodal Sealift Agreement (VISA), established by the Departments of Defense and Transportation with commercial cargo carriers in 1997. VISA provides access to commercial shipping capacity and to the intermodal capabilities of commercial carriers, such as rail, truck, and pier facilities. As with the CRAF program for airlift, VISA is structured to make sealift available in stages.

AERIAL-REFUELING FORCES

Aerial-refueling, or tanker, forces extend the range of airlift and combat aircraft by enabling these planes to be refueled in flight. The long-range tanker force consists of 472 KC-135 and 54 KC-10 Air Force primary mission aircraft. In addition to operating in the tanker role, both the KC-135 and KC-10 can be employed as passenger or cargo transports, with the KC-10 possessing a significant capability to perform tanker and airlift missions simultaneously.

PREPOSITIONING PROGRAMS

The United States stores a variety of combat equipment and supplies at selected locations abroad. These stocks, maintained ashore and afloat, dramatically reduce both the time required to deploy forces and the number of airlift sorties needed to move them. For instance, moving a heavy Army brigade with its 27,000 tons of equipment from the United States to an overseas location would take 20 to 30 days using a combination of airlift and sealift. By prepositioning the bulk of the brigade's equipment abroad, the intertheater transport requirement drops to about 2,000 tons, enabling the brigade to deploy in a week using only a small portion of the Department's total airlift fleet and allowing the remaining aircraft to be employed for other missions.

Land- and sea-based prepositioning provide complementary capabilities for supporting military operations. Land-based prepositioning enhances crisis responsiveness in specific theaters and is the most economical way of maintaining materiel abroad. Afloat prepositioning, while more expensive, provides the flexibility to relocate stocks quickly within and between theaters to meet the demands of particular operations.

Land-Based Prepositioning. Land-based prepositioning programs are maintained in Europe, Southwest Asia, and the Pacific region. In Europe, the Army stockpiles equipment for three heavy brigades—two in central Europe and one in Italy. The Marine Corps stores equipment and 30 days of supplies for the lead echelon of a MEF in Norway. In addition, the Air Force maintains eight air base support sets—temporary shelters for early-arriving air base personnel—at a site in Luxembourg.

In Southwest Asia, the Army stocks equipment for two heavy armor brigades. One brigade set is prepositioned in Kuwait, and the other set—which includes equipment to support a division headquarters—is located in Qatar. The Air Force stores air base operation sets in the region, consisting of shelters, materiel-handling equipment, aircraft-refueling trucks, and other gear. Much of the Air Force materiel maintained at Southwest Asian locales is being used to support contingency operations.

In Korea, the Army stockpiles equipment for a heavy armor brigade. The Air Force stores eight air base support sets at three locations in Korea to meet surge billeting requirements.

Sea-Based Prepositioning. Sea-based prepositioning programs support all four Services. The Department uses a mix of government-owned ships and commercial vessels to stockpile materiel at sea. Army equipment and supplies are carried aboard a fleet of chartered vessels, LMSRs, and an RRF ship. Stationed in the Indian and Pacific Oceans, these ships provide materiel for an armor brigade and selected combat support and combat service support units. Additionally, the fleet carries Army watercraft for port-opening operations. Plans call for an additional Army brigade set to be prepositioned afloat by FY 2001.

Marine Corps equipment and supplies are carried on a mix of vessels, known collectively as maritime prepositioning ships. These ships, which form the maritime prepositioning force (MPF), are organized into three squadrons, each capable of supporting the operation of a 17,300-person MEF for 30 days. The squadrons are stationed in the western Pacific, Indian Ocean, and Mediterranean Sea. A new ship will be added to the MPF in FY 2000, and an additional vessel will join the force in FY 2001. The new ships, both of which are being built specifically for the maritime prepositioning force, will be assigned to two of the three existing MPF squadrons.

The sea-based prepositioning force also includes chartered ships carrying Air Force munitions and a Navy fleet (ashore) hospital. The remaining vessels—a government-owned tanker and two RRF ships specially equipped to transfer fuel directly ashore—are maintained for use by all U.S. forces.

Table 9 shows the projected inventories for key elements of the military mobility force structure at the end of FY 2000.

Table 9
Military Mobility Forces, FY 2000

Airlift (Operational)[a]	
C-17	46
C-141	104
C-5	104
C-130[b]	425
Aerial Refueling (Operational)[c]	
KC-135	472
KC-10	54
Sealift	
Ready Reserve Force Ships	87[d]
Fast Sealift Ships	8
Large Medium-Speed RO/ROs	12

[a] The inventory levels shown reflect primary mission aircraft.

[b] Includes 20 aircraft operated by the Navy.

[c] These aircraft also perform airlift missions.

[d] Excludes four RRF ships tendered to the Military Sealift Command for use in peacetime operations.

INVESTMENT

The military challenges that could emerge in the 21st century, coupled with the aging of key elements of the U.S. force structure, led the QDR to emphasize the need for a robust defense modernization program. Continuing the QDR's emphasis, the Department's FY 2000 program:

- Emphasizes the acquisition of advanced capabilities in support of *Joint Vision 2010.*
- Increases procurement funding to approximately $60 billion a year by FY 2001, and exceeds that figure each year during the period FY 2002-2005.

- Sustains a substantial investment in science and technology programs holding the potential to revolutionize U.S. warfighting capabilities.

A robust modernization program can be achieved and sustained only if the Department pursues fundamental reforms in the way it does business. Initiatives begun as a result of the QDR, in conjunction with the ongoing Defense Reform Initiative, are achieving savings in all aspects of the Department's activities. Examples include:

- Competing 200,000 billets by FY 2003.
- Aggressively pursuing infrastructure reductions, including base closures.
- Fully implementing acquisition reform initiatives.

The following sections describe key investment programs sustaining conventional forces funded in the FY 2000 President's Budget.

Aviation Forces

Aviation force modernization is an important part of the Department's overall investment program, constituting more than 10 percent of the funding planned for FY 2000.

FIGHTER/ATTACK AIRCRAFT

Joint Strike Fighter (JSF). The JSF is the Department's largest acquisition program and one of the most ambitious in concept. This project is intended to provide a family of aircraft for use by the Air Force, Navy, and Marine Corps, produced in variants configured to reflect the Services' individual needs. The JSF will replace the F-16 in the Air Force, the F/A-18C in the Navy, and the F/A-18C/D and AV-8B in the Marine Corps. Through substantial commonality across the Service variants, JSF avoids the need for separate aircraft development programs that would be prohibitively expensive to conduct in parallel.

JSF is projected to combine a substantial combat mission radius with high survivability against air defenses and a large payload by capitalizing on technological advances in electronics, materials, and manufacturing processes. To reduce risk in the development process, JSF currently is in a concept demonstration phase that will continue into FY 2001. The demonstration phase involves two competing aircraft designs, one developed by Boeing and the other by Lockheed Martin. Construction of two demonstrator aircraft by each contractor is well underway, and flight tests will begin in FY 2000. The tests will help refine aircraft propulsion integration and flight control design, while ensuring the aircraft's suitability for shipboard operations. Successful completion of the flight test program will give greater confidence in the subsequent engineering and manufacturing development (EMD) phase, slated to begin in mid-FY 2001. Procurement of the first aircraft, for the Air Force, is scheduled for FY 2005.

Success in the JSF program depends both on technical engineering factors and on cost control. Meeting cost targets is essential if JSF is to be a mass-production aircraft that can sustain the force structure beyond FY 2010. The JSF is not projected to match the unique capabilities of more specialized aircraft. It will, however, provide a superior combination of multirole capabilities within affordable limits. A thorough Analysis of Alternatives will be conducted to confirm the aircraft's readiness for entry into the EMD phase in FY 2001.

The JSF has attracted significant interest from friendly nations who are considering potential replacements for their current fleets of combat aircraft. The United Kingdom is a full collaborative partner, planning to replace its Royal Navy Sea Harriers and Royal Air Force GR-7 Harriers with the short takeoff and vertical landing (STOVL) variant of the JSF. Three other nations that have become associate partners—the Netherlands, Norway, and Denmark—are seeking to determine whether the JSF could meet their future strike-fighter requirements. In addition, Canada is monitoring the system's initial development efforts as an informed partner.

F-22. The F-22 will replace the F-15C/D in the air superiority role and will possess substantial air-to-ground capability as well. The F-22 is expected to be even more effective than the F-15 due to its significantly lower radar signature, highly integrated avionics systems (for situation awareness and targeting), and ability to cruise at supersonic speed. The first two of nine F-22 EMD test aircraft are flying at Edwards Air Force Base in California, demonstrating the aircraft's performance in a steadily increasing share of its planned flight envelope. The aircraft is meeting or exceeding the design goals set for this stage of development. Complementing the flight-test program, static (loadbearing) testing on one aircraft and cyclic fatigue (lifetime) testing on another aircraft will begin in 1999.

The pace of some F-22 avionics and airframe tasks within the EMD program fell behind schedule during the

first half of 1998, increasing the potential risk of cost growth and further schedule slippage. Government and contractor teams have evaluated a full range of potential remedies for these problems, and are committed to keeping the program within the congressionally-mandated cost caps. The program's recent success during an accelerated flight-test schedule reflects this commitment. The Defense Acquisition Executive has established criteria that must be met before each of the early lots of aircraft can be ordered. The F-22 program satisfied those criteria on schedule in 1998.

Accordingly, the manufacture of two production-representative test aircraft was authorized on December 23, 1998. A contract award for low-rate initial production (LRIP) of six F-22s is planned in 1999. The decision to commence production of the F-22 reflects a judgment weighing the benefits and risks of proceeding in a situation where there is concurrency between development and production. The Department accepts some concurrency between development and production as being appropriate to limit costs. While delays in the F-22 program have increased concurrency beyond previously planned levels, the costs of interposing a larger gap between development and procurement are prohibitively high. Delaying procurement now would reduce production risks. The program's initial flight test success, extensive modeling and simulation accomplishments, and prior flying prototype results give evidence, however, that the existing concurrency risks are acceptable.

The present acquisition plan will provide three wings of F-22 aircraft by about FY 2013. In the event that the F-22 encounters significant cost, schedule, or performance problems, the Department will pursue an alternative force mix to ensure air superiority in the future. Possible alternatives to the F-22 will be assessed over the coming year in preparation for the LRIP decision. Provided its costs are controlled, the F-22 could be used to meet force needs beyond those currently planned. In particular, a derivative of the F-22 could be a candidate to replace the F-15E and F-117A in the long-range interdiction role. Development of such an aircraft, if deemed necessary, would not begin until after FY 2005. An F-22 derivative as well as several other alternatives would be considered should a decision be made to pursue development of a new interdiction aircraft.

F-16s, A-10s, and F-15s. The Department's plan for Air Force tactical fighter/attack aircraft calls for the F-16 multirole fighter force—which constitutes about 50 percent of the force structure—to operate beyond 2020, pending the delivery of replacements from the JSF program. Maintaining force readiness with aircraft whose ages are unprecedented for fighter systems will be a growing challenge in future years. F-15s and A-10s also are planned to operate to the same long, 30-year service life. As previously reported, some 260 F-16s and A-10s have been put into long-term storage as a hedge against the need to carry out long-term refurbishment of operating aircraft. The Air Force plans to begin reactivating a small number of stored A-10s in FY 2004 to offset peacetime attrition and sustain the operating inventory.

The Department has decided to procure 30 new F-16C/D aircraft in the Block 50 (air defense suppression) configuration. Funds for the first ten are requested in FY 2000. Procurement of these aircraft will serve several purposes. The added aircraft permit the formation of an additional air defense suppression-oriented squadron, enabling each of the ten planned aerospace expeditionary forces to have such a unit. Previously, the planned operation of nine such squadrons to meet deployment commitments would have kept their operating tempo above desired levels. The additional aircraft also will provide a sufficient inventory of modern F-16 models to enable all existing Air National Guard and Air Force Reserve fighter squadrons to retain 15 operationally-assigned aircraft. Without the additional procurement, half of those squadrons would have had to reduce their inventories to 12 aircraft as older-model F-16s retired. Operation of fighter squadrons with 12 aircraft would be inefficient, in the absence of any basing consolidation; moreover, provision of modern F-16s for all of these reserve component units will permit them to participate fully in AEF deployments. Finally, continued F-16 procurement will guarantee the continued availability of the F-16 production line until FY 2003, by which time JSF engineering development will have been underway for two years. The prospective sale of 80 improved F-16 variants to the United Arab Emirates also would sustain the production line during this time.

U.S. procurement of F-15 aircraft ended in FY 1998. Deliveries of F-15 models to foreign nations will continue at least through FY 1999.

F/A-18. The F/A-18E/F is the Navy's principal fighter/attack aircraft acquisition program. In addition to providing greatly improved survivability over earlier F/A-18 models, the E/F version will have much greater operational utility due to its larger weapons payload and greater carrier recovery payload. F/A-18E/F aircraft also will increase carrier air-wing flexibility through

their ability to refuel other strike-fighters in flight. Earlier F/A-18 models lack the growth potential to accommodate the set of technological improvements, including advanced electronic countermeasure systems and significant radar signature reductions, that will be needed for future operations.

For the longer term, the Navy plans to make the transition to JSF procurement as soon as possible. The acquisition objective for the F/A-18E/F was reduced to between 548 and 785 aircraft in the QDR, depending upon the pace that JSF production can achieve.

The F/A-18E/F's flight-test program is nearing completion, with the final phase of initial operational test and evaluation (IOT&E) scheduled to begin in May 1999. Most test objectives already have been met during EMD, in particular in the second phase of IOT&E (OT-IIB), conducted during mid-1998. As a result of the OT-IIB evaluation, the Navy's independent testing command has recommended that the Department continue development of the aircraft, deeming its positive attributes to outweigh the deficiencies that were identified. Performance in air-to-surface attack roles exceeds that possible with the C/D model. The F/A-18E/F achieved a 75 percent success rate in air-to-air combat encounters against currently operational Navy F-14A/D and F/A-18C/D aircraft, despite marginal sustained maneuver deficiencies relative to recent production variants of the F/A-18C.

Corrections for several technical difficulties encountered in the course of flight testing are being made. Aerodynamic refinements to treat an asymmetric wing-stall problem (the so-called wing drop) were incorporated satisfactorily into test aircraft, and a production design was approved in February 1998. The operational impact of other deficiencies uncovered during flight tests, such as airframe buffet and agility limitations, will be investigated thoroughly during final operational evaluations in FY 1999. Some of these problems may be mitigated through modest adjustments in the aircraft's design or software. Elimination of constraints on deployment of towed countermeasure decoys also continues to receive priority attention; a solution is anticipated in 1999.

The OT-IIB evaluation underscored the need for several new systems that had been planned or postulated for use on the F/A-18E/F. A number of those systems, including the AIM-9X short-range air-to-air missile and associated helmet-mounted sight and the Multifunctional Information Distribution System (a tactical data link), are programmed for employment on the F/A-18E/F soon after the aircraft enters operational service. Additional major new capabilities planned for incorporation into the aircraft include a new main computer, a new radar system (incorporating an active electronically-scanned array), and—for a small part of the force—a tactical reconnaissance pod (the Shared Advanced Reconnaissance Pod). Further enhancements will be considered for the aircraft should the final IOT&E evaluation show such modifications to be warranted. The long-term scope and pace for F/A-18E/F improvements will be refined in the defense acquisition process. The resulting enhanced F/A-18E/F is expected to meet the Navy's operational needs, complemented after FY 2010 by the JSF.

Production of the 32 F/A-18E/Fs funded in FY 1997-1998 is well along, with the first aircraft having been delivered in December 1998. The 30 FY 1999 aircraft were placed on contract in January 1999. Initial operational capability is planned for FY 2001, and the first carrier-based overseas deployment is scheduled for FY 2002. F/A-18E/F support funding provides full allowances of targeting systems and electronic countermeasures equipment, as well as sufficient lesser ancillary equipment (such as fuel tanks and bomb racks) for squadrons on overseas deployments and for training and testing. Stocks of such lesser equipment are planned to be filled by about FY 2006.

AV-8B. The AV-8B remanufacturing program is progressing, with 16 aircraft delivered to date. Funds for 12 additional aircraft are requested in the FY 2000 budget. A total of 72 aircraft are slated to be remanufactured by the time this program ends in FY 2001. The Marine Corps plans to replace the AV-8B, as well as the F/A-18C/D, with the Joint Strike Fighter. To bridge the gap until the JSF enters the Marine Corps inventory near the end of the next decade, some Navy F/A-18Cs will be transferred to Marine forces. In addition, 28 Marine Corps F/A-18As will be modernized with new computers and sensors that will permit them to carry modern air-to-air and air-to-ground ordnance.

CONVENTIONAL BOMBERS

B-52. The B-52 has both conventional and nuclear missions. Upgrades for the B-52 force will keep it capable of employing the latest munitions and communicating with other forces. B-52s began operating with the Joint Direct Attack Munition (JDAM), the Wind-Corrected Munitions Dispenser (WCMD), and the Sensor-Fuzed Weapon in FY 1998. The Joint Standoff

Weapon (JSOW) will be added to the B-52 force in FY 2000 and the Joint Air-to-Surface Standoff Missile (JASSM) in FY 2001.

B-1. The B-1, which is devoted exclusively to conventional roles, will be the backbone of the future bomber force. By the end of the decade, planned upgrades will give the B-1 an advanced navigation system and an improved communications suite. Major enhancements to the aircraft's computers and electronic countermeasures system are scheduled to follow around FY 2002; ALE-50 towed decoys will be fielded on the B-1 force beginning in FY 1999. The B-1 can already deliver the entire family of advanced cluster munitions (CBU-87/89/97), increasing its effectiveness against area targets and vehicles in low-threat environments. The JDAM was fielded on B-1 aircraft in FY 1999; WCMD, JSOW, and JASSM are slated to follow in FY 2002.

B-2. The B-2 has both nuclear and conventional missions. The stealth features incorporated in this aircraft make it difficult to detect, especially at night and in adverse weather; its ability to penetrate heavy defenses is further enhanced when it is employed with standoff jamming aircraft. All 21 aircraft in the programmed B-2 force have been delivered. The capability of these aircraft will increase as they are upgraded from the test configuration and the initial Block 10 and Block 20 configurations to the Block 30 design; completion of these modifications is scheduled for July 2000. Block 30 aircraft incorporate improved stealth features and advanced avionics, and are capable of employing the JDAM, the JSOW, and the 4,700-pound GBU-37. JASSM is scheduled to be fielded on the B-2 force in FY 2003. During the transition to the Block 30 standard, some aircraft will be undergoing conversion, rendering them unavailable for immediate use.

SPECIALIZED FORCES

A wide variety of improvements are being made to specialized aviation forces, particularly those that provide information on hostile force activities. Many of these information-gathering air vehicles—both manned and unmanned—are used to detect and track moving ground targets. The ability to locate, identify, and track enemy targets on the ground is key both to the timely assessment of enemy tactical and strategic goals and to the swift targeting of joint weaponry against hostile targets. One of the most important programs in this category is the Air Force/Army Joint Surveillance Target Attack Radar System (JSTARS). JSTARS consists of two primary elements: large transport-class aircraft (E-8s) carrying a powerful multimode radar with on-board battle management personnel, and mobile common ground stations that receive and exploit radar data. The FY 2000 budget includes funds to procure the fourteenth E-8 production aircraft. Additionally, the budget continues funding for a major upgrade to the E-8 radar system, being accomplished under the Radar Technology Insertion Program.

The Air Force high-altitude U-2 force is receiving a wide variety of enhancements, including an expanded set of radars with greatly improved imagery and moving-target intelligence features. Additional ground-processing capabilities, which also will support endurance unmanned aerial vehicle (UAV) operations, are being incorporated. Two high-altitude endurance UAVs—Global Hawk and DarkStar—underwent developmental flight tests in FY 1998 and are programmed to participate in joint operational demonstrations in FY 1999. These new UAVs will complement the U-2 force in providing high-altitude surveillance capability. Initially, both systems will deliver electro-optical and synthetic aperture radar imagery; Global Hawk also will have a moving-target surveillance capability. Development of an airborne communications relay package for Global Hawk is programmed during the FYDP period. For the longer term, the incorporation of additional payloads, including signals intelligence and a passive electronic warfare package, is being considered. Air Force RC-135 Rivet Joint and Navy EP-3 aircraft are being upgraded to Joint Signal Intelligence Avionics Family standards to provide higher levels of interoperability, operational flexibility, and capability. In addition, the RC-135 Rivet Joint fleet is being expanded to 16 aircraft; delivery of the final aircraft is expected in FY 1999. The Navy will retire its force of 16 ES-3 carrier-based signals intelligence collection aircraft during FY 2000. This decision was made because other existing and programmed surveillance forces, including the upgraded EP-3 fleet, are considered adequate to support deployed naval forces.

Installation of radar upgrades and new passive-emitter detection systems on Air Force E-3 Airborne Warning and Control System (AWACS) aircraft will continue well into the next decade. The Air Force is providing funding for parallel improvements in NATO E-3s via the NATO AWACS modernization effort. New E-2Cs for the Navy are being produced at a rate of three per year, and both the E-3 and E-2C fleets are receiving reliability and maintainability improvements to keep them

viable past the year 2010. Cooperative Engagement Capability subsystems are being installed in E-2Cs to improve targeting of missiles and aircraft.

DoD tactical UAV programs were completely restructured in 1998. Evidence of the military utility of a land-based UAV was provided by the Outrider advanced concept technology demonstration (ACTD); nevertheless, a fully joint program could not be accomplished. Consequently, joint requirements were modified to permit use of more than one type of air vehicle. The Army and Navy now have initiated programs for land-based and sea-based UAV systems, respectively. The Navy seeks to develop a vertical takeoff and landing UAV for use on ships with small landing areas and in urban areas ashore. To ensure joint interoperability, both the Army and Navy UAVs will incorporate the Tactical Control System (TCS), which is designed to permit flexible control of all tactical unmanned air vehicles. TCS also will be used to control Predator endurance UAVs operated by the Air Force. The TCS program itself, originally scheduled to enter low-rate production in FY 1999, was restructured to accommodate changes in tactical UAV fielding schedules. Acquisition of Predator UAVs will conclude in FY 2000, although procurement of attrition aircraft and upgrades will continue through at least FY 2005.

AVIATION FORCE WEAPONS

Advancements are being made in air-to-ground and air-to-air weapons carried by fixed-wing tactical aircraft. Improved variants of existing air-to-air missiles will be more lethal and effective across a larger engagement area. Advanced air-to-ground weapons with greater accuracy and longer standoff range will yield important benefits for combat operations, including:

- Neutralization or reduction of the effectiveness of enemy antiaircraft systems. This will reduce aircraft losses and speed the follow-on use of direct attack weapons, which are less expensive than standoff munitions.
- The ability to attack highly defended targets from the outset of hostilities, without having to sequentially destroy a series of peripheral defenses.
- The extension of the effective reach of precision weapons far beyond the combat radius of the delivery platform, and with less exposure.

Advanced Medium-Range Air-to-Air Missile (AMRAAM). The Air Force and Navy will continue procurement of the AMRAAM throughout the FYDP period. Performance is being enhanced in a number of areas, including kinematics and lethality.

AIM-9X. The AIM-9X is a new short-range air-to-air missile under development by the Air Force and the Navy. An advanced version of the AIM-9 Sidewinder missile, it combines the AIM-9M's motor, fuze, and warhead with a new seeker and airframe. Other enhancements incorporated in the AIM-9X design include a helmet-mounted sight that can align the missile's seeker head with targets well outside the aircraft radar's field of view. The combination of improved missile performance and the new helmet-mounted sight will recover an advantage in close-in combat that was lost several years ago when advanced new foreign systems, such as the Russian AA-11, were deployed. Affordability and growth potential are key tenets of this program. The AIM-9X entered engineering and manufacturing development in FY 1997; production is slated to begin in FY 2000.

Joint Air-to-Surface Standoff Missile (JASSM). The JASSM is a new long-range missile designed to have excellent autonomous navigation capability and an autonomous terminal seeker. JASSM's standoff capability will enable U.S. aviation forces to hold highly defended targets at risk while minimizing aircraft attrition. A key goal in the system's development is achieving desired performance while maintaining low unit cost. This Air Force-led joint program is currently entering EMD, with low-rate production slated to begin in FY 2001. The FY 2000 budget includes Navy development funding to ensure that the missile remains suitable for carrier operations. While no Navy procurement for the F/A-18E/F is currently planned, the missile may be considered for future use on both the JSF and F/A-18E/F.

Joint Standoff Weapon (JSOW). JSOW is a new long-range glide weapon with autonomous navigation ability. Capable of employment in adverse weather, it will provide an accurate standoff method of delivering tactical munitions at a relatively low cost. The baseline variant, which entered production in FY 1997, carries combined-effects bomblets for use against area targets. To provide standoff antiarmor capability, a follow-on version will carry the BLU-108 payload derived from the Sensor-Fuzed Weapon (described below). EMD for the BLU-108 variant began in FY 1996, and low-rate production will commence in FY 1999. A third variant,

incorporating a unitary warhead and autonomous seeker for target discrimination, is also in development. The unitary variant was redesigned over the past year, enabling a significant reduction in acquisition costs without sacrificing the weapon's overall effectiveness. Production of the unitary variant is slated to begin in FY 2002.

Sensor-Fuzed Weapon (SFW). Designed for top attacks on enemy armor, the SFW is a tactical munitions dispenser containing 10 BLU-108 submunitions, each with four Skeet warheads. This weapon is capable of achieving multiple kills against armored vehicles during day or night and in adverse weather. The system entered full-rate production in FY 1996. Development of an improved BLU-108 submunition for SFW and JSOW began in FY 1996 as part of a preplanned product improvement program; initial production funds were requested in FY 1999. The improved munition will be much more effective than earlier versions at only a small increase in cost. Enhancements include the addition of an active sensor and a multimission warhead and expansion of the weapons pattern over the ground by more than 50 percent. These changes will reduce the system's susceptibility to countermeasures and improve its soft-target lethality and coverage, while reducing the impact of target location errors.

Joint Direct Attack Munition (JDAM). The JDAM program modifies existing general-purpose bombs to add an inertial navigation system (INS) coupled to satellite Global Positioning System (GPS) data. INS/GPS guidance will improve bombing accuracy from medium and high altitudes, permitting the delivery of these free-fall munitions in adverse weather. Low-rate production of the MK-84 warhead began in FY 1997; the BLU-109 and MK-83 will follow in FY 1999 and FY 2000, respectively. The Air Force and Navy are currently revising the design of the tailkit for the MK-84 warhead. Additionally, the Navy is pursuing development of a variant with improved accuracy under a product improvement program.

Standoff Land Attack Missile (SLAM). The Navy SLAM is a modified Harpoon antiship missile incorporating a GPS receiver, an AGM-65 Maverick imaging infrared seeker, and a Walleye datalink for man-in-the-loop control. An upgraded version of the missile, designated SLAM-ER, provides an approximately 100 percent increase in range over the baseline SLAM system. The ER version also incorporates enhancements in survivability, anti-jam guidance capability, and hard-target penetration. Improvements in the SLAM-ER's mission planning system will greatly enhance the weapon's ease of employment. SLAM-ER Plus, a variant further enhanced by an autonomous terminal seeker, entered production in FY 1998. Approximately 400 SLAM/SLAM-ER missiles will be converted to the SLAM-ER Plus configuration between FY 1999 and FY 2005.

Wind-Corrected Munitions Dispenser (WCMD). The WCMD is a modification kit for advanced cluster bomb dispensers that inertially guides the units to compensate for high-altitude winds, thus improving delivery accuracy. This modification will be made to the CBU-87 (Combined Effects Munition), CBU-89 (Gator), and CBU-97 (SFW). Delivery of production units will begin in FY 1999.

Naval Forces

The FY 2000 budget and associated FYDP continue modernization initiatives for naval forces undertaken in response to the QDR. Programmed investments in these forces will sustain and improve naval warfighting capabilities in the decades ahead. More than $7.2 billion has been added to six major shipbuilding programs as part of the defense funding increase approved by the President for FY 2000-2005. This additional investment—representing eight new ships—will help sustain a force of approximately 300 ships well into the next century.

The average age of the fleet is currently at an acceptable level. The combination of new ship deliveries and retirements of aging vessels is projected to keep the fleet's age within acceptable bounds during the FYDP period and beyond.

The shipbuilding program for FY 2000-2005 is outlined in Table 10.

AIRCRAFT CARRIERS

The FY 2000-2005 program sustains a force of 12 routinely deployable aircraft carriers, consistent with forward presence, crisis-response, and warfighting objectives. The tenth, and final, Nimitz-class carrier (CVN-77) is funded in FY 2001 on the accelerated schedule approved by Congress in 1998. Advance procurement funds for shipbuilder construction and nuclear propulsion components are included in the FY 2000 request.

Table 10

FY 2000-2005 Shipbuilding Program

	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FYDP Total
New Construction							
CVN-77 (Aircraft Carrier)	0	1	0	0	0	0	1
NSSN (Attack Submarine)	0	1	1	1	1	1	5
DDG-51 (Guided-Missile Destroyer)	3	3	3	3	0	0	12
DD-21 (Land Attack Destroyer)	0	0	0	0	1	3	4
LHD-8 (Amphibious Assault Ship)	0	0	0	0	0	1	1
LPD-17 (Amphibious Transport Dock)	2	2	2	2	2	0	10
T-ADC(X) (Dry Cargo Ship)	1	1	2	2	3	3	12
Joint Command Ship	0	0	0	0	1	1	2
Service-Life Extensions/Overhauls							
Carrier Refueling Overhaul	0	1	0	0	0	1	2
LCAC Modernization	3	3	4	5	5	6	26

CVN-77 will serve as a bridge to the next generation of aircraft carriers, designated CVNX. More than $200 million of the approximately $5 billion programmed for CVN-77 through FY 2001 will be used to develop technologies supporting the CVNX class.

Funding has been allocated in later years of the FYDP for continued research and development, advanced planning and design, and advance procurement of CVNX components. Reflecting results from a Navy analysis of alternatives completed in 1998, CVNX carriers will be nuclear powered and will each be capable of supporting an air wing of 75 aircraft.

Affordability considerations preclude a transition to the CVNX configuration in a single step. Consequently, the Navy will develop the new CVNX class through an evolutionary, multi-carrier process. Initial technology efforts and new design features, such as a new island, will be incorporated into CVN-77. CVNX-1, slated to enter construction in FY 2006, will retain the existing Nimitz hull, while adding a new nuclear power plant and an improved electrical generation and distribution system. The FY 2000-2005 program provides funds to develop a new Electromagnetic Aircraft Launch System for CVNX-1. A new hull design and substantial system changes are being considered for CVNX-2, which is planned for procurement in FY 2011. Through this evolutionary approach, the Navy seeks to develop a class of carriers that will provide improved warfighting capabilities at a reduced ownership cost.

AMPHIBIOUS SHIPS

Amphibious lift assets are an increasingly important element of joint warfare operations, reflecting the growing emphasis on regional contingencies and the rapid deployment requirements of naval expeditionary forces. The FY 2000 budget and FYDP carry forward a robust modernization program for amphibious forces. The investments proposed for FY 2000-2005 support a long-term goal of achieving a 36-ship amphibious force comprising 12 ARGs, each with three ships. Many of the LPDs in the inventory are nearing the end of their projected service lives and need to be replaced. Accordingly, the modernization plan for the amphibious force provides for the replacement of aging ships, while upgrading existing vessels to meet emerging requirements.

The key to recapitalizing the amphibious force in the near term is the new amphibious transport dock ship, the LPD-17. The addition of this ship to the fleet will alleviate the current shortfall in vehicle space and achieve MAGTF lift requirements. The LPD-17 is designed to carry approximately 700 troops and two Landing Craft Air Cushion (LCACs), while providing 25,000 square

feet of vehicle stowage space, 36,000 cubic feet of cargo space, and the capacity to accommodate four CH-46 helicopters or a mixed load of AH-1/UH-1, CH-46, and CH-53E helicopters and MV-22 tilt-rotor aircraft. Two LPD-17s have been procured to date. The FY 2000-2005 shipbuilding program completes the planned 12-ship buy, funding the remaining ten vessels at a rate of two per year during FY 2000-2004.

Investments in amphibious assault ships will continue during the FYDP period, with funds for one additional LHD-class ship programmed in FY 2005. The Navy has procured seven LHDs to date. Acquisition of an eighth ship will provide sufficient large-deck amphibious assault vessels to sustain a 12-ARG force when the first ship of the LHA-1 class reaches the end of its 35-year service life around 2010. Studies being conducted by the Navy are examining cost-effective design changes that could be incorporated into LHD-8.

A key component of the naval expeditionary force is the LCAC. A service-life extension program (SLEP) begun in 1998 will increase the system's originally planned 20-year operational life to 30 years. This high-speed, fully amphibious landing craft is capable of carrying a 60-ton payload at speeds greater than 40 knots over a range of approximately 200 nautical miles. It rides on a cushion of air, allowing it to operate directly from the well decks of amphibious assault and landing platform dock ships. Carrying equipment, troops, and supplies, the LCAC transits at high speed over the sea and across the beach, quickly offloads its cargo, and then returns to its home ship to take on additional sorties. LCACs provide amphibious task force commanders flexibility in selecting landing sites. Capable of delivering cargo directly onto dry land, they afford access to more than 70 percent of beaches worldwide.

ATTACK SUBMARINES

The FY 2000-2005 program continues modernization initiatives for the attack submarine (SSN) force begun in recent years.

Initial sea trials of the Seawolf (SSN-21) confirmed its superior capabilities in all critical warfighting areas. The lead ship was commissioned in 1997. The second submarine was delivered in December 1998, and the third is scheduled for delivery in 2004.

The Virginia (SSN-774) class submarine, formerly known as the New Attack Submarine (NSSN), will provide a more affordable follow-on to the Seawolf class. Its addition to the fleet will enable attack submarine force levels to be sustained as older 688-class SSNs leave service. Incorporating new technologies, including those developed for the Seawolf program, Virginia-class submarines will be highly effective in performing traditional open-ocean ASW and antisurface missions as well as littoral and regional operations, which will be their primary emphasis. Such operations include standard SSN missions plus mine warfare, special forces insertion/extraction, battle group support, and intelligence-gathering. The Virginia class will be configured to adapt easily to evolving mission requirements. The FY 2000-2005 program funds a robust submarine technology initiative focused on developing improved capabilities while reducing life-cycle costs.

Congress approved funding in FY 1998 to begin construction of the first Virginia-class SSN under an innovative teaming agreement between the nation's two builders of nuclear-powered submarines, Electric Boat Corporation (EB) and Newport News Shipbuilding (NNS). Under this arrangement, construction of the first four submarines, from FY 1998 to 2002, will be divided between the two yards. NNS will build the bow, stern, sail, and selected forward sections for each vessel. EB will build the hull sections, the engine room modules, and the operating spaces for command and control systems. EB will assemble and deliver the first and third submarines; NNS, the second and fourth. The FY 2000-2005 shipbuilding plan provides for procurement of one Virginia-class SSN per year in FY 2001-2005.

SURFACE COMBATANTS

The FY 2000-2005 program sustains a total force of 116 surface combatants throughout the FYDP period. The age of the surface combatant force is relatively low, averaging about 13 years in FY 2000 and a projected 15 years in FY 2005. Continued deliveries of new Arleigh Burke-class guided-missile destroyers (DDG-51s) carrying the Aegis weapons system will more than offset continued deactivations of older surface combatants. The share of Aegis-capable ships in the force will increase from 49 percent to 63 percent during the FYDP period.

The FY 2000-2005 shipbuilding program includes funds for 12 DDG-51-class guided-missile destroyers. These state-of-the-art ships are equipped with the Aegis weapon system and the SPY-1D multifunction phased-array radar. The DDG-51 combat system includes the Mk-41 Vertical Launching System, advanced antisubmarine and antiair systems and missiles, and Tomahawk

cruise missiles. The new DDG-51s will provide land-attack capability as well as area defenses against ballistic and cruise missile threats. They will be able to operate independently or as part of carrier battle groups, surface action groups, ARGs, or underway replenishment groups. The first Flight IIA variant, launched in FY 1998, incorporates facilities to support two embarked SH-60 LAMPS helicopters, significantly enhancing the ship's sea control capabilities.

The FY 2000-2005 shipbuilding program begins procurement of the new DD-21 land-attack destroyer. The lead ship is scheduled for funding in FY 2004, with three additional vessels programmed for procurement in FY 2005. Sufficient development funds are allocated in FY 2000-2005 to support this program, but there are potentially significant technological and schedule risks. These risks will be better defined after initial contractor proposals are received and evaluated later this year. The DD-21 will provide firepower at long ranges in support of joint operations ashore. With its state-of-the-art information technologies, it will operate in close coordination with other naval forces, as well as with U.S. ground forces and land-based air forces. The emphasis on sensor-to-shooter connectivity will provide naval or joint task force commanders the flexibility to counter any maritime threat and destroy a variety of land targets. Moreover, the DD-21 will be difficult to detect by potential adversaries.

The FY 2000 budget continues an initiative to gain additional capabilities at low cost from selected CG-47-class cruisers (CG-52 and subsequent ships). Under this program, improvements will be incorporated into 12 Aegis cruisers between FY 2002 and FY 2005. Planned modifications include the addition of the Area Air Defense Commander system and theater ballistic missile defense capabilities (either area or theater-wide). The upgraded ships also will be capable of employing the new Extended-Range Guided Munition (discussed in the Naval Surface Fire Support section).

COMBAT LOGISTICS

The shipbuilding program calls for procurement of 12 new T-ADC(X) dry-cargo ships beginning in FY 2000, providing these ships to the fleet two years earlier than previously planned. These multiproduct vessels will replace aging T-AE and T-AFS ammunition and dry cargo ships and AOE-1 fast combat stores ships. They will be designed to carry both dry and refrigerated stores as well as ammunition and a limited amount of fuel. The ships will be procured using commercial business and construction practices to the maximum extent possible to improve affordability.

In addition, the Department has programmed funds to acquire the first two Joint Command Ships in FY 2004 and FY 2005. These vessels will replace the existing command ships at the end of their 40-year service lives.

P-3C MARITIME PATROL AIRCRAFT

Programmed investments in the Maritime Patrol Aircraft (MPA) force during FY 2000-2005 focus on service life extensions and upgrades of existing P-3C aircraft. Under the Sustained Readiness Program, airframe components and systems that degrade the P-3C's material condition and readiness will be replaced, increasing the aircraft's operational life from about 30 years to 38 years. A complementary SLEP will extend the fatigue life an additional ten years. Together, these two upgrades will enable the P-3C force to remain in service through at least 2020.

The primary modernization initiative for the P-3C force is the Antisurface Warfare Improvement Program. Begun in FY 1994, this program is using commercial off-the-shelf technologies to enhance the surveillance, combat identification, and antiship capabilities of the MPA force. Plans call for a total of 42 P-3Cs to be upgraded to the Antisurface Warfare Improvement Program configuration through FY 2000.

MINE COUNTERMEASURES

The Department conducted an extensive review of mine warfare programs over the past year to ensure that readiness and modernization funding for this critical mission area are sustained as a matter of high priority. The review reaffirmed the cost-effectiveness of the Navy's planned transition from dedicated mine countermeasure (MCM) forces based in the United States to organic MCM forces deployed with the fleet. As this transition proceeds, the readiness of the current dedicated MCM force will not be sacrificed.

Mine warfare concepts under development will provide effective, proactive capabilities to avoid—or reduce to manageable proportions—potential mine threats in regional contingencies. The FY 2000 budget and associated FYDP provide for a more aggressive investment strategy than was pursued in previous years. A total of $4.8 billion has been budgeted for MCM programs through FY 2005. Of that amount, $2.9 billion will be spent in FY 2000-2003, an increase of $291 million relative to previously planned funding levels.

Funding has been increased for several programs to support the transition to an organic MCM capability using airborne, surface, and submarine platforms. Building on the progress achieved in airborne capability with the AQS-20 helicopter-towed sonar program, the FY 2000 budget funds an evolutionary approach for fielding an upgraded sonar for organic forces—the AQS-20/X. This effort is projected to lead to earlier deployment of a new sonar at less cost than previously planned, with initial operational capability attained in FY 2001. In addition, funding has been increased for the Airborne Laser Mine Detection and Airborne Mine Neutralization systems, accelerating their introduction by two years (to FY 2005) and three years (to FY 2002), respectively. A full development program is now funded for the Rapid Airborne Mine Clearance System, with the first units slated for procurement in FY 2005. For surface platforms, development of the Remote Minehunting System has been expanded to provide for incorporation of this capability into LPD-17-class amphibious ships and DD-21-class destroyers. For submarines, additional funding will procure five (versus three) Long-Term Mine Reconnaissance Systems over the FYDP years. Finally, funding has been increased to accelerate the introduction of both the Shallow-Water Assault Breaching and Distributed Explosive Technology systems, enhancing the effectiveness of mine clearance operations in the surf zone.

ANTISUBMARINE WARFARE

The ASW programs funded in FY 2000-2005 are generally consistent with those described in the Antisubmarine Warfare Assessment forwarded to Congress in 1998. Several programs have been restructured, including the Advanced Deployable System and the Low-Frequency Active Sonar, both of which will be employed as part of the Navy's Integrated Undersea Surveillance System. In addition, the acoustic ASW mission for the S-3B aircraft has been terminated due to fiscal constraints and in view of programmed improvements in the organic ASW capabilities of other elements of carrier battle groups, such as the SH-60R.

WEAPONS SYSTEMS

Tomahawk. Tomahawk is a long-range land-attack cruise missile deployed on surface combatants and submarines. During FY 1998, the Navy obtained congressional approval to implement the Tactical Tomahawk program. This program will improve precision strike capability at a more affordable cost than previously anticipated. Enhancements incorporated in the Tactical Tomahawk system include in-flight retargeting, the capability to loiter over the battlefield and attack emerging targets, and target identification and damage assessment capabilities. The upgraded missiles will employ GPS guidance, simplifying mission planning significantly. Pending the Tactical Tomahawk's scheduled introduction in FY 2003, the FY 2000 budget provides for the conversion of about 325 older Block II missiles to the newer, more accurate Block III configuration.

Standard Missile. The Standard Missile (SM-2) is the Navy's primary ship-based antiair weapon. The FY 2000 budget maintains previously planned SM-2 Block IIIB production rates and funds low-rate initial production of the newest Standard Missile variant, the SM-2 Block IVA. Block IVA missiles will be capable of defending against threats posed by advanced antiship cruise missiles and selected theater ballistic missiles. A review of the Block IVA's readiness for full-rate production is planned for FY 2003.

Ship Self-Defense Systems. Integrated ship self-defense is key to the Navy's ability to operate in forward areas. Major programs in this area include the Rolling Airframe Missile (RAM) and the Evolved Sea Sparrow Missile (ESSM). RAM is a 5-inch-diameter surface-to-air missile with passive dual-mode radio frequency and an infrared (IR) sensor. The RAM Block 1 IR upgrade will improve performance against advanced ASCMs. The FY 2000-2005 program increases RAM procurement relative to previous plans, providing for production of an additional 200 missiles in FY 2002 and beyond. Plans call for the RAM to be deployed on later-model CG-47s, aircraft carriers, and selected amphibious ships. The ESSM will complement the RAM on aircraft carriers and dock landing ships, defending against threats beyond RAM's engagement range. The FY 2000 budget initiates low-rate production of the ESSM; a decision on full-rate production is scheduled for FY 2002.

Cooperative Engagement Capability (CEC). CEC integrates radar tracking data collected by multiple ships and aircraft and provides this information to each of the ships in a battle group. It enables vessels to engage ASCMs at ranges well beyond their radar horizon, significantly enhancing air defense capability. The FY 2000 budget adjusts the CEC acquisition schedule to allow time to complete testing, ensuring the system's compatibility and interoperability with other battle group combat systems. Low-rate procurement of CEC

systems will be continued for selected ships, with a full-rate production decision planned for FY 2001. The FY 2000 budget sustains research and development efforts supporting the integration of CEC capabilities into E-2C aircraft.

Light Airborne Multipurpose System (LAMPS). The FY 2000 budget continues initiatives to extend the service life of SH-60B LAMPS helicopters and equip them with improved sensors and weapons. The upgraded helicopters, renamed SH-60Rs, will have a dipping sonar, enhancing their effectiveness and survivability in littoral environments. The Flight IIA version of the DDG-51 entered construction in FY 1994 and will join the fleet in FY 2000; it will be the first DDG-51 destroyer capable of operating and supporting SH-60B/R helicopters.

Naval Surface Fire Support (NSFS). The FY 2000-2005 program funds development and procurement of a land-attack version of the Standard Missile (LASM) as an interim solution to the Navy's fire support needs. Under the LASM program, the Navy will convert obsolete SM-2 Block II/III missiles to surface fire support land-attack missiles to meet near-term operational requirements. Studies are being conducted to determine the best approach to satisfying fire support needs in both the near and far terms. Depending upon the results of these studies, the Navy's strategy for acquiring land attack missiles may be modified in future years.

Other NSFS programs funded in the FY 2000 budget include the Advanced Gun System (AGS), the Extended-Range Guided Munition (ERGM) and associated 5-inch/62 gun, and the Naval Fires Control System. The AGS is a 155mm gun being developed for the DD-21 land-attack destroyer. It will provide longer-range fire support with improved payload capabilities. ERGM consists of a rocket-assisted projectile with a submunition warhead that is GPS guided. Ships will be able to launch this munition from 5-inch/62 guns to reach targets beyond 60 nautical miles. A decision on low-rate initial production is planned for FY 1999. The Naval Fires Control System will automate mission planning, command and control, and launch functions of a range of naval fire support systems.

Land Forces

The Department continues to emphasize the modernization of U.S. land forces, particularly the programs associated with Army digitization. Digitization refers to the incorporation of state-of-the-art computers, software, and digital radios throughout the Army's force structure and in key warfighting platforms, such as the M-1 Abrams tank and the M-2 Bradley fighting vehicle. Digitization will enable critical, time-sensitive information comprehensively characterizing friendly and enemy forces to be disseminated rapidly throughout the battlefield. Army digitization and other initiatives, such as Force XXI and the Army After Next, are identifying new concepts of land warfare with revolutionary implications for organization, structure, operations, and support. The advances planned and being tested in information technology, weapons, and platforms will ensure land power remains a decisive element of warfighting well into the 21st century.

Marine Corps modernization programs are driven by the concept of Operational Maneuver From the Sea. Executing this concept will require adaptive and agile forces able to rapidly reorganize and reorient across a broad range of missions and operational environments. Potential modernization initiatives are being tested in the Hunter Warrior, Urban Warrior, and Capable Warrior series of advanced warfighting experiments. Major ongoing Marine Corps modernization programs supported in the FY 2000 budget include the V-22 aircraft, the Advanced Amphibious Assault Vehicle, and the Marine Corps version of the Joint Strike Fighter.

GROUND COMBAT SYSTEMS

Abrams Tank Upgrade. Three versions of the Abrams tank are currently in service—the original M1 model, dating from the early 1980s, and two newer versions, designated M1A1 and M1A2. The M1A1 series, produced from 1985 through 1993, replaced the M1's 105mm main gun with a 120mm gun and incorporated numerous other enhancements, including an improved suspension, a new turret, increased armor protection, and a nuclear-chemical-biological protection system.

The newer M1A2 series includes all of the M1A1 features plus a commander's independent thermal viewer, an independent commander's weapon station, position navigation equipment, and a digital data bus and radio interface unit providing a common picture among M1A2s on the battlefield.

The Army is pursuing two programs—the M1A1D and the M1A2 System Enhancement Program (SEP)—to provide Abrams tanks with digital command and control (C^2) capabilities. The M1A1D adds an applique computer to existing M1A1 tanks to provide the processor and memory necessary for digital command and

control. The M1A2 SEP converts older M1 tanks to the latest M1A2 configuration. The SEP enhancements include provision of second-generation forward-looking infrared (FLIR) sensors, improved armor, and Pentium processors and memory upgrades required by the Army's future C^2 software. Between FY 2001 and FY 2010, the Army will retrofit all 627 of its older M1A2 tanks with the SEP features.

Bradley Fighting Vehicle Upgrade. The A3 upgrade to the Army's Bradley fighting vehicle system is a major component of the Army digitization initiative, designed to complement the capabilities provided by the M1A2 SEP while incorporating additional enhancements needed to meet future requirements. Upgraded Bradleys will be fielded to units with M1A2 SEP tanks, and will be able to share battlefield data with those units. The digitization upgrades will improve both situational awareness and sustainability through automated fault reporting and diagnostics. The A3 upgrade will also increase the Bradley's lethality by adding an improved fire control system and a commander's independent thermal viewer with a second-generation FLIR. Approximately 1,100 Bradley A2s will be remanufactured into A3s. Low-rate production began in FY 1997.

Crusader. This advanced new system will revolutionize Army field artillery operations. Fully automated, computerized, and designed for use on the digital battlefield, the Crusader offers substantial improvements in lethality, survivability, range, and mobility over existing artillery systems. The Crusader consists of a self-propelled howitzer and an artillery resupply vehicle. It will replace the M109A6 Paladin self-propelled howitzer and M992 field artillery ammunition supply vehicle in both early-deploying and forward-deployed units. Production is scheduled to begin in FY 2003, with the first operational unit equipped in FY 2005. A total of 824 Crusader systems (824 self-propelled howitzers and 824 resupply vehicles) are programmed for procurement through FY 2011.

Advanced Amphibious Assault Vehicle (AAAV). The AAAV will replace the AAV7A1 amphibious assault vehicle, which is well beyond its originally projected service life. The AAAV will allow Marine forces to launch assaults from points over the horizon, move rapidly to the beach, and continue the attack inland in a seamless operation. It also will provide armor-protected transport and direct fire support to Marine infantry forces ashore. The AAAV will have much greater mobility in the water than the AAV7A1, and will have the speed and cross-country mobility to operate with the Marine Corps' M1A1 tanks. Development is continuing under a demonstration and validation contract awarded in 1996. Production is scheduled to begin in FY 2004, with a total of 1,013 vehicles planned for procurement. To bridge the gap until the AAAV's deployment, the Marine Corps is extending the service life of a portion of the existing AAV7 fleet. The service life extension program will equip the AAV7 with the engine and suspension of the Bradley fighting vehicle and replace many aging components, thereby increasing reliability and maintainability while reducing maintenance and repair costs.

Lightweight 155mm Howitzer. Formerly planned for use by both the Army and Marine Corps, this new towed cannon system is now programmed for fielding to Marine forces only. Substantially lighter than the M198 howitzer that it will replace, the LW155 will significantly enhance ship-to-shore mobility, while increasing the survivability and responsiveness of artillery support for ground operations. The howitzer will incorporate an Army-developed digital fire control system with a self-locating capability, further enhancing operational effectiveness. Currently in engineering and manufacturing development, the LW155 is scheduled to enter production in FY 2003. Plans call for acquiring a total of 450 howitzers, with initial operational capability to be achieved in FY 2003. Fielding will be completed in FY 2006.

AIRCRAFT

Comanche Helicopter. The Comanche is a key component of the Army modernization program. Designed for armed reconnaissance and incorporating the latest in stealth, sensors, weapons, and advanced flight capabilities, Comanche helicopters will be electronically integrated with other components of the digitized battlefield. They will provide the operational capabilities essential for a smaller, joint integrated force structure. Enhancements incorporated in the Comanche system will give these helicopters greater mobility, lethality, versatility, and survivability than predecessor systems at lower operating and support costs. The first flight test of a Comanche helicopter was conducted in 1996, and research and development will continue throughout the FYDP period. The first Comanche unit will be fielded in 2006, with a total of 1,292 helicopters planned for production through FY 2026.

V-22 Osprey. This tilt-rotor aircraft, being developed to replace the Marine Corps' aging fleet of CH-46E and CH-53D helicopters, represents a significant advance in technology for providing tactical mobility to ground combat forces. The V-22's combination of range, speed, and payload is a critical enabler for the modernized force, and its procurement rate has been accelerated to reach 30 aircraft per year in 2003. The Marine Corps plans to acquire 360 V-22 aircraft. Separate acquisition programs include 50 CV-22s modified for Air Force special operations and up to 48 HV-22s for the Navy. Initial operational capability is slated for FY 2001.

Apache Longbow and Longbow Hellfire Missile. The remanufacture of the Apache system will provide ground commanders with a long-range helicopter capable of delivering massed, rapid fire in day or night and in adverse weather. Longbow's target acquisition system can automatically detect and classify targets. The target acquisition system incorporates a fire control radar (FCR) that uses millimeter-wave technology to direct a fire-and-forget version of the Longbow Hellfire missile. The fire-and-forget capability of the Longbow system provides an enhancement that is critical to the survivability and effectiveness of its launch platform. Production of the first AH-64D Apache Longbow was completed in March 1997, and initial operational capability was achieved in November 1998. Originally, 227 of a planned force of 758 Longbows were slated to be equipped with the FCR. Plans now call for production of 530 aircraft, all of which will eventually incorporate the FCR and upgraded engines.

4BN/4BW (H-1 Helicopter) Upgrade. The Marine Corps is making extensive improvements to its aging fleets of UH-1N utility and AH-1W attack helicopters. A total of 280 aircraft—100 UH-1Ns and 180 AH-1Ws—will be remanufactured in the coming years. The upgrades will significantly improve operational capability, reduce life-cycle costs (through reliability and maintainability enhancements), and extend the aircraft's service life. The program is currently in engineering and manufacturing development; procurement is slated to begin in FY 2002.

MISSILES AND MUNITIONS

Army Tactical Missile System (ATACMS). The ATACMS is a surface-to-surface guided missile capable of striking targets beyond the range of existing Army cannons and rockets. This advanced weapon and the Multiple-Launch Rocket System are fired by the M270 delivery platform. A total of 1,904 ATACMS Block I missiles have been procured to date. An improved version, designated ATACMS Block IA, will offer greater range; a total of 652 of these missiles are programmed for production. Two follow-on versions of ATACMS will be introduced after the turn of the century. The first variant, the ATACMS Block II, will carry the Brilliant Antiarmor Submunition (BAT); it will be fielded beginning in FY 2001. Extended-range Block IIA missiles will enter the inventory in FY 2005; approximately 600 of these weapons are planned for procurement.

Brilliant Antiarmor Submunition. The BAT uses advanced acoustic and infrared sensors to seek, identify, attack, and destroy armored vehicles. ATACMS will deliver a single warhead carrying 13 BAT submunitions deep into enemy territory. The submunitions will autonomously disperse to attack their targets, allowing many-on-many engagements. A preplanned product improvement program will add stationary targets—including multiple-launch rocket systems and Scud missile transporters—to the basic BAT target set through seeker and warhead enhancements. Together, the BAT and ATACMS systems will provide superior deep-strike capability to Army forces. BAT will enter low-rate production in 1999.

Sense and Destroy Armor Munition (SADARM). This new top-attack submunition, delivered by 155mm artillery projectiles, is designed to destroy lightly-armored vehicles, primarily self-propelled artillery. Once dispensed from its warhead carrier, SADARM orients itself, then scans and detects its target using dual-mode millimeter-wave and infrared sensors. Operational tests of the submunition in 1998 yielded disappointing results. As a consequence, the Department is reevaluating its strategy for acquiring this system. A decision on future steps will be made in 1999.

Javelin. The Javelin is a medium-range, man-portable, fire-and-forget missile with day-and-night capability and an advanced tandem warhead capable of defeating modern main battle tanks, including those with reactive armor. The system includes two major components: a reusable command launch unit (CLU) sight system and the missile, which is sealed in a disposable launch tube. Other enhancements incorporated in the Javelin's design include the ability to fire the missile safely from covered fighting positions and to use the CLU sight separately for battlefield detection and surveillance. Javelin began full-rate production in May 1997. The Marine Corps plans to procure 2,553 missiles through FY 2001,

while the Army will acquire 24,403 missiles through FY 2003.

Predator Short-Range Assault Weapon. This new fire-and-forget top-attack system will improve the Marine Corps' short-range antitank capability in the field. A 20-pound weapon with a disposable launcher, Predator will use an inertially-guided autopilot to increase its accuracy. The system is currently in engineering and manufacturing development, with production slated to begin in FY 2001. A total of 18,190 Predator weapons will be acquired; full operational capability is anticipated in FY 2008.

SUPPORT SYSTEMS

Digitization. The Army is continuing its plans to field advanced information technologies throughout the force. The Department plans to spend about $3 billion per year for programs associated with Army digitization. Key initiatives include procurement of platforms with built-in digital information-exchange capability and provision of add-on capabilities, called applique sets, to critical systems that do not incorporate digital capabilities. The use of appliques enables the Army to provide an interim digital capability for selected systems currently in the inventory, such as the M1A1, M2A2 Bradley, Paladin, Avenger, and Fox.

The core of the digitization initiative is command and control equipment and software. C^2 acquisitions include the improved Single-Channel Ground-Air Radio System, the Enhanced Position Locating Reporting System, the Warfighter Information Network Terrestrial Transport System, and the Global Broadcast Service. Other digitization developments include the Force XXI Battle Command Brigade and Below, which will link maneuver elements of brigades and battalions; the Army Tactical Command and Control System (comprising the Maneuver Control System, All-Source Analysis System, Advanced Field Artillery Tactical Data System, Forward-Area Air Defense Command and Control System, and Combat Service Support Control System), connecting division and corps maneuver assets with intelligence, fire support, air defense, and logistics support elements; and the Global Command and Control System-Army, which will link Army forces with other U.S. forces.

Force XXI is the Army's concept for modernizing its forces to meet the challenges of the 21st century. Digitization is a key component of Force XXI. The hardware and software composing digitization, and other doctrinal changes, are being evaluated in Army warfighting experiments. Following a series of tests conducted in 1996, 1997, and 1998, an initial operational test of brigade-level and lower maneuver units linked with all support systems is scheduled for late 1999. The knowledge gained from these and future experiments will guide the implementation of Army digitization and the overall Force XXI concept.

Family of Medium Tactical Vehicles (FMTV). Under this program, the Army is fielding a complete family of medium tactical trucks and companion trailers. The vehicles share a common cab and chassis as well as common engines and transmissions, fuel systems, suspensions, and steering systems. With their off-road mobility and other capability enhancements, FMTV vehicles offer a significant improvement in operational performance over the older 2 1/2-ton and 5-ton trucks they will replace. Their modern design likewise affords improved crew visibility, safety, and comfort relative to previous truck systems. The FMTV will be produced in eight major models—cargo, tractor, wrecker, shop van, expandable van, dump, fuel, and water tanker—with companion trailers. The high degree of commonality among the variants will reduce both production costs and operations and maintenance expenditures. Fielding began in 1996, and approximately 12,000 trucks will have been delivered to the Army by the end of 1999.

A few of the FMTVs currently in service have experienced drive train failures at high speeds while carrying light loads. The Army has issued a speed restriction for highway operations pending resolution of this problem. The correction, involving installation of redesigned and strengthened power train parts, will commence in early 1999. Once the trucks have been retrofitted with the new parts, the speed restriction will be lifted and the fleet will be cleared for unrestricted operations.

Medium Tactical Vehicle Replacement (MTVR). Plans for modernizing the Marine Corps' tactical truck fleet have been restructured over the past year. Rather than remanufacturing existing 5-ton trucks as contemplated earlier, the Marine Corps now plans to replace its medium tactical truck fleet with new trucks. The new MTVR fleet will be used to move troops, equipment, and supplies; the trucks will be designed to carry more than 7 tons off-road and up to 15 tons on the road. New MTVRs will be designed for 22 years of useful life and will incorporate numerous improvements, including an electronically controlled engine/automatic transmission, an independent suspension, a central tire inflation

system, antilock brakes, traction control, and improved safety/ergonomic features. The acquisition objective calls for production of 6,870 trucks.

Mobility Forces

The FY 2000 budget and associated FYDP continue an ambitious modernization program for mobility forces. The program is designed to replace obsolete equipment with more capable and efficient systems, while adding capacity in selected areas to meet mobility objectives. Highlights of the FY 2000-2005 program are presented below.

AIRLIFT PROGRAMS

C-17. Airlift investments over the FYDP period focus on replacing the aging fleet of C-141 intertheater aircraft with state-of-the-art C-17s. The current multiyear acquisition contract will result in procurement of 120 C-17s by FY 2003, with the last of those aircraft projected for delivery in FY 2005. The Department plans to purchase additional C-17s in coming years to ensure that U.S. mobility forces possess the operational flexibility to respond to the full spectrum of crises. The growing C-17 fleet continues to demonstrate outstanding reliability, exceeding its required mission-capable level.

C-5. Current investments in the C-5 force focus on avionics modernization and selected engine modifications. Incorporating technological advances in cockpit avionics will improve C-5 operational capability and support continued access to airspace as airspace management criteria become more restrictive. The Air Force is investigating the feasibility of making additional upgrades to the C-5 force that would improve aircraft reliability and availability.

KC-135. The KC-135 tanker force also is being modernized. All KC-135 aircraft are slated to receive avionics upgrades, which will allow a reduction in cockpit crew size from three to two persons. In addition, 45 KC-135s will be reconfigured to accommodate one of 33 multipoint refueling pod sets, enhancing their ability to refuel Navy, Marine Corps, NATO, and other allied aircraft.

Aviation Safety. To enhance passenger aircraft safety, the Department is procuring state-of-the-art accident avoidance systems. Approximately $100 million has been programmed for this purpose in FY 2000. The bulk of these funds will be used to buy Traffic Alert and Collision Avoidance Systems and Ground Proximity Warning Systems, which protect against mid-air and ground collisions, respectively.

Global Air Traffic Management. The FY 2000-2005 program includes approximately $4 billion for cockpit modernization efforts. A key portion of these expenditures will ensure that passenger and other aircraft comply with worldwide airspace access criteria, known as Global Air Traffic Management (GATM). Compliance with GATM criteria is necessary to preserve the worldwide deployment capability of U.S. forces, avoid delays, and improve airspace management.

PREPOSITIONING PROGRAMS

The FY 2000-2005 program continues investments in Air Force prepositioning of air base operation sets in Southwest Asia. The funding plan provides for the reconstitution of sets that have been used to support contingency operations as well as for accelerated procurement of additional sets to enhance responsiveness in a major crisis.

INFRASTRUCTURE AND SUPPORT

Numerous airfields, ports, and other transportation facilities support the movement of U.S. military personnel and equipment to destinations worldwide. The Army's Strategic Mobility Program funds improvements to domestic rail, highway, port, and airfield facilities. In addition, DoD maintains airfield facilities overseas for refueling, maintenance, and other enroute support. Today, DoD operates about half the number of overseas airfields that it did in 1990. Therefore, it is increasingly important to keep these facilities in good operating order, and in some cases to enhance their capability. Investments in the Global Transportation Network will improve command and control capabilities, facilitating the tracking of personnel and cargo and enhancing the utilization of transportation resources.

CONCLUSION

Today, U.S. conventional forces stand ready to support the nation's defense strategy. The FY 2000 President's Budget and associated FYDP increase funding for operational readiness, as well as critical facilities and modernization. These actions, in conjunction with initiatives to reduce operating costs, are intended to ensure that the modernization programs planned for FY 2000-2005 can be executed and that the QDR funding target of $60 billion in annual procurement expenditures by FY 2001 can be achieved. In fact, the FY 2000 President's Budget exceeds this amount annually during the FY 2002-2005 timeframe. The Department's modernization programs and associated operational initiatives for conventional forces emphasize and, where possible, accelerate the high-payoff programs that will ensure U.S. dominance over any potential threat well into the 21st century.

Chapter 6

STRATEGIC NUCLEAR FORCES AND MISSILE DEFENSES

STRATEGIC NUCLEAR FORCES

Nuclear forces are an essential element of U.S. security that serve as a hedge against an uncertain future and as a guarantee of U.S. commitments to allies. Accordingly, the United States must maintain survivable strategic nuclear forces of sufficient size and diversity to deter potentially hostile foreign leaders with access to nuclear weapons.

The United States continues to work toward further agreed, stabilizing reductions in strategic nuclear arms, and is confident that once the Treaty on Further Reduction and Limitation of Strategic Offensive Arms (START II) has entered into force, it can maintain the required deterrent at the force levels envisioned in a future treaty (START III), as agreed to in the March 1997 Helsinki Accords.

START Treaties

The START I Treaty entered into force on December 5, 1994. Russia and the United States are working to achieve the final phase of nuclear force reductions mandated by that treaty by December 2001. The Treaty on Further Reduction and Limitation of Strategic Offensive Arms (START II) was agreed between Russia and the United States on January 3, 1993, and approved by the U.S. Senate in January 1996. However, it has not yet entered into force, pending approval of the START II Treaty by the Russian parliament and ratification by both parties of the START II Protocol that was signed on September 26, 1997. START II calls for reductions in aggregate force levels, conversion or elimination of multiple-warhead intercontinental ballistic missile (ICBM) launchers, elimination of heavy ICBMs, and a limit on deployed submarine-launched ballistic missile (SLBM) warheads. It will eliminate the most destabilizing strategic nuclear systems—multiple warhead ICBMs—and will reduce deployed strategic nuclear warheads by about two-thirds from Cold War levels. The original START II Treaty called for the final reduction phase to be completed no later than January 1, 2003.

At the conclusion of their March 1997 meeting in Helsinki, President Clinton and Russian President Yeltsin issued a joint statement establishing parameters for future reductions in nuclear forces beyond START II. In this statement, they agreed to an overall limit of 2,000-2,500 deployed strategic warheads for a future START III Treaty.

Table 11

Reductions in U.S. Strategic Nuclear Arsenal Force Levels FY 1990 Through 2007

	FY 1990	FY 1999	START I (December 5, 2001)	START II (December 31, 2007)
ICBMs	1,000	550	550	500
Attributed Warheads on ICBMs	2,450	2,000	Not over 2,000	500
SLBMs	568[a]	432[b]	Not over 432	336
Attributed Warheads on SLBMs	4,864[a]	3,456[b]	Not over 3,456	Not over 1,750
Ballistic Missile Submarines	31[a]	18[b]	Not over 18	14
Attributed Warheads on Ballistic Missiles	7,314[a]	5,456[b]	Not over 4,900	Not over 2,250
Heavy Bombers	324	115[c]	97[c]	97[c]

a Excludes five decommissioned submarines (and their associated missiles and warheads) that were still START accountable.

b Excludes two Benjamin Franklin-class (Poseidon missile) (SSBNs) converted to Special Operations Forces that are still START accountable.

c Excludes 93 B-1s that are devoted entirely to conventional missions. B-1s are still accountable as a nuclear bomber under START I, but would not be accountable under START II.

They also agreed to extend the deadline for elimination of strategic nuclear delivery vehicles under START II to December 31, 2007, but stipulated that systems to be eliminated under START II must be deactivated by December 31, 2003. The Presidents further agreed that negotiations would begin on a START III Treaty immediately after Russian ratification of START II.

These agreements were formalized when U.S. Secretary of State Albright and then Russian Foreign Minister Primakov signed a Joint Agreed Statement and a Protocol to the treaty in New York in September 1997, extending the time period for full implementation of START II until December 31, 2007. In addition, Secretary Albright and Foreign Minister Primakov signed and exchanged letters legally codifying the Helsinki Summit commitment to deactivate, by December 31, 2003, the U.S. and Russian strategic nuclear delivery vehicles that under START II will be eliminated. START II entry into force will require Senate approval of the Protocol to the START II Treaty and its associated Joint Agreed Statement.

Since establishment of the Cooperative Threat Reduction (CTR) program in 1991, the United States has been assisting Russia, Ukraine, Belarus, and Kazakhstan in implementing nuclear force reductions required under the START I Treaty. In anticipation of further reductions mandated by the START II Treaty and in potential support of a negotiated START III Treaty, the United States has begun discussing additional CTR projects with Russia that would assist in accomplishing those reductions and subsequent objectives.

Force Structure and Capabilities

Until START II enters into force, the United States is protecting options to maintain a strategic nuclear arsenal at essentially START I levels. Accordingly, the FY 1999 budget request included an additional $51 million to sustain the option of continuing START I levels of strategic nuclear forces. If START II is implemented as amended by the Helsinki Summit letters, accountable warheads will be reduced by the end of 2007 to a level of 3,000-3,500, of which no more than 1,750 will be carried on SLBMs. Strategic nuclear delivery vehicles that will be eliminated under START II will be deactivated by December 31, 2003, providing the benefits of a reduced force structure four years prior to the agreed 2007 date for full elimination.

LAND-BASED INTERCONTINENTAL BALLISTIC MISSILES

At the end of FY 1999, the United States will have 500 Minuteman III ICBMs and 50 Peacekeeper missiles. If

START II enters into force, the United States will modify all Minuteman III missiles to carry only one warhead and will retire all Peacekeepers. In this transition, DoD may redeploy the Mark 21 reentry vehicle (RV), currently deployed on Peacekeeper, on a portion of the single RV Minuteman force. Mark 21 RVs contain features that further enhance nuclear detonation safety and reduce the risk of plutonium dispersal in the unlikely event of a fire or other mishap.

The United States is not developing or producing any new ICBMs. This makes it difficult to sustain the industrial base needed to maintain and modify strategic ballistic missiles. To maintain the Minuteman ICBM system and to preserve key industrial technologies needed to sustain ICBMs and SLBMs, the budget provides funding to replace guidance and propulsion systems, as well as to preserve a core of expertise in the areas of reentry vehicle and guidance system technology.

SEA-BASED BALLISTIC MISSILES

The SSBN fleet has reached its planned total of 18 Ohio-class submarines. The first eight Ohio-class submarines each carry 24 Trident I (C-4) missiles; the final ten are each equipped with 24 Trident II (D-5) missiles. The SSBN fleet's survivability and effectiveness are enhanced through the D-5 missile's improved range, payload, and accuracy. The FY 2000 budget provides for continued procurement of D-5 missiles to support the conversion of four SSBNs from the C-4 to the D-5 missile system. Retrofits will be accomplished during regularly scheduled ship depot maintenance periods beginning in FY 2000. If START II enters into force, the United States will retain 14 SSBNs armed with D-5s, while the oldest four Ohio-class SSBNs will be eliminated. These missiles, capable of carrying eight warheads apiece, will be downloaded consistent with START II limits. No new types of SSBNs or SLBMs are under development. The budget also supports Navy planning for a life extension to the D-5 SLBM to match missile life to the recently extended Trident submarine service life of 42 years.

HEAVY BOMBERS

The U.S. bomber force consists of 93 B-1s, 94 B-52s, and 21 B-2s. The Air Force plans to reduce the number of B-52s to 76 in FY 2000. Active B-2s, all deployed at Whiteman AFB, Missouri, are Block 30 configuration aircraft. The remaining B-2s are currently being upgraded to Block 30 configuration with the last such aircraft to be delivered in FY 2000. B-2 and B-52 bombers can be used for either nuclear or conventional missions. The B-1 force is dedicated to, and is in the process of being equipped exclusively for, conventional operations.

Readiness

Selected elements of U.S. strategic forces maintain the highest state of readiness to perform their strategic deterrence mission. A credible and effective nuclear deterrent requires proper support for all of its components: attack platforms, other weapons systems, command and control elements, the nuclear weapons stockpile, research and development capabilities, the supporting industrial base, and well trained, highly motivated people.

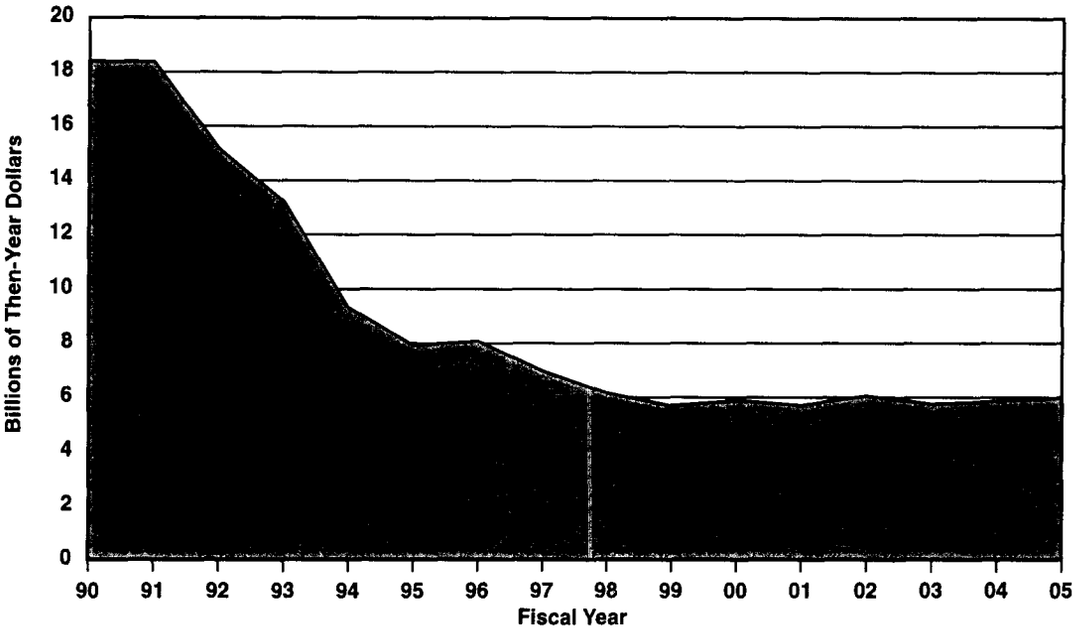
U.S. ICBMs and SLBMs on day-to-day alert are not targeted against any specific country. The missiles, however, can be assigned targets on short notice. The United States maintains two full crews for each SSBN, with about two-thirds of operational SSBNs routinely at sea. On average, about one to two U.S. SSBNs are undergoing long-term overhauls at any given time and are not available for immediate use. All 550 ICBMs, with the exception of a few undergoing routine maintenance, are maintained on a continuous day-to-day alert. The bomber force is no longer maintained on day-to-day alert, although it can be returned to alert status within a few days if necessary.

Funding and Modernization

Funding for strategic nuclear forces—ICBMs, SLBMs, and nuclear bombers—has declined in recent years, as has the fraction of the total defense budget that is devoted to nuclear forces. Past and projected funding for strategic nuclear forces are highlighted in the accompanying charts.

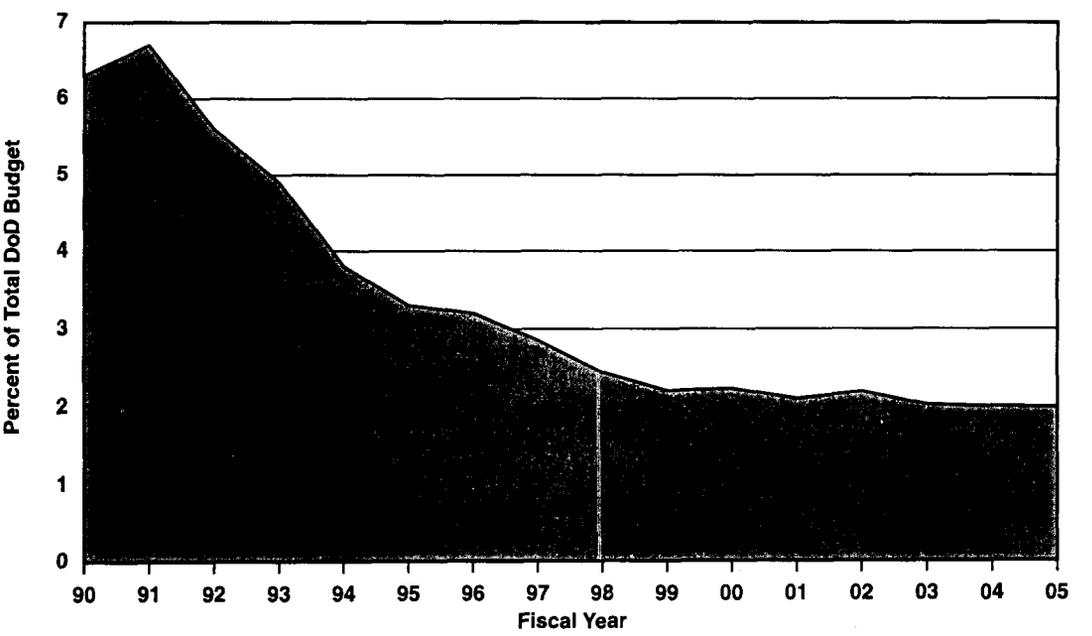
A few modernization programs for strategic forces are currently under way: B-2 modifications, primarily for conventional missions; D-5 missile procurement; and Minuteman III life extension activities. With most nuclear modernization efforts complete, programs to sustain nuclear forces and their readiness now account for most strategic nuclear funding.

Total Strategic Offensive Forces Funding



Note: The B-1 is conventional as of FY 1998 and thus funding for it is omitted.

Strategic Offensive Forces Funding as a Percentage of Total DoD Funding



MISSILE DEFENSES

The proliferation of nuclear, biological, and chemical (NBC) weapons and the missiles that can deliver them pose a major threat to the security of the United States, its allies, and friendly nations. Over 20 countries possess or are developing NBC weapons, and more than 20 nations have theater ballistic missiles (TBMs) or cruise missiles to deliver them. Some of these countries are pursuing capabilities for much longer-range ballistic missiles. The U.S. missile defense program reflects the urgency of this immediate threat, both with its Theater Air and Missile Defense (TAMD) programs and its National Missile Defense (NMD) program to develop as quickly as possible a highly effective defense system against emerging rogue nation strategic ballistic missiles. Finally, the Department is continuing development of technology to improve ballistic and cruise missile defense systems.

Role of Missile Defense in U.S. Defense Strategy

The U.S. defense strategy for the 21st century seeks to shape the international security environment in ways favorable to U.S. interests, respond to the full spectrum of threats, and prepare for an uncertain future. Missile defense is a key component of this strategy. Missile defenses contribute to the reduction and prevention of missile proliferation and strengthen regional stability, both critical for shaping the international security environment. Theater missile defenses (TMD) are key to protection of deployed forces as they act in defense of U.S. national security interests. Additionally, the U.S. ability to provide missile defense protection to allies and friends, in conjunction with the extended deterrent from the U.S. nuclear umbrella, may contribute to mitigating the desire of many states to acquire NBC weapons and ballistic missiles.

At the same time, missile defenses are essential for responding to growing ballistic and cruise missile threats. The threat of missile use in regional conflicts has grown substantially. The potential combination of NBC weapons with theater-range missiles poses very serious challenges to U.S.-led coalition defense efforts in the event of a major theater war. Hostile states possessing theater missiles armed with NBC weapons may threaten or use these weapons in an attempt to deter or otherwise constrain U.S. power projection capability. Such threats could intimidate allies or friends and discourage them from seeking U.S. protection or participating in coalitions with the United States. Even small-scale theater missile threats, coupled with NBC weapons, dramatically raise the potential costs and risks of military operations. Effective theater missile defenses will ensure that the United States is prepared to confront regional instability or conflict successfully in such an environment.

Theater Air And Missile Defense Programs

In light of the widespread deployment of theater ballistic missiles today, the Department's immediate missile defense priority is to develop, procure, and deploy TAMD systems to protect forward-deployed elements of the U.S. armed forces, as well as allies and friends. This plan envisions time-phased acquisition of a multi-tier, interoperable ballistic missile defense systems that provide defense in depth against theater ballistic and cruise missiles. The Ballistic Missile Defense Organization and the Joint Theater Air and Missile Defense Organization share the responsibility for providing improved capability to defend against air and missile threats. The increased emphasis on interoperable air and missile defenses has led to a family of systems concept. A key aspect of the family of systems approach is to leverage the synergy between air, ballistic, and cruise missile defenses, and to integrate various systems in a comprehensive effort to defeat the threat. This concept calls for a flexible combination of integrated, interoperable TAMD systems capable of joint theater operations. It includes several individual weapon systems, various sensors, and advanced battle management/command, control, communications, computers, and intelligence capabilities.

Lower-tier systems remain the top priority to defeat short-range ballistic missiles. The Patriot Advanced Capability-3 (PAC-3) and the Navy Area Defense systems are the key lower-tier systems for the TAMD mission. PAC-3 will provide air defense of ground combat forces and defense of high-value assets against high-performance, air-breathing, and theater ballistic missiles. The FY 2000 budget request calls for procurement of 32 PAC-3 missiles, with first unit equipped (FUE) projected for FY 2001. Consistent with congressional direction, the program will require two successful intercepts before proceeding to low-rate initial production.

The Navy Area Defense program, using a reconfigured SPY-1 phased-array radar and an upgraded version of the Standard Missile (Block IVA) on Aegis-equipped ships, will provide U.S. forces, allied forces, and areas of vital national interest at sea and in coastal regions with an active defense against theater ballistic and cruise missiles. Low-rate initial production of the Block IVA missiles will begin in FY 2000 in support of developmental and operational testing prior to planned FUE in FY 2003.

The FY 2000 budget provides $150 million over the next three years for development of technology related to the Medium Extended Air Defense System (MEADS), a follow-on lower-tier program being pursued cooperatively with Germany and Italy. These efforts will focus on a fire control radar and mobile launcher as key components needed to meet a requirement for a highly mobile, rapidly deployable TMD system capable of providing 360-degree coverage for troop defense. This will allow the Department to explore less costly program options by taking advantage of existing missile development programs, such as PAC-3, and thereby conserve resources for higher priority TMD systems. The Department of Defense has kept its international partners apprised of the proposal to restructure the MEADS program and hopes they will join in this new approach.

Upper-tier systems—the Theater High Altitude Area Defense (THAAD) system and the Navy Theater Wide program—are designed to intercept incoming missiles at high altitudes in order to defend larger areas, to defeat medium- and intermediate-range ballistic missiles, and to increase theater commanders' effectiveness against weapons of mass destruction. THAAD will make possible more effective protection of broad areas, dispersed assets, and population centers against TBM attacks. The Navy Theater Wide system builds upon the existing Aegis Combat System as well as the Navy Area Defense system. Compared to last year's budget request, funding for Navy Theater Wide has been increased by more than half a billion dollars in FY 1999-2001, including funds added by Congress last fall, so that this program can be pursued as a major defense acquisition program. In an effort to foster competition, the schedules for THAAD and Navy Theater Wide have been aligned, and FY 2002-2005 funding for Navy Theater Wide and the THAAD interceptor has been programmed in a combined upper-tier account. Extensive developmental testing for both THAAD and Navy Theater Wide is planned in 1999 to 2001. In the near term, THAAD will continue testing with missile components on hand, to be followed with more tests of newly fabricated missiles. Tests of the Aegis Lightweight Exoatmospheric Projectile will demonstrate the Navy Theater Wide system concept. Both Navy Theater Wide and THAAD will be examined after initial flight testing to determine system progress. Based on this assessment, the Department will be prepared to allocate upper-tier program resources to focus on the most successful program. To meet existing and emerging threats, the objective is to field an upper-tier system capability by 2007. Depending on the results of the review, the other system might continue to be developed, most likely at a slower pace.

As an additional layer of missile defense, the Airborne Laser (ABL) will destroy ballistic missiles during their boost phase of flight. By terminating powered flight early, ABL thus confronts an adversary with the prospect of having missile payloads possibly falling on an adversary's own territory. ABL development is paced to accomplish a lethality demonstration against an in-flight ballistic missile in FY 2003.

Many of the capabilities needed for effective cruise missile defense (CMD) are either evolving from existing systems or are being developed from scratch. For example, air defense radars are being netted together under the Cooperative Engagement Capability while selected ballistic missile defense sensors; battle management/command, control, and communications; and weapons (including the PAC-3 and Navy Area lower-tier systems) are projected to provide capabilities against cruise missiles. A key objective of CMD efforts is to leverage the synergy between ballistic missile, cruise missile, and air defense, and to integrate various systems that contribute to CMD into a comprehensive system of systems to defeat this threat. Additionally, advanced technology programs for CMD focus on shooting down land attack cruise missiles at extended ranges, possibly over an adversary's territory—adding depth to existing capability. To ensure the Department is positioned to capitalize on all these developments, joint employment concepts and an investment plan for TAMD, including CMD, are being developed through a collaborative process among the commanders in chief, the Services, the Ballistic Missile Defense Organization, and the Joint Theater Air and Missile Defense Organization.

COOPERATION WITH ALLIES, FRIENDS, AND STRATEGIC PARTNERS

As part of broader efforts to enhance the security of U.S., allied, and coalition forces against ballistic missile strikes and to complement U.S. counterproliferation strategy, the United States is exploring opportunities for theater ballistic missile defense cooperation with its allies and friends. The objectives of U.S. cooperative efforts are:

- To provide effective missile defense for U.S., allied, and friendly troops, and for allied and friendly civilian populations.
- To strengthen U.S. security relationships.
- To enhance collective deterrence of missile attacks.
- To share the burden of developing and fielding theater missile defenses.
- To enhance interoperability between U.S. forces and those of allies and friends.

The United States is taking an evolutionary and tailored approach to allied cooperation that accommodates varying national programs and plans, as well as special national capabilities. This approach includes bilateral and multilateral research and development, off-the-shelf purchases, and coproduction of TMD components or entire systems. Furthermore, as part of an ongoing initiative aimed at countering the TBM threat, the United States is sharing early warning data on launches of theater-range ballistic missiles with allies and friends as a means of engendering greater cooperation on theater missile defense.

In its 1991 New Strategic Concept, NATO recognized the risk posed by proliferation of WMD and ballistic missiles. Since then, the Alliance has reached general agreement on the framework for addressing this threat. The consensus is that layered theater ballistic missile defense is necessary for NATO's deployed forces. For the past several years, DoD has also held discussions with Japan regarding cooperative research in support of developing a TMD capability, and Japan recently decided to participate in and provide funding for such cooperative research.

U.S. TMD cooperation with Russia is an excellent example of how cooperative approaches to dealing with new regional security challenges of mutual interest, such as the proliferation of ballistic missiles, can advance U.S. security objectives. The United States and Russia have conducted two TMD exercises and have agreed to a third, multiple-phase effort in 1999 and 2000. These exercises have provided a practical basis for U.S. and Russian forces to develop agreed procedures to conduct theater missile defense operations during regional contingencies where they could be deployed together, facing a common adversary that resorts to employment of theater ballistic missiles.

Additionally, at the September 1998 Summit, President Clinton and President Yeltsin announced a new U.S.-Russian initiative. The two countries have agreed to establish a jointly-manned center in Russia for the timely sharing of information on the launches of ballistic missiles and space launch vehicles detected by each sides' early warning systems. The United States and Russia will also establish a voluntary multinational system for prelaunch notification of planned missile launches. The initiatives are designed to minimize the risks associated with dangerous reactions to false warning of a missile attack.

U.S.-Israeli cooperative programs, including shared early warning on theater missile launches and the development of the Arrow TMD system, assist Tel Aviv in developing a ballistic missile defense capability to deter and, if necessary, defend against current and emerging ballistic missile threats in the region. Planned interoperability with U.S. theater missile defense systems could afford Israel a more robust defense. Moreover, the program provides technical benefits for both sides by expanding the theater missile defense technology base and providing risk mitigation for U.S. weapon systems.

NATIONAL MISSILE DEFENSE PROGRAM

The submission of the FY 2000 budget request marks a major change in the Administration's funding commitment to National Missile Defense. The addition of $6.6 billion in new funding brings total FY 1999-2005 resources for NMD to $10.5 billion, of which $9.5 billion is allocated in FY 2000-2005. The added funds include those that would be required through FY 2005 to deploy an NMD system. No decision for deployment has been made. However, a decision regarding deployment is planned for June 2000 that will be based primarily on the maturity of the technology as demonstrated by progress in development and testing.

The NMD program has been geared for some time to the possibility that a rogue nation could—perhaps sooner than intelligence has projected—come to possess intercontinental ballistic missiles that could threaten the United States. This possibility was underscored by the August 1998 North Korean attempt to launch a satellite on a Taepo Dong-1 (TD-1) missile. The test demonstrated that North Korea continues to be interested in developing long-range missile capabilities and that it has made considerable progress. That launch demonstrated some important aspects of ICBM development, most notably multiple-stage separation. While the intelligence community expected a TD-1 launch for some time, it did not anticipate that the missile would have a third stage or that it would be used to attempt to place a satellite in orbit.

The intelligence community's current view is that North Korea would need to resolve problems with the third stage prior to being able to use the three-stage configuration as a ballistic missile to deliver small payloads to intercontinental ranges (that is, ranges in excess of 5,500 kilometers). Nonetheless, a three-stage variant of the TD-1, if successfully developed and deployed, could pose a threat to portions of the United States sooner than estimated previously. The TD-1 launch demonstrates the very type of potential near-term threat that led the Administration to propose the NMD deployment readiness program in 1996.

The NMD system being developed would have as its primary mission defense of the United States—all 50 states—against a small number of intercontinental ballistic missiles launched by a rogue nation. Such a system would also provide some capability against a small accidental or unauthorized launch of strategic ballistic missiles from China or Russia. It would not be capable of defending against a large-scale, deliberate attack.

Of the $6.6 billion in new funds programmed for NMD, $800 million will be provided from the FY 1999 Emergency Supplemental for Ballistic Missile Defense. These funds permit additional risk-reduction efforts, as well as activities needed to ensure a smooth transition to deployment should a decision be made in FY 2000 to begin deploying the system. Previous plans for testing NMD components and the system prior to the deployment decision remain unchanged. In June 1999, the performance of the exoatmospheric kill vehicle will be demonstrated in the first NMD intercept attempt. Subsequent tests, to be conducted before the June 2000 decision point, will further evaluate the system's performance, culminating in an end-to-end systems test in the second quarter of FY 2000. The FY 2000 request includes no procurement funding associated with deployment. The funds added to the NMD program in FY 2001-2005 support a deployment in FY 2005.

To maximize the probability of programmatic success and be able to deploy a technologically capable system as quickly as possible, key decisions will be phased to occur after critical integrated flight tests. As a result, instead of projecting a deployment date of 2003 with exceedingly high risk, the Department now projects a deployment date of 2005 with much more manageable risk. If testing goes flawlessly, the system might be ready for deployment sooner. But independent analysts have expressed concern that DoD's fast-paced schedules for ballistic missile defense programs represent a rush to failure. Given the reality of the threat, the NMD program cannot afford to fail. The approach the Department has adopted is the optimal one to provide a capable NMD system as soon as possible.

The NMD development program will continue to be conducted in compliance with the Anti-Ballistic Missile Treaty. NMD deployment may require modifications of the treaty, and the Administration is working to determine the nature and scope of these modifications. Environmental surveys for potential basing sites in both Alaska and North Dakota have begun, and Russian officials have been briefed on these activities. If deployment requires an amendment to the treaty, the United States will negotiate with the Russians in good faith.

ADVANCED TECHNOLOGY DEVELOPMENT

Activities in the missile defense technology base are key to countering future, more difficult threats. The technology base program underpins the theater ballistic missile defense, cruise missile defense, and National Missile Defense programs. It allows DoD to provide block upgrades to baseline systems, to perform technology demonstrations, to reduce program risk, to accelerate the insertion of new technologies, and to develop advanced technologies to provide a hedge against future surprises. Advanced technologies are also being exploited to reduce the cost of future missile defense systems.

CONCLUSION

Strategic forces remain a critical element of the U.S. policy of deterrence. Although U.S. nuclear forces have been reduced substantially in size and the percentage of the defense budget devoted to them has been greatly reduced as well, strategic forces continue to provide a credible and a highly valuable deterrent. The United States remains committed to appropriate and jointly agreed upon reductions in strategic nuclear forces, but will protect options to maintain its strategic capabilities at START I levels until the START II Treaty has entered into force. The Administration is also committed to protecting the United States, its forces abroad, and its friends and allies from the effects of chemical and biological weapons and the missiles that can deliver them. The United States has a comprehensive strategy for countering such threats. The structure of the theater and national missile defense programs meets present and projected future missile threats, provides the best technology to meet these threats, and is fiscally prudent.

Chapter 7

INFORMATION SUPERIORITY AND SPACE

The Department's strategic vision for the 21st century is to ensure that U.S. forces have information superiority in every mission area and to provide all of DoD's customers with assured and secure connectivity on a protected global network. Information superiority is the capability to collect, process, and disseminate an uninterrupted flow of information while denying an adversary's ability to do the same. It is the backbone of the Revolution in Military Affairs and provides comprehensive knowledge of the status and intentions of both adversary and friendly forces across the air, land, sea, and space components of the battlespace. Access to, use of, and control of space are fundamental to this strategy, including reliable and affordable transport of payloads and an ability to protect assets in orbit and on the ground. America's space forces will contribute dramatically to United States' ability to gain and exploit information superiority in the 21st century. Space systems are an integral part of the deterrent posture of the armed forces, and they confer a decisive advantage upon U.S. and friendly forces.

Essential elements of information superiority include command, control, communications, computers, intelligence, surveillance, and reconnaissance (C^4ISR), along with security and information operations (IO), and many of aspects of the Chief Information Officer (CIO) role. The implementation of the C^4ISR vision relies upon efficient processes and is guided by quantitative performance and investment metrics.

During 1998, many accomplishments across all elements of information superiority brought DoD closer to realizing this vision. The Department completed a dramatic reorganization that consolidates information superiority functions under the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (ASD(C3I)), who also serves as Chief Information Officer. The synergy resulting from this integration and the efficiencies it will bring to all of DoD's Total Force information activities will yield technical, operational, and financial benefits for years to come. Consolidating policy development and oversight of the Department's space force structure and close coordination with the intelligence community will facilitate integration of space force concepts into mainstream defense strategy and processes.

CHIEF INFORMATION OFFICER

The Clinger-Cohen Act of 1996 established the requirement for Chief Information Officers in government. This act seeks to improve federal agencies' mission performance through superior information management and effective use of information technology (IT), which fits well with the Departmental focus on achieving information superiority. In the new organization, the DoD CIO established offices to address the Year 2000 (Y2K) Computer Problem, Governance, Network Enterprise, and Process Change.

Year 2000 Computer Problem

On January 1, 2000, the Department of Defense intends to have a mission-capable force that can execute the National Military Strategy, unaffected by date-related failures of its computer systems. The Department's management strategy for its Y2K initiatives combines centralized policy and oversight with decentralized execution. The Secretary of Defense has personally engaged the direct involvement of Service and defense agency heads in this management strategy. The Department is close to completing an assessment of all of its systems and identifying Y2K issues for corrective action. A database has been created to facilitate accurate and timely reporting requirements by tracking mission critical and nonmission critical systems in various stages of Y2K compliance.

VALIDATION OF DEFENSE CAPABILITIES

The Department of Defense is employing independent verification and validation of its systems at several levels for weapon systems and military business functions (e.g., supply, finance, and transportation). DoD has three approaches in this regard: system-centric testing addresses individual systems; functional-centric testing assures Y2K compliant systems interface and function effectively in support of DoD functional activities (accounting, finance, etc.); and mission-centric testing assures end-to-end performance of systems and interfaces. End-to-end mission-level testing will be used to demonstrate DoD's operational readiness in a Y2K scenario.

OPERATIONAL CONTINGENCY PLANNING

The Secretary of Defense requires personal certification by members of his senior staff of each mission critical system and of functional readiness. Contingency planning is at the forefront when testing beyond the system level occurs. DoD's operating tempo and complexity of interactions among systems require that testing take place across DoD functions and throughout a theater.

In 1999, DoD will include Y2K testing as part of special functional area tests and commander in chief training evaluations. These tests are intended to refine contingency planning on departmental, functional, and theater levels. Contingency plans for each DoD component will include prioritized lists of systems and major actions needed to minimize Y2K disruptions to the core missions of the components. At the department-wide level, continuity of operations plans will be reviewed to incorporate Y2K scenarios.

DoD is working with federal agencies, state and local governments, and private industry through the President's Council on Year 2000 Conversion. The Department is identifying and solving Y2K-related concerns that arise in organizational interactions, such as performing tests across federal departments, with NATO, and with other allies. The systematic and comprehensive process that the nuclear community is using to assess mission readiness for the Nuclear Command, Control, Communications, and Computers (C^4I) System of Systems is an excellent example of collaborative effort.

INFORMATION ASSURANCE AND Y2K-INDUCED VULNERABILITIES

DoD recognizes that the Y2K problem could threaten the core of U.S. military superiority. The ability to obtain, process, analyze, and convey information is the warfighter's most powerful tool. It is a cornerstone of the *Joint Vision 2010* warfighting framework. Information superiority enables the United States to conduct its military operations with smaller forces than would otherwise be needed.

An attack against information systems on January 1, 2000, could be masked as a Y2K problem. However, problems also could be hidden on other dates, and future research could uncover still more attacks that could masquerade as Y2K issues. For this reason, DoD must strengthen its information assurance posture. To this end, a heightened awareness effort is under way to help assure that potential attacks are not dismissed as Y2K issues. Progress is being made to develop a national response capability to computer intrusion incidents. Installing network intrusion devices on more systems,

establishing a National Security Incident Response Center, and training system administrators, system security officers, and network analysts will lead to comprehensive responses and analyses of incidents.

Governance

Governance is the substructure that allows the CIO to be an effective participant in the Department's mission. The Clinger-Cohen Act provides modern management rules based on the best practices in business and government. The Department established the DoD CIO Council as its executive management body. The Council focuses on resolving issues, ratifying policies and prioritizing information technology budget proposals. A working level council develops the policies and vets issues for resolution. This tiered structure will enable broad participation, informed decision making, and a strong defense of information technology resource requirements. Information management governance includes strategic planning and policy, education and training, and performance assessments.

STRATEGIC PLANNING AND POLICY

An Information Management Strategic Plan was developed to support the goals of the *Report of the Quadrennial Defense Review*, the Defense Reform Initiative, and *Joint Vision 2010*. This plan focuses on information superiority achieved through global, affordable, and timely access to reliable and secure information for worldwide decision making and operations. This will be accomplished by providing the right information, at the right place and time, from the right sources. For example, a common framework structures policies around the achievement of information superiority. Policies that are no longer relevant are being eliminated. Directive memoranda are being used to issue policy guidance quickly to accommodate the fast pace of technological advancements and statutory requirements. Ultimately, the content of these memoranda will be incorporated into the formal DoD Directive System.

EDUCATION AND TRAINING

To meet the demands of the Clinger-Cohen Act to acquire and maintain a skilled information management work force, the Department established the Clinger-Cohen Competencies. These competencies outline the skills and knowledge requirements for CIOs and other senior managers. The DoD CIO has made information management education and training a primary goal to promote the development of an information management knowledge-based work force in DoD. To assist in doing this, the Information Resources Management College is designated the primary information management training source within DoD to establish and deliver customized information management training programs for senior and mid-level managers.

PERFORMANCE ASSESSMENTS

In July 1998, DoD disestablished the Major Automated Information System Review Council. The Council was DoD's primary body for overseeing major automated information systems (AISs) and other information technology investments. DoD will continue to oversee major AISs and other information technology investments through the IT Overarching Integrated Product Team, and when necessary, through special reviews by the DoD CIO. The focus of information technology investment oversight will evolve over the next year to place greater emphasis on the planning phase, on portfolios of investments, and on evaluating performance outcomes.

The level of oversight of information technology investments is based on cost and risk. There are now 94 major AISs or other major special interest initiatives subject to oversight by the DoD CIO; 47 of these have been delegated to components for oversight.

Global Networked Information Enterprise

The Department's current information capabilities need modernization to provide value-added services, enhance efficiencies in information sharing, and promote interoperability. Efforts are under way to achieve this modernization. The Department is taking several key initiatives to manage its worldwide information infrastructure as a coherent global networked information enterprise to provide forces with affordable information dominance, anywhere and any time.

INTEGRATION AND INTEROPERABILITY OF INFORMATION

The revision of DoD's interoperability policies continued in 1998. The intent of the expansion is to implement the Clinger-Cohen Act and the results of studies on the reorganization of the Office of the ASD(C3I), specifically the recommendation to use value chain analyses. The revisions will contain the policy for implementing the Joint Technical Architecture (JTA) in the context of an outcome-based interoperability process using the

three architecture views and associated products defined by the C4ISR architecture framework, plus the C4ISR Support Plan, to depict and manage information interoperability and integration. The revised policy will be available for formal DoD-wide coordination during the first quarter of 1999.

The Architecture Coordination Council approved version 2.0 of the JTA in May 1998. Version 2.0 was broadened from the original focus on C4ISR to information interoperability and affordability for all IT as defined in the Clinger-Cohen Act, to include National Security Systems. Efforts are under way to harmonize the various JTA implementation plans and to satisfy the recommendations of the DoD Inspector General audit on this matter. The JTA also mandates DoD Information Infrastructure (DII) Common Operating Environment (COE). An analysis of the COE was started to verify the assumption that it would save funding and effort, as well as enhance interoperability.

Process Change

DoD is focusing on process change in electronic commerce, logistics, finance, personnel, command and control (C^2), and capital investment and planning. This is consistent with Clinger-Cohen, which emphasizes the need to analyze and reengineer processes prior to investing in information technology.

ELECTRONIC COMMERCE

Electronic commerce is broadly defined as doing business electronically through the exploitation of information technology and commercial practices, products, and standards. It is also a philosophy of reengineering business processes to harness the power of proven commercial market approaches to get information (in a paperless form) to the right activity at the right time. The DoD Chief Information Officer has overall responsibility for institutionalizing electronic commerce in the Department. The Joint Electronic Commerce Program Office was established in May 1998 to be the Executive Agent for strategic implementation of electronic commerce initiatives for the Services and defense agencies.

CAPITAL PLANNING AND INVESTMENT

Section 5122 of Clinger-Cohen calls for an integrated Information Technology Capital Planning and Investment Control Process. DoD will use its Planning, Programming, and Budgeting System as the framework to ensure that the correct information technology investments are selected and to evaluate information technology investments and ensure their success. This approach facilitates integration of these investments into the entire DoD investment portfolio.

C4ISR AND SPACE FORCES

The space force structure represents a major component of the C4ISR force structure and will become increasingly important in deterring conflict and conducting future military operations. The Department of Defense recognizes the importance of information in the future conduct of warfare as highlighted in the National Security Strategy, National Space Policy, and *Joint Vision 2010*. DoD is moving toward a totally integrated battlespace, where warfighters will no longer view C4ISR as support functions, but as instruments of combat.

Improvements in sensors, computer hardware and software, and communication technologies are significantly increasing the ability to gather, process, fuse, exploit, and disseminate information in real-time and near real-time. New weapon systems will be able to achieve significantly greater range, accuracy, and lethality through the application of these C4ISR technologies, leading to a Revolution in Military Affairs. The development and introduction of weapon systems and equipment employing current and future C4ISR capabilities will prompt changes in military roles and missions, and will transform military doctrine, force structure, and organizational arrangements.

Spectrum Management

The Department's weapon, communications, radio navigation, surveillance, and satellite control systems use the electromagnetic spectrum for national security and military objectives. Due to the Department's increasingly important and complex responsibilities regarding spectrum planning and the need for spectrum allocation on a global scale, greater emphasis has been placed on spectrum management within the Department. In 1998, DoD established the Spectrum Management Directorate and the Office of Spectrum Analysis and Management to manage the spectrum, ensure compliance with the frequency acquisition process, seek doctrinal and technical improvements, improve the definition of warfighter requirements, and increase cooperation with all interested parties.

Integrating Space Forces

Space systems are an integral part of the overall deterrent posture of the armed forces. They confer a decisive advantage upon U.S. and friendly forces in terms of combat timing, battlespace awareness, operating tempo, synchronization, ability to maneuver, and application of firepower. Any nation contemplating an action adverse to U.S. national security interests must be concerned about U.S. space forces. These ensure hostile actions will be detected by the United States in a timely manner. In addition, the importance of space as a principal avenue for the unimpeded flow of information for economic prosperity, as well as national security, is increasing. DoD recognizes these strategic imperatives and will assure freedom of access and use of space to support U.S. national security and economic interests.

Consistent with treaty obligations, DoD will ensure freedom of action in space for friendly forces, and if directed, limit or deny an adversary's ability to use space for hostile purposes. To support space control objectives, DoD must sustain and improve capabilities to detect and monitor all militarily significant activities in space, using systems with ensured survivability and endurance. Space systems will increasingly provide the information for readiness training, operations planning, and execution during the initial phases of crises and conflict. Space forces also play an expanding role in military tasks such as the effective application of precision munitions, the identification of enemy centers of gravity, target detection/attack, the flow management of forces and logistics into a conflict area, battle/operations tracking, and campaign monitoring. The U.S. ability to effectively integrate space capabilities into military operations is critical to maintaining an effective deterrence capability and posture. The closure of overseas bases and increasing deployments to areas without a modern infrastructure increases the warfighter's reliance on space assets to provide an information infrastructure anywhere on earth with little or no notice. Future capabilities to collect and exploit geospatial information from space will sustain high quality information databases to support the training of continental United States (CONUS)-based forces on virtual battlespaces prior to deployment. Such battlefield preparation will familiarize forces with an operational area in advance and enhance mission planning and execution by increasing operating tempo and force synchronization.

Communications and Battle Management

Specific aspects of Communications and Battle Management include the emerging Global Information Grid, new applications enabled by this dynamic environment, related programs and technologies, and the increasing role of space systems in communication, command, and control.

GLOBAL INFORMATION GRID

The Department is focusing its efforts to achieve the operational capabilities to support the emerging Joint Strategy for Information Superiority. Command, control, and communications will evolve through the Information Grid to achieve this objective. The Information Grid is a subset of the Global Networked Information Enterprise and will be implemented by creating a single global, robust network based on the Network Centric Warfare concept. The Information Grid will include the Defense Information Infrastructure and sensor, battle management, and engagement capabilities. Commanders will have the flexibility to create task oriented grids within the Information Grid on an as-needed or permanent basis.

INFORMATION INFRASTRUCTURE

The Defense Information Systems Agency (DISA) is continuing to build an affordable and fully integrated, interoperable global information transport utility for the Department of Defense. In addition to the CONUS segment, DISA is developing Defense Information Systems Network (DISN) segments in both the European and Pacific theaters, as well as in the global sphere of space, and is extending the DISN concept into the deployed arena. Worldwide DISN implementation will provide an information transport infrastructure to DoD locations around the world, wherever deployed warfighters and National Communication System disaster recovery teams perform their missions. It will provide secure and nonsecure voice, data, electronic mail, video teleconferencing, imagery, and directory services. The Department has also begun a joint initiative with Australia, Canada, France, Germany, and the United Kingdom to enhance the exchange of information across national boundaries during coalition operations.

The Defense Megacenters provide computing services critical to the global combat support operations of DoD. Defense Megacenter functionality is vital to *Joint Vision 2010* operational concepts, with a major emphasis on

focused logistics and full-spectrum projection of information assets. The CONUS-based Defense Megacenters process combat support requirements for warfighters deployed around the world. DoD has substantially reduced the cost of this processing by modernizing and consolidating 194 Service and defense agency information processing centers into 16 Megacenters and is in the process of further modernization and consolidation of those 16 facilities into five.

MILITARY SATELLITE COMMUNICATIONS

The Department's future Military Satellite Communications (MILSATCOM) architecture (approved in August 1996) establishes clear vectors to migrate users to satellite systems providing three general classes of service: protected, wideband, and mobile. In June 1998, a strategy for transition from the current systems to the approved future architecture was approved.

Protected communications services are secure, assured, and survivable. They are unique to the military and there is no commercial equivalent, although commercial technologies, subsystems, and processes are used to the maximum extent practical. The strategy for protected communications calls for launching today's four remaining MILSTAR II satellites as planned, followed by the more capable Advanced Extremely-High Frequency system starting in 2006. These systems will provide strategic and tactical users with low and medium data rate communications that are survivable, difficult to detect, and jam-resistant.

Wideband communications services rapidly move large quantities of intelligence products, video, imagery, and data. The Defense Satellite Communications System (DSCS) provides the bulk of DoD's long-haul, wideband communications today. The wideband strategy is to launch the four remaining DSCS Service Life Enhancement Program satellites (with higher power, supporting higher throughput to tactical forces) starting in 1999, supplemented by Global Broadcast Service payloads on Ultra-High Frequency Follow-on (UFO) satellites 8, 9, and 10. Satellites known as Wideband Gapfillers will be launched starting in 2004 to reduce the growing gap between tactical wideband requirements and capabilities. A more capable commercial or commercial-like advanced wideband system is envisioned starting in 2008.

Mobile communications services provide networked multi-party and point-to-point narrowband links to tens of thousands of rapidly-moving warfighters. The UFO system will provide this type of communications through 2007. The Navy is studying the requirements to replace the current UFO constellation with a next-generation commercial or commercial-like objective mobile user system.

A major tenet of the future architecture and transition strategy is to reduce costs by leveraging advances in commercial satellite communications to the maximum extent practicable. This will include procurement of DoD-owned systems using off-the-shelf commercial buses and other high commercial parts content, commercial-like procurements, and continued leasing of commercial capabilities. As part of the MILSATCOM transition strategy, DoD is pursuing the benefits of international cooperation. The Department is investigating opportunities with several allied nations to improve interoperability, increase operational flexibility, and reduce redundancy. These efforts cover a range of cooperative options from collaboration on research, development, and testing, to joint production and satellite operation. Where mutually beneficial opportunities are found, DoD will pursue appropriate agreements while ensuring that adequate security safeguards are in place.

Positive steps have been taken to ensure end-to-end, system-of-systems operational management of DoD-owned and commercial leased SatCom capabilities and seamless integration of these SatCom systems into the DoD Information Infrastructure. The MILSATCOM architecture may not satisfy all validated emerging requirements; however, it will provide a significant increase in communications capabilities within budget constraints.

DEFENSE MESSAGE SYSTEM

The AUTODIN system that currently provides the DoD's primary means of messaging communications will be replaced in 1999 by the Defense Message System (DMS). A flexible, commercial-off-the-shelf (COTS)-based network-centric application layer system, DMS provides multimedia messaging and directory services using the underlying network and security services of the Defense Information Infrastructure. DMS will interoperate with existing messaging systems while evolving from its current configuration to full implementation.

GLOBAL COMMAND AND CONTROL SYSTEM

Command and control systems provide the means to execute nuclear, conventional, and special operations

effectively. The Global Command and Control System (GCCS) was installed at over 700 worldwide locations and satisfies warfighter requirements for a seamless integrated joint C^2 capability. GCCS supports the warfighter by providing an enhanced common operational picture, force status, intelligence support, orders of battle, related facility information, air tasking orders, and oceanographic data. New capabilities such as weather forecasting, collaborative planning, and improved Joint Operational Planning and Execution System handling tools are also being fielded and will be completed in early 1999.

GCCS Top Secret (GCCS-T) provides a highly secure infrastructure for command and control throughout the force deployment cycle. GCCS-T is being upgraded and will transition to a GCCS-compatible baseline during early 1999. This upgrade will improve its nuclear planning capabilities and offer increased performance and reliability.

GLOBAL COMBAT SUPPORT SYSTEM

The Global Combat Support System (GCSS) provides a strategy for achieving information interoperability across combat support functions, and between combat support and C^2 functions. GCSS incorporates personnel, logistics, finance, acquisition, medical, and other support in a cross-functional environment. In FY 1998, GCSS achieved integration of combat support information with C^2 information on the common operational picture (COP). The Combat Support Enabled COP (COP/CSE) provides a unit hierarchy for a joint task force or component commands, including readiness information and query capabilities for units, platforms, airfields, and seaports. The prototype of this capability was used in the Ulchi Focus Lens 98 exercise. During 1999, the COP/CSE and the GCSS Web will be implemented at the 37 GCCS initial operational capability (IOC) sites.

NUCLEAR COMMAND, CONTROL, AND COMMUNICATIONS

DoD continues to modernize, consolidate, and optimize the U.S. Nuclear Command and Control System. This system relies on survivable and endurable command centers and a redundant, survivable communications network. Technical management responsibility for nuclear C^2 software development was transferred as part of a realignment to consolidate nuclear-related activities at the United States Strategic Command. Priority attention is given to potential Y2K issues, and DoD is working with other nuclear nations such as Russia to address Y2K issues concerning nuclear command and control.

INTEGRATED BROADCAST SERVICE

The Integrated Broadcast Service combines five current stand-alone broadcast systems into one system that will provide a theater tailored dissemination architecture with global connectivity using a standardized message format. The Integrated Broadcast Service will be interoperable with current and programmed tactical and strategic warfare systems.

AIRSPACE CONTROL

The DoD National Airspace System program began procuring modernized, digital air traffic control systems in partnership with the Federal Aviation Administration (FAA). This procurement will upgrade voice, data, and sensor systems for quality military air traffic control services that are interoperable with the FAA. Installation of navigation and safety equipment is following a phased approach beginning with passenger aircraft and the executive fleet. DoD awarded contracts for the Traffic Alert and Collision Avoidance Systems and Terrain Awareness and Warning System to improve aircraft navigation safety.

PROGRAMS AND TECHNOLOGIES

Common Operating Environment. The DII COE is a framework for all DII development encompassing architectural standards, reusable components and software, sharable data, secure interoperability, and automated integration. Services and agencies control the DII COE portfolio, and select and prioritize COTS and government off-the-shelf investments based on mission need, risks, benefits, and cost. Enhancements to the DII COE are released every six months. Major goals of the 1997 and 1998 releases were to improve security, separate component parts into a three-tiered architecture, and improve reliability.

The major COE goal for 1999 is to move the underlying software architecture to complete the migration to a three-tiered architecture, separating data, the applications that manipulate the data, and the presentation (display) of the data. Major components will be reimplemented in Java. The completion of the three-tiered architecture and reimplementation of major components in Java will enhance portability and create a more open component framework. This will make the Common Support Applications layer more open and

provide more reuse opportunities across mission domains. Enhancements during 2000 will support real-time operating system requirements and provide a reconfigurable kernel to better support the range of computing platforms in use by DoD.

- Joint Tactical Radio System (JTRS). The JTRS program employs a common architecture to allow the family of JTRS communications systems to be modular, programmable, scalable, and extendible. JTRS will be interoperable with legacy systems and will provide cost-effective upgrades to meet future requirements. The objective is to adopt JTRS as a DoD standard and acquire the systems as replacements for all of DoD's radio inventory, avionics upgrades, appropriate satellite terminals, and personal communications equipment. Production will begin by 2002, with initial operational capability for several applications by 2003.

- Common Data Link. The Common Data Link (CDL) is one of DoD's primary data link standards. The CDL, which includes the Tactical Common Data Link capability, is the DoD primary data link for unprocessed data. The CDL will support air-to-surface transmission of radar, imagery, video, and the sensor information from manned and unmanned aircraft.

- DoD's Tactical Data Link Architecture. The DoD's J-series family of tactical data link standards is primarily used for supporting joint data link requirements in the warfighter battlespace. The family is comprised of Link-16, Variable Message Format (VMF), and Link-22. The data link family is critical to information superiority and to battlefield situational awareness for joint and coalition forces. Theater air and missile defense network centric concepts use the Link-16 information architecture as a primary implementation tool for system and operational architectures and concepts. Link-16 also supports maritime and air surveillance efforts and provides support for other sensor to shooter requirements. Link-22, the evolving component of the family, provides extended line of sight capability. Land forces use VMF for digitizing the battlefield. The Joint Tactical Data Link Management Plan is the vehicle overseeing Service migrations to achieve an integrated, predominant, joint forces capability by 2005.

In January 1998, DoD awarded two contracts for Tactical Common Data Link (TCDL) development, Phase 2. TCDL will support air-to-surface transmission of radar, imagery, video, and other sensor information from manned and unmanned aircraft. TCDL designs make use of the latest COTS, digital, programmable radio technology. Preproduction terminals will be delivered in the summer of 1999.

- Digitization. Since completion of the Task Force XXI Advanced Warfighting Experiment (AWE) in March 1997 and the Division XXI AWE in November 1997, the Army changed the character of its digitization strategy from experimentation to acquisition. Using Variable Message Format, the Army is currently on schedule to achieve its first digitized division in FY 2000 and its first digitized corps in FY 2004. To prevent fratricide, the Army is funding the millimeter wave-based Battlefield Combat Identification System for the first digitized division. Millimeter wave technology has also been endorsed as the NATO standard for ground identification.

Space Infrastructure

Space forces are integral to achieving information superiority. Consistent with National Space Policy, DoD is committed to use and control space to assist in the successful execution of the National Security Strategy and the National Military Strategy. Space is often the sole medium that allows access to otherwise denied areas of foreign countries without violating their sovereignty.

SPACE LAUNCH

The effective use of space for military purposes requires reliable and affordable access. Current U.S. space launch systems differ only slightly from the ballistic missiles developed during the 1950s and 1960s, and are increasingly costly to use. The National Space Transportation Policy, released in 1994, balances the efforts to sustain and modernize existing launch capabilities with the need to invest in the development of new, improved space transportation systems. DoD is the lead agency for improving today's expendable launch vehicle (ELV) fleet, including the requisite technology development. The Department's objective is to reduce the launch costs while improving capability, reliability, operability, responsiveness, and safety.

To achieve this objective, DoD initiated the Evolved ELV (EELV) program to replace current medium- and heavy-lift launch systems. Through this program, DoD is partnering with industry to satisfy government launch needs while fostering a greater leadership role in the

international launch market. EELV will reduce life-cycle costs, shorten launch timelines, and enable more DoD, civil, and commercial launches per year. The medium-lift and heavy-lift EELVs will have their first flights in 2002 and 2003, respectively. In an innovative approach, DoD will compete EELV launch services instead of separately buying launch hardware and paying for launch operations.

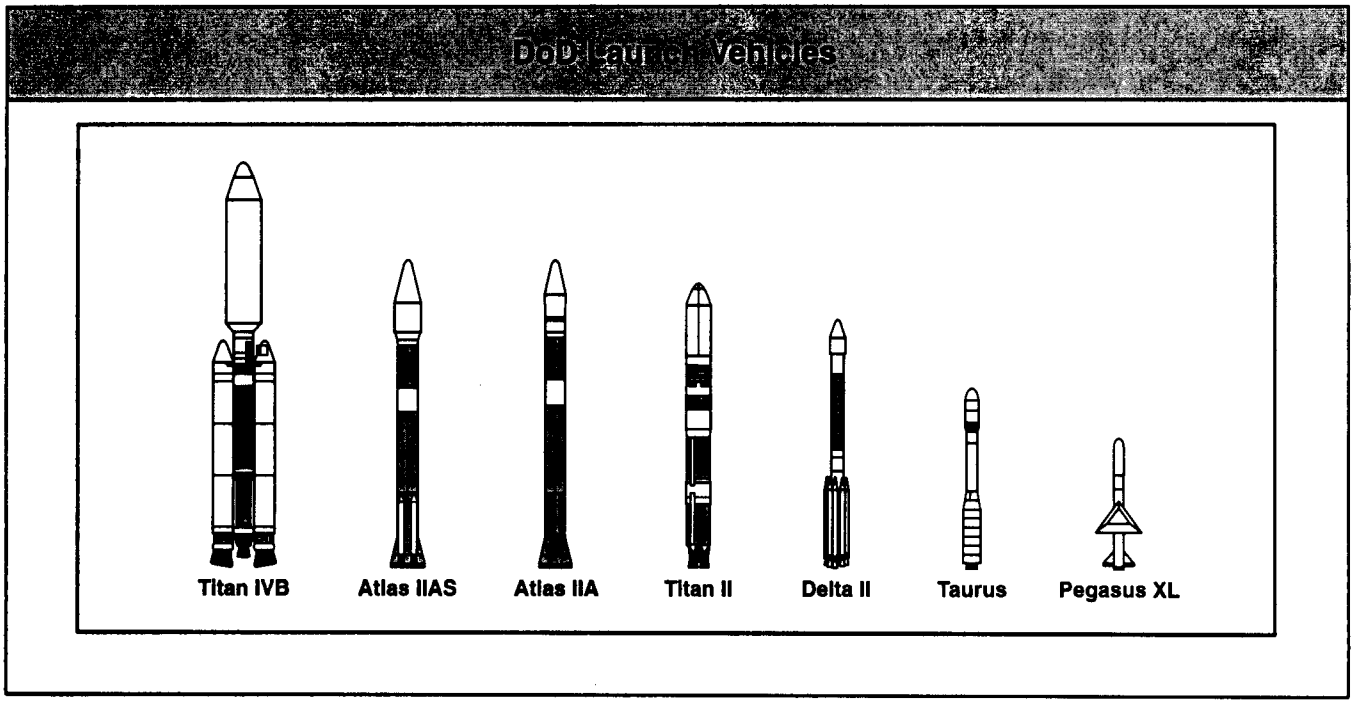
Today, the bulk of U.S. government payloads are launched from the national spacelift ranges at Vandenberg Air Force Base, California, and Cape Canaveral Air Station, Florida. In the future, these payloads may be launched on commercial launch systems from several U.S. spaceports—Spaceport Florida, located at Cape Canaveral, the California Spaceport located on Vandenberg, the Alaska Spaceport at Kodiak Island, the Virginia Spaceport at Wallops Island, and the New Mexico Spaceport.

The National Aeronautics and Space Administration (NASA) is the lead agency for the development of the next generation of reusable launch vehicles that will replace the space shuttle. The Department of Defense will cooperate with NASA in the development of technology, operational concepts, and flight demonstrations for these reusable space transportation systems.

GLOBAL POSITIONING SYSTEM

The Global Positioning System (GPS) continues to mature into a worldwide dual-use (military and civil) positioning, navigation, and timing information resource. Integration of GPS into all levels of combat forces remains a high priority of the Services. At the same time, worldwide civil applications of GPS continue to expand, with new and more innovative uses of GPS appearing continuously.

With the growing importance of GPS to military operations and the need to maintain this military advantage for friendly forces, the Department's navigation warfare (Navwar) initiative is gaining momentum. Current Navwar efforts are focused on selecting the most effective solutions for assuring uninterrupted DoD and allied use of GPS while denying access to an adversary within the theater of operations. GPS service for peaceful purposes outside the theater of operations must also be preserved. Concurrent with Navwar activities, the Department is evaluating alternatives for modernizing the system to satisfy more demanding military and civil requirements. The resultant GPS enhancements will ensure continued utility of the system well into the 21st century.



An Interagency GPS Executive Board assumed management and oversight of the dual-use aspects of the system. Through this board, DoD is working closely with the Department of Transportation and other civil agencies to plan future modifications. These enhancements will provide civil users with increased accuracy and robustness and permit an even broader spectrum of GPS applications throughout the worldwide user community. The Department is also contributing to a number of international initiatives sponsored by the State Department. The goals of these initiatives are to promote international acceptance of GPS as a worldwide standard, achieve international support for protection of GPS frequency allocations, and encourage growth in the investment and trade of GPS equipment and services.

METEOROLOGICAL SATELLITE CONVERGENCE

In 1994, the President directed the convergence of the U.S. polar-orbiting operational environmental satellite systems, thereby merging the Department's Defense Meteorological Satellite Program with the Department of Commerce's Polar-orbiting Operational Environmental Satellite program and capitalizing on the technologies developed for NASA's Earth Observing System. An Integrated Program Office was created to plan, develop, acquire, manage, launch, and operate the National Polar-orbiting Operational Environmental Satellite System (NPOESS). NPOESS's primary objective is to reduce the cost of acquiring and operating polar-orbiting environmental satellite systems, while continuing to satisfy both military and civil operational requirements. In May 1998, the program successfully merged the command and control functions of both existing programs.

The NPOESS program is a three-satellite constellation that will enhance coverage and data availability to U.S. and allied forces. To promote international cooperation in space and save U.S. funds, the European Organization for the Exploitation of Meteorological Satellites will provide the third satellite in the converged constellation. The Department is working closely with the National Oceanic and Atmospheric Administration and NASA to ensure that NPOESS continues to satisfy national security requirements.

Space Control

Numerous countries in regions around the world are acquiring or accessing space systems, technologies, and products. Foreign nations and subnational groups are obtaining space capabilities through indigenous efforts, purchases of goods and services, and cooperative activities. The spread of indigenous military and intelligence space systems, civil space systems with military and intelligence utility, and commercial space services with military and intelligence applications poses a significant challenge to U.S. defense strategy and military operations.

Because of the value of space systems to the U.S. economy and the military in future conflicts, the United States can expect attacks against U.S. and allied space systems. Consistent with treaty obligations, DoD must be able to ensure freedom of action in space for friendly forces and, when directed, limit or deny an adversary's ability to use the medium for hostile purposes. To support space control objectives, DoD must sustain and improve capabilities to surveil and monitor all militarily significant activities in space. DoD also will continue to design, develop, and operate space systems with ensured survivability and endurability of their critical ground and space-based functions. Moreover, DoD must have the appropriate capabilities to deny when necessary an adversary's use of space systems to support hostile military forces.

Missile Warning

Defense Support Program satellites have provided vital strategic and theater missile warning capabilities to the National Command Authorities and to U.S. forces worldwide for nearly three decades. However, this technology is aging and Defense Support Program will soon be succeeded by the much more capable Space-Based Infrared System (SBIRS). The first increment of SBIRS, scheduled for completion in FY 1999, will upgrade the ground-processing infrastructure and consolidate theater and strategic warning missions within one unified system.

The second increment, called SBIRS-High, will be a new generation of infrared early warning and surveillance satellites in Geosynchronous Earth Orbit, complemented by sensor payloads hosted on Highly Elliptical Orbiting vehicles. SBIRS-High will provide data that can be used to vastly improve missile warning and defense. The third increment of SBIRS, called SBIRS-Low, will be a constellation of Low Earth Orbiting satellites with an unprecedented capability to track ballistic missile targets through midcourse and terminal flight. SBIRS-High is in Engineering and Manufacturing Development and SBIRS-Low is currently in Program Definition. When completed, SBIRS will provide

warning, tracking, cueing, and discrimination data on ballistic missiles from launch through reentry—a capability that is key to the success of theater and national missile defense systems.

INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE

The Department is forging an investment strategy for intelligence, surveillance, and reconnaissance (ISR) systems consistent with validated warfighter requirements and within the framework of approved architectures. This strategy will balance development of new collection capabilities, modernization of current forces, and sustainment of existing infrastructures, as well as move toward robust interoperability among space, airborne, terrestrial, and maritime ISR systems. Joint commanders and their forces can expect an integrated common operational picture built on a foundation of imagery and geospatial information that displays friendly, neutral, and enemy force disposition across the global battlespace in all weather conditions. Entering the 21st century, ISR systems investment strategies will focus on mobile and sophisticated modern threats, enhanced sensor-to-shooter requirements, technology opportunities, and resource priorities.

Architectures for Joint Vision 2010

Over the next decade, total ISR capability will be melded into a system-of-systems architecture which ties national/theater/tactical sensors, commanders, and shooters together to enable U.S., allied, and coalition forces to strike rapidly and decisively at extended ranges. The Airborne Reconnaissance Architecture was published in February 1998 to integrate DoD's various airborne ISR modernization initiatives. The Future Imagery Architecture, Integrated Overhead Signal Intelligence (SIGINT) Architecture, and SBIRS architecture provide similar steps toward an integrated system-of-systems approach to overhead intelligence collection, surveillance, and warning. The future ISR system-of-systems architectures will integrate imagery intelligence (IMINT), SIGINT, and measurement and signature intelligence (MASINT) products into a fused intelligence picture. Assured communications capabilities and improved tasking, processing, exploitation, and dissemination systems will be common characteristics within these architectures.

IMAGERY INTELLIGENCE

Technology advances are allowing digital imagery and video to replace some film sensor applications. Investments in digital electro-optical technology include development of focal plane arrays, digital compression techniques, digital recording devices, high-volume archives, metadata management, and digital data links. Synthetic Aperture Radar (SAR) is rapidly becoming an increasingly important sensor for warfighting applications. SAR not only offers an all-weather, day and night imaging advantage, but variations and improvements of SAR technology such as Moving Target Indications (MTI), Interferometric SAR (IFSAR), and Foliage Penetration provide the potential to revolutionize reconnaissance capabilities. Starting in FY 1999, the U-2 will have an upgraded SAR with improved area coverage, improved imagery resolution and geolocation accuracy, IFSAR capability, and improved MTI capability, all providing a direct precision guided munitions targeting capability to the warfighter.

SIGNALS INTELLIGENCE

Based on the National Security Agency (NSA) threat projections, the primary driver for SIGINT modernization programs is the worldwide digital revolution in communications. Real-time tactical SIGINT systems must have adaptable digital processing with a robust capability. Exploitation in this environment requires that real-time tactical SIGINT systems have an adaptable digital-processing core with a robust capability. The Department is using the National Cryptologic Strategy 21 and the Unified Cryptologic Architecture 2010 as the community-wide blueprint to guide investment strategies for reconnaissance SIGINT capabilities. The Joint Airborne SIGINT Architecture and its components, the Joint SIGINT Avionics Family (JSAF) and the Joint Interoperable Operator Network, provided a template to help build the network centric Unified Cryptologic Architecture. A JSAF prototype system flew on a Navy EP-3 in December 1997. In 1998, the Airborne-Overhead Interoperability Office effort demonstrated precision geolocation of threat emitters through real-time cooperation between airborne and overhead platforms.

MEASUREMENT AND SIGNATURE INTELLIGENCE

The United States MASINT system, currently under development, will serve as a community-wide blueprint to guide investment in future MASINT capabilities. The Department's airborne reconnaissance architecture

envisions unique roles for both multispectral imagery and hyperspectral technology to produce spectral and spatial imagery products. In FY 1999, the Senior Year Electro-Optical Reconnaissance System Pre-Planned Product Improvement Program and the Adaptive Spectral Reconnaissance Program will provide spectrally derived information to the warfighter. Collection and processing of Synthetic Aperture Radar Phase History Data currently supports a range of MASINT-related exploitation techniques. A currently operating Overhead Nonimaging Infrared R&D System has demonstrated its utility to military operations and Technical Intelligence, while providing technical support to the Space Based Infrared System program. With these improvements, SBIRS will provide vastly improved MASINT data for the characterization of strategic and theater ballistic missiles and other threats.

PLATFORMS

Due to the continued high demand for RC-135 Rivet Joint support for regional contingencies, peacekeeping operations, and worldwide sensitive reconnaissance operations, the Department is reengineering the existing RC-135 aircraft and has acquired two additional aircraft which will be delivered in FY 1999. The fleet of U-2 aircraft will continue to be upgraded and will complete reengineering this year. It remains in excellent shape. The Joint Surveillance Target Attack Radar System (JSTARS) achieved IOC in December 1997. Nine JSTARS are currently in production. The fourth production aircraft was delivered in August 1998. The Army will field the final Guardrail Common Sensor system in FY 2000.

The Global Hawk and Darkstar High Altitude Endurance unmanned aerial vehicles (UAVs) completed a series of successful flights in 1998 in preparation for a Military Utility Assessment beginning in FY 1999. These aircraft will provide new opportunities for warfighters to enhance continuous situational awareness. The Predator Medium Altitude Endurance UAV has accumulated over 8,000 flight hours since its introduction as an advanced concept technology demonstration (ACTD). In March 1998, Predator UAVs returned to the Bosnia for a third deployment and continued operations are expected in FY 1999. Based on the information collected from the Tactical UAV (TUAV) ACTD and a series of vertical take-off and landing UAV demonstrations, the Department will continue to pursue JROC's number one UAV priority in FY 1999, the TUAV.

GROUND/SURFACE SYSTEM SUPPORT

Ground exploitation and dissemination systems continue to mature into modular, scalable components that provide warfighters timely, reliable information. The Distributed Common Ground System will be the basic tasking, processing, exploitation, and dissemination building block for airborne systems in the 21st century. The goal is to migrate single-intelligence ground stations into a seamless multi-intelligence picture to support joint operations. In 1998, the Navy began installing the first of 27 Battle Group Passive Horizon Extension Systems Surface Terminals on four aircraft carriers.

Fusing multi-intelligence products was demonstrated in FY 1998 with cueing between the Army's Guardrail/Common sensor and Airborne Reconnaissance Low with U-2 operations in support of Joint Suppression of Enemy Air Defense exercises. The result is enhanced situational awareness, improved geolocational accuracy, and reduced reporting timelines. In addition, new processing and dissemination capabilities will promote greater synergy among national and airborne sensors.

ADVANCED STUDIES FOR TOMORROW'S CAPABILITIES

Three key imagery collection studies completed in FY 1998 highlight the need for integration and fusion between overhead and airborne systems. National systems will be significantly upgraded through the Future Imagery Architecture and the Integrated Overhead SIGINT Architecture to support emerging situational needs and a range of new weapon systems such as the F/A-18E/F, F-22, and Joint Strike Fighter. The National Reconnaissance Office, Defense Intelligence Agency, NSA, and National Imagery and Mapping Agency are working to determine how airborne capabilities that provide flexibility, long dwell, and sustained coverage can best complement the national system's global coverage, access to denied areas, and sustainability. The commercial imagery satellite business is promising images on demand for virtually any place on the earth within the next few years. Studies are being conducted with the commercial sector to understand the ramifications of this capability, as well as to examine how commercial imagery can be disseminated reliably during various levels of conflict.

C^4ISR Integration and Interoperability

The Joint C^4ISR Decision Support Center (DSC) was established to perform studies directed by a Senior

Steering Group composed of the Vice Chairman of the Joint Chiefs of Staff, the Under Secretary of Defense for Acquisition and Technology, and the ASD(C3I). During FY 1998, the DSC supported a Moving Target Indications study requested by Congress and analyzed communication of national intelligence sensor data to tactical users, command and control systems for the Sensor-to-Shooter architecture, and C^4ISR interoperability process reengineering. In FY 1999, the DSC will analyze C^4ISR requirements for military operations in urban areas, MTI and imagery fusion (also requested by Congress), the C^4ISR impact on joint interdiction, C^4ISR for coalition warfare, the C^4ISR impact on dominant maneuver and full-dimension protection, and the information assurance for combat support.

INTELLIGENCE

Modernizing the Force

Intelligence will provide the information advantage necessary to support U.S. national security policy and the successful execution of national security operations. Defense intelligence will continue to provide warning of threats to U.S. national security interests. As threats become more complex and the speed at which they emerge increases, intelligence must anticipate and respond with greater speed and efficiency. U.S. intelligence will be flexible and adaptive to an uncertain and variable future security environment. To achieve this vision requires a common understanding of future challenges, the identification of broad strategic goals, a process that relates those goals to the diverse capabilities and activities across U.S. intelligence, and a means to measure performance against those goals.

Intelligence activities, systems, and investments must be focused on providing timely, accurate, and relevant intelligence information to the consumers. U.S. intelligence cannot examine every element to determine its potential value. The increasing sophistication of commercial information sources, from the cable news networks to the worldwide web, also provide the consumers of intelligence more choices of information sources. Therefore, four themes dominate plans and programs to improve intelligence in the 21st century:

- Better integrate operations across intelligence programs and disciplines.
- Improve the management of intelligence efforts.
- Prepare for an uncertain future.
- Transform the intelligence infrastructure.

The absence of a global competitor to the United States allows U.S. intelligence to rebuild capabilities and reconfigure activities in a planned, deliberate manner that balances the requirements of immediate and near-term national security operations. The investment in development of future intelligence capabilities is limited to those systems that will provide an identifiable contribution to national security missions. The proliferation of weapons of mass destruction and the willingness of rogue states to use them make it imperative that U.S. intelligence increase its ability to collect, process, and analyze information to protect the people of the United States.

The challenging focus of intelligence support to military operations gained even greater importance with the issuance of *Joint Vision 2010*, wherein dominant battlespace awareness is a primary component for success. *Joint Vision 2010* notes that future warfighting must embody the improved intelligence and command and control capabilities that will be available in the information age. This information networking is considered crucial as it forms the underlying framework to carry out the *Joint Vision 2010* operational concepts. It emphasizes information superiority—the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same. There is progress against many challenging intelligence targets, such as terrorists and other transnational adversaries, but there is more work ahead.

The accomplishments of existing intelligence collection systems and the anticipated success in fielding the next generation of collection systems make it even more important to extract the most valuable information from a flood of data. The shift to more focused collection systems to provide unique information is a primary consideration in operational collection systems.

The strategy underlying the intelligence budget focuses resources where they can provide the greatest benefit to prevent, reduce, and respond to threats to U.S. national security. DoD's focus will be on closed societies and rogue states, especially those developing weapons of mass destruction.

Modernizing Intelligence Processes

Defense intelligence, in partnership with the Intelligence Community, is transforming the processes of intelligence production to meet the complex needs of political and military customers. Improvements are being incorporated in all-source analysis by more cooperative and coordinated efforts in sorting the workload for difficult targets and improving the efficiency of sharing information through the establishment of a classified internet.

The United States, the leader in imagery collection and processing from aircraft and satellites, continues with the modernization of IMINT collection and processing systems. But the emphasis now is on the development of innovative and cost-effective solutions due to the increase in coverage requirements, shortened reporting timelines, and expanded needs for more diverse information.

Programmed improvements in the ability to perform the SIGINT mission include cost-efficient and innovative approaches. The transition to the United States Cryptologic System 2010 has already begun with initial implementation of the transition plan for the Unified Cryptologic Architecture to address the exponentially exploding telecommunications and information environment of the 21st century.

DoD recognizes the absolute necessity for improving the effectiveness of the intelligence system to address the increased threats of chemical and biological agents and weapons of mass destruction. Improvements in the MASINT discipline are particularly suitable for collecting information on the testing, production, and release of chemical and biological warfare agents. This type of intelligence information will greatly assist in determining the capabilities of nations developing, producing, and testing weapons of mass destruction, and identifying violations of arms control treaties.

The collection and reporting of intelligence information gathered by Human Intelligence (HUMINT) sources and methods remain a cornerstone of the intelligence infrastructure. The Intelligence Community has made great strides to improve the interaction and coordination between the Defense HUMINT Service and the CIA HUMINT activities. HUMINT is critical to provide indications and warning, to understand the capabilities and intentions of a potential adversary, and to counter the threats posed by weapons proliferators, terrorists and drug traffickers.

The principles contained within the defense intelligence programs reflect the mandates of the Government Performance and Results Act. Strategic plans and measures to judge performance against those plans were developed and are positioned and ready to assess those performance measures and have the means to adjust efforts accordingly. The next step is to combine those separate plans into an encompassing strategic plan for all of U.S. intelligence.

SECURITY AND INFORMATION OPERATIONS

The Department has conducted a thorough reexamination of the defensive programs that are essential to achieving and maintaining the information superiority envisioned in *Joint Vision 2010*. In this era of revolutionary technical and social change, it is imperative that DoD develops and maintains the ability to protect personnel and critical assets and continues development and integration of an effective capability to conduct information operations.

Security

Defense security programs prevent or deter espionage, sabotage, subversion, theft, or the unauthorized use of classified or controlled information, systems, or war material in DoD custody. With the gradual emergence of a technology-based environment designed to encourage vast openness and the sharing of information with the public, DoD systems, personnel, and resources are much more vulnerable to new threats. Critical issues such as the security of sensitive but unclassified information and web security are being addressed.

DoD security personnel are working closely with DoD counterintelligence personnel to develop a risk-based model for leveraging security and counterintelligence funding and resources. The result will identify the proper investment balance and optimal utilization of security and counterintelligence assets. The transition of the Defense Security Service to a fee-for-service organization has begun, and the cost of security clearance investigations is already decreasing. With the growth of international commerce, reviews of foreign ownership, control, and influence cases are more numerous and complex. These reviews examine the effect of foreign influence on security at facilities performing classified contracts, as well as the growing problem of declassification of sensitive information.

The DoD counterintelligence community, consisting of the counterintelligence elements of the Services and the Defense Intelligence Agency, supports the Department's operational commands and forces, as well as the acquisition and the information assurance organizations and many other customers. While the core effort of the community is to detect and defeat the intelligence activities of foreign nations and terrorist organizations, it has increasingly concentrated its efforts on force protection, defending the Department's information infrastructure and safeguarding critical technology. Information superiority depends heavily on a robust technology program and strong security and counterintelligence programs are critical to protect that resource. The Department is modernizing and improving the robustness of its counterintelligence effort.

Information Operations

Information operations are key to achieving and maintaining Information Superiority and are critical to the operational concepts of *Joint Vision 2010*. They are a force multiplier across the entire spectrum of peace, crisis, war, and return to peace. Information operations are used to achieve specific objectives against an adversary's information, information systems, and decision making processes.

The Deputy Secretary of Defense approved an IO Master Plan which includes interfaces to other U.S. government agencies. The Plan established DoD's IO vision and orchestrates Department actions among areas supporting information operations—including Psychological Operations, Military Deception, Electronic Warfare, Physical Attack, Information Assurance, Computer Network Attack, and Operations Security. To conduct interagency activities, the Department of Defense and the Intelligence Community formed an Interagency steering group.

Red Teams are an interdisciplinary, threat based, opposing force, which uses both active and passive capabilities on a formal, time-bounded tasking to expose and exploit information operations vulnerabilities of friendly forces as a means to improve their readiness. DoD is currently developing a DoD Instruction and a standardized methodology for performing Red Team exercises.

DoD has several initiatives to educate workers on information operations. The National Defense University provides two intensive information operations courses open to students of all federal agencies, and the Senior Service Colleges each include information operations in their curricula. Additionally, information operations are now being integrated into military exercises and wargames.

Information Assurance

Information assurance (IA) is a critical component of the DoD's operational readiness that assures that Defense Information Infrastructure systems and networks are capable of providing continuous and dependable service to the Department. Information assurance depends on the continuous integration of personnel, operational, and technical capabilities to guarantee the availability, integrity, authenticity, confidentiality, and nonrepudiation of information services, while providing the means to efficiently reconstitute these vital services following an attack. DoD has taken major steps in 1998 to improve its IA posture.

In January 1998, the Deputy Secretary of Defense approved creation of the defense-wide Information Assurance Program to provide for the planning, coordination, integration, and oversight of the Department's IA activities and resources. The Department initiated a defense-wide action to baseline the Information Assurance and Information Technology skills and resources within the Department; determine future requirements; and address personnel training, certification, and retention issues. A positive control process was also instituted to ensure that information on information systems vulnerabilities is appropriately disseminated and that countermeasures are promptly implemented.

In June 1998, DoD initiated a department-wide tasking to baseline where the Department stands with respect to information assurance and information technology skills in terms of present personnel numbers and projected future needs. An Integrated Process Team was formed to address training requirements and a strategy to retain highly skilled information assurance and information technology employees.

In August 1998, DoD created the Joint Task Force—Computer Network Defense, with a mission of coordinating and directing the defense of DoD computer systems and computer networks. This mission includes the coordination of DoD defensive actions with non-DoD government agencies and appropriate private organizations.

Critical Infrastructure Protection

Critical Infrastructure Protection is another very important component of DoD's operational readiness. Critical Infrastructure Protection addresses the protection of critical assets the Department relies upon to accomplish its mission. In May 1998, Presidential Decision Directive 63 called for a national effort to assure and protect the increasingly vulnerable and interconnected national infrastructures, including electrical power, transportation, communications, and banking and finance.

In addition to having the responsibility for protection of internal DoD critical assets, DoD serves as the lead agency for the national defense special function. The ASD(C3I) was designated the Department's Chief Infrastructure Assurance Officer. Currently a DoD-wide Critical Infrastructure Protection Plan is being developed with the goal of implementing the plan within two years. The implemented plan will support the Department's fully integrated and sustainable process for providing life-cycle protection to those elements of defense, national, and global infrastructures essential to operations.

To identify and assess critical infrastructures, DoD is implementing the Critical Asset Assurance Program, as defined in DoD Directive 5160.54, issued in January 1998. This program will assure the integrity, availability, survivability, and capability of critical assets to support vital DoD missions across the full range of military operations.

CONCLUSION

The Department has seen a great deal of activity and progress toward realization of DoD's vision of space forces and information superiority. The benefits of an expanded and highly integrated organization dedicated to these goals will bring synergistic improvements in programmatic, technical, and managerial activity. With the implementation of the Clinger-Cohen Act's mandate to improve processes and adopt quantitative metrics for performance and decision making, DoD is on the verge of an era of greatly increased productivity and efficiency in articulating and satisfying its information needs. The effect of these improvements will be visible in the realization of the information superiority that enables *Joint Vision 2010.*

Chapter 8

TOTAL FORCE INTEGRATION

Implemented in 1973, the Total Force Policy has continued to guide decisions about how the manpower resources available to the Department of Defense—active, reserve, retired military, federal civilian, contractor, and allied support personnel—are structured to protect the nation's interests. As the Department seeks to improve operating efficiencies, maintaining the integrated capabilities of the Total Force remains essential for the U.S. defense strategy to succeed. Because reserve components can provide substantial capability within a smaller defense budget, they have been called upon increasingly to contribute within the Total Force. These elements of the Total Force must be seamlessly integrated to achieve the new levels of proficiency required to successfully conduct joint and combined operations—now and in the future.

THE TOTAL FORCE

There are five armed forces in the United States defense structure: the Army, Navy, Marine Corps, Air Force, and Coast Guard. Within each armed force, there is an active component (AC) and at least one reserve component (RC). The Army and Air Force each have two reserve components.

Active Component

The active component comprises those men and women assigned to units or special accounts in the active military force structure.

Reserve Component

There are seven reserve components: the Army National Guard, Army Reserve, Naval Reserve, Marine Corps Reserve, Air National Guard, Air Force Reserve, and Coast Guard Reserve. The reserve components provide trained units and qualified men and women for active duty in time of war or national emergency and at other times in support of the National Military Strategy.

Within the reserve components, personnel serve in one of three manpower management categories: the Ready Reserve, the Standby Reserve, or the Retired Reserve. The Ready Reserve is made up of three subgroups: the Selected Reserve, the Individual Ready Reserve, and the Inactive National Guard. There is no Standby Reserve in the Army National Guard or Air National Guard.

THE IMPERATIVE FOR TOTAL FORCE INTEGRATION

Vision and Challenge

Achieving a seamless Total Force requires command emphasis on supporting the principles of Total Force integration. Progress towards improved integration of reserve and active components depends on the ability of key military and civilian leaders to create an environment that eliminates all residual barriers—structural and cultural—for effective integration. To achieve effective integration, the following basic principles must be applied consistently:

- Clearly understood responsibility for and ownership of the Total Force by senior leaders.
- Clear and mutual understanding of the mission for each unit—active, Guard, and Reserve—in Service and joint/combined operations, during peace and war.
- Commitment to provide the resources needed to accomplish assigned missions.
- Leadership by senior commanders—active, Guard, and Reserve—to ensure the readiness of the Total Force.

Total Force and the National Military Strategy

Since the Cold War, the National Guard and Reserve have become a larger percentage of the Total Force and are essential partners in a wide range of military operations, from smaller-scale contingencies to major theater war. Guard and Reserve forces provide trained units and individuals to fight in wartime and to support the wide range of DoD operations in peacetime. Today, reserve forces are included in all war plans, and no major military operation can be successful without them.

Reserve components are being called upon more frequently and for longer periods in peacetime than ever before because of high operating and personnel tempo demands on the active component. Because this trend is expected to continue, the Department is making major changes to doctrine, training, education, and materiel to ensure reserve components can rapidly deploy when needed.

Optimally Balancing the Seamless Total Force

The Quadrennial Defense Review concluded that national leaders must have a range of viable options for promoting and protecting U.S. interests in peacetime, during crises, and in war. The demonstrated potential of the reserve components to provide increased military capability at a lower overall cost is influencing changes in the mix of active, reserve, and civilian forces. The Total Force increasingly will depend on the reserve components to serve in their traditional role as a hedge against uncertainty and also to provide a more robust and blended deployable force to ease operating and personnel tempo.

ACHIEVEMENTS AND INITIATIVES

Active/Reserve Components and Allied Joint Operations

Each Service routinely provides and will continue to provide indispensable, mission-essential reserve component forces to accomplish a multiplicity of global missions.

Reserve components are essential to operations in and supporting the Bosnia peacekeeping force. As of October 1998, 16,528 Guardsmen and Reservists have served in this effort and returned to civilian life, while another 800 are on active duty. RC forces have been and continue to be deployed to provide vital augmentation in civil affairs, psychological operations, aviation, air traffic control, military police, public affairs and military history, medical, supply, and transportation. In addition, over 500 RC volunteers (individuals not called up for full-length, 270 day tours) may be found supporting operations in Bosnia on a daily basis.

A smaller number of Guardsmen and Reservists are supporting recent United States Central Command operations in Kuwait and the Persian Gulf. The Army Reserve provides needed capabilities in biological/chemical warfare detection. RC contributions now include Army National Guard aviation units, as well as Marine and Air Force staff augmentation. A total of 399 Guardsmen and Reservists have supported operations or are now on active duty. Over 10,000 Reservists, both Air National Guard and Air Force Reserve, have voluntarily supported air superiority operations over the north and south of Iraq in Operations Northern and Southern Watch.

Also demonstrating the success of AC/RC operations are the Army National Guard enhanced Separate Brigades. These enhanced brigades are included in the war plans for both Korea and Southwest Asia. The Army is committed to having them ready for combat within 90 days after mobilization.

In support of allied joint operations, the Naval Reserve and Marine Corps Reserve provide air, ground, and sea support—everything from Seabees to minesweepers. The air reserve components provide tankers, transports, and fighters to support numerous and diverse global operations such as Operation Deny Flight. Coast Guard port security units and joint Navy/Coast Guard harbor defense command units, along with Naval Coastal Warfare Groups, provide commander in chief (CINC) support in command, control, and security of port operations on both ends of the sea-lanes, as in Operations Desert Storm and Uphold Democracy. Coast Guard reservists also provide daily and crisis operational augmentation in the joint arena at United States Transportation Command and at the Pentagon. Most Coast Guard reservists serve in fully integrated AC/RC units, reflecting the Team Coast Guard philosophy.

Over the past two years, the reserve components have provided support to Total Force missions across the entire spectrum of military operations. Support provided has equated to approximately 13 million mandays (or the equivalent of about 35,000 full time personnel) in both FY 1996 and 1997. This equates to about one-third of the level of support provided during the peak of the Gulf War, when more than 250,000 reservists served on active duty for an average of six months.

Reserve Component Manpower and Personnel Programs

ACCESSIBILITY

The Department of Defense has rewritten policies to provide for increased accessibility and flexibility in the use of reserve component forces. Just as the Total Force Policy is shifting the way forces are structured and utilized, the principle of compensating leverage, which involves leveraging untapped capabilities of reserve components to meet the ongoing mission needs of a much smaller active force, is being applied on a routine basis across the Services.

The Department continues to expand the traditional definition of accessibility to reservists. Utilization of the reserves requires appropriately balancing the nation's ongoing requirements with individual reservists' nonmilitary career demands. Therefore, it is essential that when reservists are called, they participate in real operational and/or relevant training opportunities.

Table 12

FY 1999 Force Structure and End Strengths

Service	Force Structure	End Strengths
Army (Active /Reserve Component)	Divisions (10/8)	480,000 / 565,000
Navy (Active/Reserve)	Aircraft Carriers (11/1) Air Wings (10/1) Amphibious Ready Groups (12) Attack Submarines (57) Surface Combatants (106/10)	372,355 / 90,843
Air Force (Active/Reserve Component)	Fighter Wings (13/7) Air Defense Squadrons (0/4) Bombers (208 total)	365,882 / 181,233
Marine Corps (Active/Reserve)	Marine Expeditionary Forces (3/0) Divisions (3/1) Wings (3/1)	172,200 / 39,966

The policy governing the Individual Mobilization Augmentee program has been revised to provide increased flexibility in the use of augmentees to support CINC, Defense Intelligence, and joint support functions. Other policies have been rewritten to provide additional flexibility in the use of training time and options for scheduling training which support active component missions.

A plan is under way to integrate existing force planning efforts, establish a requirements determination process, establish funding mechanisms, and develop more flexible policies for the use of reserve components on a larger scale than previously accomplished. This ongoing review of possible impediments to and alternatives for future employment of the reserve components should result in a more formal structure for reserve component utilization and integration.

INDIVIDUAL READY RESERVE ACTIVATION AUTHORITY

The FY 1998 National Defense Authorization Act created a new category of Individual Ready Reserve members who are subject to involuntary call-up under Presidential Selected Reserve Call-up (PSRC) authority. The Secretary of Defense may call up to a maximum of 30,000 of these members under PSRC. This legislation ensures that trained/qualified members of the Individual Ready Reserve manpower pool are available to fill selected skill shortfalls in early mobilizing or deploying active and reserve component units, thus precluding the need for cross-leveling personnel from units scheduled for later deployment to fill shortages in early deploying units.

RESERVE COMPONENT REPRESENTATION ON THE JOINT STAFF

To further the integration of the reserve components into the Total Force and accomplish the National Military Strategy, the National Defense Authorization Act for FY 1998 required, and the Department of Defense has established, two reserve component general/flag officer positions on the staff of the Chairman of the Joint Chiefs of Staff to serve as Assistants to the Chairman for National Guard and Reserve Matters. The incumbents of those positions will ensure the Chairman and the Joint Staff have the benefit of the best advice with regard to all reserve forces, particularly as it pertains to their unique capabilities and requirements.

JOINT PROFESSIONAL MILITARY EDUCATION FOR RC OFFICERS

To prepare RC officers to function more effectively in the joint environment, the Department conducted a study to identify those joint reserve component billets that may require intermediate and senior-level Joint Professional Military Education (JPME). It is essential that formal JPME be provided RC officers since they are occupying an increasing number of billets in joint organizations and are being called upon more frequently to support joint operational missions.

FULL-TIME SUPPORT TO THE RESERVE COMPONENTS

A strong, properly resourced, full-time support program is essential in ensuring a full reserve component partnership with the other components of the Total Force. Full-time support personnel perform the critical functions of administering, training, recruiting, and retaining reserve component personnel and providing vital supply support and equipment maintenance. Increased demands on the reserve components require that training be well-planned, organized, and conducted on well-maintained state-of-the-art equipment. Full-time support personnel make that happen. In addition, full-time support personnel provide reserve expertise and a crucial linkage to the active components, defense agencies, the Joint Staff, and the CINCs.

The Department is committed to working in partnership with the reserve components and Congress to ensure that the full-time support program remains sized and resourced to maximize reserve component readiness. Table 13 shows current and planned full-time support strengths.

HEALTH CARE FOR RESERVE COMPONENT MEMBERS

Recognizing the fact the reserve components are being called upon to support military operations around the world on a daily basis, thereby increasing their potential exposure to harm, the Secretary of Defense convened a health care summit to address the full range of Reserve health care issues. The objectives of the summit were to improve the readiness of reserve component personnel by providing recommendations, assigning responsibilities, and identifying resources; to ensure that those who become ill or are injured as a result of service receive appropriate medical care and benefits; and to ensure the uniformity and consistency of benefits among the Services.

Table 13

Full-Time Support Personnel[a]
(End Strength)

	FY 1996	FY 1997	FY 1998	Budget FY 1999
Army National Guard	49,348	48,153	46,521	46,161
Army Reserve	19,637	19,686	20,077	20,093
Naval Reserve	26,026	25,395	25,027	25,593
Marine Corps Reserve	7,258	7,262	7,084	7,036
Air National Guard	36,572	36,282	36,328	36,020
Air Force Reserve	16,874	16,420	16,266	16,753
TOTAL	155,715	153,198	151,303	149,656

[a] Includes Active Guard and Reserve, military technicians, active component, and civil service personnel.

Additionally, Section 746 of the Defense Authorization Act for FY 1997 directed the Secretary of Defense to conduct a study to identify mechanisms to improve the provision of medical and dental care to members of the reserve components in order to ensure uniformity and consistency. The results of these efforts will significantly improve the medical readiness of the reserve force and provide the health care appropriate for members of the National Guard and Reserve.

FAMILY READINESS AND SUPPORT PROGRAMS

Taking care of families is vitally important for the reserve components. Knowing their families have the necessary support mechanisms in place allows Guardsmen and Reservists to focus on their missions. Significant efforts and progress have been made in supporting all families of the Total Force. Joint programs and interservice facilities have been combined with cross-training initiatives to ensure that military families receive assistance when needed. The National Guard and Reserve are now included in Total Force family readiness and support provided by the Services.

All Services have completed the transition to an integrated family readiness program, which supports both active and reserve component families. The Coast Guard also supports both active component and Reserve members and their families through a common family support program.

Most Services use a combination of chain of command, staff assistance and inspection, mobilization exercises, and joint exercises to evaluate the effectiveness of family readiness plans and programs. The Army and Air National Guard and the Air Force Reserve also use active component inspections as well as Operational Readiness Evaluations (Exercises and Inspections) to evaluate family support programs.

Family support plans are now extensively coordinated at regional, state, or major command levels. Inter-Service Family Assistance Committees, automated networks, and professionally prepared guides and brochures are also available to facilitate the widest possible dissemination of information about family support programs to the Total Force.

OTHER INTEGRATION SUCCESSES

- ID Card. Issuing the new green identification card to reserve component members started in June 1998. The new ID card removes the stigma associated with the old red card, which distinguished reserve component personnel from their active duty counterparts. This simple change reflects a major step toward AC/RC integration.
- Quality of Life. Reserve quality of life issues are being included in the DoD Quality of Life Executive Committee focus.
- Personnel Systems. Common DoD standard data elements are being phased in for core military personnel data elements across all components, active and reserve. Also, with emphasis on consolidating management functions and combining automated systems, substantive progress has been achieved both within the Services and across DoD. Examples of ongoing DoD-level systems integration include: Active and Reserve Pay in the Defense

Joint Military Pay Systems (DJMS); Active and Reserve Travel in the Defense Travel System; and Active and Reserve Personnel and Pay (software and hardware) in the Defense Integrated Military Human Resources System, which will eventually encompass DJMS.

Reserve Component Readiness and Training Programs

FORCE PLANNING

DoD has reviewed and modified force planning processes to provide National Command Authorities greater flexibility in the use of reserve components' units and members. By emphasizing the total spectrum of military requirements and relating them to reserve components' capabilities which can best support those requirements, the reserve components have been increasingly accepted within force planning organizations of the Department. Policy changes recently implemented require that RC capabilities be tied to war plans and contingency plans across the total spectrum of national military requirements. These changes provide the Services and CINCs greater efficiency and flexibility in accomplishing missions and aid in furthering AC/RC integration. The following are examples of structural barriers being removed:

- Army. Six Army National Guard enhanced Separate Brigades assigned to two new active Army division headquarters.
- Navy. Two fully integrated Mine Countermeasure Helicopter Squadrons with commanding officers selected from either component.
- Marine Corps. An active Light Armored Vehicle Air Defense Platoon integrated into the Reserve Light Armored Reconnaissance Battalion.
- Air Force. New Aerospace Expeditionary Forces fully integrated.
- Coast Guard. Team Coast Guard fully integrated active/reserve personnel into units at all levels.

ARMY

The Army is committed to implementing two integrated divisions (authorized both active component and Army National Guard members) that will each consist of a division headquarters and three Army National Guard enhanced Separate Brigades. These divisions will be established in October 1999. Under the Army National Guard's division redesign program, surplus combat units are being converted to required combat support and combat service support units. Under Force XXI, the new Division XXI design incorporates 513 reserve component soldiers embedded in active component heavy divisions. These soldiers will be placed in active component units, forming multi-component units. Reserve component soldiers from both the Army National Guard and the United States Army Reserve will conduct all readiness training with the assigned active Army division. The 4th Infantry Division (Mechanized) is the first digital division and will commence integration of reserve component soldiers in June 1999.

By FY 2003, the Army plans to provide four corps with 18 divisions (ten active, eight reserve); 15 National Guard enhanced Separate Brigades; and other appropriate forces. The Army's Reserve components will be restructured to reduce some combat forces, converting some reserve component units from combat to combat support and combat service support roles, thereby relieving an important warfighting shortfall.

NAVY

By 2003, the Navy plans to provide 12 aircraft carriers (11 active and one deployable reserve), 11 air wings (10 active and one reserve), and 12 amphibious ready groups that include 116 surface combatant ships (108 active and 8 reserve) and 50 attack submarines. The reduced size of the fleet will be offset by newer and more capable systems now coming on line. The Navy will reduce the procurement of F/A-18E/F aircraft from 1,000 to 548 and transition to the Joint Strike Fighter as soon as possible. Based on these adjustments, the Navy will reduce active, reserve, and civilian end strengths by 18,000, 4,100, and 8,400 personnel, respectively.

MARINE CORPS

The Marine Corps will maintain an active force of three Marine Expeditionary Forces, each comprised of a command element, a division, an aircraft wing, and a service support group. The active force will continue to be supported by one reserve division, wing, and service support group. End strength reductions of 2,445 active, 3,000 reserves, and 400 civilians began in 1998 and will be complete by 2003.

AIR FORCE

The Air Force has recently undertaken a transition to become a more expeditionary aerospace force. This new organizational construct will allow even greater integration of active, Guard, and Reserve units to meet contingency taskings.

By 2003, the Air Force will be well into the Expeditionary Aerospace Force (EAF) Implementation Plan. Under the EAF concept, forces are drawn from approximately ten Aerospace Expeditionary Force (AEF) pools consisting of active, guard, and reserve assets and resources. From these AEFs, force packages will be provided to the CINCs to meet the full spectrum of theater taskings and warfighting requirements. These AEFs will include fighters, bombers, airlift, and support aircraft optimized in size and capability. As a result of competitive sourcing, force structure, and organizational consolidation, reductions of 26,900 active, 1,200 reserve, and 18,300 civilian personnel will be achieved by 2003.

FORCE PLANNING SUMMARY

Each year, the Services will be making incremental changes in force structure and personnel end strength to achieve these reduction targets under the rubric of optimally balancing the seamless Total Force. The pace for achieving them is different for each Service, based on the ability to improve force integration and accommodate changes in operational concepts and organizational structures, while continuing to sustain maximum capability to respond to the full spectrum of threats. Planned FY 1999 adjustments are shown in Table 12.

TRAINING

Reserve components are planning to increase their use of simulation, embedded training, and distributed learning technologies to train Selected Reservists in the Total Force. Through the use of these technologies, the limited time available to train Selected Reservists—collectively in units, and as individuals—can be made more productive. Expansion of these technologies throughout the Total Force is essential to achieving planned improvements in force integration and readiness. Distributed learning technologies have the potential to make training more cost-effective and available to both the active and reserve community. The full spectrum of distributed learning media, fully interoperable with existing DoD and government systems, is being actively pursued and will facilitate improved training readiness throughout the Department.

To enhance progress towards force integration goals, DoD is developing policies to emphasize education and experience in joint matters for reserve officers. Such policies will be, to the extent practicable for the reserve components, similar to the personnel management and professional military education policies established to enable active component military officers to function more effectively in a joint environment.

In FY 1998, all joint positions occupied by reserve component officers were identified and each evaluated for the required level of joint professional military education. Approximately 1,100 of 4,400 reserve officer positions require traditional phase I, intermediate, or senior joint professional military education levels. Several options are being considered to address this, including a shorter version of the Armed Forces Staff College course and a revised National Defense University Reserve Forces National Security course.

The Joint Reserve Intelligence Program (JRIP) leverages the pre-paid training days of approximately 19,000 reserve intelligence specialists in direct support of force-wide intelligence requirements. In FY 1998, the JRIP allocated approximately 41,000 man-days to CINCs, combat support agencies, and Services in direct support of current intelligence requirements, and is expecting to execute approximately the same amount in FY 1999. The JRIP has the potential of providing 2,450 military workyears of intelligence support annually. By design, the JRIP enhances individual and unit wartime readiness training by providing reserve intelligence specialists the opportunity to do in peacetime what they will be doing in wartime. Moreover, these reservists frequently bring to the operational environment unique civilian/military mixes of skills, capabilities, and networks that may be particularly critical, but not otherwise available to the defense community. To maximize these unique capabilities, the Joint Reserve Intelligence Connectivity program (JRICP) has been established by the JRIP. The JRICP provides electronic connectivity and collaborative analysis capabilities to 28 active and reserve component installations and 3,200 drilling reservists who can immediately mobilize to the sites to support CINC surge and crisis support intelligence requirements. A Defense Reserve Language Program is also being developed to increase the availability, utilization and efficiency of reserve linguists supporting Defense Intelligence programs:

Congressional legislation now permits joint and unified commands and combat support agencies and the Services to transfer Operations and Maintenance funds directly to the reserve components in support of additional workdays to meet unexpected intelligence requirements. As a result, many of DoD's 20,000 reserve intelligence specialists now provide critical and often unique support to current operational requirements.

Military Assistance to Civil Authorities

The United States' vulnerability to terrorist attacks using weapons of mass destruction (WMD) has necessitated the development of a strong homeland defense against domestic terrorism. At the direction of the President, and in partnership with Congress, new plans, policies, and laws have been developed to increase the nation's effectiveness to counter asymmetric threats and to prepare to manage the consequences of attacks against U.S. citizens and/or infrastructure.

In support of this initiative, the Department is leveraging its existing military capacities to support civil authorities in partnership with other federal agencies. The reserve components will be increasingly relied upon to apply their expertise and capabilities to this homeland defense mission. The Guard and Reserve are uniquely suited for this mission because they are a highly effective workforce that spans nearly four thousand communities across the country with well-established links to first responders.

In the coming year, the Department will take major steps to establish the reserve components as critical partners in supporting response to incidents involving WMD. Ten National Guard Rapid Assessment and Initial Detection teams, each team consisting of 22 full-time Guard members, will be formed in each of the Federal Emergency Management Agency's ten regions. These teams will provide immediate support and expert technical assistance to local first responders following a WMD incident. Reserve component patient decontamination and WMD reconnaissance capabilities will be expanded and upgraded. These teams will provide support and expert technical assistance to local first responders following a WMD incident. The National Guard will also complete its work in examining the roles, missions, and responsibilities that the National Guard may appropriately fulfill in responding to terrorist attacks involving WMD. Additionally, by the end of FY 1999, DoD will have provided specialized WMD consequence management training, equipment and technical advice via its Domestic Preparedness Program to metropolitan firefighters, law enforcement officials, and medical personnel in over 84 cities.

Presidential Decision Directive 62 refined the national policy with respect to preparing and responding to terrorist attacks involving the use of WMD. DoD, in partnership with other federal agencies, has a clear and continuing supporting role in assisting state and local first responders for such events. Toward that end, DoD has implemented a management structure for integrating its efforts with those of other federal agencies.

Reserve Component Equipment

The increased employment of reserve forces in support of operational missions has emphasized the importance of compatible and interoperable equipment for the reserve components. The ability to fight the same fight or fly the same missions is imperative for the total integration of the RC with active forces. Reserve component equipment is modernized through new procurements and cascading of equipment from the active component. The redistribution of equipment from the AC is still the primary method of providing modern equipment to the RC. However, this resource is dwindling. The estimated cost of the used cascaded equipment received from the AC, if purchased new for the reserves, was $4.1 billion in FY 1998.

Consistent with the Department's priority to modernize, the Department requested $1.4 billion in new equipment procurement and upgrades during FY 1998 for the reserve components. In addition to these funds, Congress added over $640 million for new equipment procurement. This equipment included C-130, CH-53, and C-40 aircraft; medium and light tactical vehicles; and various aircraft system modifications and upgrades.

The reserve component chiefs continue to directly participate in the Program, Planning, and Budgeting System process at the highest levels. Their active participation in the Program Review Groups and on the Defense Resources Board ensured that reserve component equipment issues were considered during the most recent program review process. Additionally, DoD has initiated a study to examine the degree to which the equipment differences existing between the AC and RC impact the Department's mission readiness. The results of this study are expected to identify areas for further focus to ensure the Total Force integration of the reserve components.

Reserve Component Facilities

Increasing the joint use of facilities, consolidating reserve units, and co-locating onto existing installations were a major catalyst in the reserve component facilities programs in FY 1998. There have been marked changes in the RC facilities requirements as a result of this effort. For example, active Navy and Air Force units have moved to an Army Reserve enclave in New Jersey; active Army, Army National Guard, and Marine Corps Reserve units co-located on an Air Reserve base in Massachusetts; Army, Navy, and Marine Corps active and reserve units now are together on an Air Reserve base in California. More recently, units of the Texas Air National Guard relocated from Dallas to the Naval Air Station Joint Reserve Base at Fort Worth, Texas. These examples are just some of the 20 reserve component co-locations occurring in 1998 alone, with more expected in the years ahead.

As units look for ways to reduce the costs of leasing, base operation support, and real property maintenance, Joint Use opportunities for pooling assets become a necessity. However, the benefits from Joint Use go far beyond economics. The units live and work together and learn more about each other's capabilities as well as their supply, maintenance, and training systems. The Department's emphasis on Joint Use and the economies gained from this effort encouraged the reserve components to look at several of their individual facility requirements and consider combining them with other units' needs.

CONCLUSION

Maintaining the integrated capabilities of the Total Force is the key to successfully achieving the goals of shaping, responding, and preparing for the challenges and opportunities confronting the nation—today and tomorrow. Only a well-balanced, seamlessly integrated military force is capable of dominating opponents across the full range of military operations. Using the concepts and principles of the National Military Strategy, the Concept for Future Joint Operations, and the Total Force Policy, the Department of Defense will continue managing change and responding to the challenges of restructuring, streamlining and modernizing its Total Force to ensure efficient and effective joint operations.

Chapter 9

PERSONNEL AND QUALITY OF LIFE

With the drawdown essentially complete, the Department has maintained the highest quality, best-trained, and most diverse armed forces in history. To ensure continued success, the Department continues to resource and improve its recruiting, training, quality of life, and compensation programs. In January 1999, Secretary Cohen announced a major initiative to provide across-the-board pay raises for all service members, to target pay raises for non-commissioned officers and mid-grade commissioned officers, and to improve the military retirement system.

RECRUITING HIGH QUALITY INDIVIDUALS

To sustain the force and to ensure seasoned and capable leaders for the future, the Department of Defense must recruit some 200,000 youth for the active duty armed forces, and 150,000 for the Selected Reserve each year. Recruiting requirements for FY 1999 remain relatively steady as compared with FY 1998.

The Department uses two indices to measure recruit quality: level of education and scores on an enlistment test. Recruits with a high school diploma are especially valued because years of research and experience show that about 80 percent of recruits who hold a high school diploma will complete their initial three years of service. Alternatively, fewer than 50 percent of those who failed to complete high school will do that. Those holding an alternative credential, such as the General Education Development certificate, fall between those extremes. Over the past five years, more than 95 percent of all active duty recruits have held a high school diploma, compared to 77 percent of American youth ages 18 to 23.

Aptitude also is important. All recruits take a written enlistment test called the Armed Forces Qualification Test (AFQT), which measures math and verbal skills. Again, research and experience show that those who score at or above the 50th percentile on the AFQT demonstrate greater achievement in training and job performance compared to those below the 50th percentile. Roughly 70 percent of recent recruits scored above the 50th percentile of a nationally representative sample of 18 to 23 year olds.

In conjunction with the National Academy of Sciences, the Department developed a mathematical model that links recruit quality and recruiting resources to job performance. This model was used to establish recruit

quality benchmarks of 90 percent high school diploma graduates and 60 percent scoring above average on the enlistment test. Those benchmarks were set by examining the relationship between costs associated with recruiting, training, attrition, and retention using as a standard the performance level obtained by the reference cohort of 1990, the cohort that served in Operations Desert Shield and Desert Storm. Thus, the benchmarks reflect the recruit quality levels necessary to minimize personnel and training costs while maintaining Operation Desert Shield/Desert Storm cohort performance. Since the mid 1980s, all Services have achieved recruit quality levels above the DoD benchmarks. While there has been some slight decline in quality over the past three years in comparison with historical results, today's entering cohort quality is excellent.

Challenges in a Changing Recruiting Environment

Recruiting has been challenging over the past several years, but it was especially so in FY 1998 because of a robust economy, the lowest unemployment in 29 years, increased interest among potential recruits in attending college, and fewer veterans to serve as role models. In FY 1998, the Services recruited 179,212 first-term enlistees and 6,919 individuals with previous military service. This represents 97 percent of a Department-wide goal of 192,332. The Army reached 99 percent of its objective, missing its goal by 776, while the Navy achieved 88 percent of its mission, realizing a shortfall of 6,892 recruits. The Air Force and Marine Corps met their numeric recruiting goals. All Services achieved excellent recruit quality, as shown in Table 14.

As Table 15 shows, FY 1998 was a mixed recruiting year for the Selected Reserve, with three of six components meeting their accession goals. In general, the Selected Reserve exceeded Department recruit quality benchmarks, with only the Army National Guard falling short. Overall, the reserve components achieved a recruit quality mix similar to that of the active force, recruiting 89 percent high school diploma graduates, with roughly 64 percent of those recruits scoring above the 50th percentile of a nationally representative sample of 18 to 23 year olds. Sixty percent of reserve component enlisted accession had previous periods of military service.

Since 1975, the Department of Defense annually has conducted the Youth Attitude Tracking Study (YATS), a computer-assisted telephone interview of a nationally representative sample of 10,000 young men and women. This survey provides information on the propensity, attitudes, and motivations of young people toward military service. Enlistment propensity is the percentage of youth who state they plan to definitely or probably be serving on active duty in at least one of the Services in the next few years. Research has shown that the expressed intentions of young men and women are strong predictors of enlistment behavior.

Results from the 1998 YATS survey show that, overall, the propensity of youth for military service has not changed significantly in the last three years. In 1998, 26 percent of 16 to 21 year-old men expressed interest in at least one active duty Service, unchanged from 1997 and nearly identical to 1996 (27 percent). Young women's propensity was up one percentage point from last year and the long-term trend appears to be constant. In 1998, 13 percent of 16 to 21 year-old women expressed interest in military service, the same as in 1995.

During the early 1990s, enlistment propensity declined as the Services experienced serious cuts in recruiting resources. From 1995 to 1998, recruitment advertising almost doubled as compared with 1994 expenditures. The YATS results for those years suggest that the earlier decline in propensity may have stabilized, even in the face of a robust economy. Given that the increases in advertising were successful in raising youth awareness about military opportunities, continued investment in recruiting and advertising resources is required to assure that the pool of young men and women interested in the military will be available to meet Service personnel requirements. Appendix G contains additional detail on 1998 YATS results by gender and race/ethnicity.

The Department has several initiatives underway to address the challenges of recruiting. First, the Department established a Joint-Service Attrition Roundtable, chaired by the Deputy Assistant Secretary of Defense (Military Personnel Policy) and comprised of Service personnel chiefs and recruiting commanders. Recognizing that each service member who separates prior to the end of his or her enlistment must be replaced, the Roundtable focuses on formulation of policies designed to reduce first-term attrition. Second, the Department raised the upper limits for enlistment incentives to the statutory maximum: all Service four year or greater enlistment bonuses from $8,000 to $12,000, and Army three-year enlistment bonuses from $4,000 to $8,000; educational benefits (college funds) from $30,000 to $50,000 when combined with the Montgomery GI Bill; and education loan repayment from $55,000 to $65,000.

Finally, the Department is sponsoring research to determine the optimal allocation of advertising dollars between television, radio, and newspapers at the local vs. national level, the development of a plan to test privatization of recruiting, and an analysis of college-bound youth with emphasis on how best to recruit in this lucrative market. The Department will continue to closely monitor the recruiting climate and is committed to maintaining the appropriate levels of recruitment and advertising resources necessary to ensure an adequate flow of young men and women into the armed forces.

Table 14

Quality and Numbers of Enlisted Accessions - Active

FY 1998 Indices				Accessions[a] (in thousands)			
Category (OSD Standard) Service	Percent High School Diploma Grads (90)	Percent Above Average Cat I-IIIA (60)	Percent Cat IV (4)	Total FY 1998 Objectives (000s)	Total FY 1998 Actual (000s)	Final FY 1998 Percent Mission Accomplishment	FY 1999 Mission (projected[b]) (000s)
Army	90	68	2.0	72.6	71.8	99	74.5
Navy	95	64	0	55.3	48.4	88	53.2
Marine Corps	96	64	0.6	34.3	34.3	101	34.6
Air Force	99	78	0.2	30.2	31.7	105	34.1
Total	94	68	0.9	192.3	186.2	97	196.4

[a] Includes prior service accessions. Only Army and Navy recruit to a prior service mission.

[b] Based on Service recruiting production reports and DoD FY 1999 budget estimates (includes prior service accessions).

Table 15

Enlisted Accessions - Reserve

Accessions[a] (in 000s)				
Category (OSD Standard) Service	Total FY 1998 Objectives (000s)	Total FY 1998 Actual (000s)	Final FY 1998 Percent Mission Accomplishment	FY 1999 Mission (projected[b]) (000s)
Army National Guard	56.6	55.4	98.0	56.3
Army Reserve	47.9	44.2	92.0	52.1
Naval Reserve	15.0	15.5	103.0	15.0
Marine Corps Reserve	9.6	9.7	101.0	9.5
Air National Guard	8.0	8.7	109.0	8.0
Air Force Reserve	9.1	7.5	82.0	10.2
Total	146.3	141.1	96.0	151.1

[a] Includes prior service accessions.

[b] Based on Service recruiting production reports and DoD FY 1999 budget estimates (includes prior service accessions).

National Service and Recruiting Programs

The Department reviewed the potential impact of National Service on military recruiting, and believes that both programs can coexist successfully since the National Service program is smaller and the value of its benefits is of lower monetary value than military enlistment benefits.

IMPROVING FORCE MANAGEMENT

Promotions

The Services have worked hard to provide consistent promotion opportunities in order to meet requirements, ensure a balanced personnel force structure, and provide a meaningful opportunity for all service members. Promotions will remain steady during the final stages of the drawdown. During FY 1998, the Services promoted 105,390 soldiers, sailors, airmen, and Marines into the top five enlisted pay grades (E-5 to E-9). Officer promotion opportunity will also hold steady, remaining within 5 percent of pre-drawdown levels.

Force Stability

The Department of Defense is taking steps to return a sense of stability to the armed forces following the unavoidable turbulence of the drawdown. With the drawdown 98 percent complete, the Department has shifted its focus to personnel policies designed to manage a steady state force. Currently, retention is stable; however, pockets of retention difficulty are beginning to develop within each of the Services. The constant challenge to retain personnel with technical skills sought by civilian employers is exacerbated by the surging high-tech economy, which offers high salaries and a more predictable family life. To compete in this environment, the Department is focusing on retention initiatives that include compensation improvements and an expanded commitment to quality of life.

Personnel tempo (PERSTEMPO), the amount of time service members spend away from their home base, forms an important component of force stability. PERSTEMPO has increased as the Department has reduced forces stationed overseas, focusing instead on force projection from stateside locations. While certain units experience repeated deployments, the aggregate PERSTEMPO rate for DoD is sustainable today; however, these rates have adversely affected retention rates. PERSTEMPO remains a focus within the force stability equation. Anecdotal information gathered through FY 1998 serves as a reminder that PERSTEMPO must remain a priority focus within the force stability equation.

Equal Opportunity

Speaking to the 1998 Reserve Officer Training Corps graduates at Norfolk State University, Secretary of Defense Cohen addressed DoD policy with these words,

> "Those who seek to make others unwelcome because of their racial or ethnic background must know that it is they who are unwelcome in today's military. So we have to be intolerant of any activity of any behavior that undermines human dignity or respect or honor of the individual. We have to be intolerant of racism. And all those who wish to serve in the American military, be they policymaker or platoon leader, must demonstrate this by their deeds and by their words as well, if they hope to succeed."

The Norfolk speech was one of several events and activities undertaken by the Department of Defense in support of the President's initiative on race. In 1998, DoD commemorated the 50th anniversary of President Truman's signing of Executive Orders 9980 and 9981. Executive Order 9980 provided for nondiscrimination in civilian employment in the federal government. Executive Order 9981 established the President's Committee on Equality of Treatment and Opportunity in the Armed Forces and resulted in the desegregation of the U.S. armed forces.

To reaffirm the Department's vision, Secretary Cohen reissued the Department's Human Goals Charter with the words, "This Charter is about affirming DoD's long-term commitment to continuous progress in ensuring fair treatment of our men and women."

The Department maintained its focus on equal opportunity with events and activities that included:

- Thirty "One America Conversations on Race that Bring Us Together" meetings at locations across the country, hosted by senior DoD officials.
- A Pentagon salute to African American flag officers with the unveiling of the Stars for America exhibit in the African Americans in Defense of Our Nation Corridor of the Pentagon.

- A worldwide equal opportunity conference during July 1998 in Birmingham, Alabama, focusing on the status of race and ethnic relations over the last 50 years.
- The installation of permanent Pentagon exhibits paying tribute to African American military men and women from each of the Services.
- The engagement of the National Science Foundation for continued research and study of race and ethnic issues in American society.

The Department's recent events and activities sustained the traditions of strong military and civilian equal opportunity efforts spanning 50 years, and continually evolving policy development and program implementation in areas of race and ethnic relations.

WOMEN IN THE MILITARY

Defense Advisory Committee on Women in the Services

The Defense Advisory Committee on Women in the Services (DACOWITS) was established in 1951 to assist the armed forces in recruiting quality women for military service. The role of DACOWITS has since evolved into advising the Secretary of Defense on all policies relating to the utilization and quality of life of female service members, as well as general quality of life issues.

In 1998, DACOWITS members conducted over 78 continental United States (CONUS) installation visits covering all five Services. Additionally the Executive Committee conducted an overseas installation visit to the Atlantic, European, and Central Command areas of responsibility, visiting bases in the Azores, Sardinia, Bahrain, Turkey, Bosnia, Germany, England, and Iceland. Over 2,300 service women and men provided their views to DACOWITS members on such priority issues as increasing operating and personnel tempos, health care, promotion opportunity, and assignments. Notably, complaints and concerns about sexual harassment and discrimination have significantly declined from previous years. Command climates were, for the most part, realistic and generally supportive of women in the Services. In 1998, DACOWITS focused on:

- Gender-integrated training, with a recommendation that each Service be allowed to determine the training methodology best suited to its mission.
- Assignment policies and their impact on promotions, including an emphasis on the collocation policy.
- The availability of health care with a focus on the impact of TRICARE implementation.

DACOWITS sponsored the Office of the Secretary of Defense commemoration of the signing of the Women's Armed Services Integration Act of 1948. The celebration reflected on the progress of expanding women's roles in the U.S. military over the last 50 years.

New Roles for Service Women

The Department continues to progress in integrating women into units and positions traditionally closed to them. In 1999, women will compete equally for assignment in 260,000 additional military positions from which they were previously excluded. Over 80 percent of the total jobs are open to women, providing DoD greater flexibility in assigning people to fill worldwide positions and enhances readiness in today's smaller force. Consequently, the proportion of women in the Services continues to increase, standing at 14.1 percent today. Additionally, in 1998, the Army selected its first woman command sergeant major to serve for a 3-star general, the Air Force selected its first woman space shuttle commander, and the Navy selected five women to command combatant ships for the first time.

Gender-Integrated Training

The quality of training, particularly initial entry training, is critical to establishing good order and discipline in the armed forces and in providing for national security. During FY 1998, the Department conducted a complete review of initial entry training, which culminated with the appointment of the Federal Advisory Committee on Gender-Integrated Training and Related Issues. Secretary Cohen subsequently directed intense focus in three areas: training leadership, training rigor, and recruit billeting. In response, the Services submitted plans to improve initial entry training programs by emphasizing the value placed on an assignment as a basic trainer, and by increasing training rigor through toughened physical fitness standards, better physical conditioning, and more robust and challenging training exercises. Incorporating one of the recommendations of

the Advisory Committee, the Services proposed plans that increasingly provide for the safety, security, privacy, and supervision of recruits in barracks.

The Department also approved Service plans for the continuation of gender integration in elemental training units as the optimum training format for the Army, Navy, and Air Force, yet affirmed the Marine Corps policy for gender-separate basic training, with a gender-integrated follow-on program. The decision was based on the different missions, traditions, and conditions of service, as well as differences in the ways the Services conduct basic training.

To ensure these changes are part of a continuing process, DoD established a formal mechanism to routinely monitor implementation of new standards and practices. The Department will continue to review standards to ensure basic training properly prepares young men and women for the demanding requirements of service and to ensure that basic training, while rigorous, is accomplished in a safe and secure environment.

CIVILIAN PERSONNEL

A country's national security is only as strong as the people who stand watch over it. The men and women of the U.S. armed forces demonstrate their courage and excellence every day, protecting the lives and interests of the American people. In turn, the civilians provide the infrastructure that makes the military operations possible, while at the same time more of them face deployment and uncertainty as well.

Recruitment and Hiring

In support of the President's pledge to end traditional welfare, DoD committed to hiring 1,600 welfare recipients during the four-year period of the Welfare-to-Work Program. In slightly more than one year, the Department hired 1,547 former welfare recipients into appropriated and nonappropriated fund jobs ranging from childcare giver to cashier to electrician.

Civilian Downsizing and Transition Assistance

DoD continues to be both humane and efficient as it eliminates civilian positions through streamlining and downsizing without disruption to the defense mission. Using innovative personnel and incentive programs, the Department reduced civilian employment by 33,100 positions during FY 1998. During nine consecutive years of successful downsizing, the Department has achieved an overall reduction of over 375,000 positions, with fewer than 9 percent of these separations being layoffs.

Voluntary Separation Incentive Payments (or buyouts, originated by DoD) have prevented the need for 130,000 layoffs since 1993. Likewise, early retirement authority has been used to save over 54,000 employees from involuntary separation, change to lower grade, or directed transfer outside their commuting area. The Department's buyout authority runs through FY 2001, and the Department is seeking a further extension. Largely due to DoD efforts, the early retirement authority was clarified and extended to September 30, 1999. The Department is seeking permanent authority beginning in FY 2001.

During the downsizing, the Department reabsorbed over 63,000 displaced employees through its award-winning Priority Placement Program, while the Defense Outplacement Referral System has helped workers facing dislocation to find employment outside DoD. Ongoing efforts to upgrade and streamline processes, as well as the use of Web technology, continue to enhance placement efforts and the ability to help DoD employees facing dislocation.

Civilian Training, Education, and Development

The training, education, and development of the Department's civilian work force has been a priority as downsizing has resulted in fewer new hires and as DoD seeks to avoid skill and experience imbalances among continuing employees. The Defense Leadership and Management Program (DLAMP) is a systematic, Department-wide program of joint civilian education and development. Implementing recommendations of the Commission on Roles and Missions of the Armed Forces, DLAMP provides the framework for developing future civilian leaders with a DoD-wide capability that complements service programs. It also fosters an environment that nurtures a shared understanding and sense of mission among civilian employees and military personnel. Inaugurated in 1997, DLAMP incorporates defense-focused graduate education, rotational assignments in a wide variety of occupations and organizations, and professional military education to prepare civilians for key leadership positions. It is designed to prepare people for 3,000 of the Department's top civilian leadership positions.

The program has grown to over 600 participants, with an anticipated addition of 300 new participants each year. Already 13 special graduate courses have been developed, with another 14 courses scheduled for completion in 1999. The program has dramatically increased civilian participation at the Senior Service Schools, with most DLAMP students scheduled to attend a special three-month professional military education-type course focusing on national security decision making at the National Defense University. In addition, volunteer mentors from across DoD at the GS-15 or Senior Executive Service and military equivalent levels actively support the program.

On October 2, 1998, Secretary Cohen appointed the first Chancellor for Education and Professional Development. The Chancellor will be the principal advocate for the academic quality and cost-effectiveness of all DoD institutions and programs that provide higher education and professional development for DoD civilians. The Chancellor will ensure that the educational policies and requirements set by the functional areas are implemented at the highest possible level of quality, effectiveness, and efficiency.

Defense Partnership Council

In 1998, the Department launched several groundbreaking partnership initiatives. Paramount in this effort was the Department's inclusion of its labor partners in discussions on issues that are key to the future of the Department and its civilian work force: the Quadrennial Defense Review, the Defense Reform Task Force, and the Defense Personnel System Initiative.

Through its labor-management cooperation training and facilitation programs, DoD has helped installation-level partnerships and labor-management relationships at 185 sites over the past three years. Training objectives moved to a higher level in 1998. In addition to the partnership, interest-based problem solving, and mediation training done in the past, DoD embarked on joint training initiatives with its union partners, involving not only joint planning, but also joint resource investment.

Civilian Personnel Regionalization and Systems Modernization

The Department's pathbreaking efforts to regionalize civilian personnel services and deploy a modern information management system are well underway. By the end of FY 1998, the ratio of employees served per personnel specialist had improved steadily from a baseline of 61 to an impressive 77. The ratio will continue to increase as the modern Defense Civilian Personnel Data System (DCPDS) is deployed and regionalization is completed. The Department seeks to attain a ratio of 88 employees served per personnel specialist by the end of FY 2001. Service regionalization capitalizes on economies of scale by consolidating processing operations and program management into 22 regional service centers. Operations requiring face-to-face service will remain at over 300+ customer support units at DoD installations worldwide. By the end of FY 1998, the military departments and defense agencies had established 21 of the 22 planned regional service centers and 75 percent of the planned customer support units, covering 65 percent of the planned service population. Regionalization will be completed during FY 1999.

During FY 1998, the Department eliminated all remaining legacy computer systems, completed the basic development of the modern DCPDS, and began the system qualification testing. Deployment of the modern DCPDS will begin in FY 1999 and will be completed in FY 2000.

Demonstration Projects

Personnel demonstration projects permit agencies to obtain waivers from federal civil service regulations to test alternative approaches. DoD continued to work closely with the Office of Personnel Management to make such efforts become a reality. Nine science and technology laboratories (five Army, three Navy, and one Air Force) are participating in human resources management demonstration projects. Also, the DoD-wide civilian acquisition work force personnel demonstration should be implemented during FY 1999.

Personnel Reform

As a result of its Quadrennial Defense Review, the Department of Defense began exploring options for improving its civilian personnel management infrastructure. Because of the pressures created by continuing downsizing, DoD needed to ensure that its personnel policies, programs, and procedures could cope effectively and humanely with the associated changes. Therefore, the Department decided to pursue its special Personnel System Initiative.

The Office of Management and Budget, the Office of Personnel Management (OPM), and the then National Performance Review encouraged DoD to pursue the initiative, with a view toward using it as a model for the rest of government. This process officially began at the meeting of the Defense Partnership Council on October 1, 1997. Members agreed that some topics (such as protection against employment discrimination, suitability, security, conduct, veterans' preference, and unemployment compensation) should be set aside so this effort could focus on major concerns. The Council also agreed to establish working groups with members from DoD components and functional areas, unions, and OPM. The five working groups focused on staffing, pay and classification, benefits and entitlements, performance management, and work force shaping.

Already nine legislative proposals have been jointly developed for consideration, while the groups have reached consensus in several other areas as well. Development will continue in FY 1999.

Injury and Unemployment Compensation

The Department's consolidated injury compensation and unemployment compensation programs again set the government-wide standard. The program's active evaluation and verification methods for reviewing claims included the use of DoD liaison personnel co-located with Department of Labor district offices, home visits, and a comprehensive automated data tracking system deployed at 415 installations. Since 1994, these methods directly contributed to a 2.1 percent decrease in the Department's injury compensation costs, avoiding $37.4 million in costs. During the same period, government-wide injury compensation costs increased by 4.1 percent or $73 million. Also, by auditing 222,668 unemployment compensation claims, DoD avoided $6.1 million in erroneous charges.

QUALITY OF LIFE

The Department's personnel/quality of life strategy recognizes that military members want good pay, educational opportunities, meaningful work, challenging off-duty opportunities, and good places to live. To achieve these goals, the Department remains committed to six guiding principles for quality of life (QoL):

- Commit to fund raises in basic pay and to improve the fairness and efficiency of other elements of compensation, such as retirement and health care plans.
- Drive personnel tempo as low as possible without jeopardizing mission and readiness.
- Afford service members and their families safe, modern communities and housing.
- Make educational opportunities a cornerstone of the Department's quality of life programs.
- Ensure that parity is built into quality of life programs across installations and Services, and during deployments, while recognizing the unique operational cultures of each Service.
- Build a solid communication line to service members and their families so as to understand their perceptions on quality of life.

Quality of Life Executive Committee

To institutionalize QoL improvements, Secretary of Defense Perry established a Quality of Life Executive Committee in 1995. The executive committee serves as the principal policy advisor to the Secretary on matters relating to the overall QoL of military personnel and their families. To further the Secretary's objectives, a QoL Wedge was established in 1995, the benefits of which are just now coming to fruition in the field. The first major accomplishment of the executive committee was to review funding and work with the Services to decide where to increase spending to ensure adequate resourcing of key QoL issues. In 1999, DoD's focus is on the important issues of improving physical fitness centers and housing.

Through the leadership of the QoL Executive Committee and the Services, over 40 major policy, resource, and program accomplishments have been realized since 1995. These are particularly important in an era of increasing joint operations. As soldiers, sailors, airmen, and Marines work together more regularly in joint assignments and deployments, looking at issues collectively through the executive committee has promoted greater parity, while respecting different Service needs and philosophies.

Compensation and Benefits

The United States has the best military in the world. Every day, U.S. soldiers, sailors, airmen and Marines,

along with members of the Coast Guard, work together to protect U.S. interests around the world, as well as freedom and prosperity at home. The key to U.S. strength is the men and women who serve in uniform. One of the Department's primary responsibilities is to assure that it recruits, trains, and retains the best people. Military training is difficult and extensive. It takes five to seven years to train an Air Force flightline maintenance supervisor, 18 years to become the commanding officer of a destroyer, and 28 years to groom an armored division commander. For this reason, the Department has been working with the President and the Service leaders to make sure that military pay and retirement systems adequately reward the dedicated and experienced servicemen and women.

To attract, motivate, and retain quality people, the armed forces must provide a competitive standard of living for service members. The Department's goal is to ensure the compensation system is robust enough to attract and retain the force needed for the 21st century. To ensure the maintenance of a highly qualified and ready force in the future and to maintain faith with the men and women who serve the nation in uniform, the Department has long recognized the importance of an appropriate level of compensation. The military compensation package is made up of both pay and nonpay benefits—the components of a standard of living. Operating together, these elements of the compensation package stimulate enlistment and retention of the high quality individuals essential to operational readiness.

Among the cornerstones of these commitments is a system of compensation and benefits which provides fair pay, retirement, and through special pays, recognition that military duty places extraordinary demands on service members and their families.

Improving Compensation

The President's Budget for FY 2000 will include significant pay increases and retirement improvements for men and women in uniform. The pay and retirement package has three main parts:

- The first part is across-the-board pay increases for all Service members. Beginning January 1, 2000, a pay increase of 4.4 percent is proposed. This increase is the largest in basic military pay in a generation. The Defense program also includes a 3.9 percent increase in fiscal years 2001 through 2005.
- The second part is targeted pay raises and greater reward for performance. In addition to the across-the-board increases, DoD proposes targeted raises for noncommissioned officers and mid-grade commissioned officers. This will better reward performance, compensate people for their skills, education, and experience, and encourage them to continue their military service. The revised pay table will make raises for promotion larger than those for longevity. The maximum targeted pay increases will range up to an additional 5.5 percent. The targeted raises will come on top of the 4.4 percent that everybody will get beginning January 1, 2000. The targeted increases will take effect on July 1, 2000.
- The third part is improvement of the retirement system. The retirement system that applies to service members who began uniformed service on or after August 1, 1986, has become a source of dissatisfaction. These members receive 40 percent of their basic pay if they retire after 20 years, while their immediate predecessors receive 50 percent. The change was made in the Cold War era following large pay raises. It was designed in part to encourage members eligible for retirement to stay longer. Today, in this uncertain time of high demand and smaller forces, this retirement change is perceived as inequitable. Therefore, the Department is committed to returning the 20-year retirement to 50 percent of basic pay.

This package addresses the real concerns that men and women in uniform have raised, responds to market forces, and rewards performance. These significant changes come in the broader context of a continuing effort to achieve adequate military compensation and benefits. That effort includes improved allowances for housing, food, and cost of living, as well as targeted bonuses and special and incentive pay to recruit and retain the skilled men and women who protect the nation.

The Department of Defense implemented a number of new compensation initiatives providing improved benefits to a broad range of service members in 1998. A significant compensation improvement is Basic Allowance for Housing (BAH), a reform of the housing allowance that eliminated the complicated Basic Allowance for Quarters and Variable Housing Allowance formulas and cumbersome survey of service members, and replaced them with a single housing allowance based on commercially provided housing cost data. Housing

allowance reform will stabilize the percentage of housing costs absorbed by the individual service member. It will also help ensure that allowances are sufficient to provide each member with the ability to obtain housing that meets a minimum adequacy standard. This reform will also uncouple housing allowances from pay raises and get the right amount of money to the right people, limiting the housing cost burden on service members. Cost neutral during the first year of implementation, BAH will be phased in over a multiyear period.

Additionally, the Department proposed a number of initiatives that were included in the FY 1999 National Defense Authorization Act, for example:

- Extension of force drawdown transition authorities relating to personnel management and benefits.
- Authorization of monetary allowance in advance or reimbursement for movements of household goods arranged by members.
- Removal of the 10 percent restriction on Selective Reenlistment Bonuses paid during any fiscal year exceeding $20,000.

The leaders of the Department of Defense and the Services are deeply committed to providing for the welfare of the men and women who serve the nation so well, and for their families. The nation requires effort, dedication, and sacrifice from soldiers, sailors, airmen, Marines, and Coast Guardsmen—the pride of the nation. They are working harder than ever to take care of the nation—it must take better care of them. These initiatives all work to improve the quality of life of service members and their families, while preserving high levels of personnel readiness. Competitive compensation systems that aid the effort to recruit and retain quality people underpin the building of the 21st century military.

Managing Time Away From Home

The biggest quality of life challenge today is how to manage troops' time away from home. The Department recognizes that deployments will always be a part of military service. However, excessive personnel tempo places stress on both the individuals and their families. Additionally, high PERSTEMPO may shift extra workload to those who remain at the home station. Therefore, a strong commitment to quality of life programs is essential to help mitigate the effects of high operating tempo and to drive down its effect on the troops and families. Examples of such programs include the development of incentive pays for deployments; space-available travel for spouses in overseas areas; rest and recuperation leave programs that allow families to reunite; extended hours of operation at QoL facilities; enhanced services such as counselors and chaplain support; and access to morale, welfare, and recreation for deployed personnel. All these programs positively impact morale.

Family Housing and Barracks

Approximately 50 percent of the total active force live in military-provided housing. Studies show that quality housing materially improves job performance and satisfaction and improves the retention of quality individuals. In fact, married and single service members continue to rate housing as a top quality of life issue. Since 1996, the Department has placed special emphasis on improving the overall quality of its 297,000 housing units for military families and over 400,000 barracks spaces for single military members. Currently, about 62 percent of DoD-owned family housing units need to be upgraded. To address this condition, the Department's FY 2000 budget request includes $1.14 billion to construct, replace, or renovate approximately 5,400 family housing units and 6,500 barracks spaces. The budget request also includes $2.9 billion to lease, operate, and maintain family housing units. When taken together, the FY 2000 request is consistent with the FY 1999 President's Budget request. DoD intends to eliminate the vast majority of inadequate housing by 2010 and eliminate permanent party central latrine barracks by the year 2008. To achieve these goals, the Services funded their housing programs and developed installation-by-installation plans to monitor implementation.

DoD is tapping private sector expertise and capital to speed the revitalization of military housing through the Military Housing Privatization Initiative. Since the initiative's inception in 1996, DoD has laid a solid foundation for housing privatization and is achieving success. The Navy completed projects at Naval Air Station Corpus Christi, Texas, and Naval Station Everett, Washington, totaling 589 housing units. The Air Force awarded contracts and began construction on a project at Lackland Air Force Base, Texas, for 420 new townhouse units. Using the new tools provided by Congress in FY 1996, DoD expects to be able to leverage military construction dollars by a factor of at least 3 to 1, which means that DoD will get at least three times the amount of housing as it would through military construction.

DoD aims to award contracts for the construction or renovation of 200,000 military family housing units by FY 2010. This effort is discussed in detail in the Infrastructure chapter of this report.

Family Support

Family support is an integral part of the Department's strategy to maintain a ready force. Studies show family satisfaction with military life is a major determiner of retention. Often, family support is the lifeline for families in an unstable environment during deployments, frequent moves, and long work hours. The stresses of the military life require an ongoing commitment to families' quality of life.

The Department's new strategic plan for family support redefines family programs into three key functional areas: Family Well-Being, Economic Well-Being, and Children and Youth. This new model and philosophy for family support will integrate services and resources, enabling commanders to address emerging issues with a more flexible organization focused on achieving a common outcome—the well-being of troops and their families. The mission becomes clearer for service providers as the barriers of program lines and responsibilities merge to reach this common goal.

FY 1998 saw technology play a larger role in all family support areas. The number of publicly accessible, Military Assistance Program (MAP) Web sites grew to five. The MAP/Family Center Intranet, a password-protected Web site for family support staff, received the Vice President's Hammer Award.

Family Well-Being

DoD addresses family well-being through a community network of interrelated programs that includes the Family Advocacy Program, the New Parent Support Program, Mobility/Deployment Assistance, and a variety of family service functions, e.g. Information and Referral, Crisis Assistance, and Life Skills Education.

A particularly important area of family well-being is the reduction of family violence. Both the total number of family violence incident reports and number of substantiated reports have declined 12 percent from FY 1995 through FY 1997. The Department continues its efforts to prevent child and spouse abuse through the Services' public awareness campaigns, support for new parents, and by providing services to support of at-risk families.

A recent evaluation of the New Parent Support Program found significant reductions in a number of parent-child risk factors. Finally, to improve abuse identification and training about abuse in DoD's schools, a CD-ROM-based training program was fielded to all schools. This training will assist DoD Education Activity teachers and administrators in recognizing and reporting suspected child abuse and neglect.

Economic Well-Being

Economic well-being must address the personal financial management skills of a young military population, spouse employment, and military separation and transition issues. Some service members, like many civilians, experience difficulties in managing their personal finances. In response, the Department fielded 11 modules of an interactive, multimedia CD-ROM-based course in personal financial management. The course targets the Services' 611,981 junior enlisted members (E-4 and below). It also offers valuable information for members of all ranks and ages. For example, the relocation module projects the nonreimbursable costs of a military move, as well as entitlements, allowances, and benefits. These costs and benefits affect every military member who makes a change of station move.

Two major economic well-being projects for spouse employment reached key milestones in FY 1998. First, a demonstration project provided classes on computer, clerical, and health-related job opportunities to over 500 military spouses at ten locations worldwide. Second, a Small Business Administration project graduated 74 spouses in Norfolk, Virginia, and San Diego, California, from courses on the skills needed to start or expand a business. Future DoD spouse employment efforts will focus on using technology to enhance business and career opportunities.

Transition assistance remains one of the Department's most valued economic well-being programs. Through FY 1998, separating service members used DoD transition assistance employment services 401,175 times. The military departments sponsored more than 700 job fairs, which were attended by more than 170,000 service members and their spouses. DoD sponsored overseas job fairs in South Korea, Japan, and Europe for transitioning service members, DoD civilians, and family members. Some 4,008 job seekers attended the overseas job fairs, which produced 823 firm job offers and 325 hires.

Children and Youth

This functional area encompasses the Child Development System, youth programs, and Special Needs programs. At the end of FY 1998, 171,255 childcare spaces at over 300 locations met 58 percent of the need for DoD childcare services. 9,700 family childcare homes and more than 800 child development centers and school-age care programs comprise DoD's childcare network. The Department's reputation as a marked world leader in delivering childcare has placed DoD in a leadership role for the nation. President Clinton challenged the Department to share its childcare expertise with the nation. In FY 1998, DoD met that challenge by establishing the National Clearinghouse for the Military Child Development Program (MCDP), strengthening partnerships with federal agencies, and activating a MCDP Web site. The roster of the Clearinghouse speaker's bureau includes 130 childcare professionals trained to speak at national conferences, universities, local interagency councils, and community organizations. To ensure national outreach, the MCDP Web site features 46 downloadable documents, information from Service headquarters and installations, and a directory of child development programs. The site has averaged over 6,000 hits per month since its activation in May 1998. Local leadership efforts led to a partnership between the District of Columbia and 12 local bases to allow District childcare workers access to military childcare training, resources, and mentoring.

President Clinton's March 10, 1998, executive memorandum on federally sponsored childcare directed all federal childcare centers, including those of DoD, to achieve independent accreditation by 2000. To date, 86 percent of all eligible DoD centers have earned national accreditation. This far surpasses the national levels of 5 to 8 percent and easily leads the federal effort. In FY 1998, the Department conducted a thorough study of the cost of its childcare program to identify means of expanding the availability of childcare while maintaining costs. The Services' annual budget submissions will ensure funds are available to achieve DoD's goal to meet 65 percent of childcare need by the year 2003.

Youth Programs

Youth programs follow the life cycle of military children. Worldwide, 547 youth facilities at nearly 300 locations serve approximately 748,000 youth, 6 to 18 years of age. DoD youth programs feature before- and after-school programs, summer camps, youth sports and recreation, and classes. In response to concerns about youth gang activity and other issues related to adolescents, DoD, in coordination with the Department of Justice Office of Juvenile Justice and Delinquency Prevention, conducted a Strategic Planning Conference on Youth. The conference brought together DoD stakeholders and decision makers to create an action plan that expands the focus of youth programs to include a more comprehensive vision of the needs of today's youth. Two major youth initiatives were completed in FY 1998: Model Communities and a very popular Military Teen Web site. An initiative that funded innovative programs aimed at decreasing the risk taking behaviors of military adolescents, Model Communities Project, completed its final year with 17 of the original 20 projects completing the three-year evaluation. Projects focused on prevention strategies such as after school activities, teen jobs, conflict resolution, and parenting programs. At sites where increased activities were provided for at risk teens, the rates of juvenile misconduct decreased and the number of juvenile volunteer hours increased. A new Web site for military teens, Military Teens on the Move, focuses on relocation, schools, careers, and staying in touch. This site quickly became DoD's most popular family support Web site, recording over 90,000 hits in its first two months.

Morale, Welfare, and Recreation

Morale, Welfare, and Recreation (MWR) programs include fitness centers and gymnasiums, recreation centers, libraries, youth centers, sports, outdoor activities, and other programs normally found in civilian communities. These programs are funded, like those in downtown communities, through taxpayer support. MWR also consists of business enterprises, such as golf courses, clubs, and bowling centers that are essentially self-sustaining through fees and charges. Taken as a whole, MWR programs help maintain readiness and productivity by promoting physical and mental fitness, esprit de corps, positive leisure time opportunities, and a strong sense of military community, aiding in recruiting and retention, and providing beneficial quality of life.

To position these programs to continue to provide strong community support, the Department has engaged in the following strategic goals: modernize and upgrade MWR programs, with an immediate focus on physical fitness and library programs; ensure that MWR programs are funded with the right levels and types of funds; improve MWR program management; and continue robust MWR support of deployed forces.

A major goal within the Department is to modernize and upgrade MWR programs and facilities. Fitness centers and libraries not only rank as the top MWR programs, they are also the programs used by most people. A recent survey of DoD fitness facilities found that 24 percent of 576 facilities were in excellent condition; however, 22 percent are in poor condition requiring renovation or replacement. Recently, the Department launched Operation Be Fit, a special initiative to improve fitness programs and increase individual participation in fitness activities. The Department is developing standards to guide programs and facilities and has provided campaign awareness materials to installation programs. Additionally, the Services supported improvement in fitness facilities with facility renovations, equipment upgrades, increases in operating hours, and development of Service-specific operating standards. Finally, DoD plans to include a request for over $49 million for fitness construction in the FY 2000 budget.

As warfare becomes increasingly technical, continuous learning for service members takes on greater importance. Libraries form an essential part of the Department's educational infrastructure. DoD operates 595 general base libraries and provides library services aboard 330 ships and submarines. Libraries provide materials to enhance professional military and voluntary education programs, assist career transition, and facilitate leisure time reading and support family activities. They also function as community resources. To ensure that libraries keep pace with modern needs, the Department is developing standards for operation and a strategic plan to guide library development.

DoD desires to improve MWR program management. MWR programs are arranged in three categories: Category A - mission sustaining activities, Category B - community support activities, and Category C - revenue generating activities. They receive appropriated fund support based upon their relationship to the military mission. In 1995, the Department established funding standards to ensure an adequate appropriated fund base for these programs. The military departments have made steady progress in achieving these standards. MWR accounts increased overall by $80 million in the FY 1999 budget.

To ensure that program management encourages efficient operations of the program for future improvements and changes, the Department is in the midst of evaluating the results of the congressionally directed Uniform Resource Demonstration (URD) Project. This project allows appropriated funds authorized for MWR programs to be spent using the laws and regulations applicable to nonappropriated funds. This test was conducted at six installations. While the evaluation of the URD test is under way, the Department has initiated an interim MWR funding practice similar to URD called the Utilization Support and Accountability practice. Under Utilization Support and Accountability, nonappropriated fund instrumentalities provide MWR service on behalf of the government using nonappropriated fund procedures. Appropriated fund resource managers compensate the instrumentalities for costs incurred.

DoD is committed to continuing robust MWR support for its deployed forces. In Bosnia, for example, the Services deployed weight and fitness equipment, libraries, games, and recreation activities. They also provided top-name entertainment shows, first-run movies, and food and retail services. Both military and DoD civilian MWR specialists deployed to organize and manage these extensive operations. Similar improvements in the quality and availability of MWR fitness, movies, and recreation programs are being achieved aboard all deployed Navy ships.

Commissaries

The Defense Commissary Agency (DeCA) operates a worldwide system of 300 commissaries that provide quality groceries at cost, plus a 5 percent surcharge, to active duty military members, retirees, members of the National Guard and Reserve (limited access), and their families. Congress, through the General Accounting Office (GAO), has directed a study to determine the impact of expanding commissary access for reservists. Important to both recruiting and retention, commissaries provide patrons with an average saving of approximately 25 percent on purchases. DeCA has achieved major savings without impacting the level of the benefit or savings to the troops. It has already significantly reduced operating costs and continues to pursue additional efficiencies. DeCA has received two Hammer Awards from the National Partnership for Reinventing Government. The awards recognized the agency's facilities directorate for engineering initiatives in commissary design and the DeCA Inspector General's office for improving management efficiency and integrity. Additionally, in 1998 DeCA received the Presidential Achievement Award in recognition of its leadership, vision, and innovative business practices.

Military Exchanges

Today's exchanges form an important element of the military non-pay compensation package and a critical component of quality of life. There are three separate exchange systems: the Army and Air Force Exchange System, the Navy Exchange Command, and the Marine Corps Exchange. Exchanges not only benefit authorized patrons by providing the goods and services that military families want, they also have contributed to quality of life programs by distributing more than $2 billion to sustaining crucial MWR programs over the past ten years. To sustain and improve the exchange benefit, the Department, with the concurrence of congressional oversight committees, amended the regulations to permit exchange systems to expand merchandise assortments to better meet demands. A task force examined the merits of creating an integrated exchange system. This initiative identified potential opportunities to standardize systems and programs and to reduce costs and overhead. The study to determine the best means of realizing these benefits, while preserving the value of the exchange benefit for service members, is scheduled to be completed by April 1999.

Religious Ministries

Service chaplains ensure the free exercise of religion for all service members and their families. They provide and facilitate religious ministry, worship opportunities, pastoral care and counseling, religious education, and emergency and sacramental ministrations, in accordance with their respective ecclesiastical endorsements and in direct response to the religious rights and needs of service members.

Integral to the life and work of military communities, the chaplaincy works in close coordination with family support, medical, and quality of life programs. Chaplains are the primary advisors to the military commander in the areas of religious, morale, ethical, and quality of life matters. The chaplain places special emphasis on ministry of presence. The chaplaincy does this as an embedded and integral part of the operational structure and through full and continuing participation in Service global deployment schedules and commitments.

Off Duty/Voluntary Education

Counseling, testing, and degree programs are available at education centers on nearly 300 military installations around the world. In addition to classroom instruction, courses are available using various technology-supported modes of instructional delivery. Service members receive financial assistance to cover up to 75 percent of tuition costs. A DoD-wide tuition assistance policy was implemented for the first time in FY 1999. This uniform policy will ensure that all service members receive the same level of tuition assistance support. Participation in this program remains strong, with nearly 650,000 enrollments in undergraduate and graduate courses and 33,500 degrees awarded during FY 1998. The Services continue to support this important program. An additional $7.4 million is included in the budget for FY 2000.

Department of Defense Education Activity

The DoD Education Activity (DoDEA) operates schools overseas and on military installations in selected areas in the United States, the Commonwealth of Puerto Rico, and the territory of Guam. For school year 1998 to 1999, DoDEA operates 161 schools in 14 foreign countries, serving approximately 80,000 students overseas and approximately 35,000 students in 70 schools and 17 districts in the United States.

The DoDEA Community Strategic Plan provides an evolving framework for putting standards-driven reform in place in DoDEA. Through goals, benchmark strategies, and performance indicators, the plan established rigorous standards for DoDEA that will inspire and prepare all students for success in a dynamic, global environment. DoDEA's plan is in its third year of implementation and incorporates eight National Education Goals, two organizational goals to support teaching and the learning process. Benchmarks were created for each of the ten goals to determine desired levels of outcomes. Improvement efforts realized through the strategic plan are producing positive results.

Education is a national priority, and DoDEA supports the President's national education agenda. Specific actions focus on improvements in teaching, student achievement, facilities, accountability, and technology. Some specific DoDEA actions include:

- Technology. Technology continues to receive a major emphasis in DoDEA to facilitate implementation of the Presidential Technology Initiative worldwide. Funds continue to support increases in hardware and software applications to ensure that students are computer literate and well prepared for the information age and that all schools are connected to the Internet.

- Facility Improvements. DoDEA has developed a long-term plan to address current facility deficiencies in both stateside and overseas schools with military construction projects in FY 2000 and future years. FY 2000 projects include Rota Elementary School, Feltwell Elementary School, Lakenheath Middle School, Tarawa II Elementary School (Camp LeJeune), and Andersen and Laurel Bay II Elementary Schools (Guam), for a total requirement of $84.3 million.

- Gap Study. Through the process of accountability, DoD identified gaps in achievement among racial and ethnic groups. DoDEA has identified 16 schools that are farthest from meeting the benchmarks and has identified four critical areas that require intensive review: equity, family-related issues, student-related issues, and curriculum and instruction.

- Safety Attendants. With world events playing a major role in the safety of Americans stationed outside the United States, DoDEA established a special committee to review the need for safety attendants on school buses in the most hazardous traffic locations. This committee will provide recommendations during FY 1999.

- Military Community and Parental Involvement. DoDEA is committed to including stakeholders in decisions and in promoting partnerships that increase parental involvement and participation in promoting the social, emotional, and academic growth of children. The School Home Partnership is a plan of action involving the military command, organizations, and groups throughout the military community in the education process.

- FY 2000 Budget. The President's Budget for FY 2000 supports continued work toward improving the quality of education in accordance with the National Education Goals and DoDEA strategic plan. The President's Budget includes funding to begin implementation of full-day kindergarten in overseas schools and reduce the pupil-teacher ratio in grades one through three. It also provides for a pilot summer school program. These initiatives respond to program priorities identified by the commanders in chief and support the President's educational priorities.

- Guam. DoD schools in Guam are now in their second school year. These schools improve perceptions of quality of life for military families assigned there on Guam.

HEALTH CARE

Health care continues to be a major quality of life factor for the Department of Defense. The Military Health System is committed to a philosophy of excellence in its role to provide:

- Health care services to deployed forces.

- Top quality, cost-effective health care benefits for members of the armed forces and their families, retirees, and others entitled to DoD health care.

- Medical research, education and training, and prevention and health promotion.

The Military Health System strives to integrate technologies to enable the best possible and most cost-beneficial clinical and management outcomes.

The Department's health care responsibilities are complex and continually evolving. The Military Health System currently serves 8.24 million beneficiaries and delivers direct health care worldwide in 108 hospitals and over 480 clinics. The majority of civilian care is purchased through Managed Care Support contracts implemented under the TRICARE Program. DoD expends substantial resources to fulfill its DoD health care responsibilities. The FY 2000 Defense Health Program budget request is $16.2 billion, which represents 6.1 percent of the entire defense program.

Health Care Initiatives

TRICARE

The TRICARE program combines military and civilian resources into a regional, integrated health care delivery system. Since March 1995, DoD has phased in partnerships with civilian contractors to expand and supplement the capabilities of its military hospitals and clinics. On June 1, 1998, the Department completed full TRICARE implementation in all regions of the country when operations began in the northeastern United States.

DoD extended the TRICARE program to those active duty personnel and their families stationed overseas

with the establishment of three TRICARE regions (TRICARE Europe, TRICARE Pacific, and TRICARE Latin America). These regions provide health care planning for personnel stationed outside the United States.

TRICARE SENIOR DEMONSTRATION

The Balanced Budget Act of 1997 requires DoD and the Department of Health and Human Services (HHS) to implement a three-year Medicare demonstration project at six sites nationwide. Under the demonstration program, retirees eligible for benefits from both Medicare and the Military Health Services are offered enrollment in a DoD-operated managed care plan, called TRICARE Senior.

The Secretaries of DoD and HHS have selected six demonstration sites: Madigan Army Medical Center, Fort Lewis, Washington; Wilford Hall Air Force Medical Center and Brooke Army Medical Center, San Antonio, Texas, Sheppard Air Force Base, Wichita Falls, Texas, and Fort Sill, Lawton, Oklahoma; Naval Medical Center San Diego, San Diego, California; Keesler Air Force Base, Biloxi, Mississippi; Fort Carson and the Air Force Academy, Colorado Springs, Colorado; and Dover Air Force Base, Dover, Delaware. HHS has approved the DoD sites as Medicare + Choice plans. Four of the sites began health care services during 1998, and the Dover and Colorado Springs sites began in January 1999. Upon completion of the three year demonstration program, DoD and GAO will report to Congress with recommendations on whether to expand the TRICARE Senior Prime program nationwide.

HEALTH PROMOTION AND PREVENTIVE HEALTH

Military medicine has begun a new era in health care. The focus on quality clinical intervention has broadened to focus equally on health protection and health promotion. This expanded focus conserves and improves health status of individuals, families, communities, and populations. Preventive health is the proactive stance of engaging beneficiaries in the cooperative achievement of good health, safety, and fitness. Goals include a constantly fit and ready force, a high quality health care delivery system, and healthy communities. Prevention, health protection, and health promotion activities are essential to readiness and to success on the battlefield.

EXECUTIVE COUNCIL

By focusing on joint efforts that benefit both Departments, DoD and the Department of Veterans Affairs (DVA) discovered and created unprecedented ways to capitalize on respective strengths and expertise. About a year ago, the two departments formed the DoD/DVA Executive Council. The council focuses on health care delivery, research, planning, information, policy, and performance.

A strategic tool, the Executive Council helps reinforce the search for sharing opportunities at both the local and the system-wide levels. Presently, the Executive Council oversees eight major initiatives involving discharge physical exams, information management and information technology, pharmacy benefits, pre- and post-deployment military and veterans health, cost reimbursement and rate setting, clinical practice guidelines, special treatment services, and the blood information system.

INFORMATION MANAGEMENT AND TECHNOLOGY

Identified as an outstanding model for effective, efficient, and responsive information technology management in DoD, the Military Health Services Information Management/Information Technology Program is a leader in the implementation of the Information Management Technology Reform Act of 1996.

One important success is the Defense Medical Logistics Standard Support (DMLSS), which received one of Vice President Gore's Hammer awards in 1998. DMLSS adopted just-in-time inventory concepts, electronic commerce, universal product numbers, and best price determination. Through implementation of the Prime Vendor Program, Health Affairs became a leader in DoD and industry in the application of Electronic Commerce/Electronic Data Interchange.

The Computer/Electronic Accommodations Program, also a 1998 winner of Vice President Gore's Hammer Award, provides DoD with assistive technology to ensure the disabled have equal employment and advancement opportunity in DoD. This program was reengineered to cut in half the time to acquire and deliver adaptive equipment to DoD users.

In partnership with the Department of Veterans Affairs, military medicine is pursuing a Government-Computerized Patient Record (G-CPR) that will enhance medical quality and improve cost effectiveness and efficiencies of DoD and DVA health care. The G-CPR, which contains beneficiaries' health-related information, provides

the foundation for supporting service members' health care life cycle from enlistment to discharge or retirement. The G-CPR will have the capability to provide a seamless exchange of complete patient information between DoD and DVA.

In early 1999, a firm plan will exist to implement those initiatives that are most beneficial, make the best use of scarce resources, and strengthen the Military Health System. DoD envisions a state-of-the-art system able to protect the fighting forces in any environment, to provide care when necessary, and to ensure service members and their families receive the best care available.

CONCLUSION

Service members of all grades will continue to receive high quality realistic training, exceptional educational opportunities, genuine equal opportunity, challenging worldwide assignments, and excellent advancement and leadership opportunities. The Department will continue to recruit the high quality personnel necessary to keep U.S. forces ready and to maintain the proper mix of junior, mid-career, and senior service members. Recognizing the unique nature of military communities and the special demands of military lifestyle, the Department will reinforce its long-term commitment to providing a standard of living that matches the demands placed on the force—a commitment characterized by adequate compensation, decent housing, challenging and rewarding career opportunities, and a robust and effective program of community and family support.

Just as they do today, U.S. forces of the 21st century will depend on a high quality, well trained, highly motivated, and appropriately rewarded work force comprised of service members and civilian employees. DoD's personnel and quality of life policies, programs, and plans support such a force and, in turn, make its personnel the strong link in the chain of national security.

Part III
Transforming U.S. Armed Forces for the 21st Century

Chapter 10

THE REVOLUTION IN MILITARY AFFAIRS AND JOINT VISION 2010

The defense strategy's fundamental challenge is to ensure that the Department of Defense can effectively shape the international security environment and respond to the full range of military challenges both today and into the indefinite future. Timely efforts to prepare now for an uncertain future are essential to meeting that challenge. Accordingly, DoD has established a transformation strategy to meet the challenges of the 21st century. This strategy has three main components: exploiting the Revolution in Military Affairs (RMA), pursuing a selective modernization effort, and exploiting the Revolution in Business Affairs (RBA).

THE TRANSFORMATION STRATEGY

In pursuit of the RMA, the Department's goal is to develop options for bringing about fundamental change in the capabilities of the armed forces, including new doctrines, operational concepts, and organizational structures. This transformation approach includes dynamic concept development and experimentation conducted by the Services and the United States Atlantic Command (USACOM). Similarly, DoD's Science and Technology Program explores advances in key technologies that may be combined with new operational concepts to significantly increase warfighting and support capabilities. The Department is also developing programs to enhance compatibility among more modern and effective U.S. joint forces and those of U.S. allies and likely coalition partners.

Concurrently, the Department is selectively modernizing its capabilities to replace aging weapons systems and support equipment. Many weapons systems and platforms purchased in the 1970s and 1980s will reach the end of their useful lives over the next decade or so. Sustained, adequate spending on the modernization of U.S. forces is essential to ensuring that tomorrow's forces continue to dominate across the full spectrum of military operations.

Finally, to provide additional resources to fund this transformation and modernization and to create greater efficiencies in the business of defense, the Department has embarked upon a comprehensive approach to adopting modern business practices, pursuing commercial alternatives, consolidating redundant functions, and streamlining organizations while reducing excess infrastructure—the so-called revolution in business affairs. Using the 1997 *Defense Reform Initiative Report* as a strategic blueprint, this effort will reduce the Department's overhead and apply the resulting savings to enhance modernization efforts.

Through these coordinated processes—exploiting the RMA, pursuing selective modernization, and exploiting the RBA—the Department's Transformation Strategy aims to produce revolutionary increases in joint force effectiveness to ensure U.S. military preeminence well into the 21st century.

THE REVOLUTION IN MILITARY AFFAIRS

A Revolution in Military Affairs (RMA) occurs when a nation's military seizes an opportunity to transform its strategy, military doctrine, training, education, organization, equipment, operations, and tactics to achieve decisive military results in fundamentally new ways. History offers several such examples: the revolutionary French Republic's levee en masse; the development of the blitzkrieg by the German Air Force and Army; and extensive, sustained, open ocean maritime operations developed by the U.S. Navy. In all of these examples, the underlying technologies which made these revolutions possible were readily available to many countries. But in each case, only one country transformed the essential elements of its armed forces in such a manner as to achieve a dominant and decisive advantage in warfare.

The dawning of the Information Age has given rise to a new RMA sparked by leap-ahead advances in information technologies and information processing capabilities. The United States has led and maintains a significant advantage in the development of information-based technologies. This advantage is well grounded in U.S. military capabilities. The roots of the U.S. military's information-based RMA have been decades in the making, including the development and application of precision-guided munitions, the Global Positioning System, and air- and space-based sensors. Yet, this rapid evolution in capabilities has not yet fundamentally transformed the essential elements of U.S. forces necessary for the full realization of an RMA.

As information-based technologies and capabilities continue to mature, they have become much less expensive, and by their very nature, can be rapidly incorporated by other military forces to enhance their capabilities. Just as in the past, the underlying information-based technologies upon which the next RMA will be based are becoming readily available to the military forces of many nations. This underscores the imperative for the Department of Defense to develop a robust transformation strategy and mechanism to bring about the changes needed in the military's essential elements—strategy, doctrine, training, organization, equipment, operations, tactics, and leadership—to meet the challenges of the 21st century and achieve the next RMA.

There is, however, no definitive answer as to how the U.S. military should take advantage of the information revolution and its attendant potential to realize a genuine RMA. Rather, it requires extensive experimentation both to understand the potential contributions of emerging technologies and to develop innovative operational concepts to harness these new technologies. History has shown that most large, well-established institutions do not respond well to revolutionary concepts and ideas. Hence, it is clear that experimentation is central to the Department's exploration and exploitation of the RMA. This recognition of experimentation's key role in the discovery and implementation of revolutionary concepts and capabilities led to the appointment of USACOM as the executive agent, supported, and supporting commander for joint concept development and experimentation. USACOM will provide the centralized coordination and unifying commander's intent to focus, synchronize, and integrate the decentralized execution of joint experimentation throughout the Department of Defense.

While exploiting the Revolution in Military Affairs is only one aspect of the Department's transformation strategy, it is a crucial one. The refinement and expansion of the current RMA provide the Department with a unique opportunity to transform the way in which it conducts the full range of military operations. Chapters 11 and 12 of this report describe DoD's efforts to vigorously pursue innovation and the RMA. This section of the annual report fulfills the Secretary of Defense's requirement to provide the Senate Committee on Armed Services and the House of Representatives Committee on National Security a report on emerging operational concepts.

INFORMATION SUPERIORITY AND TECHNOLOGICAL INNOVATION

Information Superiority

Information superiority consists of the integration of offensive and defensive information operations; intelligence, surveillance, and reconnaissance, and other information-related activities that provide timely, accurate and relevant information; and command, control,

communications, and computers activities that leverage friendly information systems. Improved intelligence collection and assessment, as well as modern information processing and command and control capabilities, are at the heart of the current RMA. With the support of an advanced common command, control, communications, computers, intelligence, surveillance, and reconnaissance (C^4ISR) backbone, the United States will be able to respond rapidly to any conflict; joint forces will achieve a state of information superiority, in near real-time, that will be pervasive across the full spectrum of military operations, enabling the joint force commander to dominate any situation. Day-to-day operations will be optimized with accurate, timely, and secure battlespace awareness. Vital to battlespace awareness is the synergistic effect of direct national-level intelligence support combined with the organic assets of the joint force commander. The primary means of this support is via National Intelligence Support Teams, which provide analytic and operational support and communications connectivity. Just as much of the private sector worldwide has become increasingly interconnected through the growth of internetted communications, DoD is developing a complementary, secure, open C^4ISR network architecture that will facilitate the development of revolutionary capabilities.

The six principal components of the evolving C^4ISR architecture for 2010 and beyond are:

- A robust multisensor information grid providing dominant awareness of the battlespace.
- A joint communications grid with adequate capacity, resilience, and network management capabilities to rapidly pass relevant information to commanders and forces and to provide for their communications requirements.
- Advanced command and control processes that allow employment and sustainment of globally deployed forces faster and more flexibly than those of potential adversaries.
- A sensor-to-shooter grid to enable distributed joint forces to engage in coordinated targeting, cooperative engagement, integrated air defense, and rapid battle damage assessment and dynamic follow-up strikes.
- An information defense capability to protect the globally distributed sensors, communications, and processing networks from interference or exploitation by an adversary.
- An information operations capability to penetrate, manipulate, or deny an adversary's battlespace awareness or unimpeded use of his own forces.

Technological Innovation

Other advanced technologies in addition to those directly related to information superiority can also serve as important enablers to improved capabilities. The marriage of advanced technology and new operational concepts can occur in two distinct yet equally valuable ways. First, a new concept to accomplish a critical operational task may emerge that requires the development and exploitation of a new technology, creating a requirements pull. Some examples of requirements pull, where new technologies were pursued specifically to improve military capabilities, include increased performance for aircraft, night operations, ballistic missile defense, and carrier aviation. Second, a promising new technology may spur the development of new or upgraded weapon system and operational concept to employ it effectively for one or more tasks, creating a technology push. Examples of technology push include stealth and the applications of global positioning to navigation for precision munitions. Mature combinations of innovative operational concepts and weapon systems employing advanced technologies result in new military doctrine and organizational reconfigurations that have the potential to transform the military at its core, fundamentally altering the way U.S. forces conduct the full range of military operations.

JOINT VISION 2010

Joint Vision 2010 provides a conceptually-based framework for the development of an RMA across all elements of the armed forces. It focuses and channels the entire Department's innovation, energy, and resources towards a single long-term goal. The vision fully embraces the potential impact of information superiority and technological advances on military operations, resulting in a complete transformation of traditional warfighting concepts (e.g. maneuver, firepower, protection, sustainment) via changes in weapons systems, doctrine, culture, and organization. This transformation is so profound it will result in four new operational concepts that together aim at achieving full-spectrum

dominance: dominant maneuver; precision engagement; full-dimensional protection; and focused logistics. The realization of *Joint Vision 2010* will lead to a revolutionary increase in joint force effectiveness.

Dominant Maneuver

Dominant maneuver involves the multidimensional application of information, engagement, and mobility to employ widely dispersed joint forces to apply decisive force upon an enemy's centers of gravity to compel an adversary to either react from a position of disadvantage or resign from the conflict. Dominant maneuver involves the decisive application of force at critical points by leveraging U.S. asymmetric advantages to achieve operational objectives in minimum time and with minimum losses. The dominant maneuver concept requires several enhanced capabilities. First, U.S. forces need to be tailored for the specific operation, lighter and more rapidly deployable, and possess the requisite speed and force to mass effects and obtain positional advantages in time and space. Flexible, responsive logistics are critical to this concept. This tailor-to-task organizational ability, combined with focused logistics and advanced command and control, will reduce and disperse operational footprints and make it much more difficult for an adversary to fix and attack U.S. forces.

Precision Engagement

Precision engagement provides the means by which joint forces achieve desired effects across the spectrum of military operations. It promises the ability to find, fix, track, and precisely target any military objective worldwide. Precision engagement leverages information superiority and global situational awareness through near real-time information on the objectives or targets, and a joint awareness of the battlespace for dynamic command and control. The result is a greater assurance of generating the desired effect against the objective or target due to more precise delivery and increased survivability for all forces, weapons, and platforms, and the flexibility to rapidly assess the results of the engagement, then to reengage with precision when required.

The precision engagement concept transcends the notion of firepower. It encompasses achieving precise effects in cyberspace, as well as accurate and timely deliveries of humanitarian relief supplies or medical treatment to populations, and directed psychological operations for greatest influence. Precise, nonlethal weapons are currently under development for use in operations in which an important goal is to minimize fatalities and collateral damage. Precision engagement enables joint force commanders to develop revolutionary strategies, operational ideas, and schemes of maneuver. Working together, the Services and DoD combat support agencies are striving to increase battlespace situational awareness and the effectiveness of precision munitions and to ensure that equipment provided to U.S. forces is fully integrated into the advanced systems that support precision engagement.

Full-Dimensional Protection

Protection for U.S. forces and facilities must be provided across the spectrum, from peacetime through crisis and at all levels of conflict. Achieving this goal requires a joint command and control architecture that is built upon information superiority and employs a full array of active and passive measures at multiple echelons. Full-dimensional protection will enable U.S. forces to safely maintain freedom of action—freedom from attack and freedom to attack. Development and deployment of a multi-tiered theater missile defense architecture, combined with offensive capabilities to neutralize enemy systems before and immediately after launch, are prime examples of full-dimensional protection efforts. U.S. forces also need improved protection against chemical and biological weapons. New chemical and biological weapons detectors, improved individual protective gear, and a greater emphasis on collective protection are all critical to the Department's efforts to protect U.S. forces from these threats. Finally, full-dimensional protection includes defense against asymmetric attacks on information systems, infrastructure, and other critical areas vulnerable to nontraditional means of attack or disruption.

Focused Logistics

Focused logistics integrates information superiority and technological innovations to develop state-of-the-art logistics practices and doctrine. This will permit U.S. forces to accurately track and shift assets, even while enroute, thus facilitating the delivery of tailored logistics packages and more timely force sustainment. Focused logistics will streamline the logistics footprint necessary to support and sustain more agile combat forces that can be rapidly projected around the globe. Initiatives such as Automatic Identification Technology, Joint Total Asset Visibility, Global Transportation

Network, and the Global Combat Support System will provide deployable, automated supply and maintenance information systems for precise and more responsive logistics. These and other DoD-wide programs, as well as a host of Service initiatives, will be capable of supporting rapid unit deployment and employment. They will better support joint force commanders by eliminating redundant requisitions and reducing delays in the shipment of essential supplies.

SERVICE VISIONS OF FUTURE WARFARE

Framed by *Joint Vision 2010* as a backdrop, individual Service visions seek to build on the joint vision and delineate the future of land, sea, aerospace, and amphibious warfare.

Army

Through Army Vision 2010, the Force XXI process, and the Army After Next process, the Army is identifying new concepts of land warfare that have radical implications for its organization, structure, operations, and support. Lighter, more durable equipment will enhance deployability and sustainability. Advanced information technologies will help the Army conduct rapid, decisive operations. The force will be protected by advanced but easy-to-use sensors, processors, and warfighting systems to ensure freedom of strategic and operational maneuver. The Army's Revolution in Military Logistics will change how Army forces are projected and sustained. The Revolution in Military Logistics will transition Army logistics to a global, distribution-based logistics system to take maximum advantage of technological breakthroughs, organizational change, new distribution and transportation concepts, and information systems. The Army will require flexible, highly tailorable organizations—from small units to echelons above corps—to meet the diverse needs of future operations and to reduce the lift requirements for deployment.

Navy

The Department of the Navy's future vision of warfare is delineated in *Forward... From the Sea*. From this is derived the new Navy Operational Concept, which identifies five fundamental and enduring roles: sea control and maritime supremacy, sea-based power projection to the land, strategic deterrence, strategic sealift, and forward naval presence. In the future, the Navy will fulfill these roles with vastly enhanced capabilities. The Navy has embraced an RMA concept called network-centric warfare. It involves the use of widely dispersed but robustly networked sensors, command centers, and forces to produce significantly enhanced massed effects. Combining forward presence with network-centric combat power, the Navy will reduce timelines, decisively alter initial conditions, and seek to head off undesired events before they start. In short, the Navy will have the ability to influence events ashore from the sea quickly, directly, and decisively. The naval contribution to dominant maneuver will use the sea to gain advantage over the enemy, while naval precision engagements will use sensors, information systems, precisely targeted weapons, and agile, lethal forces to attack key targets. Naval full-dimensional protection will address the full spectrum of threats, providing information superiority; air and maritime superiority; antisubmarine, antisurface, and mine warfare; theater air and missile defense; and delivery of naval fires. Finally, naval forces will be increasingly called upon to provide sea-based focused logistics for joint operations in the littorals.

Air Force

Global Engagement: A Vision for the 21st Century Air Force, the Air Force's vision of air and space warfare through 2020, calls for maintaining and improving six core competencies built on a foundation of quality personnel and integrated by global battlespace awareness and advanced command and control. Air and space superiority will allow all U.S. forces freedom from attack and freedom to attack, while the Air Force's ability to attack rapidly anywhere on the globe will continue to be critical. Rapid global mobility will help ensure the United States can respond quickly and decisively to unexpected challenges to its interests. Precision engagement will enable the Air Force to reliably apply selective force against specific targets simultaneously to achieve desired effects with minimal risk and collateral damage. Information superiority will allow the Air Force to gain, exploit, defend, and attack information while denying the adversary the ability to do the same. Agile combat support will allow combat commanders to improve the responsiveness, deployability, and sustainability of their forces. Finally, Global Attack embodies its unique ability to attack rapidly and persistently with a wide range of capabilities anywhere on the globe at any time.

Marine Corps

Like the Navy, the Marine Corps derives its vision for future sea-bases power projection operations from the Department of the Navy's *Forward . . . From the Sea.* These are captured in Operational Maneuver From the Sea (OMFTS) and Ship-to-Objective Maneuver (STOM). The underpinning for both of these concepts is maneuver warfare, which demands tactically adaptive, technologically agile, and opportunistic forces. As such, OMFTS and STOM-configured forces must be able to rapidly reorganize and reorient in response to changing tactical opportunities—while dispersed both at sea and ashore over much greater distances—along the full spectrum of future operational environments. An important assumption for the OMFTS Marine Corps is that it will increasingly need to operate in urban or suburban environments. To make this vision a reality, the Marine Corps will need to rapidly assimilate improvements in warfighting capabilities gained through the RMA. Leveraging the increasing lethality of long-range precision weapons, the greater range and speed of maneuver made possible by new mobility technologies, and opportunities afforded by information dominance forms the foundation for these concepts at both the individual and unit levels.

CONCLUSION

Pursuit of a genuine Revolution in Military Affairs lies at the heart of the defense strategy's requirement to prepare now for an uncertain future. Rooted in an advanced common command, control, communications, computers, and intelligence backbone and guided by the joint and Service visions, a wide range of activities are under way throughout the Department to transform U.S. forces and the way they carry out the full range of military missions. Several of these RMA experimentation-related activities, including studies, wargames, advanced concept technology demonstrations, and advanced warfighting experiments, are aimed at developing new operational concepts and, ultimately, the new strategy, doctrine, organizational configurations, training, equipment, operations, and tactics that are described in detail in the next two chapters.

Chapter 11

NEW OPERATIONAL CONCEPTS

Joint Vision 2010 is the conceptual template for how America's armed forces will leverage technological opportunities to achieve new levels of effectiveness in joint warfighting. The follow-on document to *Joint Vision 2010*, Concept for Future Operations (CFJO), expands the Vision's new operational concepts to provide a more detailed foundation. The CFJO represents an important step toward the objective of achieving the right capabilities to meet the challenges the U.S. military will face in the 21st century. The U.S. military must revise organizational approaches and develop and assess innovative concepts for conducting operations that exploit information superiority and new technologies. Such innovation is central to the Department's pursuit of *Joint Vision 2010* and the broader Revolution in Military Affairs (RMA).

The Department's efforts to develop operational concepts fall into two broad categories. The first involves Service efforts to harness emerging operational concepts to exploit information superiority, conduct distributed and coordinated battlefield operations, and redefine how U.S. forces will conduct successful operations across the conflict spectrum. The Service visions, described in the previous chapter, continue to be the wellspring for innovative Service operational concepts.

The second category involves Department-wide efforts to develop new joint concepts for conducting key operational tasks like precision strike and suppression of enemy air defenses. Successfully executing such tasks requires a joint approach that links surveillance and reconnaissance, intelligence assessment, command and control, mission preparation, and mission execution at all levels. This chapter summarizes the threat and mission each Service confronts, provides examples of innovative Service operational concepts, planning, and programming, and describes new joint battlefield operational concepts that the Department is examining.

NAVY CONCEPT - NETWORK-CENTRIC WARFARE

Threat and Mission

The Navy has identified five fundamental and enduring naval roles: sea control and maritime supremacy, sea-based power projection to the land, strategic deterrence, strategic sealift, and forward naval presence. Fulfilling these roles in the future in the face of adversaries employing such asymmetric means as mines, diesel

submarines, chemical/biological weapons, information warfare, and ballistic and cruise missiles will require the Navy to conduct both offensive and defensive operations rapidly and effectively.

Operational Concept

Naval forces in the future will continue to conduct many of the same missions as today, but in a more stressful environment. Consistent with *Joint Vision 2010*, the Navy's vision of *Forward . . . From the Sea* foresees a powerful, fast striking, geographically dispersed force that exploits information superiority to rapidly overwhelm its adversaries. The Navy describes this approach as network-centric warfare. The core concept for network-centric warfare is a fundamental shift from platforms to networks as the new locus of power. In the past, the yardsticks for the comparison of Naval forces were the numbers and capabilities of various platforms—ships, submarines, and aircraft. The focus of platform-centric warfare was force mass: the massing of platforms generated combat power, and victory would be determined by relative attrition. The focus of network-centric warfare is information content and velocity: combat power is generated by increasing the timeliness of critical information available to combatants, thereby limiting the enemy's opportunity to gain the initiative, and allowing U.S. forces to make rapid, appropriate decisions with high confidence. The combat effectiveness of a given surface, subsurface, or air platform will no longer be largely determined by the range and capability of its organic sensors. Instead, information made available from national and theater sensor systems will provide targets to the platforms and weapons best equipped to do the job. Decisive results will be achieved through the use of high-capacity networks of sensors, shooters, and commanders to achieve an integrated effort.

Using a network-centric approach, maritime forces will provide greatly enhanced precision land attack and air and missile defense capabilities to theater commanders in chief (CINCs) and joint task force commanders. The result will be a sea-based capability to conduct precision engagements from the shoreline to 1,600 miles inland and to provide an effective area defense for maritime and land-based forces in theater.

To avoid overwhelming commanders with vast quantities of information available in the common operational data base, the Navy envisions a graphics-rich environment, assisting combat leaders in visualizing their battlespace. The information that commanders need must be displayed in easily recognizable formats, and recognition skills must be honed by training with various display formats on organic support systems. The Command 21 command and control concept that supports network-centric warfare employs a new decision-centered design process based on changing information access, processing or presentation, revising command center staffing or procedures, and introducing new forms of decision maker training.

Planning and Programming

The ongoing series of Fleet Battle Experiments (FBEs) is designed to test the emerging Navy tactical and doctrinal concepts carried out within the network-centric warfare approach. Ring of Fire is one such concept that has been examined in several experiments. The Ring of Fire concept integrates intelligence information to provide a common picture of the battlefield and monitor the status and capabilities of potential shooters, enabling the task force commander to rapidly assign the most capable weapons system from a pool of forces to engage appropriate enemy targets in a series of precision attack missions.

During FBE-Alpha, four different computers and three separate organizations working on-board ships were linked together to form the experimental network. FBE-Bravo consolidated the functionality achieved in FBE-Alpha into a single Windows NT based personal computer and worked to insure interoperability with Army artillery systems. FBE-Charlie further examined the underlying operational concepts and confirmed the need to focus efforts on developing a near real time, four-dimensional (latitude, longitude, altitude, and time) deconfliction tool.

FBE-Delta took the Ring of Fire concept into the joint and combined realm. The Seventh Fleet outfitted forward-deployed ships carrying vertical launchers with the new Land Attack Warfare System (LAWS). The ships were linked with U.S. ground and air forces on the Korean Peninsula through LAWS and shipboard communications systems. FBE-Delta explored two new areas: counter special operations forces and counter-fire operations. Counter special operations forces experimentation linked naval forces and Army helicopters to effectively attack an enemy attempting a waterborne assault. In counter-fire, LAWS cued the Army artillery and Special Forces to engage targets after the ship's Aegis radar identified the area from which the enemy was firing.

FBE-Echo, planned for spring 1999, will continue work on developing a near real-time four dimensional deconfliction tool, attempt to employ remote sensors to support the Marine Corps, and experiment with new approaches to supporting operations being conducted in an urban environment. Naval forces will also carry out fire support strike missions and provide theater ballistic missile defense protection. Solving the deconfliction challenge will be a major step forward for joint forces since it will allow removal of the fire support coordination measures and air space restrictions currently used in order to prevent fratricide, thus greatly enhancing joint flexibility. FBE-Echo will attempt to rapidly pass necessary information to geographically dispersed units in order to integrate and deconflict all fires (air, surface, subsurface, and ground). Experimentation with remote sensor targeting will take data developed by aircraft, unmanned aerial vehicles (UAVs), and national sensors as an input into the Joint Strike Center on-board the USS Coronado to obtain target coordinates. Electronic strike folders will then be constructed using this targeting data and distributed to forces supporting the strike efforts.

The Navy will evaluate the results from the Fleet Battle Experiment series for implications for its network-centric warfare approach.

MARINE CORPS CONCEPT - SHIP-TO-OBJECTIVE MANEUVER

Threat and Mission

The world's littoral regions are experiencing considerable turmoil. In many areas, this turmoil has produced civil strife, mass migration of refugees, famine, and even genocide. These unsettling trends and the threat of regional aggression are likely to continue well into the 21st century. As the U.S. military responds to these threats, future adversaries may well attempt to counter the littoral power projection capability of U.S. forces through the employment of access denial weapons such as mines, coastal defense missile systems, and man-portable air defense systems. This threat picture calls for forward presence and crisis response forces with credible and sustainable forcible entry capability—expeditionary forces that can dominate any adversary in the littorals.

Operational Concept

Ship-to-Objective Maneuver (STOM) is one of the supporting concepts designed to facilitate implementation of the Marine Corps capstone operational concept, Operational Maneuver from the Sea. STOM calls for a departure from traditional amphibious operations in which the landing force experiences an operational pause while it establishes and consolidates a beachhead ashore. It describes a capability for amphibious operations conducted by sea-based forces striking from over the horizon directly against deep objectives located well inland.

Under Ship-to-Objective Maneuver, expeditionary landing force units will navigate independently across the ocean's surface to penetrate the enemy's shoreline at points of their choosing. Freed from the constraints of establishing a large beachhead, the landing force commander will be able to focus on rapidly and decisively engaging the enemy. Linked to the naval network-centric capabilities and enablers described in the previous section, tactical commanders will be able to exploit enemy weaknesses and maintain the momentum of the attack from the ship to the objective.

Ship-to-Objective Maneuver provides the opportunity to achieve both tactical and operational surprise. National and theater level intelligence, surveillance, and reconnaissance assets will allow identification of enemy forces in the battlespace. Operations will begin from over the horizon at sea and project power deep inland, progressing with speed and flexibility of maneuver to deny the enemy warning and reaction time. By forcing the enemy to defend a vast area against seaborne mobility and deep power projection, naval forces will render most of the opposing force irrelevant. If an enemy chooses to withhold a strong mobile reserve, it will be attacked with long-range fires. Thinly spread defenses will be conducted to allow friendly forces greater freedom of maneuver at sea and ashore. Pre-assault operations will confuse and deceive the enemy, locate and attack its forces, and further limit his ability to react. Naval forces will use superior battlespace awareness, inherent mobility, and the ability to control the electromagnetic spectrum to successfully counter enemy reactions.

Emerging technologies, such as the Advanced Amphibious Assault Vehicle, MV-22 aircraft, global positioning system, and developing command and control systems are critical enablers of STOM. STOM will rely upon modern surveillance and reconnaissance to discern gaps

and weaknesses in enemy defenses both at sea and ashore. Mines and obstacles will be located and their positions will be provided to maneuver forces. Intelligence sources will identify enemy coastal batteries, strong points, heavy reserve concentrations, and other elements of the enemy defense system. Through intelligence assessment, tactical commanders will determine the locations of exploitable gaps in enemy defenses.

STOM will use decentralized command and coordination to supplant traditional command and control in future amphibious operations. Responsibility for direction of maneuver units transiting from the line of departure at sea will rest with the commanders of landing force tactical units, rather than with a centralized command and control organization. Advanced navigation capabilities, linked with future shared awareness systems, will provide unit commanders at every level with the information they require to perform this function.

Mission preparation in STOM will likewise represent a departure from traditional amphibious operations. Rather than rely on detailed preparations based on the determination of an amphibious objective area long before the operation, naval forces will instead adjust their plans up to the last possible moment to take advantage of the most up-to-date intelligence. This will obviate the requirement for traditional advance force operations, which involve lengthy physical preparation of the battlespace. At the same time, it will create a requirement for immediately available response capabilities from the start to finish of combat operations. For example, landing forces will require an in-stride mine/obstacle breaching capability.

STOM mission execution employs maneuver-style operations characterized by high tempo offensive combat, focusing on enemy centers of gravity and critical vulnerabilities. These operations will rapidly break down the adversary's capability to effectively defend or react.

Planning and Programming

The capabilities envisioned in STOM will be developed through an evolutionary process of innovation. The Marine Corps Combat Development System includes a set of integrated processes to identify requirements, develop solutions, and establishes life-cycle maintenance of capabilities. STOM has been the subject of a wargame conducted by the Marine Corps Combat Development Command and an exercise conducted by III Marine Expeditionary Force. The Extending the Littoral Battlespace Advanced Concept Technology Demonstration is exploring command, control, and communications systems requirements for employment in STOM operations. An Operational Maneuver from the Sea Working Group is developing the framework for potential force structure changes. These initiatives are charting a course for implementing the Ship-to-Objective Maneuver concept, thereby providing a baseline for the creation of a new amphibious assault capability for the 21st century.

ARMY CONCEPT - STRATEGIC PRECLUSION THROUGH ADVANCED FULL DIMENSIONAL OPERATIONS

Threat and Mission

Future adversaries will have access to a range of technologies that will provide improved reconnaissance and surveillance systems, advanced man-portable weapons systems, weapons of mass destruction, and other asymmetric capabilities. Such adversaries may attempt to seize the initiative early in a conflict or crisis, in order to thwart a U.S. response by threatening a disproportionately high cost for U.S. intervention. These significant and vexing challenges will demand innovative and decisive joint capabilities. To preclude an enemy from dominating a crisis in its early stages, the nation requires a rapid, decisive contingency response capability. The Army refers to this capability as Strategic Preclusion. By providing future joint forces with the capacity to respond rapidly and to decisively terminate crises early—before they can escalate to major theater war—or to place the adversary at an early, continuing and decisive disadvantage, Strategic Preclusion capabilities transform U.S. power projection capability in a manner that enhances regional stability and deters crises.

Operational Concept

The Army vision of the capabilities needed to achieve Strategic Preclusion involves an operational concept called Advanced Full Dimensional Operations (AFDO). This operational concept exploits information superiority to establish superior capability in the critical place and time to achieve mastery at the decisive point of conflict. A joint expeditionary force executing AFDO will exploit the synergistic effects of joint capabilities tailored from modular, adaptive early entry ground forces operating in conjunction with air, sea, space, and special

operations forces. It will be capable of immediately exploiting the complementary effects of synchronized interdiction and exploitative maneuver, in conjunction with air-sea dominance, to dominate the enemy from the outset. At a minimum, these capabilities will enable such a joint force to secure the initiative for follow-on operations. Ideally, these capabilities will place an opponent at such a disadvantage that continued belligerence becomes futile.

Advanced Full Dimensional Operations require critical landpower contributions: the sustained exploitation of battlefield effects, the ability to overwhelmingly suppress and destroy an enemy, and the ability—through close, personal, and often brutal combat—to force the enemy to capitulate. These landpower functions are essential today and will remain so in the future. The capability for sustained lethality, as well as the capability to control terrain and population, is the cornerstone of deterrence and the guarantors of victory.

The Army plans to acquire a near-term AFDO capacity through development of a more responsive Army XXI and is working towards full implementation of AFDO capabilities with the realization of Army After Next capabilities. Within near-term technological and fiscal constraints, the Army is developing the Strike Force, a new, highly deployable, lethal, agile, and survivable middleweight force that will materially enhance Army early entry and operational maneuver capabilities. Reflective of Army After Next operational concepts emerging from studies and wargames, the Strike Force concept will provide critical enabling capabilities for dominant maneuver, precision engagement, information dominance, and full spectrum utility. Strike Forces will be optimized for high tempo, lethal combined arms, and interdependent joint operations. Coupled with other early entry forces and air and naval interdiction, Strike Forces will be called upon to execute decisive actions during the initial phases of an operation to wrest the initiative from an opponent and will conduct sustained maneuver operations to exploit the effects of interdiction.

Planning and Programming

As a major Army transformation initiative, Strike Force developmental efforts are focused on establishing a Strike Force headquarters in late FY 2000. The Strike Force headquarters will be a standing, rapidly deployable command post, with links to joint, theater, and national command, control, communications, computers, intelligence, surveillance, and reconnaissance (C^4ISR) systems, as well as organic information operations capabilities. The headquarters will be flexible and able to rapidly assimilate Army and other joint forces into a tailored, brigade-sized force package for specific entry operations. Experimentation is underway on selected Strike Force operational elements, leveraging current battle lab and other analytical work. In FY 2000, the Army will explore the Strike Force concept with emphasis on the operation of its headquarters element in conjunction with the Joint Contingency Force Advanced Warfighting Experiment (JCF AWE). Plans for the JCF AWE envision participation by all Services and United States Atlantic Command (USACOM) against an opposition force with world-class capabilities. Additional constructive and virtual experimentation will be carried out to explore the human, training, and leader development dimensions needed to optimize Strike Force capabilities. These efforts are consistent with Army modernization goals, including digitizing the force and focusing development on leap-ahead Army After Next technologies.

In FY 1999, the Army will continue its investigation of future warfare through Army After Next wargames and analyses while developing and fielding essential Army forces and capabilities in the early years of the 21st century. Major events include the Force Projection Game (February 1999), the annual Spring Wargame (April 1999), and the Army Imperatives Seminars (summer 1999). Complementary efforts within Army battle labs (with 30 percent of resources dedicated to Army After Next) and the science and technology community will directly support the Army RMA effort.

AIR FORCE CONCEPT - EXPEDITIONARY AEROSPACE FORCE

Threat and Mission

Confronted with increasing demands for global presence to help shape the international security environment, U.S. defense planners and commanders must find innovative new ways to manage operating tempo demands on U.S. military personnel and limited forces. To meet the challenges of a demanding world, the U.S. military must be flexible enough to regularly deploy and sustain military power in critical regions, while at the same time providing more stability and predictability regarding overseas deployments for servicemen and women. The Air Force approach to continue to meet

these challenges is the innovative concept of expeditionary aerospace power.

Operational Concept

The Expeditionary Aerospace Force represents a new way for the Air Force to organize and train its forces to meet 21st century challenges. To implement this approach, the Air Force is creating Aerospace Expeditionary Forces (AEFs) comprised of force modules tailored to meet the specific operational requirements of joint force commanders across a wide range of situations. Key to the AEF concept is the ability to routinely deploy and, if needed, employ aerospace power precisely and decisively—producing desired effects across the theater. Tailored AEF elements focus on providing a CINC with composite packages that can carry out a variety of operations while sustaining peacetime presence by rapidly provide additional capabilities when crises arise.

Meeting tomorrow's challenges presents a two-fold problem: first, how to best organize, train, and equip U.S. forces to conduct expeditionary operations to meet the operational needs of theater CINCs; and second, how to sustain a volunteer force with total force management policies and practices that provide for acceptable home station and deployed operating tempo demands.

The AEF concept is designed to integrate the full range of Air Force active and reserve component forces to provide needed capabilities for shaping and crisis response in a manner that reduces and makes more predictable the overseas commitment of uniformed members. It provides forces trained and ready to fight in combination—not forces put together in an ad hoc fashion. The concept employs the total Air Force, utilizing Air Force Guard and Reserve forces more fully, to provide predictability and stability for airmen, airwomen, and their families. The approach will help create an expeditionary culture that enables the Air Force to evolve into a light, lean, and lethal combat force that dominates future battlefields.

The Air Force is taking steps to operationally link geographically separated units from around the world into ten AEFs. Each AEF will include the full range of aerospace capabilities—elements of which will be tailored, integrated, and trained to meet known and likely overseas contingencies. Others will be placed on call to respond to unpredicted crises for the 90 day period when AEF elements are deployed or on call.

The current operational concept calls for two AEFs to be on call at any one time, ready to meet existing commitments (such as Bosnia and Southwest Asia today) and to provide rapid response to contingencies. The remaining eight AEFs will train and be ready to respond to the spectrum of crises as tasked in current war plans. Every three months, two new AEFs will be placed on call. This concept provides the type of total force management policy airmen and women need to provide predictability and stability in their daily lives. This concept leverages the enormous capability of Guard and Reserve forces by allowing them to preplan commitments well in advance. Support to AEFs will be provided by carefully managing high demand, low density assets such as the U-2, Airborne Warning and Control System, Joint Surveillance Target Attack Radar System, Rivet Joint, and certain ground command and control elements.

The volatile nature of today's and tomorrow's world will require the Air Force to sustain an expeditionary posture for the foreseeable future. From a support standpoint, the Air Force cannot continue to set up and sustain expeditionary units at overseas bases from the resources and people needed at home bases. The Air Force plans to add over 5,000 additional manning positions at home bases supporting AEFs to reduce the strain of deployments on those remaining behind, including families, who continue to need full support.

A major aspect of effectively executing the AEF concept is the need to reduce the size of the forward logistics and operational footprint, while successfully connecting U.S. forces to requisite information and support capabilities in rear operating areas. New and emerging support concepts, such as information reachback and just in time logistics support to data bases and expertise in the rear, are key to tapping this potential. Centers that are geographically separated by significant distances, but electronically connected in a support relationship, constitute reachback operations. Tomorrow's Air Force requires crisis action planning tools that integrate combat and support operations, logistics, force protection, and other functions in a collaborative process supported by shared databases. From an operational and planning perspective, reachback allows the Air Force globally to move information rather than people—a key to effective expeditionary air operations.

The AEF concept is predicated on a comprehensive, coherent, and integrated command and control system

that pulls together organizations, processes, and technical means. The Air Force opened its first Rear Operations Support Center (ROSC) at Langley Air Force Base, Virginia, which performs many functions presently performed at forward-deployed air operations centers. At a ROSC, functional support personnel can rapidly react to changing situations by directing requisite actions that need to be accomplished. Initiatives like this can cut the size of current Air Force Air Operations Centers forward by 90 percent.

Planning and Programming

The various aspects of the AEF concept are being tested during Air Force warfighting experiments. Expeditionary Force Experiment 98 (EFX '98) focused on moving more information and fewer people to the forward battlespace. Compared to the 1991 Persian Gulf War, when some 1,500 Air Force members required 10-15 days to deploy to the region to establish an in-theater Air Operations Center, EFX '98 demonstrated the ability to move a fully-capable, simulated Air Operations Center, staffed by approximately 200 people, forward in a single day with only one C-17 flight. The Expeditionary Force Experiment investigated new, emerging communications and space systems and explored multiple use of shared databases associated with the AEF concept. Directly tied to ongoing Air Force Battle Lab initiatives, these experiments are a way to quickly incorporate smart ideas to make Aerospace Expeditionary Forces truly light, lean, and lethal.

BATTLEFIELD OPERATIONAL CONCEPTS

End-to-End Battlefield Operational Concepts

A battlefield operational concept links together a series of functions that must be accomplished in order to carry out a critical operational task, such as applying U.S. force to key pressure points to deny enemy objectives. Developing new battlefield operational concepts requires end-to-end analysis to integrate surveillance and reconnaissance activities, intelligence assessment, command and control measures, and the mission preparation and execution activities of force elements to accomplish a critical operational task.

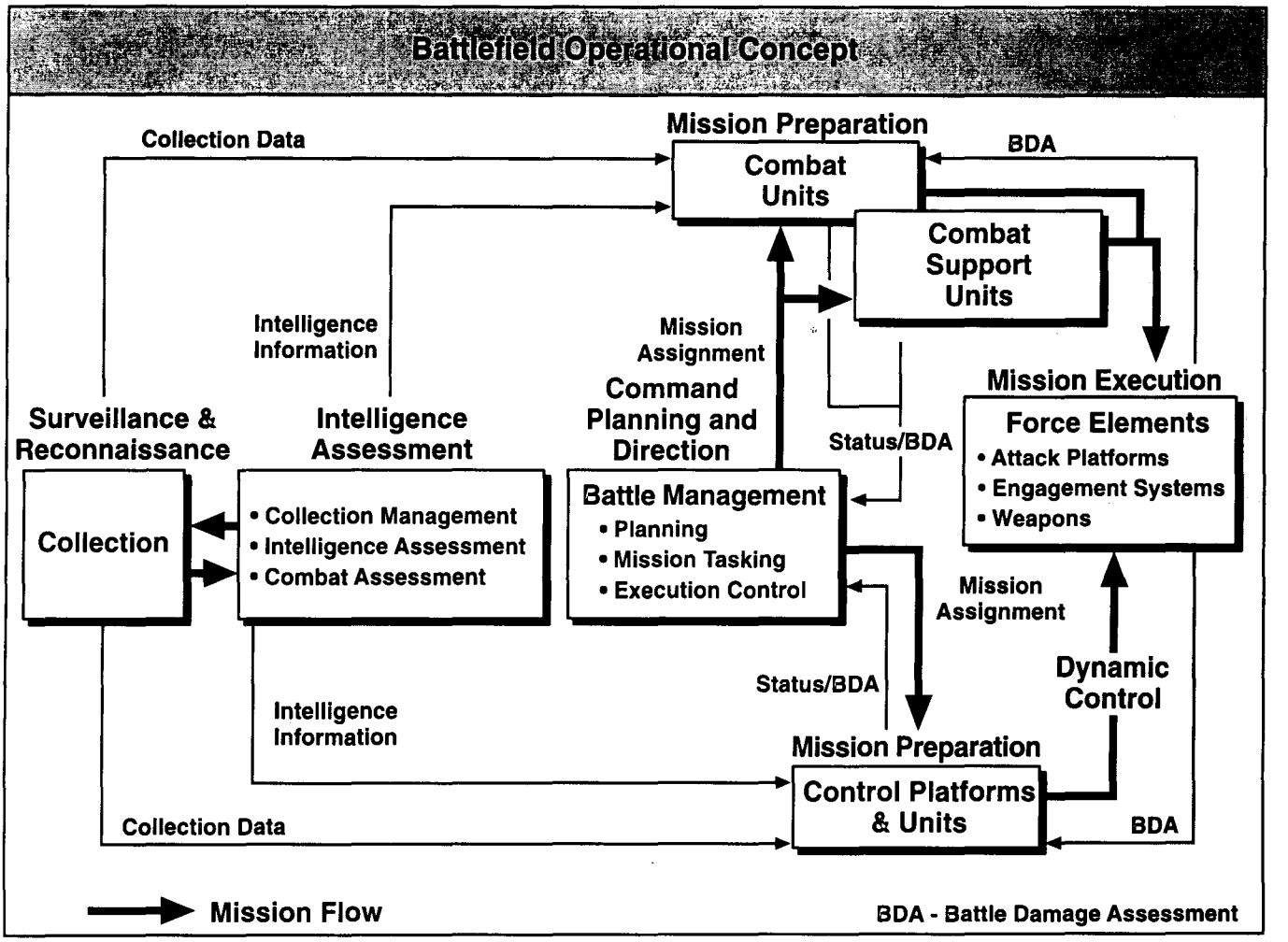
Many initiatives under way to develop new operational concepts focus on dramatic improvements in information access and distribution that rapidly accelerate effective combat decision making. For instance, Army digitization efforts strive to achieve greater distribution of time-critical information and flatten command and control structures. The Navy-led Link 16 Advanced Concept Technology Demonstration (ACTD) has demonstrated the proof of concept to exchange real-time information between the previously disparate Link 16 and Variable Message Format tactical data link systems (the two major systems used within DoD). The Link 16 ACTD will provide U.S. warfighters with a much greater degree of situational awareness on the battlefield of the future. The Marine Corps Common Tactical Picture of the Battlefield experiment, conducted in September 1998, pushed information forward and down to the squad level, allowing sharing of intelligence and close coordination of activities in the battlespace. During Phase I of Urban Warrior in September 1998, the Marine Corps Warfighting Laboratory pushed a Common Tactical Picture from Charleston, South Carolina, to Camp Lejeune, North Carolina, combining ground maneuver, tactical aircraft, and naval surface data into an integrated, near real-time, air, ground/logistics command and control system. The Air Force EFX '98 experiment explored the possibility of drastically reducing forward-deployed command, planning, and support elements, while improving access to critical support functions by real-time networking with a rear area support center, providing indications and warning, and enroute command and control from mission start to completion.

These examples illustrate efforts to improve geographically-dispersed, coordinated battlefield activity. The Department's overarching responsibility and challenge is to link individual Service capabilities into powerful, integrated joint warfighting capabilities. Following is an overview of two promising efforts to develop new battlefield operating concepts: the Joint Continuous Strike Environment (JCSE) ACTD and the Office of the Secretary of Defense-led study on Joint Suppression of Enemy Defenses.

Joint Continuous Strike Environment

THREAT AND MISSION

Potential adversaries impressed by precision strike capabilities showcased in Operation Desert Fox may try to offset such U.S. advantages by proliferating, hiding, dispersing, and increasing the mobility of their key capabilities, particularly for high-value assets such as critical command and control elements and mobile missile launchers.



The future force capabilities envisioned in *Joint Vision 2010* will overcome these countermeasures through revolutionary improvements in timely intelligence collection and assessment and in advanced command and control. While major advances in surveillance technology and weaponry have been fielded, the command and control structure has until very recently relied upon 1970s information technology. Development, integration, and transition of command and control technologies to support precision strike have not kept pace with evolving battlefield requirements. Consequently, the considerable time that often elapses between mission tasking and target destruction for emergent, time-critical surface targets such as mobile missile launcher can all too easily allow these targets to escape. Using today's outdated systems and operational concepts, information is frequently delayed as it crosses organizational and system boundaries and often must be rekeyed or disseminated by hard copy. Effectively engaging emergent time-critical targets requires a seamless flow of information across Service, organization, and system boundaries in order to engage the targets within their short windows of vulnerability (one to two hours or less).

Future coalition commanders will require increased awareness of total force coalition strike assets, as well as the key targets they seek to destroy. The Joint Continuous Strike Environment ACTD addresses today's shortfalls in this area. Future warfare requires linkages to achieve effective joint fires for service component, joint, and coalition forces. The JCSE ACTD is designed to improve the U.S. ability to project power and achieve tasked objectives.

OPERATIONAL CONCEPT

By allowing the commander to quickly apply appropriate force to attack critical targets, the Joint Continuous Strike Environment will allow the joint force commander to place emergent time-critical targets at risk without disrupting other aspects of his campaign plan. When emergent targets are discovered by intelligence surveillance and reconnaissance efforts, JCSE automatically compares the priority of striking this emergent target with pre-established criteria for the relative priority of all target classes. The JCSE approach rapidly supplies weapons status information and recommends the best available weapon combination to be used in attacking target sets to the joint force commander. Finally, the JCSE system also helps to rapidly deconflict airspace to ensure timely attack and minimize hazards to friendly forces and systems. The key JCSE functions including the following:

- Automated Target Prioritization. There are no currently available automated means for matching a commander's guidance and objectives to emergent targets. JCSE takes guidance from the Joint Integrated Priority Target list and continuously matches it with emergent targets discovered by intelligence, surveillance, and reconnaissance efforts. JCSE provides a rank-ordered list of time-critical targets. The result is enhanced target awareness for the commander, his staff, and his forces that reflect strategic planning objectives and combat situation variables.

- Continuous Weapon Availability Monitoring. JCSE automates weapon selection by continuously monitoring the status of available weapons and assessing their key characteristics (e.g., range, reaction time to target, warhead type, and probable kill estimates.) JCSE accelerates the reporting of these factors to make the commander and staff continuously aware of available weapons from all Services and their critical capabilities.

- Optimized Weapon Target Pairing. JCSE combines the output of the automated target prioritization and continuous weapon availability monitoring functions to provide continuous opportunity-based pairing of weapons to targets. JCSE performs this function by estimating the effectiveness of weapons sets against target sets in a range of circumstances. Based on current intelligence, JCSE then recommends a prioritized set of weapons-to-targets suggestions, with rationale for each.

- Near Real-time Airspace Deconfliction. Today, possible conflicts between aircraft, missiles, and munitions flying through the same airspace are resolved by constraining operations throughout the theater by altitude and volume. These zones are established using very conservative criteria since timely, accurate information concerning operational aircraft and missiles aloft is not always widely available. Current airspace deconfliction for complex joint operations can take 6 to 12 hours. JCSE greatly reduces the time necessary for deconfliction by identifying potential conflicts, providing deconfliction options, and coordinating deconfliction. The JCSE user is automatically informed of the need to deconflict airspace and presented with options to accomplish it rapidly. Options generated include accelerating or delaying launch, using a different platform or missile, or diverting manned aircraft or UAVs. The end result is the capability to strike emergent targets immediately, with much less danger to friendly forces.

JCSE PARTICIPATION AND SCHEDULE

The United States European Command is the JCSE operational manager. The Army, Navy, Air Force, and Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) are participating in this ACTD. During the course of the ACTD, JCSE functionality will be demonstrated in a series of joint and combined exercises employing deep strike assets from all Services and selected allied assets.

Joint Suppression of Enemy Air Defenses

THREAT AND MISSION

Since World War I, the United States has lost more aircraft to enemy ground-based weapons than to enemy aircraft. For this reason, one of the first objectives for the United States in a conflict is the suppression of ground-based enemy air defenses. Joint suppression of enemy air defenses (JSEAD) is the employment of joint forces to neutralize, destroy, or temporarily degrade enemy surface-based air defenses.

Current and emerging surface-to-air missile (SAM) systems and modern anti-aircraft artillery guns employ redundant and diverse target acquisition schemes combined with a wide variety of cueing and engagement techniques. Networks of air defense systems (Integrated Air Defense Systems, or IADS) continue to make significant improvements in capability, taking advantage of digital integration and increasingly available,

capable, and SAMs. Such networks of modern air defense systems are increasingly lethal, able to engage aircraft at greater ranges, and less susceptible to countermeasures. The U.S. military must take steps to improve JSEAD capabilities against enemy air defense capabilities that may put U.S. aircraft at unacceptable risk in the future.

A NEW BATTLEFIELD OPERATIONAL CONCEPT

JSEAD is a critical component of the Department's attempt to ensure air superiority in the 21st century. It is a total force joint operations concept that synchronizes disparate force elements in an integrated, collaborative effort to suppress enemy IADS. The Office of the Secretary of Defense led a JSEAD concept development study, a collaborative effort carried out by an Integrated Process Team that included personnel from the Joint Staff, the Services, unified commands, defense agencies, federally funded research and development centers, laboratories, university applied research centers, and industry sources. The study surveyed diverse SEAD efforts and quickly concluded that there was no common modeling and simulation base which to draw upon. A common simulation model was created and was used to evaluate current and future IADS threats and U.S. force capabilities.

The JSEAD study examined capabilities of U.S. forces in 2010 and concluded that, without significant augmentation of current and planned SEAD capabilities, U.S. air forces would gradually lose the dominant control of airspace they currently enjoy. By 2010, attrition of U.S. platforms could increase substantially.

The study identified new approaches to improve U.S. JSEAD performance. It considered the entire architecture necessary for the JSEAD mission, including new battlefield operational concepts, advanced technologies, and new systems. It tackled the JSEAD mission from an end-to-end perspective, including intelligence surveillance and assessment, planning, command direction battle management, mission preparation, and execution.

Critical to improved effectiveness is an interconnected network linking intelligence units, command and control elements, combat and support forces, and weapons systems. The foundation of this architecture is a C^4ISR network that provides commanders at all levels with a timely picture and enables continuous collaborative planning and assessment. A robust C^4ISR backbone permits current sensor and weapon systems to perform tasks better and also to perform some nontraditional tasks. The study identified three especially promising approaches to augmenting JSEAD capabilities: employment of decoys and UAVs in lethal and nonlethal roles; use of unattended ground devices in the battlespace; and most important, the use of a dynamic controller to manage lethal and nonlethal attacks in real time.

Decoys and UAVs were found to be highly advantageous in a wide variety of roles and battle sequences. Lethal UAVs, nonlethal UAVs, and jamming decoys enhanced mission performance of manned vehicles and weapons, consistently increased friendly situational awareness, confused enemy defensive efforts, and shortened suppression times.

Remote unattended ground sensors were also helpful in conducting JSEAD operations. Ground sensors equipped with Global Positioning System operate from a precisely known location and provide highly reliable data on targets in their vicinity. Ground sensors reduce the risk to more costly airborne sensing platforms and can free them entirely for lower risk or higher priority tasks.

The complex interactions between manned aircraft, decoys, and UAVs operating in constricted airspace and in a highly structured sequence against critical air defense nodes greatly increased the burden on command and control capabilities. The solution was a JSEAD dynamic controller to maintain a single, integrated command and control/electronic warfare order of battle picture; coordinate and deconflict lethal and nonlethal JSEAD attacks; and retask U.S. and coalition air assets as necessary.

JOINT SUPPRESSION OF ENEMY AIR DEFENSE ACTIVITIES

The JSEAD study produced a number of tangible benefits and has been the catalyst for a variety of successful complementary efforts. The analysis and data have been used to assess new technologies and systems within DoD (e.g., a new miniature air launched decoy) and in industry assessment and planning. Perhaps most important, the study identified a number of promising concepts, systems, and technologies for further assessment through joint experimentation. The first JSEAD experiment focusing on timely command and control activities was conducted by USACOM in conjunction

with Air Force's Expeditionary Force Experiment in September 1998. Planned follow-on work will provide the Department with an increasingly refined basis for making informed technical and operational decisions regarding future capabilities and concepts this critical mission area.

CONCLUSION

The Department remains committed to developing and then incorporating new operational concepts in the U.S. armed forces. U.S. military capabilities must be transformed to meet the challenges of the 21st century through the development and incorporation of new operational concepts in joint warfighting capabilities. Significant investment is being applied to this transformation. Competition and innovation are key factors to finding and exploring new concepts. Service traditions and experience give them unique insights about how best to proceed with transformation. Joint oversight and focus provided by USACOM, the Joint Staff, and the Office of the Secretary of Defense staff will ensure that the Department leverages and coordinates Service RMA activities into integrated capabilities for tomorrow's joint battlefield.

Chapter 12

TRANSFORMATION

The Quadrennial Defense Review concluded that a key element of the defense strategy must be to prepare now for future conflict. The Department is in the midst of a large-scale transformation effort to determine the capabilities required to defend U.S. national interests in the future, and to implement the necessary changes in forces, concepts, and organizations to achieve these capabilities.

The central premise of *Joint Vision 2010* and of the broader Revolution in Military Affairs (RMA) is that military success in the future will depend on the ability of U.S. forces to achieve and exploit information superiority over any adversary, as well as to effectively employ other new technologies to accomplish assigned tasks across the spectrum of potential military operations. This chapter provides highlights of joint and Service efforts to experiment with new operational concepts and new organizational approaches for the future. It also reviews the Department's activities relating to information superiority and technological innovation. The objective of these efforts is to assure that the U.S. military gains and maintains full spectrum dominance of the battlespace well into the 21st century.

Among DoD's extensive RMA-related efforts during 1998, one in particular stands out as a landmark event: the Secretary's designation of United States Atlantic Command (USACOM) as the executive agent for joint concept development and experimentation. USACOM took on its new responsibility on October 1, 1998, and has now begun its work to build upon and extend the extensive RMA-related efforts under way in the Services, unified commands, and elsewhere in the Department. It will continue a comprehensive effort for developing and experimenting with new operational concepts to enhance the capabilities of the joint commander.

JOINT CONCEPT DEVELOPMENT AND EXPERIMENTATION

The United States Atlantic Command

USACOM's designation as the Department's executive agent for joint concept development and experimentation represents a major step toward realizing the integrated military capabilities described in *Joint Vision 2010*.

USACOM's blueprint for implementing its new responsibilities is laid out in its Joint Experimentation Implementation Plan. This plan, published in July 1998, provides a number of guiding principles for USACOM's joint concept development and experimentation efforts:

- Leverage and integrate Service, commander in chief, and other experimentation efforts related to the RMA.
- Investigate new concepts of operations that offer the possibility of significant breakthroughs in joint capabilities.
- Develop and assess concepts applicable to both the near-/mid-term time horizons (the next force) and the longer term (the force after next).
- Employ aggressive red-teaming or vulnerability analysis in all phases of concept development and experimentation.
- Establish an open learning environment that facilitates innovation and constructive debate—and allows learning from both success and failure.

In November 1998, USACOM completed the next phase of its planning efforts, its Joint Experimentation Campaign Plan. Updated annually, the plan describes in detail the specific activities in the concept development and experimentation program for the next several years. It addresses the selection of concepts for development and experimental exploration, the methodologies to be employed, Service events to be leveraged, and the resources required to meet the program's objectives. It describes the process of identifying changes to doctrine, organization, training, materiel, leadership, and personnel programs necessary to realize the validated concepts.

Building upon the Department's numerous ongoing concept development and experimentation efforts is a basic foundation for USACOM's plans. The Services and United States Special Operations Command retain the responsibility to develop concepts and conduct experimentation within their core competencies, while USACOM will integrate Service-unique experiments where coordination is required for successful prosecution of the joint battle. As the DoD Executive Agent, USACOM will coordinate applicable experimentation events with joint operations implications, from studies, wargames, and modeling and simulation, to small battle lab experiments, to major joint field experiments. USACOM is also responsible for coordinating the Department's joint experimentation efforts with non-DoD elements that are critically important to success in this area such as industry, academia, and the federally funded research and development centers.

USACOM's efforts are aimed at establishing a sustained process to identify and investigate significant operational innovations in the conduct of joint operations. This joint concept development and experimentation effort are central to assuring that the U.S. military can meet the full spectrum of joint operational requirements in 2010 and beyond.

Service Experimentation

All of the Services sponsor a wide range of activities to develop, assess, and implement new concepts for achieving their core competencies as they transition into the next century. Near- and mid-term solutions to emerging challenges are explored via Service battle labs. These labs enable warfighters, developers, and industry to work together to exploit technological advancements and synchronize advanced warfighting concepts. Various programs of Service field experimentation help to shed light on the best ways to combine emerging Service concepts with new technology and innovative organizations to improve the contribution of component forces to the joint battle. The Services also evaluate the long-term impact of emerging trends, technologies, and concepts through studies, advanced computer simulation, and wargames. While depicting events many years in the future, these long-term investigations often produce ideas and concepts that can be implemented in the near- to mid-term to significantly improve the capabilities of joint forces.

Service Battle Labs

Currently, there are eight Army battle labs: the Space and Missile Defense Battle Lab, the Maneuver Support Battle Lab, the Mounted Maneuver Battlespace Battle Lab, the Dismounted Battlespace Battle Lab, the Air Maneuver Battle Lab, the Battle Command Battle Lab, the Depth and Simultaneous Attack Battle Lab, and the Combat Service Support Battle Lab. The eight labs operate under the direction of the Army's Training and Doctrine Command at Fort Monroe, Virginia.

Reflecting the inherent mobility of naval forces, the Navy's battle lab has not been a single physical entity, but rather the fleet itself. Creating a virtual laboratory, the Navy has initiated a series of Fleet Battle Experiments that have used operational naval forces engaged

in training exercises to test new concepts. In addition, the Navy currently is funding a cooperative effort with the Defense Advanced Research Project Agency to encourage the rapid introduction of advanced technologies to the fleet. Called the At-Sea Battle Laboratory, this effort uses the Third Fleet command ship, USS Coronado, as a platform of opportunity for the installation and testing of many promising programs.

The Marine Corps Warfighting Lab, located at Quantico, Virginia, provides an institutional mechanism for investigation, innovation, and experimentation in six functional areas: maneuver, intelligence, fires, logistics, command and control, and force protection. Beginning in 1996, the lab developed the Sea Dragon experimentation plan. It is a five-year plan with three phases: Hunter Warrior (completed in March 1997), Urban Warrior (to be completed in the spring of 1999), and Capable Warrior (slated for 2000). Each phase starts with limited objective experiments and ends with an integrating Advanced Warfighting Experiment. These phases build on information gathered in the limited objective experiments and previous phases, as well as ongoing research and refinement.

The Air Force has established six battle labs with the mission of rapidly identifying and proving the worth of innovative and revolutionary operations and logistics concepts with near- to mid-term applications. The resulting battle lab efforts will provide the Air Force opportunities to reach investment decisions more quickly and organize, train, equip, and program more effectively. The six battle labs are the Air Expeditionary Force Battlelab, the Command and Control Battlelab, the Force Protection Battlelab, the Information Warfare Battlelab, the Space Battlelab, and the Unmanned Aerial Vehicle Battlelab.

Major Service Experiments

Through *Army Vision 2010*, the Force XXI experimentation process, and the Army-After-Next process, the Army is identifying new concepts of land warfare that have radical implications for its organization, structure, operations, and support. Building on successes in these efforts, the Army plans to execute a follow-on, comprehensive experimentation campaign through 2005 in conjunction with joint and other Services' experimentation events. The Army Experimentation Campaign Plan will enhance the lethality, survivability, and mobility of light contingency forces, field information age enhancements to the mechanized contingency corps, and expand experiments with middle-weight strike forces.

Utilizing the Fleet Battle Experimentation Plan process and the Naval Global summer wargaming process, the Navy is developing and exploiting the concept of network-centric warfare, in which widely dispersed but networked sensors, command centers, and forces are combined to produce enhanced mass effects. Fleet Battle Experiments Charlie and Delta conducted in 1998 explored integrated air defense and joint fire coordination, while the experiments planned for 1999 will deal with sea-based command and control, naval fire support in urban terrain, and several advanced weapons/platform concepts.

The Marine Corps has derived its vision of sea-based power projection in conjunction with the Navy's vision, and focuses on *Operational Maneuver From the Sea*. Its Sea Dragon Experiment program to date has included Hunter Warrior, which focused on new concepts for employing a Marine Air-Ground Task Force with an emphasis on small reconnaissance teams that could call in precision fires to halt an enemy advance, and the ongoing Urban Warrior effort, which is examining new ways of conducting military operations in urban areas. An Urban Warrior experiment in September 1998 explored the advantages of a common tactical picture and directly supports the March 1999 follow-on experiment that will conclude the Urban Warrior portion of the Sea Dragon program.

The Air Force's vision of Global Engagement, married with its Expeditionary Force Experiments (EFX), aims to ensure the Air Force will maintain and improve its core competencies, including: air and space superiority, rapid global mobility, precision engagement, information superiority, and agile combat support. The first EFX, conducted in September 1998, explored new ways to rapidly deploy command and control elements as well as forces of an Air Expeditionary Force to a threatened theater and then carry out a series of highly effective operations. Future experiments will continue to investigate the utility of reducing deployed elements by sending information rather than people to forward headquarters.

Major Service Wargames

While battle lab investigations, force exercises, and warfighting experiments typically test capabilities that

could be employed within five to ten years, RMA-related wargames generally focus on improving understanding of the security environment and the relative merits of alternative means of meeting critical military challenges over the longer term. These wargames are carefully constructed simulations in which experienced civilian and military players, organized into teams representing various states, must make decisions regarding the use of force in the context of a future conflict scenario. These wargames are a critical tool to ensure that senior decision makers and joint force commanders and staffs can maximize warfighting capabilities in the 21st century.

Each of the services is active in wargaming. The Army sponsors a series of operational concept and technology wargames as part of the Army After Next effort at the Army War College. These wargames deal with the characterization of emerging Army After Next warfighting concepts and the underlining systems and technologies necessary to support warfare in the 2020 time frame.

The Navy has long sponsored an annual summer Global wargame at the Naval War College, Newport, Rhode Island. This game examines U.S. policy, strategy, and operational concepts in the context of global and regional trends, issues, and crises. The 1998 Global wargame explicitly applied the network-centric warfare approach to future joint warfare in the context of potential conflicts in two regions of the world set in 2010.

The Air Force has begun a series of future oriented annual wargames entitled Global Engagement at the Air War College. These wargames are intended to illuminate the potential capabilities of joint air and space power in the 2008 timeframe. Aerospace Future Capabilities Wargames test alternative force structures in warfighting environments 20-25 years into the future.

The Marine Corps has created a series of RMA wargames on urban warfare at the Marine Corps War College. These wargames, set in 2020, focus on urban warfare concepts in preparation for future Marine Corps advanced warfighting experiment.

Many of the Department's efforts to explore new operational concepts and forces for beyond 2010 are facilitated by the Office of Net Assessment, which sponsors a variety of wargames and related workshops, conferences, bilateral discussions, and independent assessments beyond the major efforts noted above.

ASSURING INFORMATION SUPERIORITY

The rapid expansion of information technologies raises the opportunity for U.S. forces to achieve more than just incremental improvement to existing capabilities. If properly harnessed, new information technologies have the potential to yield an unprecedented new capability that *Joint Vision 2010* calls information superiority, which in turn is the key enabler of the emerging operational concepts discussed in Chapter 10 and others yet to emerge.

Investing in Information Superiority

The Department is investing heavily to improve the information processing capabilities of current and planned weapon systems, platforms, and communications systems. Increasingly, this investment is being guided by the results of Service and joint experimentation efforts exploring how forces can achieve and exploit information superiority over any adversary.

Following through with conclusions from its Force XXI Advanced Warfighting Experiments, the Army will equip the first digitized division by the end of FY 2000. This division will be capable of rapidly moving critical battlespace information among its units, enabling them to overwhelm opposing forces. A digitized corps will be equipped by the end of 2004.

The Navy is rapidly implementing the results of its Cooperative Engagement Capability experiments that integrate radar tracking data from sensors carried on both airborne and surface platforms into a network that permits airborne and surface-based shooters to jointly mount effective air, cruise missile, and eventually ballistic missile defense.

The Marine Corps, through its ongoing Urban Warrior experiments, is investigating a common tactical picture for ground forces operating in urban areas. The Marine Corps Warfighting Lab has recently demonstrated the primary components of the system, including integrated decision support facilities, during field experiments conducted in September 1998 at Camp Lejeune, North Carolina.

The Air Force continues to invest heavily in both air- and space-based sensors and communications capabilities. With its Expeditionary Force Experiment 98 held

in September 1998, the Air Force has begun to explore a number of new concepts for achieving and exploiting information superiority in circumstances where the United States is seeking to rapidly deploy forces and undertake a theater-level air campaign.

The United States Atlantic Command conducted the first Information Superiority Experiment in September 1998 in conjunction with the Air Force's EFX 98. The experiment explored how enhanced information sharing can improve the ability of joint forces to suppress enemy air defenses.

The Department has conducted a series of studies to assess the increased combat power provided by alternative investments in the building blocks of information superiority. For example, the Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C^4ISR) Mission Assessment, and several sensor-to-shooter studies, improved the Department's understanding of the return on investment in various types of systems to create a C^4ISR common backbone for U.S. military forces. The C_4ISR Decision Support Center provides a continuing capability for conducting cost and performance trade-off analyses on complex C^4ISR issues.

Information Operations

Information and information technologies are so central to modern global military, civil, and economic activities that information itself is bound to become an object of future competition and conflict. The U.S. economy and national life are increasingly dependent on information in digital, electronic, or optical form and on the national infrastructure that handles such information. The Department's adaptation of information technologies to military uses is greatly increasing the capability of U.S. forces, but also making DoD more and more dependent on these same technologies. The DoD Information Operations (IO) Master Plan establishes the Department's vision for both offensive and defensive information operations and lays out timelines for achieving specific goals.

Defensive IO protects U.S. and allied forces' globally distributed communications and information processing computer-based networks from interference or exploitation by an adversary. The computer network intrusion detected by the Department in the spring of 1998 served as a wake-up call for the importance of defensive IO, to include information assurance and computer network defense. The Department has established a Joint Task Force for Computer Network Defense with the mission to defend against a coordinated computer network attack on key elements of the defense information infrastructure. The task force will detect and recognize a computer network attack, promptly warn the defense information infrastructure that an attack is under way, and quickly coordinate joint responses. The Department has conducted education and training to increase awareness of defensive information operations, and conducted wargames and exercises to increase warfighters' experience in applying IO to military operations. The Department has also been deeply involved in the development and implementation of Presidential Decision Directive 63, which deals with protecting critical national infrastructure components from information attacks.

Offensive information operations help U.S. forces to penetrate, manipulate, or deny an adversary's use of information in order to hinder the battlespace awareness and operations of enemy forces. Offensive IO requires the complete integration of technology, intelligence, and operational concepts, as well as forces trained in the conduct of information warfare. To ensure that information operations become an integral part of all contingency plans, the Department has changed the guidance given to the unified commands. An IO annex is now required for all contingency plans relating to the Joint Strategic Capabilities Plan. This annex ensures that information operations, both offensive and defensive, are an integral part of the overall campaign and synergistically support the rapid dominance of U.S. armed forces. USACOM's annual Exercise Evident Surprise focuses on the planning activities for successful conduct of an IO campaign, highlighting the interagency coordination process required to deconflict and execute offensive information operations in a future joint environment.

Intelligence plays a central role in both defensive and offensive information operations, providing assessments of adversary intentions and offensive capabilities, as well as necessary technical data on adversary information systems. The Intelligence Community has published a National Intelligence Estimate on the information operations threat to the United States. The Estimate will be updated periodically to keep up with rapid changes in technological developments and geopolitical trends. The Department established the Information Operations Technology Center at Fort Meade, Maryland, to enhance cooperation between DoD and the Intelligence Community in developing capabilities to

take advantage of advances in computers, telecommunications, networks, and other information technologies. In addition, the Department has established a Bilateral Information Operations Steering Group with the Intelligence Community to work through the interagency issues related to information operations.

SCIENCE AND TECHNOLOGY - EXPLOITING NEW CAPABILITIES

The future ability of U.S. armed forces to prevent, deter, or defeat armed threats and the achievement of *Joint Vision 2010* capabilities are premised on the technological superiority of U.S. forces. To ensure continued U.S. military preeminence, the Department must always invest in the next generation of defense technologies as well as in education and training to assure that tomorrow's service members have the skills needed to employ new systems effectively. Tomorrow's capabilities depend in part on today's investment in enabling technologies that can be integrated into new systems and employed using emerging operational concepts.

The Department places high priority on the science and technology program. The program's goal is to produce technologically superior weapons systems at affordable prices. Rapid advances in several key technology areas are creating options for significant increases in warfighting and support capabilities. The entire Department is working together to identify the opportunities and new operational concepts enabled by technological advancement and innovation. Four publications—the *Defense Science and Technology Strategy*, its supporting *Basic Research Plan*, the *Defense Technology Area Plan*, and the *Joint Warfighting Science and Technology Plan*—lay out the Department's science and technology vision, strategic plan, and objectives for defense planners, programmers, and those who develop defense science and technology. The *Basic Research Plan* presents the Department's objectives and investment strategy for DoD-sponsored basic research performed by universities, industry, and Service laboratories. The plan highlights ten basic research areas: atmospheric and space sciences, biological sciences, chemistry, cognitive and neural sciences, electronics, materials science, mathematics and computer science, mechanics, terrestrial and ocean sciences, and physics. The *Defense Technology Area Plan* looks across Service and defense agency investments and describes the Department's applied research and advanced technology development programs.

The *Joint Warfighting Science and Technology Plan* takes a joint perspective, looking horizontally across the Services and defense agencies to ensure that DoD science and technology programs address priority future joint warfighting capabilities. Published annually, this plan identifies 11 Joint Warfighting Capabilities Objectives (JWCOs) associated with critical capabilities needed for U.S. forces to maintain a dominant warfighting advantage. These objectives, developed by the Joint Staff in collaboration with the Office of the Secretary of Defense and the science and technology executives of each Service, are focused on supporting the operational concepts of *Joint Vision 2010*. The 1999 Joint Warfighting Science and Technology Plan contains the following JWCOs: Information Superiority, Precision Force, Combat Identification, Joint Theater Missile Defense, Military Operations on Urbanized Terrain, Joint Readiness and Logistics and Sustainment of Strategic Systems, Electronic Warfare, Chemical-Biological Warfare Defense and Protection and Counter Weapons of Mass Destruction, Combating Terrorism, Force Projection/Dominant Maneuver, and Protection of Space Assets.

Marrying new operational concepts with new technologies, advanced concept technology demonstrations (ACTDs) are aimed at rapidly fielding new systems to evaluate their military utility—generally within two to four years. The ACTD represents DoD's approach to capturing and harnessing technology and innovation rapidly for military use at reduced cost. ACTDs are focused on three principal objectives: to gain an operator's understanding and evaluation of the military utility of new technology applications before committing to acquisition, to develop corresponding battlefield operational concepts and doctrine that make the best use of the new capability in the joint warfighting arena, and to provide new operational capabilities developed during the ACTDs directly to the combatant forces. ACTDs are designed to foster directly an alliance between the technologists and the joint warfighters, eliminating barriers, and improving the management of these critical efforts.

Some 43 ACTDs are now under way, with 14 having been completed, all addressing key JWCO challenges. Eight ACTDs are planned for completion in FY 1999; planned results for FY 2000 are outlined in the FY 2000 President's Budget. ACTDs focus on critical military needs as determined by the Joint Requirements Oversight Council (JROC) and respond to those needs with near-term solutions based on mature or nearly mature technologies. The involvement of the JROC in the

ACTD initiation process ensures a sharp focus on development of critical operational capabilities highlighted in *Joint Vision 2010*. By limiting consideration to mature or nearly mature technologies, ACTDs avoid the time and risks associated with technology development, concentrating instead on the integration of technologies and demonstration activities. There is also strong emphasis on the use of commercial technologies to leverage industry investments and to gain the benefit of commercially available spare parts and product improvements. This approach permits an early user evaluation of solutions to critical military needs on a greatly reduced schedule and at a significantly lower cost.

The evaluation of military utility is the heart of the ACTD process. After the proposed solution to the military need has been designed, field-usable prototypes are fabricated in sufficient quantity to permit operational utility to be determined. This is typically accomplished by evaluating a minimum operational capability in field exercises against realistic opposing forces. The evaluation of utility includes effectiveness of individual units, suitability for use by troops, and overall impact on the outcome of the conflict. As a result of these exercises, the user is able to refine both the concept of operations and the operational requirements for the system, as well as to assess the overall value of the proposed concept to warfighting capability. This process significantly improves the quality of subsequent acquisition decisions. It also allows the test systems that were evaluated in the ACTD to remain with the operating forces in the field after the evaluation is completed, providing an early interim capability.

ALLIED AND COALITION EFFORTS

The Quadrennial Defense Review noted that although the United States must retain the capabilities to protect its interests unilaterally, it will generally be advantageous to act in concert with like-minded nations when responding to crises. Acting in a coalition or alliance generally strengthens the political legitimacy of a course of action and brings additional resources to bear, ensuring that the United States need not shoulder the political, military, and financial burdens alone. However, building and maintaining effective coalitions also present significant challenges, from policy coordination at the strategic level to interoperability among diverse military forces at the military tactical level. Because coalitions will continue to present both important political benefits and significant military challenges, U.S. forces must plan, train, and prepare to respond to the full spectrum of crises in coalition with the forces of other nations. As the U.S. military incorporates new technologies and operational concepts under the Revolution in Military Affairs, careful design and collaboration will be needed to ensure that the United States and its allies and partners are able to meet interoperability challenges.

To help pave the way for the Department in this area, DoD established a Defense Science Board task force in 1998 that examined the challenges of coalition operations in the future. A study on future interoperability with allies and potential coalition partners is under way and is evaluating the preferred roles and missions of allies and coalition partners in major theater war and smaller-scale contingency operations, command and control arrangements, and related implications for future doctrine, training, and technology transfer.

The Services have robust programs to improve force compatibility and interoperability with other nations' militaries as they transform. The Army continues to expand its multinational interoperability initiatives; these efforts are focused on achieving interoperability with allied countries as well as likely coalition partners through a variety of bilateral and multilateral fora. The Command, Control, Communications, Computers, and Intelligence (C^4I) for Coalition Warfare ACTD provides the means for tactical Army command and control systems to interoperate with the equivalent systems in other NATO countries. The Navy has been very active in assessing strategic sealift concepts with the United Kingdom and C^4I interoperability with other high-tech navies. The Marine Corps has involved the Dutch, United Kingdom, and Australian militaries extensively in its Sea Dragon series of experiments. For its part, the Air Force has been working with the United Kingdom and Australia in the Navigation Warfare ACTD, and has invited the United Kingdom, Australia, and Canada to participate in its Expeditionary Force Experiments and Global Engagement wargames.

Finally, USACOM's joint experimentation plan calls for involving allies and coalition partners in concept development and experimentation activities. Indeed, USACOM's already extensive involvement with U.S. allies, in both training for today's operations and innovating to improve capabilities in the future, was

an important factor in the Secretary's choice of that command as executive agent for joint experimentation.

CONCLUSION

The Department of Defense is undertaking a robust and diverse program to implement *Joint Vision 2010* and the broader Revolution in Military Affairs. United States Atlantic Command's joint experimentation program is the critical element that has been added in recent months and will play a pivotal role by integrating and extending the extensive efforts under way in the Services, unified commands, and elsewhere throughout the Department.

Part IV
Transforming the Department of Defense for the 21st Century

Chapter 13

DEFENSE REFORM INITIATIVE

The Department of Defense is changing the way it does business. Just as industry was forced to change its ways to be competitive, so too must DoD upgrade its business operations to effectively support future national security strategy. DoD support systems that were once state-of-the-art are now antiquated compared to systems and practices in the corporate world. Other systems were developed in their own defense-unique culture and have never corresponded to the best business practices of the private sector. The November 1997 *Defense Reform Initiative Report* was a strategic blueprint for the Department that provided a comprehensive approach to adopt better business processes, pursue commercial alternatives, consolidate redundant functions, and streamline organizations while reducing excess infrastructure. The report identified a variety of objectives and laid the foundation for exploration of new ideas. Defense Reform is intended to reduce the Department's overhead and apply resultant savings to offset modernization and quality of life shortfalls. In conjunction with launching the reform initiative, a Defense Management Council was established as the Secretary's Board of Directors to provide advice about opportunities and implementation. The 1998 report outlines accomplishments and describes the challenges ahead to improve agility, support operations, and match world-class warfighting skills for the next century.

BUSINESS PRACTICES

Incorporating successful private sector practices will bring the management techniques and processes that restored American leadership in the international marketplace into the Department of Defense. Working Capital Funds and Electronic Commerce are two examples of where the Department can benefit from lessons learned from industry.

Working Capital Funds

The Department of Defense annually generates over $70 billion in sales through the Defense Working Capital Funds (DWCF). Intradepartmental sales are primarily to military forces that use funds appropriated by Congress to purchase goods, services, and industrial capabilities from support organizations. The Department has made dramatic changes to DWCF operations over the past eight years in an effort to achieve a more business-like, buyer-seller relationship. Despite these changes, numerous opportunities remain for improvement of management and business operations. Given the size of the DWCF, even modest increases in efficiency to DWCF operations could produce significant

benefits and provide savings to enable additional modernization.

A Defense Working Capital Funds Task Force has been established to identify potential improvements to current operations and to propose remedies that will address inefficiencies and customer concerns. While the bottom line is cost reduction, overarching goals are to promote warfighting readiness and enhance agility within the support systems. Previous reviews of the DWCF have focused more narrowly on policy and procedures. There are no such boundaries on the scope of this review. The only guidelines to the Task Force are that it should preserve the Department's ability to request and account for funds in a manner that meets the needs of the armed forces and is acceptable to Congress. The Task Force will report its recommendations to the Secretary of Defense in spring of 1999.

Electronic Commerce

Electronic commerce refers to a concept adopted by industry several years ago but only recently instituted in a major way by the Department. Electronic commerce combines either incremental process improvement or reengineering of the Department's business functions with commercially available technology to automate and improve operations. The aim is to establish one-stop shopping for DoD customers and industry. This demands integration of business functions across the entire Department with tools that provide for interoperability and seamless handoffs.

Most of DoD's business affairs are paper and people intensive and, therefore, expensive and slow. Eliminating and reducing paper enable parallel coordination and processing of information. Thus, the time and expense of physically passing documents from one office to another are eliminated. Information is processed rapidly and responsiveness to contractors and customers is improved.

Electronic commerce is both an internal and external initiative that supports interoperability within the Office of the Secretary of Defense (OSD), among the OSD staff, the Services, unified combatant commanders, and defense agencies. Electronic commerce reform initiatives are not inventions, rather they are interconnected efforts to permit an orderly transition from existing, disparate practices to private sector commercial tools and languages. The Joint Electronic Commerce Program Office was opened in May 1998 to facilitate and develop a Department-wide transition roadmap to commercial practices, products, and standards, where practicable.

DoD recognizes the benefits electronic commerce provides to improve its combat support functions. The course DoD has taken toward a full commitment to electronic commerce will result in tangible savings and will substantively change DoD's business operations.

STREAMLINING THE ORGANIZATION

The Department seized upon another lesson learned by American businesses and devolved day-to-day program management functions from the Office of the Secretary of Defense to the military departments and defense agencies so that OSD could concentrate on policy and oversight responsibilities. The Defense Reform Initiative outlined a series of improvements to streamline, reduce, or eliminate DoD headquarters elements, beginning with those closest to the Secretary of Defense—OSD and the Joint Staff—to set an example for the rest of the Department. At the same time, complex new challenges require organizations to sharpen their focus.

Defense Threat Reduction Agency

The nature of the nuclear, chemical, and biological challenges facing the nation has changed significantly from that of the Cold War. With the increased possibility of nuclear, chemical, or biological weapons use in regional conflicts or against the U.S. homeland, the weapons of mass destruction (WMD) threat is now far more diverse and complex. The Defense Threat Reduction Agency (DTRA) was established on October 1, 1998, to provide the institutional means for a more focused response to new security challenges. The mission of the new agency is to reduce the threat from nuclear, biological, chemical (NBC) weapons and other conventional weapons; to support U.S. nuclear deterrent efforts; and to provide technical support on WMD matters to DoD components. Working in close coordination with OSD, the Services, and the commanders in chief, DTRA will provide the technological, operational, and intellectual underpinnings of the Department's WMD expertise. By integrating the On-Site Inspection Agency, the Defense Special Weapons Agency, the Defense Technology Security Administration, and certain functions of the Assistant to the Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs, the Department will provide for a more efficient and coordinated response to new WMD challenges. DTRA will implement technology security, Cooperative Threat Reduction, arms control treaty monitoring and on-site

inspections, force protection, NBC defense, counter-proliferation support, and nuclear sustainment missions and programs. OSD will continue to exercise critical jurisdictional oversight and authority over DTRA. A Threat Reduction Advisory Committee of distinguished experts from public and private sectors was established to advise the Secretary, the Under Secretary of Defense for Acquisition and Technology, and the DTRA Director. The Under Secretary of Defense for Policy remains responsible for supervising and directing the Department's activities related to export controls.

PUBLIC-PRIVATE COMPETITION

Competition is a driving force in the American economy. However, public-private competition presents both an opportunity and a dilemma for the military. Efficiencies derived through competition must be balanced with readiness and warfighting capability. Competition can improve quality, reduce costs, and provide better focus on customers' needs. Maintaining unneeded facilities drains limited resources. Non-core functions should not be performed by DoD uniformed or civilian personnel unless the Department can do the job better and more cheaply, and uniformed personnel can meet wartime planning requirements.

Every review of the Department's costs has resulted in recommendations for expansion of competitive outsourcing of selected government functions to the private sector. Public-private competition is a critical enabler for Defense Reform Initiative reforms because it generates disclosure of activity-based cost data, provides a fresh review of functional processes and procedures, and provides options for decision makers. The internal examination phase of this process creates a transparent environment that encourages and identifies greater efficiencies within the organization. The larger the scope of a function to be competed, the greater the potential savings—even when the government wins the competition. Competitive sourcing will produce estimated savings of over $11.2 billion from 1997 to 2005, with annual recurring savings thereafter of more than $3.4 billion. DoD has dramatically increased the number of public-private competitions to be considered for evaluation, and major improvements have resulted from the process. Changes under existing regulations include expanding authority to waive required studies, limiting the length of the process, standardizing costing methodology, and considering performance and value, rather than just focusing on cost. As a result, contract performance measures and cost standards can now be used more widely to assess and compare public and private sector performance. Efforts to improve implementation of the public-private competition process include incentives to conclude competitions early and to catalogue lessons learned. DoD has established a Competitive Sourcing and Privatization Directorate in OSD to assist the Services, focus Department efforts, remove barriers, and improve the process.

QUALITY OF LIFE INITIATIVES

Reform initiatives are not just about reductions and eliminations. They also enable improvement of the work environment and conservation of resources that can directly benefit the quality of life of DoD civilians and service members. A few of the many ongoing quality of life initiatives that the Department is pursuing include establishment of the career transition office, establishment of the Office of Chancellor for Education and Professional Development, reengineering more efficient travel procedures, and streamlining the shipment of household goods.

The Career Transition Office is intended to advise and counsel military and civilian personnel regarding employment options and alternatives. The office provides information and assistance for personnel who are threatened or displaced by downsizing, outsourcing, and other changes in the working environment.

The Office of the Chancellor for Education and Professional Development for civilian professionals has been established to enhance the quality of the Department's professional education, including standards for curriculum and faculty. The Secretary selected the first Chancellor in October 1998.

Reengineering the travel process in the Department is another example of quality improvements. Until recently, the DoD travel system served neither the customer nor the Department appropriately. The system imposed cumbersome procedures and paper-intensive processes on employees. The revised process focuses on three critical areas: temporary duty (TDY), ready reserve travel (RRT), and permanent duty travel (PDT). Early successes in TDY reengineering efforts resulted in cutting travel regulations from 220 pages of complex text to 17 pages of plain English. The process is simplified and automated, administrative costs are reduced, and millions of dollars are saved per year. TDY improvements provide a foundation for reengineering both the equally cumbersome and costly RRT and PDT processes. These travel processes are further simplified by taking advantage of automated procedures such as

electronic funds transfer. Reimbursement to the customer has been expedited.

Another quality of life improvement adopted from industry led to the fundamental redesign of the DoD system for moving household goods. This system, previously mired in red tape, burdened by excessive regulation, and plagued by poor customer satisfaction, is now more customer-oriented and simplified. Household goods shipping costs have been reduced substantially since the employee participates in all aspects of the moving process.

CONCLUSION

Change is difficult. But nowhere is the need for change more obvious than on the business side of defense. Taking advantage of lessons already learned in private industry has made it possible for the Department to lay out a sensible road map for improving efficiency and reducing overhead costs. Applying lessons from private industry is not always easy but the urgency to do so is underlined by DoD's aging equipment and availability of a new generation of information-based systems. Competition, elimination, and reengineering are not the only answers, but they are essential ingredients to defense reform. If DoD can streamline organizations, focus on current threats and concerns, and care for career civil servants and military members, it will be able to reapply the savings to modernization programs. The Defense Reform Initiative is an effort to build a new and more flexible Department of Defense for the challenges of the future. It is a long-term and comprehensive initiative designed to institutionalize fundamentally new approaches to conducting business and transform one of the world's largest organizations into a world-class operation that supports its warfighters efficiently and effectively.

Chapter 14

FINANCIAL MANAGEMENT REFORM

Department leaders continue to implement the most comprehensive reform of financial management systems and practices in DoD history. Reforms aim to streamline and redesign DoD financial processes and organizations in order to make them optimally effective and to cut costs. Reforms also seek to ensure that DoD financial management fulfills the needs of its leaders, satisfies statutory requirements, minimizes the potential for fraud, and provides superior customer service.

These reforms are summarized in the Department's Financial Management Improvement Plan. This plan merges previous initiatives with new ones into a single comprehensive plan and responds to congressional concerns.

REFORM AND CONSOLIDATION OF FINANCIAL MANAGEMENT OPERATIONS

The Defense Finance and Accounting Service

Since its activation in January 1991, the Defense Finance and Accounting Service (DFAS) has been the Department's pivotal agent for financial management reform and consolidation. DFAS now processes a monthly average of nearly 10 million payments to DoD personnel; 1.2 million commercial invoices; 600,000 travel vouchers/settlements; 500,000 savings bond issuances; and 122,000 transportation bills of lading, with monthly disbursements averaging $24 billion. Through consolidation and process improvements, DFAS has generated savings in operating costs totaling about $1 billion since 1991.

By consolidating over 330 financial management field sites into five DFAS centers and 18 operating locations, the Department was able to eliminate redundancy and unnecessary management layers, facilitate standardization, improve and speed up operations and service to customers, increase productivity, and enhance financial management support to DoD decision makers. All this was completed by July 1998, almost two years ahead of the original schedule.

Expanding Competition to Improve Services and Reduce Cost

DoD financial managers are participating in the Administration's effort to use competition within the government and with the private sector to improve support services and save money. Changes implemented as a result

of competition studies produced annual savings of $23 million through the streamlining of administration operations, facilities, logistics, and the consolidation of debt and claims management and Defense Commissary Agency (DeCA) vendor payments. Anticipated changes resulting from ongoing studies in DeCA accounting, depot maintenance accounting, transportation accounting, civilian payroll, and military retiree and annuitant payroll are projected to save an additional $25 million annually.

Consolidation of Finance and Accounting Systems

DFAS manages two types of DoD financial management systems—finance and accounting. Finance systems process payments to DoD personnel, retirees, annuitants, and private contractors. Accounting systems record, accumulate, report, and analyze financial activity. As of October 1998, 109 finance and accounting systems were operating—down from 324 in 1991. Finance systems have been reduced to 18, with a goal of 9 by 2003. Accounting systems are down to 91, with a goal of 23 or fewer by 2003.

The Department's consolidation of finance systems includes:

- Defense Civilian Pay System (DCPS). Nearly one million civilian payroll accounts were transferred to DCPS. Some 26 separate systems were eliminated and 348 payroll offices closed.
- Defense Joint Military Pay System (DJMS) and the Marine Corps Total Force System (MCTFS). By the end of FY 2001, DJMS will be fully implemented and all service members will be paid by either DJMS or MCTFS, eliminating an original 22 pay systems.
- Defense Procurement Payment Systems (DPPS). DPPS is being developed as a standardized DoD contract and vendor payment system. Additionally, a standard disbursement system is being developed to replace seven existing ones.

STRENGTHENING INTERNAL CONTROLS

Eliminating Problem Disbursements

A problem disbursement occurs when an expenditure has not been reconciled with official accounting records. DoD problem disbursements, once totaling $34.3 billion, have been reduced to $8.1 billion as of August 1998. Virtually all expenditures involved were proper and made only after a Department official confirmed that the subject goods or services were received and that payment was in accordance with a valid contract. That notwithstanding, DoD has an extensive effort under way to improve its disbursement process.

Prevalidation, the procedure of matching a disbursement to an obligation before (rather than after) a payment is made, has helped to reduce problem disbursements. Thresholds for applying prevalidation have been established at each DFAS center. To eliminate problem disbursements, thresholds for applying prevalidation are being gradually lowered until all payments are prevalidated.

Contract overpayments are never acceptable, but they occasionally occur. In FY 1993, overpayments on major weapons systems contracts were $592 million; by FY 1998, they had been reduced to $101 million. This reflects an accuracy rate of 99.8 percent.

Reforming the Contractor Payment Process

The Defense Contract Audit Agency (DCAA) now allows direct submission of vouchers to DFAS by qualifying and approved contractors. This reform will save substantial auditor time without putting accountability at risk, since DCAA will continue to provide oversight through periodic checks. The change also facilitates the transmission of contractor voucher payments using Electronic Data Interchange, another source of savings and efficiency.

For several years, DCAA has cut costs without hurting accountability by reducing its audits of low risk contractors (those with good audit histories and no more than $5 million of annual reimbursable contracts). Such contractors are subject to audit only once every three years on a sampling basis. Because of DCAA's favorable experience with this reform, contractors with up to $10 million of annual reimbursable contracts will now be considered for this sampling program.

To speed up audits and expedite the closeout of contracts, DCAA has begun concurrent auditing for contractors with good internal controls. By auditing transactions soon after they occur rather than after the end of the contractor's fiscal year, DCAA's work can be completed sooner, overhead rates settled more quickly, and contracts closed faster.

Computer Security and Fraud Detection

DFAS and other DoD organizations continue to cooperate in implementing better computer security and fraud detection and protection measures. Efforts include improved employee fraud awareness training and better controls to reduce vulnerability.

Auditable Financial Statements

As part of the President's initiative to achieve unqualified (clean) audit opinions on its financial statements, the Department is taking aggressive action. Implementation strategies, including new policies and processes where appropriate, are being employed to produce financial statements that meet newly established federal accounting standards. The Department's effort involves the DoD financial and nonfinancial communities, DoD Inspector General, Office of Management and Budget, and General Accounting Office.

Reform Reporting and Valuation of Inventory

The Department is taking aggressive action to improve how it accounts for inventory. Enhancing inventory management systems to capture accounting information better will provide better inventory valuation, more reliable costing of goods sold, and other elements that enable more accurate assessment of net operating results.

Reporting and Valuation of Real and Personal Property

DoD's accounting systems were not designed to account for and report on the value of the Department's real and personal property. Instead, financial information for these assets is obtained from various property data systems, which for the most part are not integrated with DoD's accounting systems. To help achieve the needed integration, the Department has been migrating some of its property management systems to its new Defense Property Accountability System (DPAS). The remaining property systems are either being modified to integrate them with DPAS or changed to connect them directly to applicable DoD accounting systems and make them compliant with federal standards.

ADOPTING BEST BUSINESS PRACTICES

A critical aspect of the Department's financial management reform is to exploit successful business practices from both the private and government sectors. The goal is to make DoD business practices simpler, more efficient, and less prone to error. This is being achieved by the revision of existing policies and procedures and the increased standardization, consolidation, capabilities, and compatibility of existing systems.

Improving the Exchange of Financial Information

DFAS is promoting the paperless exchange of financial information through:

- Electronic Document Management (EDM) and World Wide Web Applications. One such application is Electronic Document Access, which enables on-line real-time access to documents needed to perform bill paying and accounting operations. Contracts, government bills of lading, and payment vouchers can be stored in an electronic file cabinet and shared between DFAS activities. Another application avoids unnecessary printing of reports by converting them into electronic format for on-line analysis, reconciliation, and reporting. EDM technology is also being used to enhance the control and management of documents needed for bill paying operations, regardless of the format of the document.
- Electronic Funds Transfer (EFT). EFT is reducing the cost of disbursements. Over 94 percent of DoD civilian employees and military members paid by DoD have their pay directly deposited into their accounts. The direct deposit participation rate for travel payments is now up to 80 percent. In 1998, 74 percent of major DFAS contract payments were by EFT. This accounted for 89 percent ($63 billion) of total contract dollars disbursed. This percentage is expected to continue increasing.
- Electronic Data Interchange (EDI). DFAS is using EDI to send remittance information directly to vendors and is currently working to receive and process EDI contracts and contract modifications into finance and accounting systems.

Electronic Audit Working Papers

Audit working papers are key components of audits performed by DCAA. They document DCAA's audit work

and are sometimes shared with the customer as backups for audit reports. DCAA recently implemented an automated working paper process to make its audit services better, faster, and cheaper. As a result of this reform, DCAA can serve customers and obtain feedback on their services faster, helping to reduce the cycle time for negotiations. DCAA's new working paper process also supports DoD's efforts to improve the procurement process and will help achieve DoD's overall goal to become paperless by 2000.

Garnishment Operations

DFAS continues to reengineer the processes by which the Department garnishes the pay of its civilian and military personnel for child support, alimony, commercial debt, and divisions of retired pay. The consolidated garnishment operations process approximately 11,000 garnishment orders per month. Reengineering has reduced staffing requirements significantly and will save about $19 million between 1995 and 2000. The cost of processing cases has already dropped from $153 to $79 per case honored. These savings are attributable mostly to technological improvements, most notably the introduction of EDM and direct linkage to DoD pay systems. Efforts are also underway to implement a system for electronic acceptance of court orders.

Travel Reengineering

The Department continues to reengineer its management of travel by DoD personnel. The goal is a more efficient travel system that supports DoD requirements and provides excellent customer service. Procedures have been simplified and refined as a result of extensive analysis and pilot tests. Implementation of DoD's new travel processes will start in 1999 and extend over three years.

New DoD travel policies include:

- Delegation to appropriate officials of the authority to approve exceptions to standard travel policies.
- Expanded use of a government-sponsored, contractor-provided travel card to pay for all expenses related to official business travel (travel advances, tickets, taxis, lodging, meals, etc.).
- Expanded use of electronic transfer to process reimbursements.

Transportation Documentation and Financial Processes

With cooperation from the commercial transportation industry, DoD's transportation and financial communities have developed a far-reaching plan to use purchase cards and commercial documentation to reduce the data needed for the Department to procure and pay for transportation services. DoD officials are refining this fundamental change from past practices and expect to begin full implementation during FY 1999.

Digital Signature

To achieve the goal of a paperless process, DoD leaders worked with the Departments of Commerce and Energy and the General Accounting Office to develop a software specification that creates a digital signature that is compliant with federal standards. The software specification enables the Department to move to paperless processes. Users will be allowed to sign documents electronically. This process will be pilot tested and eventually exported to other functional areas.

Information Infrastructure

DFAS is establishing the Corporate Information Infrastructure to support use of common data elements for the collection, storage, and retrieval of finance and accounting data; use of common transactions; and movement of common transactions and data among systems. Also supporting reform is an ambitious effort to standardize and share acquisition data. This effort will greatly improve the interactions between DoD procurement systems and the financial systems that process and account for payments of procurements.

DFAS is working toward ensuring that all its systems are Year 2000 (Y2K) compliant well before the deadline. Consolidation of DoD finance and accounting systems substantially reduced the cost of fixing their Y2K problems. Repair of DFAS systems that require Y2K-related renovation is estimated to cost about $49 million. DFAS also provided $7 million to other DoD organizations to fund Y2K work on co-owned systems and is conducting planning and testing as part of this effort. All new DFAS systems are Y2K compliant.

CONCLUSION

The Department's financial management reforms are continuing to cut costs and improve effectiveness by exploiting the best of private and government practices. Especially productive are the imaginative utilization of consolidation, standardization, simplification, advanced technology, and practical common sense. Progress is fundamentally transforming DoD financial activities, as well as other activities with which they must interact.

Chapter 15

ACQUISITION REFORM

Acquisition reform is partner to the Department's Defense Reform Initiative and the President's National Performance Goals 2000. Acquisition reform results in more efficient business practices, creating an environment for DoD to acquire goods and services better, faster, and cheaper.

CIVIL MILITARY INTEGRATION

Civil military integration, eliminating the distinction between doing business with the government and other buyers, is critical to meeting future military, economic, and policy objectives. In order to accomplish civil-military integration of a national industrial base, DoD must be able to adopt the business processes of world-class customers and suppliers and stop applying government-unique terms and conditions to the maximum extent practicable. Civil military integration objectives are designed to take acquisition reform to a new level and focus on the long-term emphasis on commercial solutions to military requirements. DoD has developed a strategic plan targeted at reducing that distinction and attracting commercial companies to the defense sector. This plan includes a set of initiatives, policy, and behavioral and cultural changes which together will enable the Department to achieve these goals.

DEFENSE ACQUISITION GOALS 2000

The Department identified 12 specific goals as the cornerstones of its National Performance Review Reinvention Impact Center. Each goal identifies a measurable outcome with significant return to the Department in terms of reducing cost and time. Achieving the Year 2000 Goals will enable the Department to increase its investment accounts and realize required modernization without requiring a top-line increase in budget authority.

Goal 1: New weapons in less time. Deliver new major defense systems to the users in 25 percent less time.

The Department needs to be more flexible and responsive in meeting the needs of the warfighter by fielding new systems in much less time. A shorter cycle time will reduce cost growth and accelerate modernization efforts.

The goal is to reduce the cycle time of new programs (i.e., the time between starting a new program and achieving initial delivery) by 25 percent. That means the average cycle time of new programs started since 1992 will be less than 99 months by the end of 2000—a 25 percent reduction from the recent historical average of 132 months (based on average cycle time of currently active programs started prior to 1992).

Since 1992, the Department has employed acquisition reforms like the use of commercial items and the latest computer technologies in design, manufacturing, and management of programs. This helped reduce cycle time, but the Department plans to do more. DoD will use shorter cycle time as a planning constraint in structuring new programs, strictly enforcing shorter cycle time in approving new programs, and closely monitoring programs in process of acquiring, programming, and budgeting to limit cycle time growth.

The Department is changing the way it manages programs to achieve shorter cycle time. Specifically, the Department is emphasizing the urgency of near-time requirements and the availability of proven technologies as key criteria in authorizing new programs. The Department can now satisfy warfighter needs incrementally—by infusing new technologies, as they become available, with each subsequent delivery.

Goal 2: Improve logistic supply services. To achieve visibility of 90 percent of DoD materiel assets while resupplying military peacekeepers and warfighters and reducing average order to receipt time by 50 percent.

Through continued development of the DoD Total Asset Visibility Program, the Department will have direct access to timely, accurate information about the status, location, and movement of units, personnel, supplies, and equipment.

The Department will use information systems to reduce delivery times by increasing the volume of electronic transactions with vendors. Additionally, the Department plans to reduce order-to-receipt times by using commercial practices, contracting with vendors to provide direct support, and using faster transportation services to deliver customer orders. These steps will enable DoD to meet the warfighter's needs more rapidly, while improving military readiness and reducing the size of the inventory. Similarly, the Department will encourage vendors to process orders quickly by adopting flexible manufacturing practices.

The Department made some progress in meeting the goal of better logistic supply services. Solid gains were made in providing cross-Service visibility of assets, and there was a reduction in the time it takes to deliver products to customers. The average number of days it takes for the warfighter to receive an order decreased from 36 days in 1997 to 32 days today.

Goal 3: Simplifying buying of goods and services. Simplify purchasing and payment through use of purchase card transactions for 90 percent of all DoD micropurchases while reengineering the processes for requisitioning, funding, and ordering.

Buying a product for less than $2,500 is called a micropurchase. In the past, micropurchases were treated like all other purchases and were generally done only by processing requests through government procurement offices. This added to the cost of buying the product and to the time it took to receive the order. The Department adopted the use of the government-wide commercial purchase card, which allows users to purchase goods and services directly from vendors, provided the amount is below the micropurchase threshold. Every study shows significant savings from use of the government-wide commercial purchase card.

There are currently about 160,000 card holders in the Department. In FY 1998, the government-wide purchase card was used for over 7 million defense micropurchases worth over $3 billion. The Department is already approaching its 2000 goal of using the government-wide commercial purchase card for 90 percent of micropurchases.

Goal 4: Educating the defense acquisition work force. Create a world-class learning organization by offering 40 or more hours annually of continuing education and training to the DoD acquisition related work force.

In the last few years, the Department underwent dramatic changes in how it buys goods and services. Many of these changes are based on best commercial practices and are often very different from the way DoD performed jobs in the past. DoD offers quality education and training to help buyers adjust to this new environment. This education and training includes a

description of the new practices and an understanding of why these changes were made. The Department must continue training throughout careers to ensure that the work force stays current with best commercial and government practices. Only by continuing education can DoD avoid creating a new system as rigid as the old.

DoD plans to meet the three-year goal of educating the defense acquisition work force by having buyers take a mandatory 40 hours of continuing education annually, or 80 hours over two years. In the near term, most of this training will take place in traditional classrooms. The Department is rapidly expanding its use of computing and telecommunications technology to provide more cost-effective and timely training via satellite and the Internet. DoD is making good progress toward meeting the goal of giving the entire work force 40 or more hours of continuing education annually by the end of 2000.

Goal 5: Modernizing defense. With no top-line budget change, achieve annual defense procurement of at least $54 billion toward a goal of $60 billion in 2001.

Post-Cold War defense spending decreased dramatically. This reduction was particularly significant in the buying of new weapons and equipment. This made sense because the inventory of newer weapons was sufficient to meet the needs of reduced troop levels. Over the intervening years, the budget for buying new weapons was further reduced by unplanned events, such as regional conflicts, peacekeeping, and humanitarian missions.

Today, the defense inventory is showing its age and needs to be replaced. As the level of technology used by potential adversaries increases, DoD needs to continue fielding new weapons and equipment to maintain its technological edge.

To meet the Department's goal of modernizing defense, the annual budget for new weapons and equipment will increase to at least $54 billion in 2000 and $60 billion by 2001. This represents an increase of almost $10 billion over 1997. More importantly, the Department will achieve this increase through cost reductions in other DoD activities, preserving the government's drive toward a balanced budget.

DoD is striving to achieve the goal of modernizing defense by fully implementing the recommendations of the Quadrennial Defense Review and continuing with the Defense Reform Initiative (DRI). The DRI provided that more money would be available for buying new weapons and equipment by better planning for operating and support costs, reforming business practices, streamlining the work force, and closing additional military bases.

DoD is also watching all budget submissions closely to verify that they support the goal of investing at least $54 billion on new weapons and equipment in FY 2000 without violating the overall defense budget ceiling. The progress toward meeting the investment goal of $54 billion on new weapons and equipment in FY 2000 is evidenced by the increase from FY 1997, when purchases were $43.2 billion, to FY 1998, where the purchasing budget totals $45.1 billion.

Goal 7: Decreasing paper transactions. Decrease paper transactions by 50 percent through electronic commerce and electronic data interchange.

Industry is rapidly moving away from paper-based business practices toward electronic commerce and electronic data interchange. DoD made some progress in this area, but lags behind industry. To make up for lost time, the Department is setting up computer networks for all people, removing regulations and other barriers to exchanging information electronically, and improving business practices to take advantage of information technology advancements.

The Department's goal is to accelerate its transition from paper to electronic transactions. Paperless transactions will improve efficiency and effectiveness, reduce processing times and costs, and provide more timely insight. DoD embarked on a three-year effort to increase paperless electronic business transactions and improve business practices. To move away from a paper-based system, the Department is capitalizing on electronic contracting, program management, and logistics support information.

The business efficiencies of digital transactions will significantly reduce the total costs of owning, operating, and maintaining weapons and equipment. The Department is measuring progress and studying additional actions to better support the customer and save money. The Department is developing additional measures for progress in the digital program management and logistics support areas.

Goal 9: Streamlining the work force. Eliminate layers of management through streamlined processes while reducing the DoD acquisition related work force by 15 percent.

Since 1989, DoD reduced the acquisition work force by over 40 percent. By streamlining organizations further, DoD will reduce the work force by an additional 15 percent by 2000. DoD is resizing the work force to match the workload more efficiently. The Department is eliminating redundant jobs and simplifying procedures. Program teams are given more responsibility, and unnecessary reviews and oversight are being cut. As a result, DoD is less bureaucratic and more professional, and is continuously looking for additional opportunities to do business better, cheaper, and faster with fewer people. In the acquisition pilot programs, full-time staffs were reduced by 27 to 47 percent. Overall, DoD is already one-third of the way to achieving the streamlining work force goal of a 15 percent work force reduction.

Goal 10: Providing improved visibility of total ownership costs. Define requirements and establish an implementation plan for a cost accounting system that provides routine visibility into weapon system life-cycle costs through activity-based costing and management. The system must deliver timely, integrated data for management purposes to: permit understanding of total weapon costs; provide a basis for estimating costs of future systems; and feed other tools for life cycle cost management.

In 1995, DoD established total life-cycle cost as equal to performance with the promulgation of a Cost as an Independent Variable policy. Department efforts to fully implement the Cost as an Independent Variable were hampered by limited visibility into true ownership costs. DoD currently relies on the Visibility and Management of Operating and Support Costs (VAMOSC) system to provide weapon system level cost insight; however, Services' differences in implementation and lack of process costs have previously limited the applicability of VAMOSC data on a department-wide basis.

Current near-term action is the development of a strategy and plan for DoD-wide implementation of activity based costing/activity based management (and/or other approaches deemed appropriate to the core objective of providing visibility into total operational costs). VAMOSC improvement activities are also being considered as a potentially significant contribution to increased management visibility of weapon system costs. The ultimate goal is to provide one or more systems together which will constitute a system that is not only comprehensive, but also practical and accessible to ultimate users by 2000.

Goal 11: Reducing excess inventory. Dispose of $2.2 billion in excess National Defense Stockpile inventories and $3 billion of unneeded government property while reducing supply inventory by $12 billion.

The National Defense Stockpile is a large inventory of strategic and critical materials set aside for a national emergency. The 1997 market value stockpile was $5.3 billion. DoD can sell or otherwise dispose of excess inventory with congressional approval. By law, DoD must try to avoid causing undue market disruption. The goal is to dispose of $2.2 billion in excess stockpile inventories by 2000. DoD is aggressively marketing its inventory of critical and strategic materials. The Department is working closely with Congress and industry to ensure a good price for the inventory without unfairly undermining the commercial market.

The Department is working to reduce the amount of DoD property held by defense contractors. DoD often loans contractors government tooling or equipment to perform defense-unique tasks. Since the 1980s, the original value of property in contractor hands has grown in spite of repeated efforts to curb growth. The goal is to dispose of $3 billion worth by 2000. In the future, DoD will rely on commercial suppliers to use their own equipment.

Finally, DoD is looking to reduce supply inventories to match the current needs of reduced troop levels. From a 1989 high valued at $107 billion, DoD is now reducing supply inventories from $68 to $56 billion by 2000. To reduce supply inventory, the Department is being more selective in what and how it buys. DoD is improving equipment reliability, decreasing order and delivery times, and bypassing government warehouses.

DoD is making significant progress in the effort to dispose of strategic and critical materials, government property at contractor sites, and surplus inventory. The goal is to reduce the $6.1 billion in materials stored in 1996 by $2.2 billion. To date, DoD has disposed of $858 million worth of materials. To achieve the goal, however, the Department will need new congressional

authority for additional material sales of excess stockpile inventories in 2000, as well as a continued robust world market. DoD is already close to achieving the goal of $3 billion in special tooling and equipment.

Goal 12: Minimizing weapons cost growth. Minimize cost growth in major defense acquisition programs to no greater than one percent annually.

Historically, DoD overspent original budgets for major new weapons. Some of this cost growth was necessary to accommodate technology changes, schedule slips, and inaccurate estimates of the original cost. The Department's goal is to minimize cost growth of major new weapons by achieving greater program stability. The Department is monitoring major weapons programs quarterly, focusing on cost growth when making programming and budgeting decisions, and looking closely at how much money programs are asking for in the program acquisition process.

The Department has effectively met the 2000 goal for the last two years. Based on the FY 1999 President's budget, DoD had a slightly negative cost growth at minus three-tenths of a percent. The early projection for the FY 2000 President's Budget, however, shows DoD missing the goal, due to major cost growth attributed to Army and Ballistic Missile Defense Organization programs.

EXPANDED SINGLE PROCESS INITIATIVE

DoD's transition to a Performance Based Business Environment, maximizing the use of commercial items and practices, is a key step toward achieving civil military integration. The Single Process Initiative is the mechanism that the Department chose to implement changes to existing contracts. Over the past two and one half years, the Single Process Initiative has expedited the transition of existing contracts to common best processes, making a positive impact on the way the Department conducts business, by facilitating industry consolidation and plant modernization, encouraging innovation, and by encouraging subcontractor reform. While a solid beginning was established with this initiative, particularly in the transition of at least 140 facilities to the ISO 9000 quality standard, the Department has a long way to go. The replacement of multiple government-unique management and manufacturing processes with common, best, facility-wide processes that adopt best practices drawn from both commercial and government experience is an objective that requires a long-term vision.

The Principal Deputy Under Secretary of Defense (Acquisition and Technology) now chairs a Single Process Initiative Council, which includes the Component Acquisition Executives and representative from corporate management councils and industry associations, to facilitate this reform initiative.

DoD continues to emphasize integrating suppliers into a performance-based business environment as well. To assist in this integration, industry is working with the supplier base to facilitate supplier reform and acceptance of best practices. Additionally, several defense contractors initiated corporate Single Process Initiative Management councils designed to expedite reform and facilitate best practices. The Councils serve to expedite the spread of common best practices among defense contractors and the sectors in which they operate, further facilitating the integration of the defense industrial base and improving access to best value goods and services.

GOVERNMENT PROPERTY

Reform of government property practices is an essential component of civil-military integration. The Department objective is to establish an accurate accounting of current property assets while concurrently reducing the number of both new and existing assets. DoD established a policy designed to ensure that the Department ceases the practice of taking title to special tooling and test equipment, material, and particularly general-purpose equipment. Program Managers will now consider the total ownership cost in any decisions made regarding government property. Any decision to retain or take ownership must be based on a sound economic analysis demonstrating ownership cost benefit. An Integrated Product Team was formed to develop detailed implementation guidance.

PAST PERFORMANCE

Confidence in a prospective contractor's ability to satisfactorily perform is an important factor in making a best-value source selection decision. One method of gaining this confidence is the evaluation of a prospective contractor's performance on recently completed or

ongoing contracts for the same or similar goods or services. Past Performance Information (PPI) is very useful in motivating contractors to improve their performance because of the potential use of that information in future source selections. It is equally useful as a means of communication, providing feedback and justifying additional performance incentives for ongoing contracts. A contractor that delivers what the contract requires without extensive follow-up effort on DoD's part is clearly delivering better value than a contractor that charges the same price, yet needs constant surveillance by DoD personnel to ensure performance.

DoD policy is to collect Past Performance Information using a consistent management approach across the designated business sectors categorized as key or unique. DoD established business sectors and common assessment elements and ratings to standardize the methodology used to rate contractor performance under defense contracts. Buying activities share this information with other government buying activities to the maximum extent possible, while ensuring it is managed as source selection information.

Source selection authorities are given maximum latitude to focus on those specific areas of contractor performance that will provide the best predictors for successful performance of the instant acquisition. Evaluation of Past Performance Information is tailored to fit the needs of each specific acquisition. DoD-wide implementation of collection and use of PPI complies with the regulatory thresholds in Federal Acquisition Regulations as modified by an authorized class deviation. Automated collection systems are under development to assist the PPI collection effort.

PERFORMANCE-BASED CONTRACTING

The President's Management Council identified performance-based contracting as an initiative with significant potential payback to the federal government and one which was identified by the National Partnership for Reinventing Government in early 1998 as being essential to increasing the efficiency of government.

The Department of Defense is moving from traditional military specification and military standard nonperformance-based contractual requirements to performance-based contractual requirements. Performance-based contracting requirements move contract products and services to commercial solutions by focusing upon the purpose of the work to be performed rather than the manner in which it is to be performed.

The Department of Defense spends a significant amount of its annual procurement budget in services. As compared with traditional service contracting methods, performance-based service contracting demonstrated cost savings of approximately 15 percent and resulted in estimated customer satisfaction increases of 18 percent. The use of performance-based service contracting by the Department continues to yield significant rewards.

Performance-based contracting facilitates the Department's access to leading edge commercial technology and is an objective that is consistent with the goals of the Government Performance and Results Act. The Department reports its progress to Congress through the Office of Management and Budget.

PRICE-BASED ACQUISITION

To continue its Revolution in Business Affairs, DoD must eliminate or reduce the difference between the terms and conditions the Department uses as a buyer and those used by commercial buyers to obtain goods and services. DoD will do this in order to reduce the price of military products, enabling defense companies to integrate their military business with their commercial or potential commercial business, and to ensure greater access to commercial products, technology, and services. This will provide the warfighters with best-value goods and services.

The Department has already begun to describe its needs by using performance specifications for all new acquisitions. The Department has begun to change the way in which it administers contracts that have already been awarded through the Single Process Initiative. The next step is to determine how price-based acquisition (outcome oriented) works in the commercial environment, as opposed to cost-based acquisition (input oriented), and how it can best be used in DoD.

Cost-based acquisition, i.e., contracts that are based on costs incurred or projected to be incurred by the contractor, requires the tracking and allocation of costs, often in government-unique accounting systems, governed by federal Cost Accounting Standards (CAS). They also require that an offeror provide certified cost or pricing data. Both the government and industry have created and maintain infrastructures to administer the process of determining the allowability and allocability of all contractor costs and compliance with CAS.

Defense contractors must maintain a cost accounting system frequently different from a commercial cost accounting system based on generally accepted accounting principles to meet CAS cost measurement, assignment, and allocation requirements. Even though recent acquisition reforms have somewhat reduced the requirements for certified data, the continuing requirement that any data submitted be compliant with the government's unique accounting system remains a significant barrier to the Department's ability to access a full range of technologies and opportunities. In addition, there is a need to understand what accounting practices commercial firms use to account for costs and track cost and schedule status and how these practices might fit DoD acquisitions.

Price-based acquisition is the establishment of contractual relationships using price analysis instead of cost analysis. Price analysis may include comparisons to prices of other offers, market prices, competitive alternatives, and parametric analysis. Price analysis is the standard approach in the commercial world.

PRIVATIZATION/OUTSOURCING

Although the principal responsibility for outsourcing and privatization falls into the purview of other offices, many of the issues associated with outsourcing and privatization must be viewed through the acquisition prism. Given the Department's commitment to competitively source significant portions of its non-core requirements, the process by which such sourcing takes place is vital and related directly to acquisition reform. Indeed, that commitment is substantial. Some 229,000 full-time equivalents are being considered for competitive sourcing during 1997 through 2005. Achieving that ambitious goal requires a close look at the processes, time, and resources involved, and at the tools available to the work force.

Specifically, the Acquisition Reform team is focusing on potential revisions to OMB Circular A-76, the types and quality of training available to the DoD work force charged with procuring services, which will be largely defined through the Section 912(c) study on Services Training (all 912(c) studies are being coordinated by Acquisition Reform), and additional initiatives to improve the Department's use of performance-based statements of work, best value procurements, and more. In short, as competitive sourcing by the Department expands, the means by which the Department achieves its goals of procuring both goods and services from the best value sources is critical.

STATUTORY REPORT

Section 50001(b) of Federal Acquisition Streamlining Act of 1994 included an annual report requirement to Congress relating to achievement, on average, of 90 percent of cost, performance, and schedule goals for major and non-major programs. DoD was directed to decrease, by 50 percent or more, the average period for converting emerging technology into operational capability.

As of September 30, 1998, all but three Major Defense Acquisition Programs (MDAPs) are meeting more than 90 percent of the aggregated number of cost schedule and performance goals for that program. The three exceptions are Cooperative Engagement Capability, Forward Area Air Defense System Command Control and Intelligence, and PAC-3 Patriot programs, which are being reviewed by the military departments.

At the law's enactment date (October 13, 1994), the average period for converting emerging technology into operational capability for major programs was calculated to be 115 months from program initiation dates to initial operating capability dates for all current major programs. As of September 30, 1998, this average period declined to 109 months. The calculation of the average period of all MDAPs described above includes a significant number of older programs that were structured and developed using the traditional acquisition process. A more accurate assessment of the effects of DoD's acquisition reform efforts would be to concentrate on those programs that were initiated under the new acquisition reform process. MDAPs started since 1992 have an average period of 85 months for converting emerging technology into operational capability. The reduction is due to starting more modification and upgrade programs to fully employing regulatory reform, including specification streamlining, procurement reform, and integrated product teams to reduce cycle time.

TOTAL OWNERSHIP COST

DoD total ownership cost is the sum of all financial resources necessary to organize, equip, sustain, and operate military forces sufficient to meet national goals in compliance with all laws; all policies applicable to DoD, all standards in effect for readiness, safety, and

quality of life; and all other official measures of performance for DoD and its components. DoD total ownership cost is comprised of costs to research, develop, acquire, own, operate, and dispose of weapon and support systems, other equipment, and real property; the costs to recruit, train, separate, and otherwise support military and civilian personnel; and all other costs of business operations of DoD.

DoD made the reduction of total ownership cost one of the principal elements of the Revolution in Business Affairs. As systems are retained for longer periods, the cost of maintaining them increases dramatically. DoD took several actions to reduce total ownership cost. First, DoD is integrating the management of development and production for systems with the management of operations and support. This integration will provide a total ownership cost focus to development so that trade-offs can be made between investments in development and reduced costs in support. Second, DoD is reforming the logistics process by reducing logistics response time and the logistics footprint. Third, DoD is developing a system that will provide improved insight into total ownership costs and provide management information necessary to make more informed decisions. Finally, DoD established pilot programs to initiate, implement, and test innovative approaches designed to substantially reduce total ownership costs.

WORK FORCE ISSUES

The number of people in the acquisition work force and supporting the acquisition work force in acquisition organizations continues to decline sharply. In June 1998, a reduction of 20,000 for FY 1998 was mandated by the Secretary of Defense to comply with congressional guidance. Additional reductions are programmed for future years to meet National Partnership for Reinventing Government targets. Qualitatively, DoD's needs are changing as well. In the future, DoD will need managers to manage suppliers, not supplies, and engineers to design systems, not components. A smaller, differently skilled work force will have to be well educated, fully trained, and continuously learning. Accordingly, the Department has strongly supported the acquisition career programs of the Defense Acquisition University and in 1998, added a major initiative in continuing education to provide the means to keep people current professionally, as well as to shape the skill mix for the next millennium. Personnel management must also be reformed. Under authority granted by Congress, the Department is preparing to implement a major civilian personnel demonstration project for the acquisition work force. The Department continues to monitor promotion rates of military officers in the Acquisition Corps, as directed by Congress, to determine whether actions are needed, either within the Department or statutorily, to ensure the quality of military members of the Corps.

Training the Acquisition Work Force

In an era of diminishing resources, the Department can no longer afford to continue training employees in traditional methods. Because of the need to get timely information to the acquisition work force, other training methods and approaches must be utilized.

Through the use of satellite training broadcasts, web-based training, and other distance learning methodologies, the Department is able to deliver critical acquisition information to the acquisition work force in a timely manner and at reasonable costs. Over the past two years, the Department has conducted approximately 15 interactive satellite training broadcasts as a means to provide the acquisition work force with timely, consistent, and relevant information. The broadcasts focus on regulatory changes, cultural changes, and new acquisition processes. The broadcasts include educational videos, panels of industry and government experts, and opportunities for frontline professionals to ask questions on the air. Through satellite training, the Department is able to simultaneously reach several thousand people with consistent and timely acquisition reform information so that employees can make the best decisions and take the most effective actions.

The New Acquisition Work Force Vision

On April 1, 1998, the Secretary of Defense submitted to Congress a report, required by Section 912(c) of the National Defense Authorization Act for FY 1998, on actions to streamline acquisition organizations, infrastructure, and work force. In that report, the Secretary identified his vision of the acquisition work force for ten years from now. The Secretary envisioned an acquisition work force that is smaller and in fewer organizations; is focused on managing suppliers, rather than supplies; and is focused on the total cost of ownership to provide and support high quality goods and services required by U.S. forces. It will be a work force that is engaged primarily in working with the DoD components to determine affordability of requirements; helping to establish and execute budgets; working to reduce

cycle times; establishing contractual vehicles that are easily accessed by DoD's customers within DoD; overseeing contracts to make sure the work gets done on time, within tough performance parameters and within budget; and all the while, ensuring the public's trust and confidence.

The Department has already reengineered a number of processes in a manner that allows DoD to provide the required best-value goods and services to the warfighter, while reducing the work force by over 42 percent from its peak in 1989. Further reductions are planned for FY 2000 and beyond. In addition, the Secretary proposed a number of significant new initiatives that fall into one of five categories: restructure research, development, and test; restructure sustainment; increased acquisition work force education, and training; integrated, paper-less operations; and future focus areas (i.e., a price-based approach to acquisition and more fully integrating the Department's test and evaluation activities into the DoD acquisition process). The Department is conducting the studies identified in the Secretary's report. The studies are focused on implementation of actions to move towards the Secretary's vision.

INTEGRATING ENVIRONMENT, SAFETY, AND OCCUPATIONAL HEALTH INTO THE ACQUISITION PROCESS

More than 80 percent of the DoD's hazardous waste is generated in the production, operations, and maintenance of weapons systems. By integrating environment, safety, and occupational health (ESH) considerations into the acquisition reform process, DoD is helping reduce weapons system total ownership costs driven by hazardous wastes and other environmental requirements, while also improving performance. At the heart of the integration efforts are sound business practices such as the Institutionalization of Pollution Prevention to Achieve Compliance program, which is developing new tools and guidance to shift the focus from end-of-pipe controls to pollution prevention solutions to fulfill environmental legal requirements. In addition, the Joint Acquisition Sustainment Pollution Prevention Activity is being established by the joint logistics commanders to work with depots and industry to eliminate hazardous materials in the manufacturing and sustainment of weapon systems. These efforts will help in the implementation of long-term pollution prevention improvements.

DoD Directive 5000.1 lists the Department's policies and principles that guide all defense acquisition programs. To implement DoD's policy, DoD Regulation 5000.2 requires that every weapon system program integrate ESH considerations into its systems engineering process. This integration, which must be initiated at the earliest possible time in the acquisition process and updated continually, identifies the key ESH issues that affect total ownership costs, program schedules, and system performance.

CONCLUSION

Acquisition reform continues to be an important element of the Department's strategy to meet the requirements of the warfighter, by buying smarter and faster, by getting better products at a cheaper price, and by accomplishing these goals with fewer resources. Acquisition reform is a continuous process, focused on identifying and eliminating impediments to new and innovative business processes, as well as incorporating best practices from the marketplace.

Chapter 16

INFRASTRUCTURE

Support operations play a critical role in enabling Department of Defense personnel to live, train, and execute national security policy. Support functions must become better, faster, and less expensive to contribute to quality of life, morale, retention, and force readiness.

FACILITY MANAGEMENT

DoD Infrastructure

The Department has the world's largest dedicated infrastructure. Roughly the size of the state of Virginia (40,000 square miles), the Department's physical plant is worth $500 billion. It includes mission and mission-support facilities and housing for more than 293,000 families and about 400,000 unmarried service members. The Department is actively pursuing initiatives to improve efficiency and performance of the DoD facility support structure.

Facility Strategic Plan

The Department is developing a strategic plan to serve as a source for planning guidance on facilities. An initial plan, which includes a vision, mission, and goals, incorporates many existing initiatives, such as improvement of lease management, demolition of excess and obsolete structures, and development of a facility aging model. An extended plan will incorporate new initiatives such as joint use, recapitalization, and improved real property reporting. The first annual plan will be issued in early 1999.

Enhanced Out-Leasing of Underutilized DoD Real Property

Congress asked DoD to report on uses of non-excess military property for which DoD has long-term leases but no immediate utilization requirements. Since Congress has not authorized the closing of additional bases, use of such property could present a potential economic benefit to the Department and the nation. As a result, DoD is examining and will report on options for improving real property asset management at DoD installations in early 1999.

Improved Management of Leasing

The Department of Defense spent approximately $823 million in FY 1998 to lease buildings and property for

its use. In managing this process, each Service and defense agency developed its own plans and procedures, with no systematic process to achieve efficiencies through cross-Service/agency coordination. Making these efforts more difficult is the fact that data on leasing is inadequate, inconsistent, and not integrated into long-term force and infrastructure planning. Improving the management of leased property in the Department involves improving the quality and consistency of data, determining the appropriate organizational level and scope for management of leased property, and competing leased property management.

To improve the quality and consistency of data and to achieve better use of leased assets, the Department is creating a DoD-wide integrated relational database/information system that provides real-time information on leased-space costs, availability, and terms and conditions. Improving the management of DoD real property assets will lead to better use of owned land and buildings resulting in reduced leasing costs.

Facility Disposal

One element of the facilities strategic plan concerns the demolition and disposal of approximately 80 million square feet of obsolete and excess buildings by FY 2003. This initiative, part of the Secretary's Defense Reform Initiative (DRI), remains on track toward meeting the target. Disposal of these buildings will save operations and maintenance dollars, as well as improve safety through the removal of abandoned facilities.

Research, Development, Test, and Evaluation

The increasing complexity of DoD weapon systems and the expanding size of the forecasted battlespace are driving the research, development, test, and evaluation (RDT&E) infrastructure to become more complex and more sophisticated. DoD laboratories now develop leading-edge technologies across a broader spectrum of the physical and life sciences that are directly relevant to warfighter needs and have substantial commercial applications. Similarly, test and evaluation infrastructure supports users ranging from laboratories through operational units, federal agencies, U.S. allies, and commercial enterprises. It provides test and evaluation services for complex, high performance systems in test environments that replicate expected operations environment. Several thousand test projects are performed at these sites each year for DoD, other federal agencies, U.S. allies, and commercial users.

Base Realignment and Closure (BRAC) and other actions have resulted in improved responsiveness and yielded significant reductions in RDT&E personnel and infrastructure. DoD recognizes that it must continue to improve infrastructure efficiency to provide technologically superior test capabilities for U.S. forces. Under Section 912 of the FY 1998 National Defense Authorization Act, DoD is reviewing laboratory and test and evaluation infrastructure.

In addition to the review of the infrastructure, DoD is also studying several areas for test and evaluation process improvement to reduce cycle time for, and the costs of, the development of systems and to accelerate the use of commercial products.

Military Housing

Quality of life, and housing in particular, remains a priority for the Department. Worldwide, the Department owns over 297,000 housing units and leases another 27,000 units. The Services identified over 181,000 of the owned units (62 percent) as inadequate. The FY 1999 President's Budget request of $3.5 billion for family housing will revitalize over 5,600 housing units ($611 million) and provide $2.8 billion to operate and manage housing for service members and their families. The Services also provide unaccompanied housing for over 390,000 single soldiers, sailors, airmen, and Marines worldwide. Like family housing, current estimates show almost two-thirds of the barracks spaces are considered inadequate, requiring significant revitalization or replacement.

To combat the problem of poor housing, the Department established clear goals for the Services to eliminate inadequate family housing by 2010 and to eliminate permanent party gang latrines by 2008. The Services have provided installation-specific plans to accomplish the family housing goal and are preparing similar plans for implementing the Department's 1+1 barracks standard.

MILITARY HOUSING PRIVATIZATION

One of the Secretary of Defense's top priorities is to improve the quality of life for service members and their families by providing quality affordable military family housing. Two-thirds of DoD's 297,000 existing housing units are in need of extensive repair. Using traditional military construction practices and funding, it would take 30 years and $20 billion to solve the housing problem. The Department's Military Housing Privatization Initiative, signed into law in 1996, is now an essential

tool for solving its housing problem. This initiative enables the Department to decrease its up-front construction expenses and eliminate the operations, maintenance, and management costs that are incurred over the life of traditional housing construction projects. Since 1996, DoD has made significant progress toward the privatization of military housing and plans to accelerate the privatization program in the future. DoD now has solid examples to follow that will help build a portfolio of successes.

Two Navy projects totaling 589 town house units, at Naval Air Station Corpus Christi, Texas, and at Naval Station Everett, Washington, were completed in 1997. Service members and their families are now living in their new homes. In 1998, the Air Force awarded a project at Lackland Air Force Base, Texas. The company that was awarded this project will design, construct, own, operate, and manage 420 new units of rental housing to serve enlisted families at the base. DoD is evaluating proposals for an up to 160 housing unit project at Marine Corps Logistics Base, Albany, Georgia. The Department projects that the Services will issue more than 30 additional requests for proposals and requests for qualifications by the end of 1999. The Services will continue to nominate more sites each year.

In 1996, OSD established the Housing Revitalization Office to help establish this privatization program. With a solid foundation in place in 1998, OSD returned to its traditional program oversight role while maintaining control of the Family Housing Improvement Fund. Program implementation from project development to execution is the responsibility of the Services. This effort responds to DRI Goal 6B - To privatize 30,000 military housing units by FY 2000.

Energy Conservation

The Department spent $2.17 billion in FY 1997 to heat, light, cool, and operate buildings and other facilities on military installations. DoD consumes over 70 percent of all energy used by all federal facilities. The long-term goal established by Executive Order 12902 is to reduce energy use by 30 percent by FY 2005. FY 1997 energy consumption in Department of Defense buildings and facilities was 17.2 percent below the FY 1985 baseline.

The Services and defense agencies continued to achieve significant energy reductions through proactive energy awareness and training programs, energy audits and surveys, and investments in energy conservation measures. Energy and water conservation measures were funded from many sources, including Operation and Maintenance funds, the DoD Federal Energy Management Program, and the Energy Conservation Investment Program. The DoD energy program also benefited from alternative funding programs such as Energy Savings Performance Contracting and utility sponsored demand and energy conservation incentive programs. Effective and efficient use of energy decreases operating costs, reduces greenhouse gases, and mitigates global warming.

Under the White House Climate Change Task Force, DoD has chartered a working group on Sustainable Design to develop implementation plans throughout all federal agencies. Sustainable Design integrates the following principles into facility and infrastructure planning, programming, design, construction, and facilities management:

- Increased energy conservation and efficiency.
- Increased use of renewable energy resources.
- Reduction or elimination of toxic and harmful substances in facilities and their surrounding environments.
- Improvements to interior and exterior environments leading to increased productivity and better health.
- Efficiency in resource and materials utilization, especially water resources.
- Selection of materials and products based on their life-cycle environmental impacts.
- Increased use of materials and products with recycled content.
- Recycling of construction waste and building materials after demolition.
- Reduction in harmful waste products produced during construction.
- Facility maintenance and operational practices that reduce or eliminate harmful effects on people and the natural environment.

DoD is implementing Sustainable Design in all new buildings and facilities planned for construction after FY 2000. It expects to achieve a 30 to 50 percent increase in energy efficiency, compared to conventional

buildings and facilities of similar function constructed in FY 1996. The future construction program is still being developed; at this point, rough estimates are that DoD will build approximately 16 million square feet of new facilities in the next decade. Applying sustainable design to 16 million square feet of facilities will save over 500 billion BTUs and over $5 million in energy savings a year.

The Department is also actively participating in working groups addressing Energy Savings Performance Contracting, compact fluorescent lights, expanded use of renewable technologies, energy efficient windows, review of executive orders and procurement tools, energy use in the transportation sector, and expanded use of combined heat and power technologies. Emphasis on greater use of these applications and technologies will dramatically reduce energy consumption.

Streamlining Through Competition

COMPETITIVE SOURCING

The Defense Reform Initiative called for the Department to increasingly rely on the competitive powers of the marketplace to generate efficiency. The dynamics of competition improve quality, reduce costs, and focus on customers' needs. DoD is committed to using competitive sourcing as a tool to obtain efficiencies and generate savings for the modernization of U.S. forces.

Historically, the Department saved 20 percent on services costs as a result of past competitions, with some recently completed competitions yielding more than 40 percent savings. The Services and major defense agencies plan to compete more than 229,000 positions between FY 1997 and FY 2005. In order to assure sufficient candidates are available for competition, an inventory and review of all civilian and military positions within the Department were completed in January 1999. The inventory and review determined which positions within DoD are inherently governmental in nature, which are commercial activities exempt from competition, and which are commercial activities available for competition. The Department will continue to use competitive sourcing and other tools to obtain efficiencies and savings while preparing to meet the challenges of the next millennium.

UTILITIES PRIVATIZATION

The Department continues to aggressively pursue the privatization of its electric, water, waste water, and natural gas utility systems in accordance with the Defense Reform Initiative. This will reduce infrastructure costs while providing quality utility service. Industry has shown a strong interest in DoD's privatization efforts. Competition for both the conveyance of the utility infrastructure and the resulting acquisition of utility service is key to the effective management of the substantial resources DoD directs at its energy facilities. The Department issued uniform criteria for economic and security exemptions guidance from the utility privatization policy.

RIGHT-SIZING THE BASE STRUCTURE

The Department's BRAC process is a major tool for reducing the domestic base structure and generating savings. DoD recognizes its responsibility to communities surrounding former bases and has a strong track record in helping them develop these properties into vibrant centers of economic growth for public benefit. Even so, the Department's base infrastructure remains too large for its mission. It must be right-sized to properly support the national security mission.

BRAC Savings

With four BRAC rounds between 1988 and 1995, DoD invested approximately $22.5 billion to close or realign 152 major installations and 235 smaller installations. These closures and realignments will net a projected $14.5 billion savings by FY 2001. Recurring savings after FY 2001 will amount to approximately $5.7 billion each year. These costs and savings were confirmed in a DoD report submitted to Congress in accordance with Section 2824 of the 1998 National Defense Authorization Act. The Congressional Budget Office verified that DoD estimates contained in the report are reasonable and credible.

Base Reuse Improvements

The Department continues to make base reuse a high priority. Since 1993, when President Clinton launched a plan to support faster redevelopment at base closure communities, DoD has made major improvements to the way former military bases are converted to civilian use.

- Jobs Centered Property Disposal. When a military installation closes, Economic Development Conveyances (EDC), in an effort to generate jobs, make

BRAC property available to public entities at, or below, the estimated fair market value. Primarily, the EDC program addresses the economic problems a community faces when a military installation closes. Reuse of the property is often the only available development opportunity. Job generation, private investment, and economic growth can take place on the former property if it is accessible quickly and at a reasonable cost. Economic recovery is accelerated by tailoring the EDC financial payment terms and conditions to fit communities' plans to reuse the former bases. EDCs also enhance DoD's ability to dispose of unneeded facilities and eliminate protection and maintenance costs while obtaining fair and reasonable compensation for former assets. Thirty-two approved EDCs anticipate the creation of 146,073 jobs and are expected to yield more than $300 million. DoD routinely assesses this program for appropriate balance, flexibility, and responsiveness.

- Leasing for Reuse. Easy and quick access to former DoD facilities through the issuance of interim leases for job-generating and revenue-generating tenants is essential for a BRAC community to succeed. The Department has taken many steps to streamline and accelerate the review and approval of interim lease applications. Some examples are that model leases are in place that serve as boilerplate for the standard federal lease requirements; preleasing conferences are convened by the military departments with the BRAC community and prospective tenant to review regulatory requirements and timelines for processing a lease; and the military departments delegate, to the extent practicable, lease approval authority to their field divisions. Due to these efforts, tenant activity at closed bases increased an average of 56 percent since June 1995.

- Better Guidance. DoD's *Base Reuse Implementation Manual*, first published in 1995 and reissued in 1997, helps BRAC communities better understand the steps involved in gaining access to former military property quickly and easily. It also establishes DoD's policies and procedures for the base closure, disposal, and reuse processes. The manual is an excellent resource document. Follow-up editions will incorporate future legislative changes, process improvements, and policy modifications, and will hold to the Department's commitment of a flexible process that works better and costs less.

New Jobs and New Tenants

Successful recovery from base closures through conversion of military bases is found throughout the country. Already the redevelopment of closed bases created 47,682 new jobs and 1,100 tenants. For bases closed more than two years, 70 percent of the lost civilian jobs have been replaced. In many locations, job generation and economic activity at closed bases serve other public purposes, such as airports, ports, schools, hospitals, parks, prisons, government offices, facilities for the homeless, and affordable housing. Such activities reduce government costs and provide stability for development. Their presence, especially early in the reuse process, helps attract other tenants and jobs.

Most communities are rebounding remarkably fast, crafting more diverse and stronger economies. BRAC communities in California, the state hardest hit by base closures, are well on their way to recovery. For example, on the site of the former army depot in Sacramento, Packard Bell employs 5,000 people. At the former Mather Air Force Base in Sacramento, there are 800 more jobs than the number of civilian positions on the base before it closed. The former Castle Air Force Base, located in a low-income, high unemployment, agricultural area of northern California, now boasts almost 1,900 new jobs, completely replacing the 1,149 civilian positions that were lost because of the closure. At Norton Air Force Base in San Bernadino, the airport and other businesses have attracted 80 tenants with 2,490 employees, and all 1.25 million square feet of available property is leased. Demolition and site preparation for the construction of one million square feet of new warehouse space are under way.

These are just a few illustrations of the growth of public and private sector operations at closed bases. BRAC communities are experiencing unprecedented success in reusing redundant defense assets for civilian, job-generating purposes. This success is expected to continue.

Surplus Property Disposal

To speed the economic recovery of BRAC communities, it is DoD policy to dispose of property as quickly as possible. Once BRAC property is declared surplus, various disposal mechanisms are available to a state or community. Reuse preferences and acquisition strategies are identified in a community-based public planning process, incorporated into a reuse plan, and submitted to the landholder disposal agent for consideration.

DoD uses 101 major base closure properties, approximately 284,000 acres of excess BRAC property, as a baseline for measuring progress on disposal. As part of the Department's involvement in the National Partnership for Reinventing Government, DoD established a goal to complete disposal of 50 percent of the property baseline, or 142,000 acres, by 2000. Seventy-two base transition coordinators are on site to help facilitate the disposal process. Already, DoD has transferred or sold approximately 72,000 acres. This was done in close cooperation with BRAC communities and in keeping with their reuse plans. This effort responds to the DRI's Goal 6a - In the spirit of fostering partnerships and community solutions, DoD will complete disposal of 50 percent of the surplus property baseline.

Future Base Closure Rounds

The Quadrennial Defense Review established three key elements of defense strategy. The U.S. military must shape the international security environment day to day, respond to crises across the full spectrum of operations, and prepare now to meet future threats. The Defense Reform Initiative set out the agenda for that revolution, including reengineering business processes, consolidating organizations, competing commercial activities, and eliminating excess infrastructure. Central to this effort are two additional rounds of BRAC beginning in 2001. The Department needs two more BRAC rounds if tomorrow's forces are to carry out their mission. Department efforts to operate and maintain unneeded facilities waste resources that are better spent on modernization and readiness. As a result of the first four rounds of BRAC (1988, 1991, 1993, and 1995), the Department will save $14.5 billion by FY 2001, with savings of about $5.7 billion every year thereafter. Important decisions about future BRAC rounds need to be made in the near future since the Department's growing modernization program peaks in the period after 2005 and additional resources must be found to support it. Eliminating excess capacity in infrastructure early in the next decade could yield billions in savings necessary to finance modernization and readiness programs, and facilitate realization of the goals contained in *Joint Vision 2010.*

REDUCING TOXIC CHEMICALS RELEASES AT INSTALLATIONS

In 1994, DoD began to submit annual reports to the Environmental Protection Agency on the release of toxic chemicals. In 1995, DoD released or transferred off-site 6.8 million pounds of these chemicals. In 1996, DoD reduced these releases and shipments by 28 percent to 4.9 million pounds by adopting a strong pollution prevention program and by reducing polluting activities. Thus, DoD achieved and exceeded this goal four years early. To demonstrate further commitment to reducing toxic chemical releases, DoD intends to reduce release and off-site transfer of toxic chemicals by another 20 percent from the 1995 baseline.

DoD reached and exceeded its original 20 percent reduction goal by finding new products and processes that do not rely on toxic chemicals, working in partnership with industry to reduce or eliminate toxic chemicals used in manufacturing weapons, and minimizing the use of toxic chemicals in manufacturing weapons. This reduces the use of toxic chemicals on military bases that operate, maintain, and repair weapons.

By decreasing use of these toxic chemicals, the Department avoids spending money on extra paperwork, special handling, and disposal. Most importantly, the environment is improved for everyone. This effort responds to the DRI's Goal 8 - Reducing total release of toxic chemicals by a further 20 percent from a 1995 baseline by 2000.

Integrated Environmental Management

Corporate experience shows that the integration of environmental and core concerns within an organization can generate constructive, cost-effective environmental management which reduces the use of resources. DoD initiated an integrated approach to environmental security decision making and management. The objective of this program is to protect people, manage training and living areas judiciously, be a good citizen and neighbor, and set an example for other militaries around the world.

One of DoD's most significant recent innovations in integrated environmental management is establishing ecosystem management as the preferred approach to managing its natural and cultural resources. Ecosystem management involves partnering with other land managers, involving stakeholders in resource decision making, using the best scientific information available, considering many environmental factors, and preserving long-term ecological functions.

DoD is employing an ecosystem approach to natural and cultural resources management on a large scale in California's Mojave Desert, where Army, Navy, Marine

Corps, and Air Force bases are all located. This approach helps DoD land managers and trainers better assess the quality of their lands, determine future uses, assess impacts beyond installation borders, and conserve areas that are rare and unique and need protection.

This ecoregional approach is also proving increasingly attractive to major military installations, such as Eglin AFB, Florida, where new cooperative agreements with adjacent state and federal land owners helped ease the specific compliance burdens associated with the requirements of the Endangered Species Act for the endangered red-cockaded woodpecker. Other bases implementing this approach include Camp Pendleton, California; Fort Hood, Texas; Fort Huachuca, Arizona; and Arnold AFB, Texas.

DoD continues to test new management approaches such as the International Standards Organization's (ISO) 14001 standard. ISO 14001 is an international standard on environmental management systems designed to help companies improve the effectiveness of their environmental programs, especially in addressing emerging requirements. DoD began a pilot program to test the feasibility and cost effectiveness of ISO 14001 at 18 military installations. The pilot program is designed to gain experience at a wide variety of installations and includes partnerships with state environmental regulators.

Environmental Liability From Past Practices

The Department is moving toward its objective of completing the cleanup program and eliminating a continuing drain on the Department's resources. At the cleanup program's inception, progress was measured by the number of sites identified, remedies selected, cleanups prioritized, and cleanup designs approved. As the program matured, the focus of the cleanup program has moved from identifying sites to completing cleanups. Today, progress is measured by the number of sites with remedies in place and the number of sites categorized as response complete, indicating sites reaching the last milestone in the cleanup process. To ensure resources and efforts produce optimal value, new technologies are incorporated into planned cleanups; risk analyses are used to select risk-based remedies that are consistent with anticipated land use; peer reviews are used to improve program efficiency; and planning, programming, and budgeting has been devolved to the Services.

CONCLUSION

The Department of Defense is working hard to make its support structure as agile and efficient as possible. DoD is improving every area of its infrastructure so that as the nation enters the next millennium the Department will be prepared to face global challenges. DoD is committed to maintaining only the infrastructure needed and to managing it better—adopting the best business practices, streamlining organizations, and introducing competition into the delivery of support services, wherever it is effective to do so.

Chapter 17

INDUSTRIAL CAPABILITIES AND INTERNATIONAL PROGRAMS

The Department of Defense faces three strategic challenges. DoD must seek to shape the international environment, respond to the full spectrum of crises that threaten U.S. interests, and prepare now for an uncertain future. To meet these challenges and support the required Revolution in Military Affairs, DoD must be able to draw on a supplier base that can design and produce next generation weapons, innovate to preserve technological leadership, reduce cycle times to respond to evolving threats, lower costs significantly, and support interoperability for joint and coalition warfare with U.S. allies.

The Department is pursuing a three-pronged strategy to achieve these objectives:

- Maintain effective competition in the defense industrial base.
- Improve commercial-military integration to gain access to world-class suppliers, reduce costs by sharing overhead with commercial products, speed response times, and broaden the competitive base for components and subsystems.
- Expand international engagement to leverage allied government investments, build alliance cohesion, and support interoperability.

A CHANGING COMPETITIVE ENVIRONMENT

The competitive environment within the defense industry has changed considerably in the past five years in response to the dramatic decline in procurement spending. In response to this decline, defense firms initiated a series of actions to restructure their operations to maintain profitability. They reduced excess capacity and work force levels to match reduced demand, streamlined processes, revamped supplier relationships, and began a process of industry consolidation via mergers and acquisitions.

The Department has generally supported the process of consolidation because it enables firms to eliminate excess capacity, reduce costs, and provide better value for DoD and the U.S. taxpayer. At the same time, the Department did not support transactions or parts of transactions that adversely impacted effective competition for DoD programs. Competition is a proven means of speeding innovation and reducing cost.

The Department has a clear process in place to determine when critical industrial capabilities are endangered and must be sustained. Additional funding or other actions (such as a change in acquisition strategy or investment strategy) may be required. There are small business efforts and other technology programs in place to support various industrial capabilities.

Overall, the restructuring of the defense industry is successful. Mergers and acquisitions helped consolidate defense industries, resulting in stronger and more stable firms. There were no significant bankruptcies or bailouts of defense firms, and DoD is maintaining competition for defense products while saving money.

Merger and Acquisition Reviews

ANTITRUST CONCERNS AND REMEDIES

The Department reviews each merger and acquisition transaction carefully to determine the effects on DoD programs and advises the appropriate antitrust agency. DoD reviews address four questions: First, will the merger result in a loss of necessary competition? Second, will the merger have an adverse effect on programs because of buyer/seller relationships between the two firms? Third, does the merger present potential organizational conflicts of interest? Fourth, what costs or savings could accrue to the Department as a result of the acquisition?

Since October 1995, the Department has reviewed 49 transactions; 23 of these were completed in FY 1998. During this period, a number of these transactions proceeded only on the basis of consent agreements between the companies and the Department of Justice or the Federal Trade Commission. These agreements required divestitures of businesses, agreements not to enforce exclusive teaming arrangements, and firewalls.

Once mergers are consummated, the Department will pay its fair share of restructuring costs. As required by law, before DoD pays any restructuring costs associated with business combinations occurring after August 1994, DoD must certify that projected savings are based on audited cost data and should result in overall reduced costs for DoD. In addition, for business consolidations occurring after September 1996, the audited projected savings for DoD must exceed costs by a factor of at least two-to-one for the restructuring costs to be allowed. DoD pays its share of amounts spent for severance pay, relocation assistance, retraining, and retention of medical benefits. DoD will not pay for any portion of the cost of making the acquisition, bonuses, or executive severance packages. Projected restructuring costs and savings were certified for eight business combinations since July 1993, and for one other business combination where a certification was not required by law. For these nine business combinations, DoD expects to realize about $4.2 billion in savings over five years and to pay about $840 million in restructuring costs as they are included in contract prices, for a payback of more than five-to-one.

THE LOCKHEED MARTIN/NORTHROP GRUMMAN PROPOSED MERGER

In March 1998, the Department of Justice, with the support of DoD, sought to block the proposed $11.6 billion merger of Lockheed Martin and Northrop Grumman. This was the first time since 1992 that the antitrust agencies went to court to block a transaction involving defense firms. Competitive concerns in the intervening years were resolved through consent agreements or firms abandoning a proposed transaction in the face of concerns of the antitrust agencies or DoD. In July 1998, the companies decided to abandon the transaction, and the matter did not proceed to trial. The Department's opposition to this merger did not represent a change in policy, but reflected the fact that industry consolidation to date has changed the defense market significantly and future acquisitions/mergers are thus more likely to raise competitive issues.

Improved DoD Visibility Into Industrial Capabilities

The Department is working to increase visibility into supplier capabilities and subtier relationships to assist program managers in the development and implementation of future acquisition strategies. DoD has made significant progress in several areas.

ACQUISITION STRATEGIES THAT TAKE ADVANTAGE OF EXISTING INDUSTRIAL CAPABILITIES

DoD's acquisition managers need to ensure acquisition strategies promote competition not only at the prime level, but also at the subtier level, throughout the program's life cycle. To emphasize the importance of competition in subtier markets, the Department revised DoD Regulation 5000.2-R, Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information System Acquisition Programs. This

requires that acquisition strategies foster competition at prime and subcontractor levels, and that program managers focus on subtier competition during early exchanges of information with industry. Under these guidelines, acquisition strategies will need to identify the potential industry sources available to supply products and technologies critical to meeting the program's needs, highlight areas where potential prime contractors also are potential suppliers of these critical products and technologies, and describe the approaches to be used to establish or maintain access to competitive suppliers for critical areas at the system, subsystem, and component levels.

In recent years, the Department has employed a variety of strategies to promote competition at both prime and subtier levels. Specific steps taken include maintaining government flexibility in the selection of critical suppliers, competing subsystems separately from platforms, supplying critical subsystems as government furnished equipment, and breaking anticompetitive exclusive teaming arrangements.

COMPONENT AND MATERIAL INDUSTRIAL ASSESSMENTS

The Department is expanding visibility into key product and technology areas to identify single sources and endangered capabilities. Initial efforts focused on products affected by recent mergers and acquisitions, such as monolithic microwave integrated circuits and focal plane arrays. DoD is intensifying efforts to identify concerns posed by vertical integration and develop insight into key subtier capabilities, competition, and innovation.

Since 1994, the Department has completed a series of studies on industrial capabilities across a range of weapon systems, including tracked combat vehicles, helicopters, bombers, space launch vehicles, and torpedoes. Recently, studies also were completed on a few critical components, including radiation-hardened electronics, microwave power tubes, and capacitors and resistors. Currently, DoD is expanding the monitoring of potential single source concerns for selected, important products and technologies, including fixed wing aircraft, satellite payloads, electronic systems integration for combat systems, advanced suspension systems for tracked combat vehicles, deformable mirrors, radar systems, strategic and space launch solid rocket motors, missile and bomb fuzes, and integrated automatic aircraft flight controls.

Small Business Efforts

Small business is an important source of the industrial capabilities supporting defense needs, as well as an important element of the economic fabric of the nation. Small businesses bring critical innovation to the defense marketplace. Additionally, small business is an engine that provides job creation and ensures a greater number of citizens receive benefits from defense procurement dollars.

The small business program completed a successful year in FY 1998. Small businesses were awarded $23 billion in prime contracts out of the $109.7 billion awarded to U.S. business concerns in FY 1998. This represents a small business prime contract achievement rate of 21 percent. DoD awards to small disadvantaged business (SDB) concerns were similarly impressive, with prime contract awards equaling $6.5 billion (6 percent). In the Women-Owned Small Business (WOSB) Program, the Department awarded $2 billion in prime contracts in FY 1998. This represents 1.8 percent of total prime contract awards. The Department is pursuing a number of initiatives to enhance WOSB participation to meet the government-wide 5 percent goal.

MENTOR-PROTEGE PROGRAM

The Mentor-Protege Program proved to be a valuable tool in the Department's success in meeting its SDB prime and subcontracting goals. Proteges may be SDB firms or qualified organizations which employ the severely disabled. Over 200 large business mentors provided over 300 protege firms with business and technical assistance targeted toward enabling these firms to compete more effectively in the complex DoD marketplace. For their efforts, the mentors receive reimbursement or credit toward their SDB subcontracting goals.

A FY 1998 review of mentor-protege agreements approved between FY 1994 and FY 1997 indicated that:

- There was a net gain of 3,342 jobs within these protege firms.
- There was a net revenue gain in excess of $276 million within these firms.
- Participating mentors reported an additional $695 million in subcontract awards to small disadvantaged business firms during this period.

In addition, protege firms received new technology, improved quality assurance systems, and business infrastructure support. Mentor firms received value as the

direct result of developing a technically qualified and more competitively priced supplier base. As mentor firms restructured and downsized, they often formed strategic alliances with protege firms for the specific purpose of outsourcing functions previously performed in-house. Similarly, the Department gained by having an increased number of cost-effective, technically qualified small business sources for defense prime contracting and subcontracting requirements. It is apparent that significant benefits accrued from the DoD pilot Mentor-Protege Program to mentors, proteges, and the Department.

WOMEN-OWNED SMALL BUSINESS PROGRAM

The Department's Women-Owned Small Business Program has three objectives:

- To facilitate, preserve, and strengthen full participation for WOSB firms in the DoD acquisition process.
- To promote efforts to achieve the government-wide 5 percent goal for prime and subcontract awards to WOSB concerns.
- To support the growth of WOSB firms through outreach and technical assistance.

The DoD WOSB Working Group launched a series of initiatives toward the attainment of these objectives. These include the development of a nationally acclaimed WOSB Web site (www.acq.osd.mil/sadbu/wosb), which highlights program best practices, initiatives, and success stories, and provides a step-by-step approach to the defense marketplace. A WOSB Program Presentation was developed and disseminated to DoD field activities and Procurement Technical Assistance Centers as a tool for training and outreach. Most recently, the Department's WOSB Working Group developed a focused outreach program targeting specific industry areas which offers maximum potential for increasing prime and subcontract awards to WOSB concerns.

SMALL BUSINESS INNOVATION RESEARCH PROGRAM

DoD's Small Business Innovation Research (SBIR) Program funds approximately $550 million each year in defense related research and development (R&D) projects at small technology companies. SBIR-developed technologies contribute significantly to U.S. military capabilities in the full spectrum of requirements from aircraft to logistics to communications programs. For example, an infrared-absorption hygrometer developed under the SBIR program led to the development of the pilot alert system now used in the B-2 Bomber. The pilot alert system warns a pilot if the plane is about to produce a trail of condensation that could be detected by enemy radar. Also, an SBIR project led to the technology that increased the capacity of communication satellite networks by a factor of ten, allowing each network to serve ten times as many users during the course of a day. This technology is being used extensively in military satellite communications. The Department has a number of initiatives under way to streamline and improve SBIR processes and leverage the program's output.

The Commercial Operations and Support Savings Initiative

As equipment ages, operations and support (O&S) costs increase. Because many of the systems currently in use will remain in the DoD inventory for years to come, O&S are prime areas for DoD cost reduction efforts.

The Commercial Operations and Support Savings Initiative (COSSI) is an innovative way to reduce O&S costs. COSSI modifies existing or imminent commercial technologies to develop a prototype that can be inserted into a military system to improve reliability, reduce maintenance, improve fuel efficiency, reduce spare parts costs, or eliminate parts obsolescence.

A key feature of the program is the requirement for the contractor and DoD to share the cost of developing the component. Another feature is the use of authorities given to the military departments by 10 U.S.C. 2371. These authorities allow the Secretary of Defense and the Secretaries of the military departments to enter into transactions that are not encumbered by many of the procurement laws and regulations that apply to other acquisitions. The flexible nature of these agreements promotes the formation of government-industry partnerships. Both the program office and the contractor are given greater freedom to concentrate on project objectives instead of rigid compliance with contract provisions. Additionally, contractors who have traditionally shied away from doing business with DoD because of the complexity of DoD contracting requirements can take advantage of the streamlined process made available by 10 U.S.C. 2371 to offer their ideas for O&S cost savings.

COSSI is currently funding 30 projects in a variety of technology areas. Some projects involve the replacement of obsolete computers in aircraft. Others are redesigning electronic components to improve reliability and to take advantage of open system architectures so future upgrades will be easier and less costly. A number of projects involve the use of advanced composite materials for rotor blades and airframe components. The 30 ongoing projects have the potential to save DoD over $3 billion in O&S costs over a ten year period.

KEY TECHNOLOGY AREAS TARGETED FOR TITLE III ACTION

Title III of the Defense Production Act creates assured, affordable, and commercially viable production capabilities and capacities for items essential for national defense. This is achieved by partnering with the Services' acquisition, support, and laboratory programs and with industry. Title III is the only direct vehicle used by the Department for establishing or increasing production capacity that directly benefits national security. A key tenet of the program is to rely on dual-use production capabilities, leveraging shared demand for these technologies by both military and commercial markets. The current Title III Program is targeting three key technology areas: electronic materials, electronic devices, and advanced structural materials and components. Current projects in these technology areas are focused on sustainment of fielded systems, while also facilitating early insertion of production-ready technologies in new and modified systems. U.S. commercial markets share the benefits of these technologies because Title III assures availability of products while enhancing their affordability and quality.

Efforts in the electronic materials area are focused to support higher frequencies, radiation hardness, and much higher power levels essential to evolving electronic devices in radars, lasers, other sensors, and advanced wireless communications. Specific Title III projects include high purity float zone silicon, semi-insulating indium phosphide wafers, silicon on insulator wafers, and silicon carbide semiconductor substrate material.

Projects in electronic devices include Active Matrix Liquid Crystal Cockpit Displays, Small Flat Panel Displays, and Power Semiconductor Switching Devices. Benefits gained from these devices include greatly enhanced pilot and crewmember performance through better information display; smaller, more affordable, and more reliable power switching; and conditioning on ships, aircraft, and land vehicles.

Titanium Metal Matrix Composites and Aluminum Metal Matrix Composites are two projects in the advanced structural materials and components area. These two efforts will lead to earlier insertion of these emerging composites in advanced jet engines and tracked vehicles, respectively.

WORKING WITH OTHER NATIONS

U.S. forces often fight or work alongside the military forces of other nations. Deploying forces in cooperation with those of other countries places a premium on interoperability—ensuring U.S. systems and allied systems are compatible.

DoD's International Armaments Cooperation Policy

International armaments cooperation is a key element of DoD's acquisition and technology efforts to field the most capable force possible. International armaments cooperation, in its many forms, enhances interoperability, stretches declining defense budgets, and preserves defense industrial capabilities. Successful efforts require that DoD engage allies in discussions at the earliest practicable stage to identify common mission problems, arrive jointly at acceptable mission performance requirements to balance cost, meet coalition military capability needs, and assure interoperability.

While many weapons programs will remain national, cooperation with allies must be the choice for those systems that require interoperability in coalition conflicts. Examples are air defense, communications, intelligence, chemical/biological defense, and information security. Where opportunities for cooperation do exist, these programs must be implemented efficiently and effectively.

To achieve success, cooperative international defense programs should apply the lessons learned from successful international commercial alliances. Essentially, DoD is working toward a new international armaments cooperation model, one in which governments establish the military requirements and business rules, and the industries involved establish the best international teams of their own choosing to competitively bid on the work. This will forge a more balanced partnership that guarantees each individual member's independence. It will recognize the interdependence of cooperative

partners and take full advantage of the efficiencies and effectiveness of competitive market forces.

Some of the more notable success stories in international industrial cooperation include the F-16 Falcon and the F-16 Mid Life Upgrade, AV-8 Harrier, T-45 training aircraft, CFM-56 engine, the continuing cooperative efforts under the NATO Airborne Warning and Control System program, and the Multifunctional Information Distribution System. The Department is now working with allies in Europe and Asia to explore other cooperative programs, including the Medium Extended Air Defense System, Tactical Reconnaissance Armored Combat Equipment Requirement, Joint Strike Fighter, and NATO Allied Ground Surveillance efforts.

The International Cooperative R&D program led to sharing of military technology among allies, as well as to development of joint equipment to improve coalition interoperability. Frequently, these R&D investments provide the cooperative linkage required to leverage independent national developments and enhance military capabilities. Such items include advanced aircraft, combat vehicle command and control, communications systems interoperability, and ship defense. These cooperative programs also foster closer international and military-to-military relations.

The Foreign Comparative Testing program also enhances international defense cooperation. This program evaluates foreign non-developmental items for DoD use and includes 20 foreign countries as active participants. The Services and the United States Special Operations Command procured over $4.9 billion worth of foreign equipment as a direct result of successful equipment evaluations. By purchasing foreign non-developmental items, DoD saved over $3 billion in research, development, test, and evaluation costs while providing earlier fielding of quality items to U.S. warfighters.

As DoD takes greater advantage of the opportunities in international defense cooperation and commerce, it continues to address the risks of the proliferation of weapons of mass destruction and advanced conventional weapons. DoD worked to ensure the Services and agencies understand the nature and importance of the February 1995 Conventional Arms Transfer policy and take its tenets fully into account when pursuing cooperative international defense programs and sales. As a result, both economic security and national security interests are pursued and protected.

DoD took steps to improve the effectiveness and efficiency of international cooperation. An International Armaments Cooperation Handbook was developed to provide a compendium of current policies, key processes, and points of contact for use by persons working cooperation issues in the Department.

International Cooperative Opportunity Group Developments

The Department is examining the potential for international collaboration on upcoming major systems acquisitions. As part of the Department's review of potential opportunities for cooperation on upcoming major system acquisitions, the Armaments Cooperation Steering Committee (ACSC), the senior armaments cooperation policy and oversight body within the Department of Defense, is implementing a disciplined process for identifying new opportunities for international cooperation. A major ACSC initiative deals with the formation of International Cooperative Opportunities Groups (ICOGs) to identify and recommend specific new opportunities for armaments cooperation.

ICOGs are looking at areas of common need and seek to establish communication with allies to create opportunities early in the acquisition process. The ICOG process identified programs as candidates for potential cooperation based on several factors: the degree of requirements commonality; the extent to which the technologies, strategies, and budgets of the potential partners are complementary; the potential for international industrial teaming; and the perceived benefits and risks associated with execution of such a program.

Environmental Cooperation

ENVIRONMENT AND NATIONAL SECURITY

The U.S. military developed a comprehensive and robust environmental program over the past 27 years that addresses all aspects of environment, safety, occupational health, pest management, fire and emergency services, and explosive safety. In order to build trust and enhance stability and interoperability in other countries' militaries, the Department is sharing its experience and knowledge in defense environmental issues.

MILITARY-TO-MILITARY ENVIRONMENTAL COOPERATION

Through military-to-military cooperation, DoD conducts bilateral/multilateral environmental cooperation with Argentina, Australia, Canada, Finland, Germany, Italy, Norway, Sweden, Russia, Poland, the Czech Republic, Hungary, and South Africa. Discussions for such cooperation are under way with several other nations. In addition to promoting stability through engagement, DoD gains useful information from these exchanges in support of the Department's environmental responsibilities as it takes advantage of the perspectives that other nations offer.

ARCTIC MILITARY ENVIRONMENTAL COOPERATION

DoD also engages in agreements such as the Arctic Military Environmental Cooperation Program (AMEC), which is a trilateral forum for dialogue and joint activities among U.S., Russian, and Norwegian military and environmental officials to address critical environmental concerns in the Arctic. One of the main objectives of AMEC is to develop technologies for the Russian military to address its radioactive and nonradioactive waste challenges in the fragile Arctic ecosystem. DoD, together with the Department of Energy and the Environmental Protection Agency, will leverage U.S. expertise in environmental techniques to address radioactive and chemical waste associated with nuclear submarines. More importantly, this unique effort is helping to build trust and understanding among these three militaries.

CONCLUSION

Industrial capability reviews and international programs serve a central role in the Department's interface with industry to provide equipment and capabilities for the warfighter. DoD will continue to work with industry to eliminate unused capacity and lower overhead costs, while ensuring that industrial capabilities are sufficient to meet DoD's needs. The Department will also continue improving its relationships with allies through increased cooperation and interoperability. These efforts will enhance the Department's capability to promote competition, seize the opportunities presented by innovation, and respond rapidly to warfighter needs.

Part V
The FY 2000 Defense Budget and Future Years Defense Program

Chapter 18

THE FY 2000 DEFENSE BUDGET AND FUTURE YEARS DEFENSE PROGRAM

The Department of Defense's FY 2000-2005 Future Years Defense Program (FYDP) is its plan for supporting the National Defense Strategy as effectively and efficiently as possible. President Clinton's FY 2000 defense budget implements the first year of the FYDP. Both seek to ensure America's security and sustain the nation's vital global leadership role.

The new budget and FYDP reflect the recommendations of the Department's May 1997 Quadrennial Defense Review (QDR), which analyzed U.S. military strategy, force structure, readiness, modernization, and infrastructure. Through the QDR and Secretary Cohen's Defense Reform Initiative, the Department is working to transform the nation's security posture, military forces, and defense support activities.

THE DEFENSE TOPLINE

The President's FY 2000 budget includes $267.2 billion in budget authority and $260.8 billion in outlays for the Department of Defense. Proposed budget authority for FY 2000-2005 reflects President Clinton's proposal to make available $112 billion in resources to DoD, to be added to previous planned levels for those years. The added resources for FY 2000-2005 consist of:

- $84 billion increase to last year's projected topline.
- $28 billion in savings from lower inflation projections, lower fuel prices, and other adjustments—savings that the President directed DoD to retain and allocate to pressing needs.

For FY 2000, the budget includes $12.6 billion in additional resources—$4.1 billion from a topline increase and $8.5 billion from economic adjustments and other provisions, including a proposed $1.6 billion from rescissions of unneeded appropriations. These added resources enabled DoD to fund military compensation increases, provide balanced support to readiness and modernization priorities, and fully fund the expected cost of Bosnia and other operations.

For FY 1998, DoD budget authority was, in real terms, about 40 percent below its level in FY 1985, the peak year for inflation-adjusted defense budget authority since the Korean War. As a share of America's gross domestic product, DoD outlays for FY 1998 were 3 percent, well below average levels during the past five decades. Other trends for defense spending are detailed in Appendix B, as is budget authority by appropriations title and by DoD component, in current and constant dollars.

Table 16

FY 2000 Department of Defense Budget Topline
($ in Billions)

	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Budget Authority	262.6	267.2	286.4	288.3	298.7	307.6	318.9
Outlays	263.6	260.8	268.6	278.3	290.2	300.0	317.6

PRIORITIES IN THE FYDP AND FY 2000 BUDGET

Balancing Short-Term and Long-Term Requirements

Both the new budget and FYDP strike a prudent balance between immediate military needs, most notably force readiness and quality of life, and long-term safeguards, most notably the development and procurement of new weapons and technologies. This balanced approach was a critical recommendation of the QDR. Achieving the best balance between short-term and long-term needs has been the most difficult challenge for leaders formulating the DoD budget.

Readiness, People, and Quality of Life

The FY 2000 budget will keep U.S. forces ready to fight and win by means of substantial and sufficient funding for training, supplies, maintenance of weapons and equipment, and other preparedness essentials. Since these requirements are mostly paid for in the Operation and Maintenance (O&M) accounts of the Services, the sufficiency of these accounts was a crucial concern in the formulation of the new budget.

Readiness also requires taking good care of all members of the armed forces and their families. To that end, the FY 2000 budget strongly supports quality of life components like pay, housing, and medical services. To address mounting warnings about retention and recruiting, this year's budget includes the greatest increase in military compensation in many years. Major components:

- Across-the-board military base pay raises of 4.4 percent for FY 2000 and 3.9 percent annually for FY 2001 through 2005. The FY 2000 raise exceeds forecasted civilian wage growth, is 3 full percentage points above the consumer price index, and is the largest military pay increase since FY 1982.
- Pay increases in connection with military pay table changes, which will make raises for promotion bigger than for years-of-service longevity. This change will reward performance, compensate people for their skills and experience, and encourage them to continue their service. These targeted increases will range up to 5.5 percent, and will be in addition to the across-the-board base pay raises.
- Reversing a change in military retirement by raising retirement benefits from 40 percent to 50 percent of base pay for members who entered service after 1986.

Force Structure and End Strength

The U.S. force structure is roughly two-thirds of its size when the Berlin Wall fell in November 1989. Table 17 shows the decline in personnel strengths since FY 1987, the post-Vietnam War peak for the end strength of both active duty military and DoD civilians. Selected Reserve strength peaked at 1,170,600 in FY 1989. The decrease in DoD civilians reflects reductions in forces and facilities, as well as reforms to streamline defense infrastructure and improve management. Other personnel data is in Appendix C.

Recapitalization of U.S. Forces

After the end of the Cold War, the Department was able to reduce its purchases of new weapons without undermining the battlefield superiority of U.S. forces due to the modernization achieved during the years of strong defense spending during the 1980s. In spite of the sharp decline in procurement funding, the average age of U.S. military equipment generally did not increase, because as the forces were drawn down, older equipment was weeded out.

Table 17

Department of Defense Personnel (End of Fiscal Year Strength in Thousands)

	FY 1987	FY 1999	Percent Change FY 1987-1999
Active Military	2,174	1,390	-36
Army	781	480	-39
Navy	587	372	-37
Marine Corps	199	172	-14
Air Force	607	366	-40
Selected Reserves	1,151	877	-24
DoD Civilians (FTEs*)	1,133	724	-36

* Full-time equivalents

This procurement holiday is now at an end. To ensure military readiness in the long term, the Department must modernize U.S. forces with new systems and upgrades to existing systems. This recapitalization is needed to maintain America's technological and qualitative superiority on future battlefields. The new budget enables the Department to achieve its goal of increasing procurement funding to $60 billion by FY 2001, a target the Administration established in its FY 1996 budget.

For the modernization of U.S. forces to succeed, Congress must support the spending allocations proposed for DoD weapons development and procurement. Additionally, the Department must have congressional support for infrastructure reductions, acquisition reform, and other initiatives in order to achieve savings needed to help fund modernization.

Defense Reform Initiative - A Revolution in Business Affairs

The FYDP and FY 2000 budget reflect Secretary Cohen's decisions in his November 1997 Defense Reform Initiative. Both incorporate changed personnel levels and all savings that can be achieved without legislation. The Initiative seeks to ensure that DoD support activities are as responsive as possible to U.S. forces and to produce budget savings to fund warfighting needs.

The resources added by the President for FY 2000-2005 in no way diminish DoD's resolve to shrink the portion of the defense budget consumed by infrastructure. Nor do they reduce the critical need for congressional approval of two more rounds of base closure and realignment.

Funding for Unbudgeted Contingencies

Each year unbudgeted military operations, natural disasters, and other contingencies occur—often requiring the President to seek congressional support for covering the costs incurred. During 1998, Congress enabled the Department to fund a variety of costs, and thereby obviated the need to divert money from readiness and other budget essentials. Last April, Congress approved President Clinton's emergency supplemental appropriations request to cover DoD's FY 1998 costs for the unbudgeted extension of operations in Bosnia, Persian Gulf military buildup, and storm damage to defense facilities. By being designated as emergency spending, this $2.9 billion did not have to be offset by rescissions of appropriated FY 1998 funds.

Similarly, last October as part of the FY 1999 omnibus appropriations bill, Congress approved the President's request for $1.9 billion for this year's operations in Bosnia, over $1 billion to boost readiness, and millions of dollars for recovery from natural disasters in South Korea and elsewhere. These appropriations were designated as emergency—as was spending the Congress added for ballistic missile defense, Year 2000 computer remedies, and other defense needs.

The FY 2000 budget includes $1.8 billion for ongoing Bosnia-related operations.

CONCLUSION

Events since the end of the Cold War have demonstrated the need for America to retain a strong global leadership role and a prudent defense posture. President Clinton's FY 2000 defense budget supports that need while remaining fiscally responsible.

Part VI
Statutory Reports

REPORT OF THE SECRETARY OF THE ARMY

In FY 1998, the United States Army accomplished an unprecedented amount of work for and on behalf of America. The soldiers and civilians of America's Army provided the core contribution to ongoing operations in the Balkans while enhancing security and stability worldwide. From the Korean Peninsula to the sands of Kuwait, the Army deterred aggression and reassured our allies. From Macedonia and the Sinai to Haiti and Peru, our soldiers and civilians were actively engaged in promoting peace. The Army played a major role in responding to a number of natural disasters last year by supporting relief operations for hurricanes, floods, and wildfires at home and disasters overseas. Around the world, around the clock, America's Army was busy supporting the National Military Strategy (NMS) and building a better tomorrow.

THE ARMY AND THE NATIONAL MILITARY STRATEGY

America's Army is well-suited to execute the pillars of the NMS: shaping, responding, and preparing. In a world that confronts us with a full spectrum of challenges and opportunities, Army forces are the most cost-effective of the U.S. armed forces; they provide more capability per dollar invested and can be used more effectively in a much broader range of circumstances than other forces. The application of ground combat power remains the most decisive way to secure our national interests because it provides direct and continuing control over land, resources, and people. Because of its unique capabilities, the Army has been called upon to be the principal engine for executing the National Military Strategy. America's Army has provided more than 60 percent of the people who have participated in 32 of the 36 major military operations since 1989—this fact underscores the Army's role as the indispensable element of America's military might.

Putting Army boots on the ground is the surest way to shape the international security environment in ways favorable to U.S. interests. Bombs and missiles can destroy targets and temporarily deny an enemy control of a piece of strategic terrain, but they cannot provide the continuous presence required to guarantee peace and stability. Only by putting soldiers on the ground can we hope to guide the development of infrastructure, mold the character of institutions, and ensure compliance with the processes of peace that can nurture the fledgling democracies that are key to long-term international stability and prosperity. America's Army is the only force that provides the continuous presence essential to meeting the global requirements of shaping operations.

Putting Army boots on the ground is also the most decisive response to deter potential adversaries from employing force to threaten our national security interests. Technology can facilitate but cannot replace the commitment of people to secure the frontiers of freedom. Today's Army has an unprecedented capability of projecting ground combat power on short notice to achieve this end. In February 1998, for example, American soldiers deployed from the United States and were manning tanks and fighting vehicles on the Iraqi border within 96 hours. As it has been throughout history, the commitment of soldiers on the ground is the crucible in which freedom is won or lost.

As we prepare for an uncertain future, the undeniable trends of population growth, urbanization, and competition for scarce resources ensure that the central role of America's Army in the execution of the National Military Strategy will persist. Our comprehensive modernization strategy employs aggressive experimentation to develop and integrate capabilities that will ensure our dominance on the battlefields of the 21st century. Then, as now, the ability to commit American soldiers to secure our interests will remain the foundation of American military readiness.

SHAPING THE INTERNATIONAL ENVIRONMENT

American soldiers are conducting shaping operations 24 hours a day, 7 days a week. The Army shapes the international environment through the presence of forward-deployed forces around the world, robust programs of nation-building and military-to-military activities, and support of arms control initiatives.

Although most Army forces are based in the continental United States (CONUS), over 122,000 soldiers are stationed overseas, and many more are deployed for specific operations each day. Most soldiers assigned to overseas bases serve in the U.S. Army Europe (USAREUR) or the 8th U.S. Army in Korea, where they provide the critical nucleus of the U.S. contribution to key alliances in these vital regions. The enduring commitment to NATO represented by USAREUR has been a key factor in providing essential stability for managing the turbulence associated with the breakup of the Warsaw Pact. In addition to their contribution to the Partnership for Peace (PfP) Program and the associated enlargement of NATO, the presence of these American soldiers is a key enabler to ongoing international efforts to ensure peace in the Balkans. In Korea, the presence of American soldiers reassures our allies and provides a potent, necessary deterrent to the unpredictable North Korean regime. Other soldiers stationed in the United States Pacific Command and the United States Southern Command areas of operation contribute to engagement activities in the countries of the Pacific Rim and throughout Central and South America. In sum, our substantial forward-deployed forces shape the international environment by deterring aggression, enhancing our ability to respond to global threats, and promoting stability by their presence and through military-to-military contacts in key regions.

In addition to soldiers stationed overseas, more than 28,000 soldiers were deployed away from their home stations to more than 70 countries around the world on an average day in FY 1998. Some of these soldiers contributed to shaping the international environment by conducting a number of missions which provided medical assistance and infrastructure improvements for the host nation while allowing our soldiers to practice necessary skills. For example, U.S. Army Reserve and Army National Guard soldiers provided medical care for over 116,000 host nation civilians while deployed on medical readiness training exercises in five different countries in Central and South America. Operations such as these support stability and build friends in fragile societies which might otherwise breed enemies.

At the same time, our soldiers were deployed on other important missions overseas. FY 1998 marked the sixteenth year of U.S. Army support for the Multinational Force and Observer Mission in the Sinai, which verifies compliance with the treaty of peace between Egypt and Israel. Army soldiers serving in similar observer and peacekeeping missions from the border between Ecuador and Peru to the Former Yugoslav Republic of Macedonia helped foster peace in troubled regions around the world.

Total Army participation in PfP and associated exchanges and exercises in FY 1998 helped set the stage for the peaceful enlargement of NATO while building the foundation for cooperative efforts with non-NATO forces as well. During Exercise Peace Shield 98 in September, for instance, active and reserve soldiers worked with soldiers from the Ukraine and 13 other eastern European countries in a multinational brigade-level command post exercise designed to improve interoperability in peace support operations. For the second year, our soldiers also participated in a PfP-related training exercise with the Central Asian Peacekeeping Battalion.

In addition to operations and exercises, the Army also conducts numerous day-to-day foreign interactions that contribute to shaping goals. Army-to-Army contacts constitute the majority of all contacts between the armed forces of the United States and the armed forces of other nations. In FY 1998, these Army-to-Army activities ranged from senior-level contacts with the leaders of other armies to the training of 5,980 foreign military personnel under the International Military Education and Training (IMET) program. The reserve components play a critical role in these ongoing programs as well. The National Guard State Partnership Program, for example, has been instrumental in forging close ties with the armies and governments of the former Warsaw Pact. Besides helping to shape the international environment in line with U.S. interests, these continuing contacts with foreign armies enhance the Army's ability to participate in coalition operations today and in the future.

Other Army shaping operations promote American interests abroad by training foreign militaries and by supporting our government's arms control initiatives. In FY 1998, American soldiers trained the soldiers of other nations on the tactics, techniques, and procedures of humanitarian demining, counterdrug, and peacekeeping operations. Under the African Crisis Response Initiative, American soldiers provided peacekeeping training to soldiers of several African nations. In support of the Chemical Demilitarization Program, the Army is the DoD Executive Agent for the destruction of the U.S. lethal chemical weapons stockpile and related non-stockpile warfare materiel in compliance with the worldwide Chemical Weapons Convention. Through these and similar efforts, the Army is making the world a safer place.

RESPONDING TO CRISES ABROAD AND AT HOME

While the Army's principal mission is to fight and win our nation's wars, the National Military Strategy demands that we stand ready to conduct a full spectrum of military operations to protect American interests around the world. America's Army demonstrated this capability in FY 1998 not only through its shaping operations, but also by deploying a heavy brigade to Kuwait in 96 hours, conducting a relief in place of forces supporting the stability operations in Bosnia, and responding to a wide range of domestic support requirements. These successes validate the Army's commitment to full-spectrum readiness, strategic mobility, and active and reserve component integration.

Full-Spectrum Readiness

The capability to respond anywhere in the world on short notice comes from our sustained commitment to the complex requirements of full-spectrum readiness. This readiness comes from the unmatched capabilities of American soldiers and the rigorous training that prepares them for military operations. The readiness of soldiers today is the product of many years' investment in the imperatives of quality people, training, doctrine, force mix, modern equipment, and leader development.

Tough training on the fundamentals of warfighting is essential to maintain current readiness and to prepare the leaders of tomorrow. The Total Army executed a robust program of training deployments in FY 1998 designed to validate and improve our ability to deploy rapidly, fight, and win. Exercise Bright Star, for instance, allowed us to evaluate and practice our ability to deploy rapidly, as well as to exercise our ability to conduct combined operations with the Egyptian military. Last August, soldiers from Alaska conducted a combined training exercise with the Thai Army that featured the largest airborne insertion ever conducted in Thailand.

Deployments to Army combat training centers (CTC) provide our soldiers with the best training in the world. Periodic rotations at these first-class facilities hone essential warfighting skills. At the National Training Center in California, the Joint Readiness Training Center in Louisiana, and the Combined Maneuver Training Center in Germany, units conduct prolonged operations against a highly skilled opposing force and are observed by a professional cadre fully versed in the latest doctrine. Units complete these rotations at their highest levels of readiness, and are provided a comprehensive assessment to guide their future training.

The superior training environment of the CTC is also helping the Army manage the challenge of training units for nontraditional missions such as the stability operations in Bosnia. Training for these missions generally occurs on an arduous timeline compressed by the requirements of other readiness training, shipping essential equipment, and in-country familiarization. The combat training centers provide an ideal setting for replicating the conditions of any mission, even Bosnia.

Units deploy to a CTC to conduct a mission rehearsal exercise at the end of their home station preparation. The mission rehearsal exercise provides all the benefits of a traditional CTC rotation tailored to the specific mission requirements of Bosnia, and is an efficient mechanism for ensuring that units learn the lessons of units previously deployed to Bosnia.

As part of our ongoing efforts to increase the efficiency of the Army, we are incorporating a wide variety of Training Aids, Devices, Simulators, and Simulations (TADSS) to achieve realistic training at the lowest cost. TADSS refers to a wide range of equipment and software, from the simple laser that replicates the firing of a rifle or machine gun to the complex computer programs that drive command post exercises to help train staff officers and noncommissioned officers at battalion and higher levels. The Battle Command Training Program (BCTP) extends the CTC experience to corps, division, and reserve brigade staffs. The BCTP subjects staffs to fast-paced virtual combat operations and generates the associated information flow to test the staff's ability to command and control subordinate units and plan future operations around the clock for several days. Perhaps the clearest illustration of the efficiencies possible through the appropriate use of TADSS is the ability to achieve air crew training proficiency on certain tasks by using a simulator, thus reducing the actual helicopter flying hours required for training. The Army is developing a suite of TADSS to achieve similar efficiencies on virtually all of the systems we are acquiring.

Strategic Mobility

The deployment of the 1st Brigade (-) of 3d Infantry Division (Mechanized) to Kuwait in February 1998 demonstrated our capability to respond to threats anywhere in the world on short notice. This deployment also reflects the success of the Army Strategic Mobility Program (ASMP) as well as the readiness of American soldiers. The ASMP is a comprehensive program that addresses infrastructure requirements, such as rail, highway, port, and airfield improvements, to facilitate movement of personnel and equipment from bases in CONUS to air and seaports of embarkation. The Army Corps of Engineers' Civil Works program supports this effort by maintaining channels for navigation through the strategic ports of the United States. The Global Prepositioning Strategy, a component of ASMP, strengthens rapid deployment capabilities by prepositioning heavy brigade sets of unit equipment in different strategic regions of the world. There are currently seven such sets, with an eighth planned.

The deployment of the 1st Cavalry Division (-) to assume responsibility for the U.S. portion of the NATO mission in Bosnia offers another example of our capability to project combat power and our commitment to the imperatives of full-spectrum readiness. The Europe-based 1st Armored Division, augmented by a substantial number of individuals and units from both active and reserve forces in the United States, provided the U.S. contingent to NATO forces in Bosnia for most of FY 1998. With the announcement that American support for NATO operations in Bosnia would continue, the 1st Cavalry Division, based in CONUS, was ordered to assume the U.S. contingent's mission beginning in October 1998. The use of a CONUS-based unit helped stabilize some Europe-based units for required readiness training and reduced their time spent away from home station, or PERSTEMPO. The professional execution of this relief in place allowed the transition to occur without reducing our commitment to supporting U.S. goals in the Balkans.

Total Army Integration

The requirements for supporting the Bosnia mission highlight the importance of reserve component participation in Army operations. Since 54 percent of Total Army strength resides in the Army National Guard and Army Reserve, the Army has relied extensively on the reserve components to support our operational requirements in Bosnia and other contingency operations in recent years. A total of 16,024 reserve personnel, including 570 RC units, have been mobilized under Presidential Selected Reserve Call-up (PSRC) authority to support and execute Army operations in Bosnia. These RC soldiers have performed a wide variety of missions, including civil affairs, public affairs, military police, and logistical support. Some have supported operations in Bosnia by serving elsewhere to augment units supporting the operation, replace deployed active component (AC) soldiers, or support the deployment and redeployment of RC soldiers. Most of these soldiers, who balance their military service to America with full-time civilian careers, were mobilized for the full 270 days allowed under the PSRC authority. Concurrently, RC soldiers were mobilized to support operations in Southwest Asia, and many participated in shaping operations at other places around the world.

The reality that the support of RC forces is essential for sustained Army operations has led to a renewed emphasis on the integration of AC and RC forces. Last year, the Army published a White Paper outlining a series of comprehensive initiatives that will embed AC/RC integration into our force structure. These initiatives include the creation of divisions comprised of Army National Guard enhanced Separate Brigades under an AC headquarters. In FY 2000, the 49th Division (ARNG) headquarters will team up with selected AC and RC units and assume responsibility for the U.S. portion of the NATO mission in Bosnia. AC/RC integration is thus not only a critical element in the Army's ability to support ongoing contingencies, but is also an important part of how we are preparing for the future.

Responding at Home

The Total Army provided substantial support to federal, state, and local authorities responding to natural disasters in the United States and its territories in FY 1998. Active, Reserve, and National Guard soldiers and Army civilians supported Federal Emergency Management Agency disaster relief efforts for Typhoon Paka (Guam), Hurricanes Bonnie (North Carolina) and Georges (U.S. Virgin Islands, Puerto Rico, Florida, and the Gulf Coast), the Northeast Ice Storms (New York, Maine), and the National Interagency Fire Coordination Center for fighting fires in Florida. The Army Corps of Engineers contributed greatly to this effort. Total Army support included (but was not limited to) providing and operating power generators, flying helicopters for missions ranging from medical evacuation to damage assessment, and providing emergency shelter, water, ice, and rations. Additionally, on numerous occasions in FY 1998, the Army provided Emergency Ordnance Disposal or Technical Escort Unit personnel in response to requests from federal, state, and local authorities. Operations such as these validate the ability of the Total Army, in accordance with the law and at the request of local authorities, to respond rapidly to domestic emergencies as required.

PREPARING FOR AN UNCERTAIN FUTURE

The requirement to prepare for the future entails both preparing to execute our traditional mission of fighting and winning the nation's wars with information age technology, as well as preparing to counter the nontraditional threats that may arise from non-state actors and from rogue states. The Army is executing a comprehensive strategy for fielding the world's first information age force. We are also taking steps to counter the rising threats posed by information technology and the proliferation of weapons of mass destruction (WMD). Finally, the Army is conducting a comprehensive review of its information systems to ensure they are not disrupted by the Year 2000 (Y2K) computer problem.

Experimentation and the Heavy Division Redesign

The Army has institutionalized a process of experimentation to identify technologies with promising military applications and to develop and field systems which enhance warfighting capabilities. Army Battle Laboratories focus on the implications of new technologies for the different functional areas affecting land combat power. Each year, these battle laboratories team with industry to evaluate mature technologies from industrial research and development centers. Since their inception in 1992, the battle laboratories have been the focal points for six Advanced Warfighting Experiments (AWE). AWE are large-scale, force-on-force training exercises conducted by actual units either live at maneuver training centers or with computer-driven simulations. These experiments provide the critical analysis essential to synchronizing doctrine, force structure, equipment, and training.

Based on lessons learned from recent AWE, the Army has developed and begun implementation of a new design for heavy divisions. This new heavy division design, known as Division XXI (DXXI), is a heavy force design optimized for operations into the 21st century. A reduction in the number of tanks and infantry fighting vehicles from 58 to 44 per battalion, the integration of 513 RC personnel into the divisions' authorized strength, and a 50 percent increase in the number of infantrymen in mechanized infantry platoons are among the numerous innovations featured by DXXI. The new design creates a more deployable force that employs emerging technology to achieve enhanced lethality, survivability, sustainability, and operating tempo.

The Army Modernization Plan

The Army Modernization Plan describes our strategy to generate the capabilities we will need to maintain readiness in the near- and mid-terms. It is rooted in *Joint Vision 2010*, the conceptual template that addresses the requirements for America's armed forces on future

battlefields. Based on this template, *Army Vision 2010* defines the patterns of operation which the Total Army must be able to execute to function effectively as part of tomorrow's joint team.

To acquire the capabilities required by *Army Vision 2010*, the Army's number one modernization priority is to achieve information dominance in the near- and mid-terms. Information dominance stems from superior information systems and the mindset and training that ensure soldiers are prepared to win on the complex battlefields of the future. It results in a significant operational advantage over any adversary. Digitization is a component of modernization, and is the means by which we will achieve information dominance. Digitization involves the use of modern communications capabilities and computers to enable commanders, planners, and shooters to rapidly acquire and share information. The Army will equip the 4th Infantry Division (Mechanized) at Fort Hood with digital capability by the end of FY 2000, and will equip III Corps by the end of FY 2004. It is difficult to overstate the importance of the initial goal of digitization; timely investment in this technology is essential to maintain our status as the world's preeminent land combat force in the information age.

Other priorities identified in the Army Modernization Plan are maintaining combat overmatch, sustaining essential research and development while focusing science and technology on leap-ahead capabilities, recapitalizing the force, and integrating the active and reserve components. We maintain combat overmatch by making periodic focused technology insertions to improve combat effectiveness through preplanned product improvements programs, thus keeping our current systems more capable than those of our adversaries. At the same time, we focus resources on development of technologies and systems that promise truly revolutionary, or leap-ahead, capabilities. Recapitalization keeps our force viable and avoids block obsolescence through extended service plans, depot rebuild programs, and selective replacement of important assets, such as our truck fleet. As we approach this process of modernization, we must also ensure that our active and reserve components are fully integrated to ensure new capabilities are spread throughout the Army.

The best way to illustrate the gains in warfighting effectiveness that we will achieve through this program is to consider a few of the key pieces of equipment in our modernization strategy. One of our highest modernization priorities is the procurement and fielding of the RAH-66 Comanche helicopter. The leap-ahead capabilities of this aerial reconnaissance and light attack helicopter enhance the Army's information dominance and combat overmatch objectives. This system incorporates major technological advances in the acquisition and processing of battlefield information, signature reduction, and logistical support features. The Crusader howitzer is being developed to replace the Paladin howitzer and will restore the combat overmatch in cannon artillery. When fielded, it will be the premier cannon in the world, with significantly greater range, rate of fire, and survivability than any other cannon system. The capability increase per cannon achieved with the Crusader will dramatically reduce strategic lift requirements for cannon systems. The digitization embedded in both the Comanche and Crusader enables them to share information with each other and with other Army and joint assets in near real-time. The net effect of these complementary systems is that the digitized division will be able to detect and destroy far more targets, far faster than possible today. The Army supports the development of a third key system, the Theater High Altitude Area Defense System (THAAD). THAAD, in conjunction with the Patriot Advanced Capability-3 system, will protect forward-deployed troops and power projection assets in a theater of operations from ballistic missile attack. This capability is especially critical given the increasing threat posed by weapons of mass destruction delivered by ballistic missiles.

The Army is engaged in a number of forums designed to ensure that we achieve multinational force compatibility with our allies and likely coalition partners. Cooperative research and development efforts with our NATO allies to field interoperable information systems are supplementing our own modernization efforts. Today the United States is not the only source of advanced technology; cooperative efforts with allies can help America gain access to advanced foreign technologies while at the same time enhancing the interoperability and effectiveness of future coalitions.

Countering Emerging Threats and Vulnerabilities

Preparing now means more than preparing to execute our traditional missions; it means preparing for the requirements of the new global security environment. Protecting Information Operations is one such requirement. The global explosion of information technology

and access has generated new opportunities to affect the information systems and decision making processes of others. Since others may seek to exploit vulnerabilities in information systems, the Army is implementing a comprehensive defense in depth architecture to protect against the emerging cyber threat.

The Army is preparing to counter threats to the United States posed by terrorism and the proliferation of weapons of mass destruction. Our participation as the DoD Executive Agent for the Weapons of Mass Destruction Domestic Preparedness Program, for example, improves the ability of communities to respond to WMD emergencies. Under this program, initial visits to cities across the country are followed by a week of training for local officials, emergency managers, first responders, hazardous materiel personnel, and emergency medical providers. As of the end of FY 1998, a total of 9,950 people in 32 cities had received the training.

Managing the Year 2000 Problem

The Army is implementing comprehensive testing of its information systems to ensure our critical systems are not affected by the Y2K problem (the possibility that the once-common practice of referencing dates in computer software using only two digits could disrupt computer-based systems in the year 2000). We have identified at-risk systems, classified them according to their criticality, and are carefully managing the renovation of these systems using an Army-wide database and monthly reports. For key activities that involve the integration of multiple systems, the Army is conducting end-to-end tests to ensure full system functionality. The Army is confident that its critical systems will not be affected by the Y2K problem.

RESOURCING THE ARMY

The Army maintained its capabilities to support and execute the NMS throughout FY 1998 by careful stewardship of people and resources. We continue to carefully monitor both of these areas to ensure that we recruit and retain the quality people we need for America's Army and that we provide those quality people with the skills and tools necessary to perform the full spectrum of military operations. Additionally, the Army's emphasis on becoming more efficient has helped to get the most military capability for the U.S. taxpayer dollar.

Recruiting And Retention

Recruiting and retaining the quality soldiers needed to maintain readiness have become more challenging. The active component fell about 800 soldiers short of its recruiting goal for FY 1998, but met all of its quality goals. USAR and ARNG recruiters also fell short of recruiting targets. The USAR met its quality goals, while the ARNG met one of three. The Army is assigning additional recruiters and updating its advertising campaign to address the challenges we face in recruiting and retaining quality soldiers.

Army Funding

The Army's Total Obligation Authority for FY 1998 was $60.4 billion dollars. Of this amount, the Army received $26.1 billion for the Military Personnel account, $20.7 billion for the Operation and Maintenance accounts and $11.2 billion for the modernization accounts, while the remainder was applied to other accounts, such as Military Construction, Army Family Housing, and Environmental Restoration. In order to fully fund operating tempo for priority units, the Army funded Base Operations and Real Property Maintenance below desired levels. FY 1998 marked the first time the Army received non-offsetting supplemental funds for the extension of the Bosnia mission and for the buildup of forces in Southwest Asia. The supplemental funds amounted to just over $1.1 billion for contingency operations and $56.4 million for disaster relief activities. The Army reprogrammed $195.1 million in FY 1998, mostly to address unit readiness issues. The money for this reprogramming came from revised economic assumptions and Army Research, Development, and Acquisition accounts.

Becoming A More Efficient Force

The Army has achieved substantial savings through efficiencies in order to help fund critical requirements. The closing of certain Army bases under the Base Realignment and Closure (BRAC) process is one success story in this regard; 755 of the 780 bases scheduled for closing have been closed, and the Army BRAC program is now yielding more in savings than it costs to execute. More savings are possible and desirable with additional base closures. Other infrastructure-related initiatives include the privatization of utilities and housing at Army installations and the elimination of unneeded buildings in order to free up resources to maintain needed facilities. The Army disposed of over 47 million

square feet (MSF) of unusable infrastructure between FY 1992 and FY 1997, and has programmed almost $100 million per year to dispose of an additional 53 MSF by the end of FY 2003.

The Army is pursuing a number of logistics initiatives which offer potential savings of over $2 billion during the period FY 1998 to FY 2003. The initiatives follow three strategies to achieve cost savings: inventory reductions through better management and faster deliveries, demand reductions through increased reliability of selected components, and cost reductions. Army Total Asset Visibility (ATAV) offers one example of a comprehensive initiative that will both make the Army a more efficient organization and enhance joint warfighting capabilities. ATAV employs existing and emerging information technologies to furnish managers and leaders throughout the Army with information on the location, quantity, condition, and movement of assets worldwide. Radio Frequency technology, laser optical technology, and bar coding are examples of technologies that allow Army logisticians to monitor cargo movements, redirect crucial shipments, and locate critical supplies. Current capability provides visibility of more than three million types of equipment and supplies for managers throughout the Army and DoD.

These and other programs, including DoD-wide programs for streamlining acquisition procedures, have allowed the Army to achieve efficiencies that will continue to yield benefits in the years ahead.

QUALITY PEOPLE AND ARMY VALUES

Today's Total Army is one-third smaller than the Cold War Army, yet it conducts many times the number of major operations per year as that larger Cold War force. Changes such as those entailed by the Army Modernization Plan, Total Army Integration, and our numerous efficiency initiatives are truly revolutionary. As we implement these initiatives, it is important to balance our desire to make the changes necessary to maintain readiness with the need to preserve the fundamental qualities that have been and remain the bedrock for the Army's success in battle. We must continue to recruit and retain the quality soldiers required to execute the increasingly complex tasks essential to protecting and promoting our national security interests. We must continue to ensure that these soldiers embrace the essential values that have been the soul of our Army since its birth.

On a daily basis, individual American soldiers are interacting with host nation soldiers, officials, and civilians; implementing treaty requirements; following rules of engagement; and putting a human face on the image of America held by people all over the world. The National Military Strategy requires American soldiers to perform demanding tasks at a challenging pace. Demanding tasks, from mastering the latest technology to resolving a tense confrontation in a peace enforcement role, demand quality soldiers. To sustain this essential readiness imperative, we are doing everything possible to take care of the quality men and women in our ranks. Ongoing initiatives to refurbish or replace aging barracks, and to improve housing through privatization, will improve quality of life for soldiers and their families.

Many of the demands placed on our soldiers are new, but the values we charge them to live by are timeless. Loyalty, duty, respect for others, selfless service, honor, integrity, and personal courage are the Army's core values. While these values are not new, competing values in our society can obscure and dilute them. The Total Army has renewed its commitment to preserving these values within the framework of our Human Relations Action Plan. Under this plan, Character Development XXI initiatives have formalized a more rigorous indoctrination to the core values in our basic training and have reemphasized their place as part of recurring training throughout the Army. The Human Relations Action Plan has also reinforced the Army's Equal Opportunity program and implemented the Consideration of Others program. These and other complementary initiatives ensure that the Army will carry into the future those values that will always be the foundation of teamwork and success on the battlefield.

CONCLUSION

As the 21st century approaches, America's Army is building on a proud history of service to our nation to forge the world's first—and preeminent—information age Army. This commitment to building the force of tomorrow is grounded in our mission to fight and win the nation's wars by ensuring our soldiers are the best trained, best equipped, and best led forces in the world. This same requirement has guided our evolution from the ill-equipped band of patriots at Valley Forge to the peerless Army of today. Strengthened by time-tested values, our quality soldiers and civilians stand ready to do what America's Army has done for over 223 years. They stand ready to go where the nation calls, when the nation calls, and to preserve the liberties that our predecessors earned for us.



Louis Caldera
Secretary of the Army

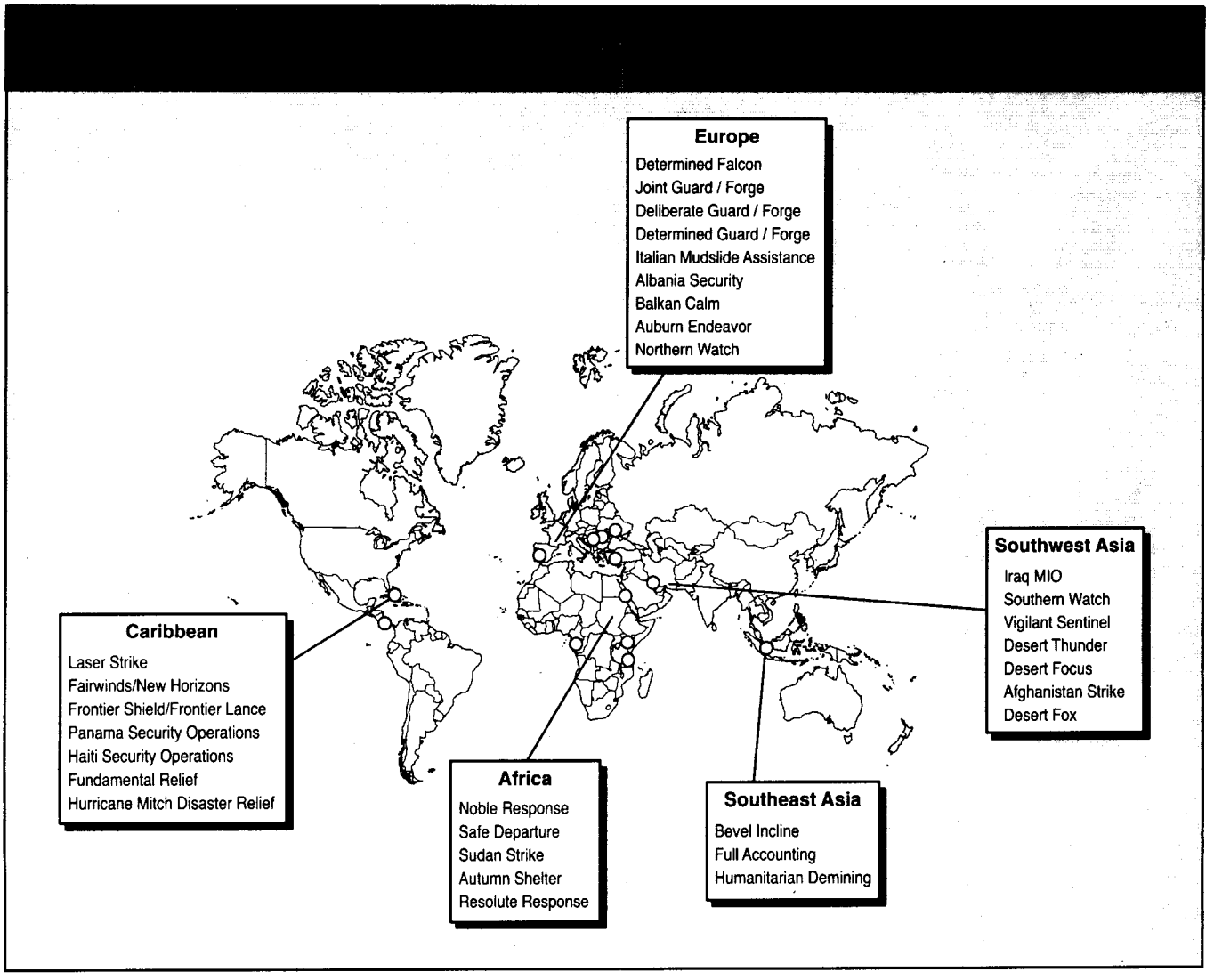
REPORT OF THE SECRETARY OF THE NAVY

Over the last decade, the world has entered a new era of interdependence and opportunity. America benefited greatly since the end of the Cold War and has seized upon the immense possibilities that peace and economic growth offered to much of the globe. Naval forces have figured prominently in protecting our fundamental and enduring needs, both in the recent past and throughout our nation's history. Navy and Marine Corps assets defend the lives and guard the safety of Americans; maintain the sovereignty of the United States with its values, institutions, and territory intact, and; promote the prosperity and well-being of the nation and its people. Forward-deployed Navy and Marine Corps forces today remain fully capable of supporting this nation's ideals and defending its interests at home and abroad.

THE NAVY-MARINE CORPS TEAM: AMERICA'S 21ST CENTURY FORCE

Naval expeditionary forces execute the National Military Strategy embodied in Shape-Respond-Prepare through application of four overarching concepts: Forward Presence; Deterrence; Power Projection; and Sea and Area Control. These concepts represent the unique dividends of this nation's direct investment in naval power. Together, they facilitate the operational primacy of the Naval Service and are the cornerstones upon which naval strategy is built. Further, they are the strategic missions that naval forces, possessing the full-range of combat capabilities, provide this nation in its pursuit of foreign and domestic policy objectives.

Forward presence means maintaining naval forces in essential regions, and when necessary, sustaining additional sea, land, and air forces overseas. Forward presence capitalizes on the expeditionary nature of naval forces and is the Department of the Navy's primary peacetime mission. On any given day, approximately 87,000 Sailors and Marines provide a critical forward presence element. In time of crisis, these forces are the prompt, sustained response this nation and our friends and allies expect. Quite simply, there is no substitute for being there with fully capable carrier battle groups and amphibious ready groups with embarked Marine expeditionary units. This visible guarantee that the United States can and will react to provocation and support its friends in time of need shapes the security calculus of would-be aggressors.



The Navy-Marine Corps Team responded to national tasking, on average, at least once every three weeks during 1998. This is a five-fold increase from that experienced during the Cold War. Naval forces were called upon to demonstrate their multipurpose capabilities in myriad assignments, ranging from combat operations to humanitarian assistance commitments. Some of these operations include:

- Operation Desert Fox - Navy combatants were among the first to conduct precision strikes against key Iraqi military sites, in response to continued Iraqi violation of United Nations resolutions.
- Cruise missile strikes on terrorist targets in the Sudan and Afghanistan in response to bombings in Kenya and Tanzania.
- A naval non-combatant evacuation in Eritrea of over 100 Americans and third country nationals.
- Continued Navy-Marine Corps team presence in conjunction with joint and combined forces in the Balkans while executing operations in support of fragile peace initiatives.
- Continued presence, flexibility, and firepower of carrier battle groups and amphibious ready groups in the volatile Southwest Asia area of operations. This included an eight-month period where a continuous two-carrier presence in the Arabian Gulf increased international pressure on Iraq.
- Marine Corps security support in Europe to a multinational organization charged to move highly enriched uranium fuel into safe storage.

- Humanitarian aid provided by Sailors and Marines following natural disasters in Kenya, New Guinea, Italy, and Central America.
- Continuous counterdrug operations in the Caribbean Sea and eastern Pacific Ocean culminating in several large drug seizures.

SAILORS, MARINES, AND CIVILIANS: THE CORNERSTONE OF SUCCESS

One of the most vexing short-term challenges facing the Services is maintaining personnel force levels. Nowhere is this more evident than in some areas of manning in the Navy and in Marine aviation. Accordingly, the Department redoubled its focus on recruiting, training, developing, caring for, and retaining quality people. Meeting manning objectives is essential to the long-term success of the Department of the Navy.

Recruiting America's Best and Brightest

The Department of the Navy is working hard to ensure America's youth are aware of the diverse career possibilities in naval Service. The Navy and Marine Corps stimulate and challenge people at a relatively early age while providing a solid foundation of highly technical training, life skills, and leadership experience. Although the Marine Corps has achieved 40 consecutive months of recruiting success, both in quantity and quality, recruiting remains a problem for the Navy. The increasing percentage of high school graduates attending college coupled with a historically low unemployment level is especially challenging for recruiters.

Early in 1998, the Navy saw the potential for a recruiting shortfall and began working to minimize its impact. Immediate steps were taken—both within the Navy and through congressionally approved reprogramming—to increase funding for enlistment bonuses, the Navy College Fund, and recruitment advertising. This year, the Navy expanded the number of recruiters from 3,600 to 4,500.

Some officer recruiting difficulties exist as well. Recruiting challenges are most apparent in the submarine and surface nuclear warfare communities, as well as in the chaplain corps and some medical and dental programs. Several new solutions are being successfully implemented, however some manning shortfalls are likely to remain beyond FY 1999.

Retention

The implications of a well-managed professional force are never more important than now as the All-Volunteer Force enters an era of steady-state end strength for the first time. Family separation due to a high operating tempo (OPTEMPO), greater perceived pay disparity with the civilian community, lower advancement opportunity, an erosion of other benefits, and a strong economy adversely affected personnel retention.

Enlisted Retention: Overall enlisted first-term retention for the Navy over the last three fiscal years was approximately 32 percent, which equates to about 6 percent below what is required to support a steady-state Navy force-level. Overall enlisted first-term retention for the Marine Corps over the last three fiscal years was 20 percent, which equates to a rate that will adequately sustain the Marine Corps force-levels. A combination of efforts that encourage reenlistment, target funds for reenlistment bonuses, and improve advancement opportunity will help retain enlisted personnel. Additionally, the Chief of Naval Operation's initiative to streamline the Inter-deployment Training Cycle will decrease personnel tempo between deployments and give Sailors more time at home. Despite these efforts, an across-the-board change to the military compensation package is necessary to address declining accessions and retention.

As afforded by legislation contained in the FY 1998 National Defense Authorization Act, the Department of the Navy is pursing initiatives that will allow increased focus and ability to achieve revitalization and replacement of our existing housing units through Public/Private Ventures (PPVs). This is a favorable step in addressing housing inequities. Changes in subsistence allowance correct pay inequities between enlisted personnel and tie increases in this allowance to a credible food cost index. Family separation pay, hazardous duty pay, and overseas tour extension bonuses also were enhanced to deal with hardship situations.

Officer Retention: Over the past few years, reduced force levels have naturally offset the impact of shortages in the Navy officer community. But now that end-strength goals are nearly met, action must be taken to counteract the draw of better paying jobs in the civilian market. Specifically, improved retention is needed to meet requirements in Marine Corps Aviation and across the major Navy warfare specialties of Surface, Submarine, Aviation, and Special Warfare. A number of initiatives that address quality of life issues and introduce or enhance retention bonus programs have

been pursued. Clearly, dramatic action is necessary to stem the loss of talent in the officer community before current readiness is adversely affected.

Quality of Life

The Department of the Navy provides an array of quality of life (QoL) programs that are an essential component of the career benefits package. Many of these QoL programs also cultivate and reinforce Department of Navy core values, while others provide vital community support services. The Department of the Navy established QoL Master Plans to provide standards for QoL programs and services. LIFELines, a revolutionized, web-based approach to QoL support services education and delivery, will be inaugurated in 1999 and provide more direct access to these services.

The Marine Corps, in executing its QoL Master Plan, merged Morale, Welfare, and Recreation and Human Resources programs into the Personal and Family Readiness Division. The One Corps, One Standard goal is accomplished by a variety of initiatives that address the family, youth activities, and physical fitness. A premier example of a prevention-oriented program is Semper Fit, which promotes the personal readiness of Marines and healthy lifestyle choices for families.

Housing: Although most of the force lives in private sector housing, approximately one-third of married and single Sailors live in government-provided family housing or bachelor quarters. Refinements to the housing allowance system are underway to gain private sector efficiencies for the operations and maintenance of government-owned family housing. Savings gained from such efficiencies will result in new housing or will be reinvested in housing repairs, improvements, or wholesale replacement.

The Department plans to rely primarily on PPVs to meet its future housing needs where shortages exist. PPVs also are the first choice for accomplishing whole-house revitalizations or replacements. For example, the Navy is currently pursuing PPV actions in 16 locations involving over 29,000 units. The Marine Corps is pursuing privatization at nine locations involving over 8,000 family units. These initiatives will help solve a long-term housing renovation and replacement problem.

The Department is committed to improving the quality of life for our bachelors through the elimination of inadequate barracks and the achievement of a higher standard of living for our single Sailors and Marines. As currently programmed, the Marine Corps will completely replace inadequate barracks by FY 2005, eliminate all barracks maintenance and repair backlogs by FY 2004, and attain a 7-year replacement cycle for furnishings by FY 2003.

Medical: Medical readiness supports the Navy's ability to effectively execute mission tasking, at home and while deployed. To meet the challenge of *Operational Maneuver From the Sea*, a new Naval Operational Health Service Support System will provide enhanced first responder care and far forward emergency surgery. The use of telemedicine provides operational and remote units a medical force multiplier by keeping Sailors and Marines on station, while maintaining direct contact with designated specialists.

Preventive medicine also is key to force readiness. An emphasis on preventative medicine—health education, reducing injuries, encouraging healthy lifestyles—is strongly supported in the Fleet because it is the first step in ensuring a fit and healthy fighting force. TRICARE, DoD's triple option managed health care program, is intended to improve access and uniformity of benefits while ensuring a high level of medical readiness. TRICARE introduced some fundamental cultural changes in how beneficiaries receive care. In concert with the Office of the Secretary of Defense and the other Services, problem areas in implementing TRICARE are being actively addressed.

Another important focus for the Department is improving access to medical care for the Medicare-eligible beneficiaries over 65 years of age. Encouraging opportunities offered by the TRICARE Senior Prime demonstration project are being implemented at the San Diego Naval Medical Center. Additionally, other opportunities are being explored that will enhance delivery of health care benefits to our retirement community.

Training Today's Force

The Navy and Marine Corps are making fundamental changes in their capacity to train. The objectives of the revolution in training are to: reduce the infrastructure cost of training and education, while reducing the overall time to train; improve personnel and training readiness; improve quality of life by increasing time in homeport; and make training a higher priority. The revolution is designed to eliminate inefficiencies and duplication in training and increase the speed of learning. In the face

of decreasing resources and increased National Command Authorities tasking, we will require a leaner, better-trained force. Leveraging live training opportunities while remaining within optempo/perstempo constraints will be important aspects of keeping the Navy-Marine Corps team in the highest state of readiness. In addition, the Navy and Marine Corps continue to develop their modeling and simulation capabilities to enhance operational training at home and on deployment.

Initial training for officer and enlisted personnel must prepare them to handle increasingly diverse and sophisticated operating environments. Decentralized operations, increasing weapons lethality, asymmetric threats, and the urban environment require innovative and resourceful individuals capable of making decisions in extremis. The focus on building strong foundations in character, integrity, and leadership during recruit training and initial officer training is at the heart of a career-long continuum of education. The updated Battle Stations in Navy recruit training and the Crucible in Marine Corps recruit training are dedicated to instilling a common set of core values and building unit cohesion and teamwork.

GAINING EFFICIENCIES AND FLEXIBILITY FOR THE TOTAL FORCE

The Readiness Challenge

The most pressing long-term challenges to the Department are declining readiness of nondeployed forces and an inability to fully fund modernization initiatives. From 1988 to 1998, the Department of the Navy's Total Obligation Authority decreased in real terms by 40 percent in constant 1998 dollars. Coincident with this decrease in funding was a marked increase in presence and contingency operations. Naval forces maintained a high level of readiness during this increase in operations by shifting resources from recapitalization and modernization accounts to support current operations and readiness. Decreased funding lines and increased operations have a detrimental impact both on personnel retention and material readiness. The impact is most apparent and acute in nondeployed readiness, that portion of the force that is not on deployment or soon to depart. The higher level of funding requested in the proposed President's FY 2000 budget, along with savings realized by efficiencies in the way the Department operates, will begin to address some of these concerns.

Improving Our Processes Through a Revolution in Business Affairs

The United States Navy-Marine Corps team are the world's premier naval force. However, as good as our forces is, the business processes that support that force are not efficient and effective when measured against the best practices of the public and private sector. This is unacceptable, particularly since the demands on our operational forces have increased as our resources have declined. Our people have taken extraordinary measures to save resources by reducing force structure and infrastructure. We have implemented many initiatives to improve our existing business systems and support to our forces. It has not been enough; we must and are doing more. Our challenge is to deliver the forces and capabilities required with the resources provided. The Department of the Navy cannot effectively meet its Title 10 U.S.C. responsibilities to operational naval forces by conducting our business affairs as we have in the past. We must change, and we must engender major change because business as usual will be insufficient.

We are developing a Strategic Business Plan (SBP) as a first step in organizing and managing the change that we require. This document will provide a strategic plan to transform naval business processes and infrastructure into those needed to support the naval forces of the 21st century. The plan will outline the Department of the Navy's overall business strategy and provide a common focus to guide transformational change in naval business affairs. The plan will describe a strategy for accomplishing Title 10 responsibilities. It will outline goals that describe common directions. Facing our challenges and achieving our strategic goals will require the cooperative efforts of the entire Department as we transform our business operations. The SBP will focus and guide our efforts toward common strategic goals. Successful change will require active engagement and commitment from all Department of the Navy members. Innovative opportunities exist at all levels of the Department of the Navy. We will evaluate our business processes, keeping those that serve us well, and adapt the best practices of commercial or public enterprises to meet our other needs. As our effort matures and systemic innovations are identified, initiatives will be prioritized and integrated to enhance our use of time and other resources.

In the fall of 1998, we commenced several business reform initiatives in areas of recruiting, retention, training and assignment; commercial business practices; and housing. These reform initiatives are very much in support of the revolution in business affairs articulated in the DoD Defense Reform Initiative. From these initiatives, we are developing changes, which although iterative, will fundamentally revolutionize our business processes over the long term.

On the deckplate level, the CNO has initiated a program to improve the readiness of our nondeployed forces by reducing the requirements during the Interdeployment Training Cycle (IDTC) by 25 percent. This initiative will both improve nondeployed unit readiness as well as increase the quality of life of our Sailors between deployment cycles. The process will review training requirements and consolidate training evolutions to more efficiently train our forces in preparation for short notice contingencies or the next major deployment. In addition to the QoL benefits that this process will yield, the maintenance strain on aircraft and ships will decrease. Together, this will increase nondeployed unit readiness and provide units with a more manageable transition through the IDTC toward full combat readiness status.

The Department of the Navy has further improved its acquisition process, opening its Acquisition Center of Excellence (ACE) in early 1998. The ACE demonstrates a firm commitment to fundamental process changes required to achieve the faster, better, cheaper objective. The ACE was the site for the first-ever acquisition wargame—focused on 21st century aircraft carrier acquisition strategies. It will be the principal test bed and development site for simulation-based acquisition efforts that are expected to revolutionize design and procurement of major systems.

Research and Development

Science and technology are the fuel for naval warfare innovation. This year's demonstrations provide today's programs and tomorrow's options—focused on affordability and technological superiority—with technological promise for the future. Considerable effort is focused on developing the means to rapidly transform or inject the fruits of science and technology into fleet application. The most prominent examples of this effort reside in shipbuilding technology as well as in the application of network centric warfare, land attack warfare, theater ballistic missile defense, mine counter measures, and antisubmarine warfare (see Technology for Tomorrow).

Maritime Technology (MARITECH), the technology development element of the President's five-part plan to revitalize the U.S. shipbuilding industry, is aimed at improving the design and construction processes of ships to compete in the world market. MARITECH, funded at approximately $40 million per year, was established to run for five years (FY 1993 through FY 1998) and was managed by the Defense Advanced Research Projects Agency. The new program, called MARITECH Advanced Shipbuilding Enterprise, is now managed by the Navy. It will focus shipbuilding research and development funding on technologies to further U.S. international competitiveness and reduce the cost of warships to the Navy.

In the area of submarine technology, the Navy is pursuing a strategy of increasing the new Virginia class attack submarine's capabilities through the incremental insertion of advanced technology into follow-on ships of the class. The Virginia class design/build process incorporates the progressive business practices—including participation by industry, the shipbuilder, and government. This submarine class has built-in flexibility through the incorporation of modular construction techniques, open systems architecture, and commercial off-the-shelf components. The speed of technology development to fleet application will be increased as new technologies will be packaged in successive Virginia class SSNs rather than waiting for the next class of submarine. Increased capabilities funded for the first four hulls include organic mine reconnaissance, stealthy weapons launch, and greater littoral detection capabilities.

In the area of aircraft carrier construction, CVN-77 will have a new integrated combat system with multifunction arrays and incorporate additional new technologies into its systems. CVNX-1, the next generation aircraft carrier class, will have a new nuclear propulsion plant, an advanced electrical power distribution system, and electromagnetic aircraft launching and recovery system. CVNX-2 is planned to have an improved hull, improved crew habitability, survivability enhancements, performance improvements, new functional arrangements, and distributed systems to further reduce manning and life cycle costs.

In the area of surface ship technology, the Navy's 21st Century Land Attack Destroyer, DD 21, will be designed from the keel up to provide support for forces

ashore. Leap-ahead capabilities targeted for DD 21 include advanced major caliber guns, precision weapons, signature reduction, C3I systems with seamless joint interoperability, and enhanced survivability designs. DD 21 will incorporate an open system architecture and modular design such that new systems can be upgraded and inserted as new generations are produced. The Navy expects to realize a 30 percent fuel savings over the DDG 51-class through fully integrated electric propulsion systems, fuel-efficient propulsors, and new hull design. Finally, the Navy has established a 95-person manning objective for DD 21, which is a 70 percent reduction from DDG-51.

Streamlining Infrastructure

Reductions in Navy infrastructure have not kept pace with reductions in force structure. While the number of ships and Sailors were reduced by 40 percent and 30 percent respectively, since 1988, Navy infrastructure decreased by only 17 percent. Additional base realignment and closure (BRAC) actions are critical to support the Secretary of Defense's Quadrennial Defense Review strategy and achieve the objectives of *Joint Vision 2010*. Separate from BRAC, the Navy continues to seek and test innovative methods for efficient infrastructure operations and management through improved maintenance practices, demolition of obsolete facilities, consolidation, regionalization, and competitive sourcing initiatives.

BRAC, to date, designated 178 Navy and Marine Corps bases and activities for closure or realignment. The strategy is to close facilities quickly, then complete cleanup and dispose of the property in support of local redevelopment efforts. In 1999, 11 additional closures will be added to the 162 closures or realignments already completed.

The Navy has recently embarked upon an aggressive effort to free money for readiness and modernization by reinventing its shore establishment. Efforts are on going in Navy concentration areas such as Norfolk and San Diego to consolidate or regionalize management to reduce base operating support costs, streamline management, and eliminate redundant functions. Regionalization also improves workforce utilization, development of most efficient organizations, opportunities for regional public/private competitions, process standardization, interoperability, and regional planning and prioritization. In conjunction with regionalization, the Navy also is reducing the number of major claimants involved in installation management. As regional installation management organizations are created, base operating support resources and responsibilities will transfer to a single major claimant. Simultaneously, plans are proceeding to transfer all installation management responsibilities from multiple claimants to permit each claimant to concentrate on its primary mission.

The Environment

The Department continued its active program for environmental compliance and stewardship. Substantial progress has been made in shipboard pollution control, such as plastic and solid waste processors and oil pollution abatement systems. The conversion of air conditioning and refrigeration plants to non-CFC (chlorofluorocarbon) systems also continues on schedule. The Department of the Navy and the Environmental Protection Agency published the first phase of regulations that establish uniform national discharge standards for military vessels. This initiative is under development in partnership with the Coast Guard, National Oceanographic and Atmospheric Administration, and in consultation with coastal states.

The Department's active Pollution Prevention Program, with state-of-the-art pollution prevention technologies, assists installations to meet various environmental requirements. These pollution prevention technologies also improve occupational safety, increase productivity, and reduce operations and maintenance costs. Pollution prevention measures helped reduce toxic releases by 51 percent from the 1994 baseline.

The Department continues to pursue environmental research and development in the areas of marine mammal protection, contaminated site cleanup, hull paints/coatings and life-cycle environmental protection in acquisition of weapons systems.

TECHNOLOGY FOR TOMORROW

Three areas of especially rapid technological growth—sensor technology, computer processing capability, and long-range precision guided weapons—are crucial technologies in maintaining an unparalleled offensive capability. Together, these advances represent the means for a vast increase in the ability of naval forces to find and exploit enemy vulnerabilities, and to significantly project precise power to all but a small fraction of the world's surface.

Navy Concepts and Programs

Recognizing the challenges of tomorrow along with advances in technology, the Navy is investing its resources in five specific areas of warfare: Network Centric Warfare, Land Attack, Theater Ballistic Missile Defense, Organic Mine Countermeasures, and Anti-Submarine Warfare.

Network Centric Warfare (NCW). Central to the Navy's future operations, NCW derives its power from the reliable networking of well-informed, geographically dispersed forces. A multi-sensor information grid will provide all commanders access to essential data, sensors, command-and-control systems, and weapons. This secure but accessible network will support rapid data flow between the sensor, command-and-control systems and shooter grids. The first steps toward meeting this requirement include implementation of Information Technology for the 21st Century and the sensor netting technology of the Cooperative Engagement Capability.

Land Attack. Precision land attack operations conducted from carrier-based aircraft, surface warships, and attack submarines provide massive, sustainable fires from the sea. High-intensity sea-based firepower will allow forces ashore to achieve critical objectives quickly and permit the flow of heavy follow-on forces within the desired timelines. In the early years of the 21st century, the Navy will have in its arsenal F/A-18 E/F and advanced Joint Strike Fighters (JSF) aircraft, follow on Tomahawk land attack cruise missiles, and 5"/62-caliber guns using extended range guided munitions to deliver devastating, long-range precision strikes in the littoral and beyond. Concomitantly, targeting will be achieved with a Naval Fires Control System that operates with joint fire support systems.

Theater Ballistic Missile Defense (TBMD). A TBMD capability is required to enable forward-deployed U.S., allied, and coalition forces to operate effectively in the face of a ballistic missile threat. Using the power of the Aegis SPY radar and the proven flexibility of the Standard missile, the Navy Area TBMD program is focused on providing a reliable theater missile defense network. The Navy Area TBMD takes advantage of the inherent flexibility and mobility of naval forces to provide defense against ballistic missiles without reliance on host nation permission or support.

The Navy Theater Wide (NTW) effort evolves from the Navy Area TBMD Program and consists of modifications to the Aegis Weapons System and the integration of the Lightweight Exoatmospheric Projectile (LEAP) on a three-stage SM-2 Block IV missile. The NTW system will be capable of high altitude intercepts of medium to longer range theater ballistic missiles. In the near term, a two-pronged development approach includes a seven-flight Aegis-LEAP Intercept program from FY 1999 to FY 2001.

Organic Mine Countermeasures (MCM). The Department of the Navy is investing now to equip carrier battlegroups and amphibious ready groups with organic mine hunting and mine clearance capabilities. Ships and submarines will deploy and control remote mine hunting systems and high frequency sonar. Variants of the H-60 helicopter will carry mine hunting sensors and neutralization gear such as the Airborne Laser Mine Detection System, the Shallow Water Influence Mine Sweeping System, and the Airborne Mine Neutralization System. Instead of waiting for weeks to get the dedicated mine-warfare assets on station, the commander will have mine detection and avoidance systems at his disposal. The tactical information and tools needed to allow freedom of action and dominant maneuver of his force in the face of a dangerous, cheaply deployed mine threat will be on station all of the time. The ultimate effect of deploying organic MCM systems is that it extends maritime domination into the littorals by minimizing the effectiveness of the most asymmetric and prevalent littoral sea threat, the sea mine.

Anti-Submarine Warfare (ASW). Because of stealth, lethality, and affordability, the submarine is the naval weapon of choice for those countries looking for an asymmetric counter to superior naval forces. Therefore, full dimensional force protection and focused logistics mandate expedient and sustained dominance over any potential submarine threat.

The Navy is positioning itself to counter this undersea threat. An architecture that can accommodate commonality among all ASW platforms will be critical for both performance and affordability. Multi-static active detection systems will employ advanced processing while leveraging legacy ASW systems. The use of rapidly deployable, distributed arrays like that being developed in the Advanced Deployable System program, will provide wide area deployable shallow water undersea surveillance in the complex littoral environment. The Lightweight Hybrid Torpedo will offer the Navy

improved weapon effectiveness against littoral submarine targets and countermeasures.

The Virginia-class attack submarine is designed for multi-mission operations and will expand from the traditional submarine missions of anti-ship and anti-submarine warfare. With added focus on acoustic and littoral battlespace dominance, the Virginia-class attack submarines will improve acoustic and non-acoustic stealth and will feature Special Warfare enhancements.

Marine Corps Concepts and Programs

Marine air-ground task force (MAGTF) operations are built upon a foundation of six core competencies. Expeditionary readiness, combined-arms operations, expeditionary operations, sea-based operations, forcible entry, and reserve augmentation define the essence of the unique Marine institutional culture, as well as the Corps' role within the national military establishment.

Expeditionary readiness defines an institution ready to respond instantaneously to world-wide crises, every day. This requires a force that can transition from peacetime to combat operations at a moment's notice, without critical reserve augmentation, and with certain success. It also demands a force ready to flourish under adverse conditions and in uncertain environments. Finally, it means being ready to defeat the opponent-after-next, which can be achieved only through continued investment in experimentation, adaptation, and change.

The MAGTF also requires an organic, combined-arms capability. For half a century, MAGTFs have trained to ensure their ground combat, air combat, and combat service support capabilities were directed by a single commander. Expeditionary operations is primarily a special mindset—one that ensures that Marines will be prepared for immediate deployment overseas into austere operating environments. Sea-based operations provide extraordinary strategic reach and give the nation an enduring means to influence and shape the evolving international environment. An appropriately prepared and equipped combined-arms MAGTF, operating from a mobile, protected sea base, provides the National Command Authorities with unimpeded and politically unencumbered access to potential trouble spots around the globe.

The Marines are best known for their fifth core competency, forcible-entry. In the past, forcible-entry from the sea was defined as amphibious assaults, establishing lodgements on the beach, and then building up combat power ashore for subsequent operations. It is now defined as an uninterrupted movement of forces from ships located over the horizon directly against decisive objectives. The sixth core competency of reserve integration captures the practice of augmenting and reinforcing active component units with the Marine Reserve in crisis response missions and adding to combat power for sustained operations.

Core competencies are not maintained without relevant and applicable concepts. These concepts are only realized with the proper, mutually reinforcing tools. The following elements are essential to full execution of *Operational Maneuver From the Sea*:

- Sea-Based Forcible-Entry Operations. Through modernization and tailoring of the amphibious fleet, ships that can ably serve as over-the-horizon launch platforms for the MV-22 Osprey aircraft, the short takeoff and vertical-landing variant of the Joint Strike Fighter (JSF), the Advanced Amphibious Assault Vehicle (AAAV), and the already proven Landing Craft Air-Cushion will be provided. The amphibious lift modernization plan also maintains Marine Corps core competencies. It is formed around the 12 Amphibious Ready Groups (ARGs) needed to meet the nation's forward-presence and contingency requirements while also achieving the fiscally-constrained amphibious lift goal of 2.5 Marine Expeditionary Brigade equivalents. The plan shapes the future amphibious force with the correct numbers and types of ships to provide a flexible and adaptive combined-arms crisis-response capability. Ultimately, the amphibious force will be composed of 12 LHA/Ds (Tarawa and Wasp classes), 12 LPD 17s (San Antonio-class), and 12 LSD 41/49s (Whidbey Island and Harpers Ferry-class), capable of forming 12 ARGs or operating independently.

  The MV-22 Osprey remains the Marine Corps' highest aviation acquisition priority and is necessary to conduct sea-based forcible-entry operations. The MV-22 flies significantly farther, faster, and with greater payloads than the current fleet of aging medium lift CH-46E/ CH-53D helicopters. This combat multiplier allows Marines to strike rapidly at objectives located deep inland. It provides Navy ships adequate stand-off distance in response to shore-based missiles, underwater mines, and other developing threats, and delays detection of the striking force.

An essential component in implementing ship-to-shore maneuver is the AAAV. Currently in the demonstration and validation phase, the AAAV will allow rapid, high-speed transportation of Marine combat units from amphibious assault ships located well beyond the visual horizon. When completed, it will be the most modern and capable amphibious vehicle in the world.

- Combined–Arms Operations. The Marine Corps depends heavily upon the use of fully integrated air support in combined-arms and expeditionary warfare. This approach reinforces expeditionary warfare by radically reducing dependence upon armor and artillery. Consequently, the Short Takeoff or Vertical Landing variant of the JSF is critical to conducting combined-arms operations in the future. The JSF will replace the Marine AV-8B Harrier and F/A-18 Hornet aircraft.

  The Lightweight 155mm Towed Howitzer (LW155) will replace the aging M198 155mm towed howitzer as the only artillery system in the Marine Corps inventory. The LW155 is designed for expeditionary operations requiring light, highly mobile artillery, and will be transportable by MV-22 Osprey and CH-53E aircraft. The howitzer's lighter weight and automated breech, rammer, and digital fire control computer will provide the MAGTF commander with increased responsiveness and efficiency. The program is in the engineering and manufacturing development phase with initial operational capability scheduled in FY 2003.

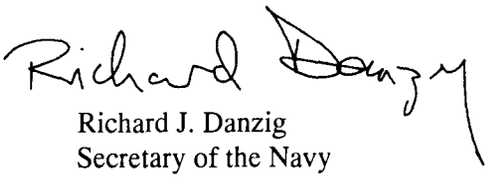
CONCLUSION

The recent past has shown that now, as ever, the Navy and Marine Corps play a critical role in the protection and advancement of U.S. interests around the globe. On-scene naval forces conducting peacetime presence or crisis-response missions frequently represent our nation's political will and international policies first. Political will to influence events abroad is not enough to fulfill U.S. obligations. To deter aggression, foster peaceful resolution of dangerous conflicts, underpin stable foreign markets, encourage democracy, and inspire nations to join together to resolve global problems, the United States must have a multi-dimensional maritime force that is ready to shape and respond anywhere, anytime, around the globe.

Today, the most profound leadership challenge is the struggle to maintain current readiness while preparing to meet future requirements. The Navy and Marine Corps must address both the recruiting and retention of quality personnel, and the maintenance of aging equipment while modernizing Navy and Marine Corps forces for the future.

Navy and Marine Corps modernization is based on a comprehensive assessment of future threats. Even with increased funding for recapitalization and modernization, it will be a challenge to maintain the recommended fleet level as detailed in the QDR. Indeed, planned shipbuilding rates combined with aging equipment could impact naval operations within the FYDP. A downward spiral may ensue if reliability and capability upgrades are delayed to the point that the cost of maintaining older equipment consumes funds for equipment replacement. Another consequence of maintenance-intensive equipment is its negative effect on productivity and reliability, and thus quality of life is eroded. In short, today's readiness is being preserved at the expense of tomorrow's requirements.

Readiness is the foundation of our credibility as an instrument of foreign policy and national resolve. It also is the key measure of survivability for those we must send in harm's way. Today, the Department of the Navy is forward-deployed and ready to protect our nation's interests. At the same time, we must assure tomorrow's readiness. The challenges detailed above must be addressed for the benefit of the United States of America, and the men and women of the Naval Service.



Richard J. Danzig
Secretary of the Navy

REPORT OF THE SECRETARY OF THE AIR FORCE

Innovation is the hallmark of the United States Air Force. Born of rapid advances in technology and warfighting concepts, the Air Force has a history of embracing and encouraging change in order to dominate and exploit the aerospace dimension. Its creation, in fact, was a revolutionary innovation. The tradition of embracing and exploiting change was deeply imbedded by the time the Service was born of the Army Air Forces in 1947. It was tested and proven almost immediately during the Berlin Airlift. Despite the daunting and unprecedented nature of the challenge, the Air Force almost instantly built a massive airbridge—a lifeline to a beleaguered island of democracy. Fifty years later, Berlin stands as an enduring symbol of the adaptability and flexibility of aerospace power. This tradition of anticipating and adapting to new strategic situations continues today as the Air Force faces the challenges of the 21st century: providing the nation rapid and decisive aerospace power; maintaining readiness despite high and unpredictable tempo; modernizing equipment in a fiscally challenging environment; and continuing to recruit, train, and retain the finest airmen in the world.

GLOBAL OPERATIONS USING THE TOTAL AIR FORCE

To patrol no-fly zones, respond to contingencies, and conduct relief operations, America's Air Force uses a well-integrated Total Force that relies on critical contributions from active duty members, reservists and Air Force civilians. Each has unique and complementary characteristics that combined produce a strong and versatile team. Building on its reputation as the DoD Total Force benchmark, the Service expanded the role of the reserve component in its flying training and security force missions, more fully utilizing the special skills Reservists bring to these important mission areas. Continuing to look ahead, the Air Force commissioned a study entitled Future Total Force to determine how the Total Force of the 21st century should be shaped to best use each component. A key to tomorrow's Total Force is continued support of reserve component personnel by their civilian employers. The Air Force is working with employers to make guardsmen and reservists' military service beneficial to them, as well as to the nation.

Deterring Aggression

Wherever the United States has interests, the Total Air Force gives policy makers a wide array of timely,

tailored options to shape events. The broad range of aerospace forces—whether conventional or nuclear, theater- or continental United States (CONUS)-based—deter aggression and demonstrate U.S. commitment to international stability. During 1998, the Air Force stood watch in the Pacific, Europe, and Southwest Asia with forward-based units; deterred conflict with its intercontinental ballistic missile forces; and flew B-1, B-2, and B-52 Global Power missions that underscored U.S. commitment and readiness to defend its interests throughout the world.

Contingency Operations

During 1998, this was especially true in Southwest Asia and the Balkans, where the Air Force put teeth into United Nations resolutions and the Dayton Peace Accords. Using powerful, day/night, all-weather, surveillance and reconnaissance capabilities, the Air Force gave national leaders and U.S. commanders unparalleled visibility into both regions.

In the Arabian Gulf, the Air Force units participating in Operations Northern Watch and Southern Watch patrolled no-fly zones and maintained the ability to deliver decisive force in support of UN resolutions on Iraq. Three times in 1998, Iraqi leadership violated these resolutions. The Air Force, as part of a coalition effort, rapidly increased its deterrent presence. Behind the scenes, CONUS- and space-based assets provided support to this potent, in-theater force. Faced with clear political resolve and lethal aerospace capabilities, Iraqi leadership came into compliance with UN agreements. In December, because of Iraqi intransigence, the National Command Authorities ordered the DoD to execute Operation Desert Fox, a strong, sustained series of air strikes against Iraq. The Air Force played a crucial role in this operation, employing its air and space weapons systems to ensure aerospace and information superiority and to precisely attack Iraqi military targets. The Air Force remains the key contributor to our nation's commitment to stability in Southwest Asia, having flown 75 percent of the sorties in Northern Watch, 68 percent of the sorties in Southern Watch and nearly 100 percent of the tanker services essential to Air Force, Navy, and Marine operations.

Air Force participation in Operation Joint Forge has helped keep the peace in the Balkans. Building on its ability to monitor southern Europe from above, the Service has fused imagery from space, the Predator Unmanned Aerial Vehicle (UAV), and manned airborne platforms, to create a unified picture of the region, enabling UN forces to control what flies in the air and moves on the ground. The ability of aerospace forces to see from above and to strike the surface provided diplomats the leverage they needed to negotiate an agreement ending the violence in Kosovo. Within hours of inking the Kosovo agreement, Air Force aircraft were flying over the area, executing Operation Eagle Eye, the NATO mission to monitor compliance. Again, the speed, range, and flexibility of aerospace power used in new, imaginative ways by highly skilled, trained and dedicated personnel were crucial to success.

Counterdrug Operations

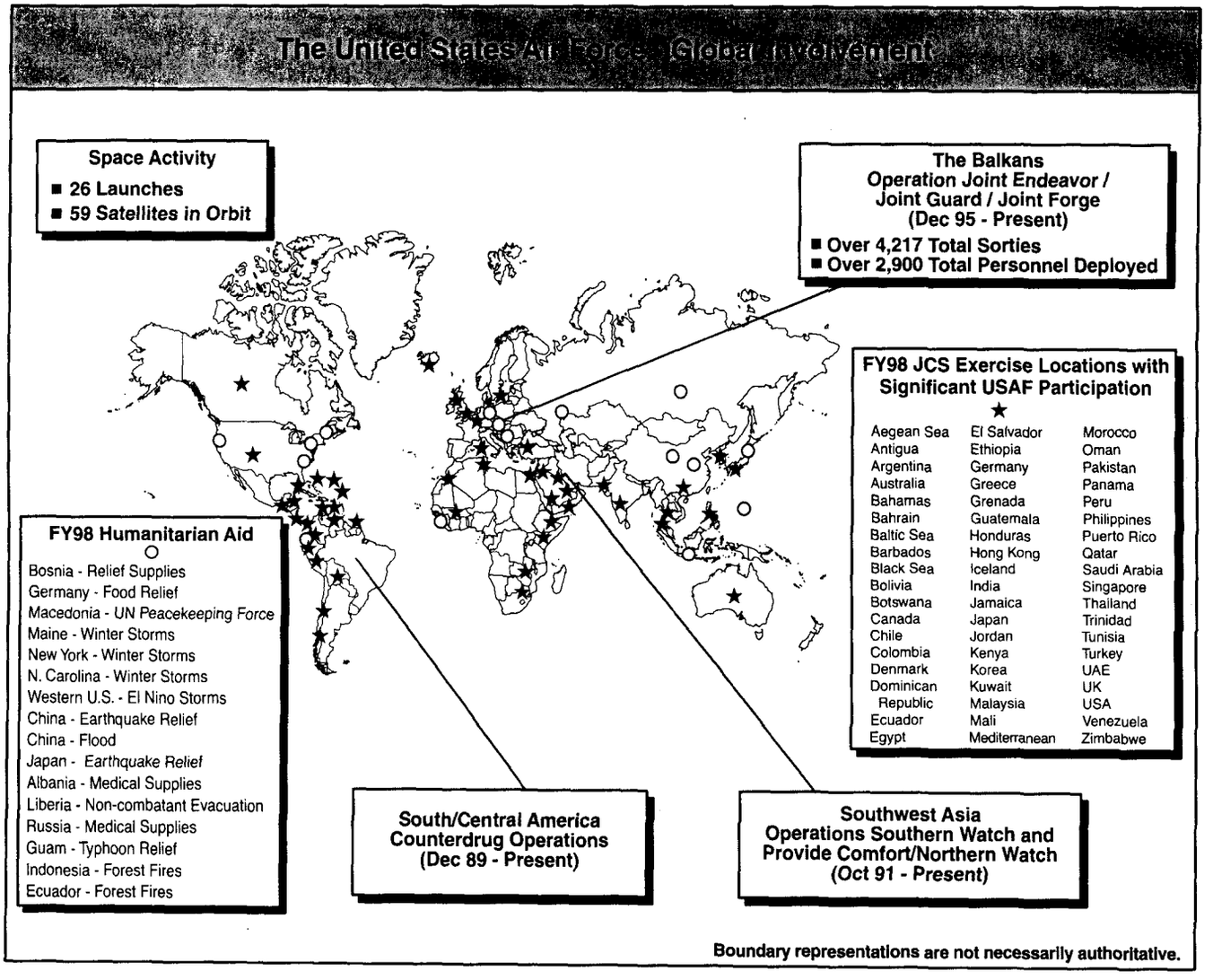
The Air Force also used the vast potential of aerospace power unconventionally by working alongside drug enforcement agencies to combat the illegal drug trade. Combined airborne and ground-based radars and sophisticated intelligence collection platforms identified suspected drug traffickers before they could enter U.S. airspace, reserve fliers tracked drug smugglers far from our borders, and the Civil Air Patrol aided law enforcement agencies at home. On the ground, Air Force working dogs detected significant quantities of illegal drugs at ports, barring their entry. Air Force counterdrug operations demonstrated both the versatility of aerospace power and the innovative ways the Service is using its assets to counter nontraditional threats to the nation's well being.

Humanitarian and Relief Operations

The legacy of the Berlin Airlift lives on as the Air Force continues to use its global mobility assets to support humanitarian and relief operations to people in need. When the U.S. embassies in Kenya and Tanzania were bombed, the Service responded, deploying an Initial Response Team of medical personnel and security forces to both locations in less than 24 hours. Its timely arrival helped reduce suffering and stabilized the situation. In the aftermath of Hurricane Mitch, the Air Force built an airbridge to Central America, rapidly lifting life-saving food and medical supplies to the region. The Service estimates that by February 1999 it will have delivered 10 million pounds of cargo to those who survived the worst storm to strike the region in 200 years. Twice in 1998, the Air Force reacted to natural disasters in remote parts of China, airlifting emergency supplies to those in need. And, to the delight of the world's children, the Air Force lifted Kieko the whale from Oregon to a new home in Iceland.

At home, when heavy winter storms ravaged the East Coast and Rocky Mountains, the Air Force lifted critical disaster relief supplies to the affected areas. Even livestock, stranded by these conditions, were kept alive by airdrops in Vermont and New Mexico. As catastrophic wildfires engulfed large parts of Florida, the Air Force helped check the destruction, moving 72 fire trucks and 269 fire fighting personnel from the western United States to decisive points in Florida to fight these fires. Their efforts protected thousands of residents and greatly limited damage.

The Air Force helped meet the nation's security needs during 1998 by operating across the spectrum of peace and conflict in every corner of the world. Deployments continued at four times the old, Cold War pace. Adding to the challenge, the Air Force met that demand with 30 percent fewer people and 40 percent less force structure. We did—and continue to do—significantly more, with significantly less. The combination of increased workload and smaller work force lead inevitably to high tempo, with Air Force people and equipment in almost constant demand. The Air Force exists to defend the nation. Its airmen dedicate their lives to accomplish that mission, regardless of the sacrifice. However, the combination of several years of continued high operations tempo, austere budgets, and a strong economy has stressed the force. Large numbers of skilled and dedicated airmen left the force in 1998. The loss of that talent—particularly at the mid-career level—translates into reduced readiness.



Information Operations and Assurance

For all operations, the Air Force—and its command authority—depend on timely and reliable information. The Service executes Information Operations (IO) in air, space, and cyberspace to gain and maintain information superiority. Toward this end, during 1998, the Air Force published IO doctrine and issued a comprehensive policy for defensive IO. It also completed the sweeping Electronic Warfare (EW) Operational Shortfall Study aimed at ensuring the superiority of Air Force EW capabilities into the 21st century.

The Service also took steps to assure the integrity of its information and prepare for transition to the Year 2000 (Y2K). The Air Force has strengthened information assurance by subjecting its computer networks to the same operational rigors as it does weapons systems—fielding new equipment, training personnel, establishing rules of engagement, and reporting network status as a component of readiness. The Air Force also established base Network Control Centers that enhance the ability to quickly detect and react to network intrusion.

An important information operations task is the transition to the Year 2000. Computers are critical to the Air Force—they are key components of its weapons systems, automated information networks, and infrastructure. Ensuring that the much-publicized Year 2000 computer problem does not degrade readiness is a top priority. The Service must ensure that mission-critical systems work without interruption or error on January 1, 2000 and beyond. To do this, the Air Force has evaluated, prioritized, and updated its systems. Most of the mission-critical weapons and information systems were certified Y2K ready by the December 1998 target. Those that await completion in 1999 do so because of compelling mission, business, or technical reasons. The Service plans a strong Y2K testing and operational evaluation program in 1999 and will have continuity of operation plans in place for all mission tasks and systems. The Air Force will be mission ready on January 1, 2000.

READINESS - AEROSPACE OPERATIONS WITH FISCAL CONSTRAINTS

Readiness—the preparedness of a Service to conduct its primary mission—is complex. Measuring it is difficult. But it comes down to a simple question: Is the Air Force prepared with the people and equipment necessary to support the National Security Strategy? Some components of readiness are tangible, such as the number of top-notch and fully trained airmen, orbiting satellites, or mission-ready aircraft. Others, like individual and unit morale, unit cohesion, and unit effectiveness are less tangible. As Air Force senior leaders have reported, the Air Force remains ready to meet today's demands. However, the combination of several years of constant high operating tempo, aging equipment, and the cumulative effect of too few dollars has taken its toll on current readiness and created concerns about future readiness.

Air Force readiness indicators are declining, more so for stateside forces than overseas units. Because the Service gives forward combat units resource priority to keep them at peak strength, it is forced to accept lower readiness rates for stateside units. Overall, major unit readiness decreased by 18 percentage points in the last two and a half years, with stateside combat readiness declining by 56 percentage points in that same period. Nearly half of that decline occurred in the last ten months of 1998. The strain—and the limits—of doing more with less are showing. In response, the FY 2000 President's Budget increases readiness spending, which should address the readiness decline.

Infrastructure

In the past decade, reductions in Air Force manpower and force structure have outpaced those in infrastructure. As a result, the Service is spending scarce resources on unneeded facilities, spreading its airmen too thin, and struggling to maintain readiness. The need to fund higher priority programs has caused the Air Force to under-invest in base operating support, real property maintenance, family housing, and military construction. To enhance readiness, the Air Force must be allowed to reduce its base structure. That, in turn, will make its people more effective, and the force as a whole much more efficient.

Airmen

America's airmen are the foundation of our Air Force and a national treasure. We must recruit and retain the very best. Although the Service met its 1998 recruiting goals, the increasing difficulty it had in doing so caused a drop in the critical pool of delayed enlistments. To ensure that it continues to attract top-notch people, the Air Force enlarged its recruiting force and increased the size of its advertising budget.

Retention is also a concern. Air Force people have earned an enviable reputation as disciplined and highly skilled workers. The Service must compete with the strongest economy in a generation for airmen's expertise and leadership skills. Several years of high operating tempo, civilian-military pay inequities, and a less attractive retirement system are making it difficult to keep our people in uniform.

Pilots are just one example of the Service's retention difficulties. The stable lifestyle and excellent pay and benefits of the airline industry caused large numbers of the Air Force's pilots to separate in 1998. Today, the Service is 855 pilots short of its needs, a number that is expected to jump to approximately 2,000 in FY 2002. Pilot retention is a Total Force problem, with the reserve component having difficulty manning its full-time flying billets as well. To stem this attrition, the Air Force increased pilot production by sending more candidates through initial flying training and added two years to the initial pilot training commitment.

Retention is not solely a pilot issue. Far from it. It is also a serious concern with enlisted personnel, especially mid-level non-commissioned officers. These airmen represent an experience and leadership base that is critical not only for today's readiness, but also for training tomorrow's Air Force leaders. Reenlistment rates for those completing their second-term are 69 percent. This is below the Air Force's goal of 75 percent for the second year in a row and the numbers continue down. In fact, many key warfighting career fields, such as security forces, avionics, aircraft maintenance, and air traffic control are experiencing even larger drops in reenlistment. First-term and career reenlistments also fell below Air Force goals for the first time in eight years. Because the Air Force invests heavily in training its enlisted force from the first day an airmen puts on the uniform, the early loss of any airman is a blow to readiness. To help combat these trends, the Air Force has expanded the number of career fields eligible for Selective Reenlistment Bonuses to 117 and is working with the DoD leadership and the other Services on proposals to further stem attrition.

Equipment

The age of the Air Force's weapons systems is unprecedented. Next year, the average age of our aircraft will be 20 years and under current modernization plans it will increase to 30 years in 2015. Soon, many of our pilots and maintenance personnel will be younger than the tools of their trade. The costs of maintaining this older equipment are climbing exponentially. Fatigue, corrosion, and parts obsolescence are progressively driving up the costs of maintaining older planes. For example, an older F-15, nearing its third decade of service life, costs 37 percent more to maintain than newer versions. If the Air Force is to continue making readiness affordable, it must replace weapons systems that are beyond their useful lives and revitalize those that are still viable.

Faced with competing needs—to operate and modernize in a budget-constrained environment—the Air Force has been forced to make difficult programming choices. One decision the Service made in the mid 1990s was to reduce funding for spare parts and depot maintenance. While not a desirable long-term strategy, the Air Force believed that innovation and careful management would allow it to maintain equipment at lower levels of funding. The Service was partially successful. Through the innovative Agile Logistics Program, the Air Force revamped its supply concept, substituting rapid resupply for large inventories. The Service also experienced initial success with creative management actions, such as prioritizing component repair; fixing high-priority operational components while delaying lower priority support items; and supplying forward units first. However, declining readiness indicators—falling mission capable rates and rising cannibalization rates—indicate that these strategies have not brought ownership costs down to expected levels. In order to address these trends, the Air Force greatly increased spending on spares and repairs for FY 1998 and FY 1999. The FY 2000 President's Budget adds additional funds to these accounts. The Service believes these increases will arrest the decline in mission capable rates. In the long term, this remains an area of concern given the increasing costs associated with an aging fleet.

Addressing Readiness

The Air Force can support the National Security Strategy today, but to do so in the future at an acceptable level of risk requires increased funding. To arrest the readiness decline, the Service needs additional funding to resolve shortfalls in programs that affect its airmen and its equipment. The Air Force believes improvements in the retirement system and military pay, proposed in the FY 2000 President Budget's, will aid retention, and therefore readiness. The EAF concept, introduced in 1998, will enhance the Service's ability to conduct sustained expeditionary operations and reduce the impact of the tempo they require of

airmen. Additionally, increased funding, contained in the budget, for spares and repairs will improve cannibalization and mission capable rates. In the longer term, however, the Service must modernize and upgrade its weapons systems to keep its aging fleet sustainable at an affordable cost.

EXPEDITIONARY AEROSPACE FORCE - INNOVATING FOR THE FUTURE

Today's national security environment requires America's Air Force to continuously conduct short-notice operations across the spectrum of conflict, frequently in austere locations. To meet this need, the Service is revamping its concept of operations—transforming how it rapidly deploys forces into theaters of operation, accomplishes its missions, and then redeploys. This new Expeditionary Aerospace Force (EAF) concept represents a revolutionary way of providing aerospace power to warfighting regional commanders, while mitigating the effects of tempo on its airmen. In the long run, EAF requires a change in how the Air Force thinks about itself. More immediately, it is shaping how the Service is organized, trained, and manned.

By January 2000, the Air Force will reorganize its forces, operationally linking geographically separated units into ten Aerospace Expeditionary Forces (AEFs). Each AEF package will consist of a full complement of aerospace power, air-breathing and space-based equipment, active duty and reserve personnel. With fighter, bomber, tanker, airlift, command and control, radar, and electronic warfare aircraft combined with communication, intelligence, surveillance and reconnaissance air and space systems, AEFs will provide tailorable units with unparalleled responsiveness and punch. This reorganization is in the Air Force tradition. It will exploit technology to create these new operational units without moving significant force structure and it will better integrate the Total Force. AEFs will be scheduled on a 15-month cycle, with 90-day vulnerability periods. During each vulnerability period, two AEFs will be tasked to support both scheduled forward presence missions and short-notice taskings.

AEFs will provide U.S. combatant commanders a more capable, better-trained force. Training as a team during their spin-up cycle, AEFs will form a fully integrated aerospace unit, one that combines the capabilities of the Service's weapons systems to create a powerful composite force. Knowing AEF schedules in advance will allow the Air Force to structure training programs to put these units at the peak of readiness as they enter their vulnerability period. A known commitment period will permit AEFs to refine training and planning to match current world events, resulting in shorter response times and a tailored force that better meets the needs of U.S. commanders in chief.

Reorganizing into AEFs allows the Air Force to schedule its units far in advance of actual commitment, adding predictability and stability to the lives of airmen. The Service hopes that with some of the aggravation and disruption of short-notice deployments removed, retention will improve. Predictability also allows full participation of the reserve component. Once organized into AEFs, Air National Guard and Air Force Reserve units will know a year in advance when they are committed to an AEF tasking, allowing members and their employers to structure work schedules to enable participation. In the end, AEFs permit better use of the Total Air Force.

Importantly, the EAF is more than an innovative way of structuring units. It also establishes a new approach for the way the Service operates the bases that support them. Currently, the Air Force sizes its support forces based on the number of permanent bases that it operates. Support forces for expeditionary sites are then drawn from this pool of manpower. As a result, airmen work long, hard hours when deployed, while those left at home do their own work and that of the deployed team. The EAF initiative realigns manpower, adding the additional support-force authorizations required to operate the Air Force's expeditionary forces. By increasing the size of its deploying support career fields, the Air Force will be able to better sustain expeditionary operations and manage the effect of tempo on its airmen.

MODERNIZATION - FUTURE EXPEDITIONARY READINESS

Critical to the 21st century's Expeditionary Aerospace Force is modernization. The FY 2000 President's Budget provides funds to maintain key modernization programs like the F-22, C-17, and the Evolved Expandable Launch Vehicle (EELV), and will address shortfalls in combat aircraft force structure. At the same time, while this budget maintains key modernization programs, it does so at slower than optimal rates. Modernization is guided by the Air Force's six core competencies: Air and Space Superiority, Rapid Global Mobility, Global Attack, Precision Engagement, Information Superiority, and Agile Combat Support.

Air and Space Superiority

Air and space superiority—the ability to control the vertical dimension so that the joint force is both free from attack and free to attack—is the key to achieving full spectrum dominance. In the 21st century, air and space superiority will depend on the F-22 Raptor, the EELV, the Space-Based Infrared System (SBIRS), and the Airborne Laser (ABL).

- The F-22 Raptor will dominate the future air arena in the way that its predecessor, the F-15, mastered the skies over the last two decades. The F-22 brings a revolutionary combination of stealth, supercruise, maneuverability and integrated avionics to the air battle, and its near-precision surface attack capability gives theater commanders additional flexibility. The Raptor successfully completed its first flight in September 1997 and its first supersonic flight in October 1998. Envelope expansion testing continues with the F-22 having successfully completed an aggressive test profile in November 1998 that clears the way for the aircraft to enter its next stage of development. The Raptor enters operational service in 2005.
- The EELV ensures America's access to space well into the 21st century. The EELV program teams with industry to develop a launch vehicle meeting military, civil, and commercial requirements with little or no modification. This dual-use strategy ensures that military spacelift requirements are met while stimulating the nation's commercial launch industry. The medium- and heavy-lift EELVs will have their first flights in 2002 and 2003, respectively. EELV will reduce the cost of space launch by a minimum of 25 percent, with a goal of cutting costs in half.
- The SBIRS will contribute to U.S. aerospace dominance in many ways. It will provide warning to national and theater commanders of enemy missile launches, cue missile defense systems, and characterize theater battlespace for situational awareness and space tracking. SBIRS also will provide technical intelligence information on adversary threats.
- The ABL is another critical component in the Air Force strategy for countering theater ballistic missiles (TBMs). ABL will deploy quickly and provide theater commanders the ability to destroy TBMs in the boost phase of flight. In 1998, the Air Force continued to validate the technology by testing the flight-weighted laser module at 110 percent of required power output. ABL completed a successful preliminary design review and passed its first authority-to-proceed event, signifying the program's readiness to progress into detailed design.

Rapid Global Mobility

The ability to move rapidly to any spot on the globe ensures that tomorrow, just as today, the Air Force will be able to respond quickly and decisively to unexpected challenges and interests. Modernization is key here, too. Initiatives toward that end include the C-17 aircraft and Global Access, Navigation, and Safety (GANS) modifications to many Air Force aircraft.

- The C-17 Globemaster III is the Air Force's newest airlifter. Its ability to carry outsized and oversized cargo to remote and austere airfields affords America the unmatched ability to deploy force or humanitarian supplies virtually anywhere on the globe. C-17 deliveries under the current multi-year procurement plan continue ahead of schedule, with the 120th aircraft scheduled to be delivered in 2004.
- Through GANS modifications, the Air Force is fielding seven closely related navigation and safety programs. The Service accelerated collision-avoidance system modifications to several aircraft. The Air Force is also replacing the cockpits in the C-21, C-130, KC-135, and C-5, bringing these aircraft into the 21st century while cutting the costs of maintaining these aging fleets.

Global Attack

The ability to attack rapidly and decisively over long distances allows the Air Force to strike an enemy with an array of forces from within a theater or from the continental United States. Global Attack programs include fielding the B-2 and modernizing the B-1 and B-52 bombers.

- The B-2 Spirit, the world's only long-range stealth aircraft, is able to meet any global engagement task, anytime, anywhere. The Air Force continues to improve the Spirit's low observable coatings and integrate additional advanced weapons.
- The B-1 and B-52, long the heavyweights of the Air Force, continue to be a potent part of the joint force. The B-1 Lancer combines the ordnance load and

intercontinental range of a bomber with the supersonic speed of a fighter. The Lancer is slated for modifications that will improve its defensive systems and increase its ability to deliver precision munitions. The versatile B-52 retains its nuclear capability and can employ a wide variety of conventional precision and standoff munitions. Upgrades to its communication and navigation systems will keep the B-52 viable through 2040.

Precision Engagement

U.S. theater commanders must have the ability to concentrate combat power and achieve desired effects while minimizing risk and collateral damage. The Joint Air-to-Surface Standoff Missile, Joint Standoff Weapon, and Joint Strike Fighter are among the Air Force's high-priority Precision Engagement programs.

- The Joint Air-to-Surface Standoff Missile (JASSM) will enable the Air Force to destroy heavily defended hard targets with virtual impunity. JASSM is a highly accurate, stealthy, standoff missile delivered through acquisition reform at a quarter of the cost of similar weapons. The program transitioned into Engineering and Manufacturing Development in 1998.

- The Joint Standoff Weapon (JSOW) is a near-precision, all-weather, unpowered, standoff munition. The Air Force will use JSOW to deliver cluster munitions that find and destroy soft and armored targets at ranges up to 40 nautical miles. The Air Force takes delivery of JSOW beginning in 1999.

- The Joint Strike Fighter is a multi-role stealth fighter being developed to replace the Air Force's aging F-16 and A-10 fleets. It complements the capabilities of the F-22, providing the Service a mix of multi-role and air superiority aircraft for the 21st century. The program is on-track to supply 1,763 aircraft to the Air Force beginning in 2008.

Information Superiority

The capability to collect, process, and disseminate an uninterrupted information flow, while exploiting or denying the adversary's ability to do the same, will be critical to success in future military operations. Within the Information Superiority core competency are Command and Control (C^2), the Joint Surveillance Target Attack Radar System, and Unmanned Aerial Vehicles.

- The Air Force manages command and control as a weapon system and is committed to acquiring and fielding state-of-the-art C^2 equipment. The Aerospace Command and Control, Intelligence, Surveillance and Reconnaissance Center (AC^2ISRC) was formed to standardize C^2 and ISR systems across the Service. Working with the Air Force Communications and Information Center, AC^2ISRC is rapidly moving toward advanced capabilities that will allow commanders to get inside an adversary's operating cycle and use information against him.

- The Joint Surveillance Target Attack Radar System (JSTARS) provides theater commanders real-time, wide area surveillance of enemy ground movements. JSTARS, demonstrated crucial in combat, is proving itself invaluable supporting contingency operations. Ten JSTARS are currently in production; the fourth aircraft was delivered in 1998.

- The Air Force's UAV programs include the Predator and two developmental High Altitude Endurance (HAE) systems. Predator recently returned from its third operational deployment to the Balkans, where it provided valuable imagery to United Nations forces keeping the peace there. The HAE vehicles will begin military utility assessment in 1999. The HAE UAV will give the Air Force long-dwell, low-observable imagery intelligence collection capabilities.

Agile Combat Support

The success of the Expeditionary Aerospace Force ultimately rests on the ability of the Air Force to sustain forward operations. Rather than depending on large, deployed inventories, agile combat support relies on rapid resupply to improve responsiveness, mobility, and sustainability. Information technologies, such as the Global Combat Support System, featuring both new leading edge capabilities and technical updates of existing systems, are key and will allow the Service to reduce its in-theater footprint.

AIRMEN - THE FOUNDATION OF AEROSPACE POWER

The Air Force will always need top-notch, well-trained, and highly motivated airmen. The service is taking innovative steps now to ensure that it has the force in the 21st century to dominate the aerospace dimension. The transformation from civilian recruit to Air Force airman

begins at Basic Military Training (BMT). The Air Force made several improvements in 1998 to ensure that basic training produces the world's finest professional airmen. The Service made basic training more physically rigorous and added a field training exercise that better prepares airmen for expeditionary operations. The Air Force is also adding another BMT squadron to reduce the trainee/trainer ratio. The Military Training Instructor is the key to BMT. Through incentives, such as increased special-duty pay and uniform clothing allowances, and follow-on assignment preference, the Air Force will attract the best instructors to this demanding job.

The Air Force strongly supports gender-integrated military training. Air Force training is firmly linked to our combat mission—a mission that requires men and women work together as a team. The aerospace team depends on professional relationships between genders, relationships best taught from the first day of military training, rather than delayed until airmen reach operational units. Trainee safety and security are paramount concerns. Accordingly, gender-separated living areas in dormitories are secured and monitored 24 hours a day, seven days a week.

Officer training is changing, too. The new Aerospace Basic Course is designed to better prepare company-grade officers and equivalent Air Force civilians for the future, providing them a foundation in the profession of arms and a working knowledge of the unique contributions of aerospace power. Through this entry-level professional military education program, Air Force lieutenants and key civilian interns gain a deep appreciation for Service values, history, doctrine, and the skills required to operate and fight from austere, forward bases.

Air Force civilians are an integral part of the aerospace team. To prepare these workers for the 21st century, the Service overhauled its civilian development program increasing opportunities for professional development. The program's goal is to produce civilian workers who are technically proficient and well versed in the Air Force mission, operational structures, and doctrine.

Quality of Life

The Air Force retains and motivates its airmen through seven Quality of Life (QoL) initiatives: fair and competitive compensation; a valued retirement benefit; safe, affordable, and adequate housing; quality health care; balanced tempo; robust community and family programs; and expanded educational opportunities.

Our airmen report that their number one QoL concern is fair and competitive compensation. Military pay has not kept pace with the civilian economy. The Air Force strongly supports the improvements to military pay proposed by the President.

Traditionally, the retirement benefit has been perceived as a powerful retention tool. Airmen relate that the reduced retirement plan adopted by Congress in 1986 falls short of what it takes to keep them motivated and in uniform. The Air Force supports the President's proposed revisions to the military personnel system, which will benefit retention.

Housing, for both single members and families, is also an important Air Force QoL concern. Service commitment to the new DoD 1+1 dormitory standard, where airmen share a kitchen and bath, but have a room of their own, is a visible QoL improvement for our junior enlisted personnel. The Air Force is also addressing family housing concerns. The Service is committed to reducing out-of-pocket housing expenditures for those members living in the civilian community, and to revitalizing over 61,000 aging, on-base homes. Where feasible, privatization offers one way to update base housing quickly and affordably. At Lackland AFB, Texas, private funds are being used to replace 272 housing units and construct 148 new units on base. The results to date have led the Service to consider nine additional housing privatization projects.

Quality health care is fundamentally a readiness issue that affects every Air Force member. Airmen must be physically able to meet the challenges of expeditionary warfare and they have to be confident that their families are cared for while they are deployed. To deliver timely, reliable, cost efficient health care, the Air Force is resizing facilities for community needs, promoting healthy lifestyles, and employing managed care via the TRICARE program. Air Force hospitals and clinics are top-notch, meeting the same high standards as their civilian counterparts. Health and wellness programs offer a range of nutrition and exercise options, with the objective of keeping airmen healthy, rather than treating them after they become ill.

DoD fully deployed TRICARE, the military form of managed care, in June 1998. TRICARE is a significant change in military health care, and its implementation has been far from perfect in some areas. As the program

matures, the Air Force believes confidence in the system will improve. At the direction of Air Force senior leadership, the Inspector General is conducting an EAGLE LOOK, a review of aspects of the TRICARE program. The EAGLE LOOK will assess available data, conduct interviews, review procedures, pinpoint potential hot spots and, where necessary, recommend courses of action to improve health care service.

The DoD's Medicare Subvention Demonstration Project, TRICARE Senior Prime, began testing in 1998 at a number of Air Force medical facilities. If successful, TRICARE Senior Prime will deliver health care to Air Force members when they need it most, in late retirement.

The Air Force also manages tempo as a QoL initiative, seeking to limit an individual's time away from home station to a maximum of 120 days per year. To meet operational needs while managing tempo, the Air Force reduced its exercise and inspection schedules, increased reliance on its reserve component, and reduced the typical length of an aircrew deployment from 90 to 45 days. The Expeditionary Aerospace Force builds on these initiatives, spreading deployments more evenly among operational units and increasing the size of deploying career fields.

Community and family programs knit our people together at home and provide for families while their spouses are deployed. Through Air Force-sponsored childcare and youth centers, commissaries and military exchanges, and morale, welfare, and recreation programs, the Service demonstrates commitment to its airmen and their families. The Air Force has also created a new position at each base, the Family Readiness Non-Commissioned Officer, to provide a single-point solution for families of deployed airmen.

For the Air Force, education has always been the gateway to innovation. Through the Community College of the Air Force, active duty airmen combine college credits and Service-related education and experience to earn an Associate Degree in Applied Science. Additionally, the Air Force tuition assistance program pays up to 75 percent of tuition costs for accredited colleges and universities, many of which offer classes on base. The Air Force civilian tuition program answers a similar need for our nonuniformed employees. Taken together, Air Force educational programs constitute a meaningful and motivational QoL benefit.

DOING IT SMARTER

Air Force Battlelabs

In 1997, the Air Force established six Battlelabs and tasked them to identify and validate innovative ideas that improve the way the Air Force accomplishes its mission. The six Battlelabs—Aerospace Expeditionary Force, Command and Control, Force Protection, Information Warfare, Space, and Unmanned Aerial Vehicle—began to pay dividends in 1998. Battlelab success stories include the Air Tasking Order Visualization and Assessment Tool, Improved Information Reachback, and the Sensor Guard intelligence fusion package. Each of these initiatives markedly enhanced joint operations by placing new and cost-effective capabilities into the hands of combatant commanders.

Expeditionary Force Experiment

The Expeditionary Force Experiment (EFX 98) was the first in a series of experiments designed to explore new operational concepts and advanced technologies. This experiment concentrated on better ways to command and control the air component during expeditionary operations. It explored using rear area support centers, reducing the personnel and logistics requirements in the forward area, and commanding and controlling en route aerospace forces from both ground and air.

Wargaming

The Air Force conducts two major wargames each year that focus debate on strategy, emerging operational concepts, long-range planning, and force structure development. The first, the Global Engagement Wargame, focuses on operational issues 10-14 years into the future. The second, the Aerospace Future Capabilities Wargame, evaluates the strengths and weaknesses of future capabilities contemplated 20 to 25 years from now by our Vision and Strategic Plan. Providing an innovative look into the future, Air Force wargames highlight key insights into 21st century aerospace power.

DOING IT BETTER

Defense Reform Initiative

The Defense Reform Initiative (DRI) is an effort to improve the way DoD works. The Air Force has implemented 45 DRI Directives, pushing costs down and

quality up. The Air Force is also experimenting on its own with more efficient ways to conduct business. The City-Base reinvention laboratory at Brooks AFB in Texas is one example. At Brooks, the Service is developing a proposal to transfer base infrastructure to the City of San Antonio, leasing back only the facilities it needs. San Antonio benefits by gaining facilities it can use to spur development while retaining the Brooks mission; the Air Force benefits by eliminating unneeded base infrastructure; and the community benefits by keeping its long-standing ties to the Service. The Air Force is studying additional infrastructure initiatives, such as housing and utilities privatization.

Public/private manpower competition is another DRI success story. During 1998, the Service fully executed its plan for announcement of Office of Management and Budget Circular A-76 studies. Building on its highly successful JUMPSTART program, the Service is conducting a top-to-bottom review of its manpower authorizations, with an eye toward identifying additional positions that the Service can subject to competition. Recent competitive sourcing and privatization efforts yielded 35 percent manpower cost savings. This is a promising initiative.

The Air Force also is improving the way it does the business of depot maintenance, conducting competitions between public and private firms for this work. The results, so far, have been encouraging. In the first competition, the Air Force awarded the C-5 Programmed Depot Maintenance workload to the Warner-Robins Air Logistics Center (ALC), saving the Air Force $190M over the seven-year life of the contract. In a similar competition, Ogden ALC, teaming with Boeing, won a contract that generates $638M in cost savings for repair of the A-10 and KC-135 aircraft, plus electrical accessories, hydraulics, and commodity repair. A third competition, for the engine workload at San Antonio ALC, will be completed in February 1999.

Acquisition Reform

Acquisition reform is another example of Air Force innovation. Lightning Bolt initiatives, the Service's initial program for improving acquisition, have saved U.S. taxpayers $30 billion. Building on this success, the Air Force introduced its follow-on concept for reform—the Air Force Acquisition and Sustainment Reinvention Process. It aims to capitalize on proven industrial practices to deliver weapons systems more quickly and cheaply than traditional DoD acquisition practices.

Using a process called Partnering, the Air Force is raising acquisition reform to a new level. Partnering allows the Service to sponsor programs with industry and other government agencies, sharing costs and the risks associated with developing new systems and concepts. EELV is one example of this powerful concept. With EELV the Service and two contractors are pooling resources to build two new families of space launchers together, at a fraction of what the rockets would cost if developed independently. America wins all the way around with EELV. The Air Force gets the lift vehicles it needs, domestic industry improves its space launch competitiveness, and the nation's space infrastructure is enhanced.

Financial

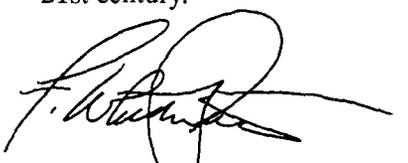
The Air Force, as a prudent steward of public funds, is working diligently to comply with the Government Performance and Results (GPRA) and Chief Financial Officer Acts. During 1998, the Service incorporated some GPRA output measures into its financial statements, and achieved relatively clean audit opinions of military and civilian pay accounts. Additionally, the Air Force strengthened its internal controls and management oversight to help prevent fraud and improve confidence in its financial statements. The Air Force is striving to reach the President's goal of unqualified audit opinions on government financial statements. As it improves its financial systems to help achieve this goal, the Service will emphasize improvements that benefit decision making commanders.

Environmental

The Air Force recognizes the need to balance its readiness requirements with stewardship of the resources with which it has been entrusted. By way of example, the Service actively participates in collaborative processes that safeguard the natural and cultural resources on the public lands withdrawn as training ranges. In virtually every case, government and private organizations credit the Air Force with preserving range environments that otherwise would have been diminished through human encroachment. Similar to its commitment to protect rangelands, the Air Force actively works to comply with all environmental laws and regulations, emphasizing pollution prevention as the first choice for achieving compliance. Where past practices have disturbed the environment, the Service has implemented clean-up programs enabling it to meet DoD goals and legal obligations.

CONCLUSION

In 1948, an unstable national security environment produced a crisis in the heart of Europe—a crisis that the Air Force, through innovation, turned into an opportunity for the free world. The proud, rich heritage of the Berlin Airlift continues today, with the Air Force providing the United States the aerospace power it needs to shape world events. That spirit of innovation—of constantly looking for better ways to do what must be done—will allow our outstanding airmen, working as America's Total Air Force, to meet the challenges of the 21st century.



F. Whitten Peters
Acting Secretary of the Air Force

REPORT OF THE CHAIRMAN OF THE RESERVE FORCES POLICY BOARD

I am pleased to have this opportunity to present a brief summary of the Reserve Forces Policy Board's observations and recommendations of the past year. The Board's theme this year was "1998—The Year of Total Force Integration," a theme that ended up being synonymous with some of the events that happened during the year. In a symbolic gesture toward achieving full integration of the active and reserve military components, Secretary of Defense Cohen implemented a Total Force identification (ID) card initiative in June 1998. This initiative directed that ID cards be the same color—green—for all active and reserve component military personnel. This change responds to a pledge made by Secretary Cohen in a recent policy memorandum calling on DoD's civilian and military leadership to eliminate "all residual barriers—structural and cultural—to effective integration of the Reserve and Active components into a seamless Total Force." The Board is excited about the direction the Total Force is headed.

The Board serves as the principal and independent policy advisor to the Secretary of Defense on matters relating to the reserve components. The Board wants to be the resource of choice, providing efficient integration and effective utilization of reserve components into the Total Force. Representatives from each of the Service secretariats, active components, and reserve components serve as Board members. The Board provides timely, relevant, and credible advice and reporting to ensure that Department of Defense decisions affecting the reserve components enhance the capability of the Total Force to meet national security requirements. The reserve component members represent a wide range of industrial, business, professional, and civic experience, in addition to their military expertise. Many of the issues worked by the Board are discovered during field trips. For example, the Board recently made field trips to Germany and England, as well as Tazar, Hungary, and Tuzla, Bosnia, to see and hear first-hand how the mobilized Reserve and Guard personnel were doing in theater operations. The Deputy Secretary of Defense was later briefed, and the Board continues to work issues that surfaced during this seven day trip.

GUIDELINES

On September 4, 1997, Secretary Cohen signed a memorandum on Integration of the Reserve and Active Components, where he outlined his vision for increasing reliance on the reserve components. In his memorandum, the Secretary defines integration as: "The

conditions of readiness and trust needed for the leadership at all levels to have well-justified confidence that the Reserve components are trained and equipped to serve as an effective part of the joint and combined force within whatever timelines are set for the unit—in peace and war." In May 1998, an ad hoc committee consisting of reserve, active duty, and civilian Board members recommended, with the approval of the full Board, a set of guidelines to assist each of the Services as they devised their Total Force implementation plan in accordance with the Secretary of Defense's goal of seamless integration. With Deputy Secretary of Defense concurrence, the following guidelines were disseminated:

- Services should have a methodology to continually identify cultural and structural barriers and implement strategies to reduce or eliminate them.
- Services should identify short-term goals to enhance Total Force confidence and trust while simultaneously developing long-term strategies to institutionalize a strong working relationship between all components.
- Services should take appropriate action to reinforce that the Service Chief of Staff/Chief of Naval Operations/Commandant of the Marine Corps, with the full cooperation of senior Guard and Reserve leadership, is accountable for all Service components.
- Consistent with the Defense Planning Guidance, all components should have well-defined missions which clearly delineate pre- and post-mobilization requirements to execute their missions.
- All components should be resourced to accomplish defined missions at agreed readiness levels.
- Consider developing a resource policy and budget process for the peacetime use of Guard and Reserve.
- Should develop a process to set common standards (both pre- and post-mobilization) within all components. Give required support to allow the Guard and Reserve to train to those standards. Develop a cooperative Total Force approach to assess whether the units are in fact meeting required standards.

SYMPOSIUM

In July 1998, the Board sponsored a symposium at the National Defense University to work the provisions of Secretary Cohen's memorandum on Integration of the Reserve and Active Components. In the memorandum, the Secretary stated his desire to create an environment that eliminates all barriers—structural and cultural for integration of the Total Force. The purpose of the symposium was to identify and examine the cultural and structural barriers that exist between the active, Guard, and Reserve components and focus on their cause and impact upon the integration of the Total Force. At the core of the symposium was the issue of developing a seamless American military force. In addition to the Board's membership, participants included congressional representatives, experts from academia, industry, Reserve and Guard Associations, think tanks, the Department of Defense, and other government agencies. The objectives of the symposium were:

- To hear candid views of active and reserve component barriers to integration of the Total Force.
- Identify cultural barriers to integration, determine their causes, and propose possible means to removing those barriers.
- Identify structural barriers to integration, determine their impact, and propose possible means to removing the barriers.

BARRIERS TO INTEGRATION

During the symposium, speakers and participants identified and examined, through panel discussions, the cultural and structural barriers affecting integration. During the panel discussion on cultural issues, four reservists relayed the cultural barriers they felt existed when they transitioned from active duty to a reserve component. The two primary cultural barriers they all agreed upon were that the active component did not train and educate its members on the roles and capabilities of the reserve components, and the feeling by National Guard and Reserve personnel that they were perceived as second-class citizens. The panel discussions were used as a catalyst for afternoon seminars. The seminar groups identified the causes of cultural and structural barriers, the impact on Total Force integration, a possible solution to the barrier and what that solution will accomplish, and a process to make the solution a reality. Approximately two hundred barriers that were identified during focus group meetings were

further refined into five main cultural and six main structural barriers.

The cultural barriers identified between the active, Guard, and Reserve were grouped under these five main categories:

- Lack of trust (both sides)/lack of confidence in reserve component capability by active duty.
- Failure of the Services to adequately manage all their components as a seamless organization.
- Second-class citizen syndrome.
- Inadequate/ineffective coordination and communication between active and reserve components.
- Roles of each component not clearly identified for an effectively integrated 21st century military force.

The structural barriers identified between the active, Guard, and Reserve were grouped under these six main categories:

- Lack of a coordinated Total Force approach to the Services' budgeting process.
- Incompatible pay and personnel systems.
- Incompatible equipment and weapon systems.
- Inadequate representation of the Guard and Reserve senior leadership, at the appropriate grade level, on active duty staffs.
- Lack of a coordinated Total Force approach in developing and implementing training and military education requirements and programs.
- Inappropriate disparities in benefits, in today's military environment, between active, Guard, and Reserve forces.

TOP 20 COMMANDERS IN CHIEF ISSUES

Over the past couple of years, the Board has visited several of the commanders in chief (CINCs), most recently United States Central Command, United States Special Operations Command, and United States European Command. Those unified commands not visited personally were contacted in a series of video-teleconferences. The purpose of the visits and video-teleconferences were to solicit from them the reserve component issues they feel impeded making Total Force a reality. The Board is involved with many of the following Top 20 issues as determined by all nine CINCs:

- Implement Smart ID cards for all reserve component members, which incorporate essential mobilization data.
- Develop Joint Professional Military Education (PME) course for reserve component members assigned or pending assignment to joint staff billets.
- Increase Secretary of Defense authority to re-call from 15 up to 30 days (Title 10 U.S.C., Section 12301(b).
- Modify end strength accountability for reserve component members augmented for more than 179 days.
- Increase numbers of full-time reserve component officers/noncommissioned officers at unified commands.
- Increase number of general officer/flag officer positions in unified commands.
- Allow repetitive individual/unit Presidential Selected Reserve Call-up (PSRC) tours and encourage extensions of current PSRC tours, when appropriate.
- Create a joint pool of funds for man-day contributory support and establish DoD level contingency fund.
- Reserve component members should receive parity of benefits comparable to active component in Initial Duty for Training or Active Duty status (commissary, government airfares, etc.), when appropriate.
- Permit Reserve component members Lump Sum Leave settlement in excess of 60 days for non-contingency operations.
- Standardize mobilization and deployment administration (simplification of forms, fund citations, etc.)
- Continue efforts to establish one pay system.
- Establish one system for aligning the service component documents to the joint command document

and track reserve component personnel against specific positions on a Joint Table of Manning and Distribution. Require all Services to follow a common command billet control numbering system. Standardize manpower documentation systems.

- Reengineer security clearance process—CINC requirements are impaired by current system.
- Continue efforts to establish one personnel system.
- Equip and train the reserve components at levels closer to the active component.
- Ensure full partnership for all elements of Reserve/Guard in weapons of mass destruction missions.
- Modify DoD Directive 5210.42, Nuclear Weapon Personnel Reliability Program, to allow for reserve certification, yet still meet the spirit and intent of the directive.
- Conduct a detailed study of the mobilization process, e.g., *RC-2005* study.
- Allow mobilization training time for selected units and/or individuals to be waived, when appropriate.

25TH ANNIVERSARY OF TOTAL FORCE POLICY

The Reserve Forces Policy Board commemorated the 25th Anniversary of the Total Force Policy with its Board members, alumni, and guests on October 14, 1998. Former Secretary of Defense James R. Schlesinger, who crafted the historic Total Force Policy, was the keynote speaker. Dr. Schlesinger provided his personal historic perspective, past and future, on what today remains our cornerstone policy on Total Force. Deputy Secretary of Defense John J. Hamre introduced the visionary former defense secretary. The true validation of this policy is that all succeeding defense secretaries have continued to work to its full implementation.

Another commemoration highlight was the Board's photo with the President of the United States. Of interest is the fact that the Board's origin is traced back to President Truman's Executive Order 10007 of October 15, 1948, when it first operated as the Committee on Civilian Components. A photo was taken of that historic occasion. The Board was successful in replicating that picture with President Clinton in commemoration of the 50th anniversary of the executive order.

After commemorating this historic event, the Board worked on three policies and three legislative initiatives that could benefit Total Force integration. These initiatives are only proposals and have not yet been approved. These initiatives were the result of fusing 20 CINC issues and 20 symposium recommendations into a total of six composite initiatives. The three policy initiatives being proposed are:

- Direct an educational summit to address the feasibility of redesigning commissioning and PME programs from a more Total Force perspective and review the potential of extending a form of Joint PME to reserve components.
- Direct a military entitlements and benefit review to determine if disparities between the active and reserve components are appropriate in today's environment.
- Request each Service conduct a Total Force review utilizing innovative applications of technology to optimize opportunities for skills training while reducing nonmission related training.

The three legislative initiatives being proposed are:

- Support the authorization of, and exemption for, Reserve Chiefs and National Guard Directors to become 0-9 billets.
- Support legislative action to give the Secretary of Defense the ability to call to active duty certain Guardsmen and Reservists with special skills which may be required in the early development of a domestic or national emergency prior to a PSRC.
- Support legislative action to encourage an integrated military by providing relief of active duty end strength accountability when reserve component members are called to extended duty.

INFORMATION OPERATIONS AND HOMELAND DEFENSE

One of the most important areas that the Board started to focus on was in the area of Information Operations/Homeland Defense. Recent events indicate that some foreign and domestic computer technology expert could compromise the security of the United States. With many of the highly trained and experienced computer trained active component members leaving active duty for better paying positions in society, the Board was exploring ideas and methods to capture and utilize this

expertise in the reserve components. By capturing and leveraging reserve component personnel civilian skills in the information technology business, they could bring industries' latest techniques and approaches to protecting information systems. There is increasing concern that the need for computer expertise in the business world is outstripping the military's ability to train and retain sufficient capability for the nation's security. Similarly, an increasing risk to our domestic shores from terrorism with weapons of mass destruction creates a natural and critical role for the Guard and Reserve domestically in Homeland Defense. The Office of the Secretary of Defense for Reserve Affairs has taken the lead on these issues.

SUMMARY

Unprecedented progress in our efforts to reach the goal of a seamless Total Force is being made, but further actions are necessary before we realize our shared goal of an integrated Total Force. The Board's goal is to continue to assist the Services and CINCs as they develop and implement their plans for Total Force integration. The Board plans to continue furnishing the Secretary of Defense with our Total Force findings and recommendations. The 21st century goal is to have a seamless Total Force that provides the National Command Authority with the flexibility, interoperability, and skills necessary for the full range of military operations.

The Reserve Forces Policy Board's annual report entitled, Reserve Component Programs, Fiscal Year 1998, is scheduled for publication in March 1999. It will provide more detailed information regarding Reserve component programs and issues.

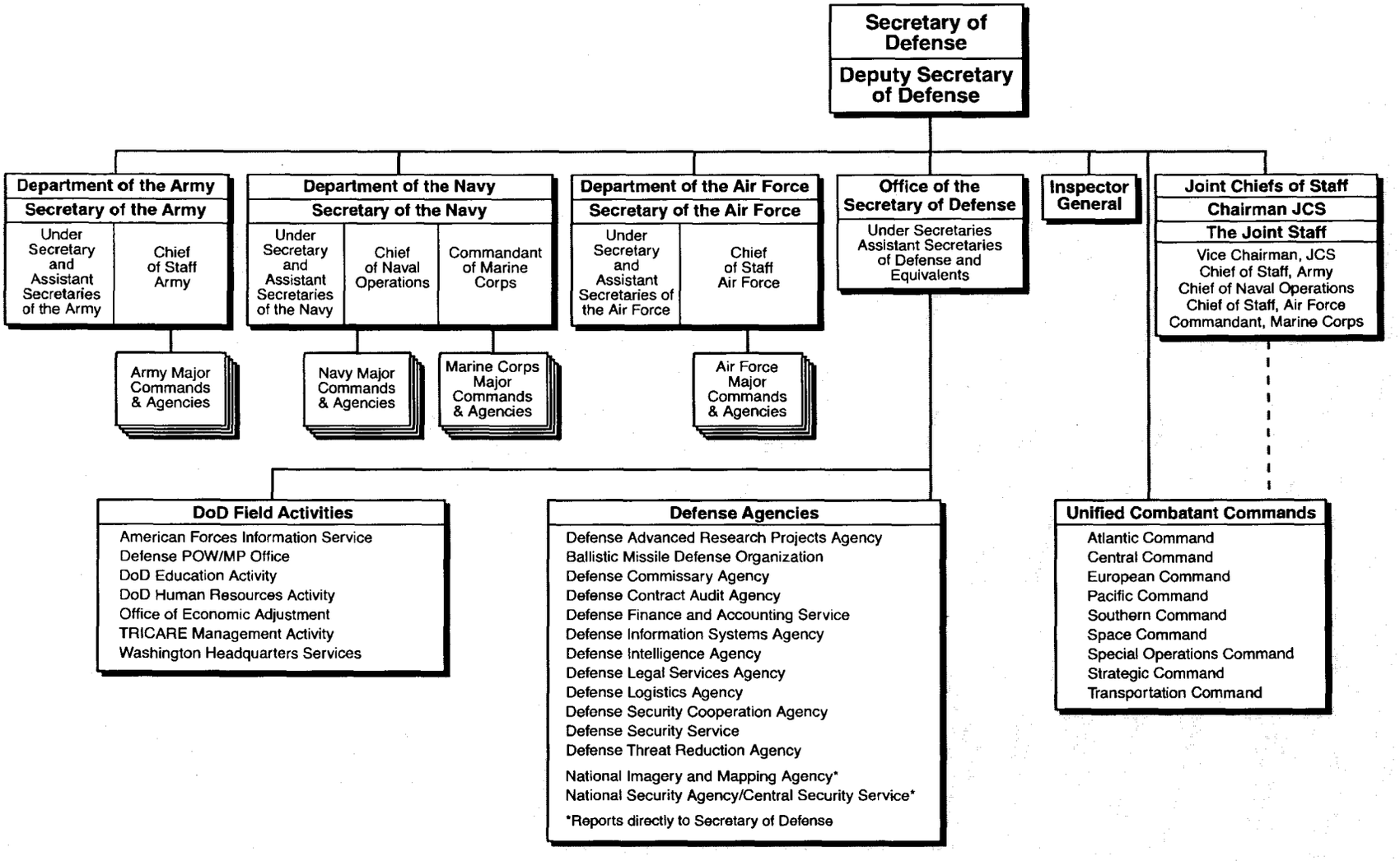


Terrence M. O'Connell
Chairman

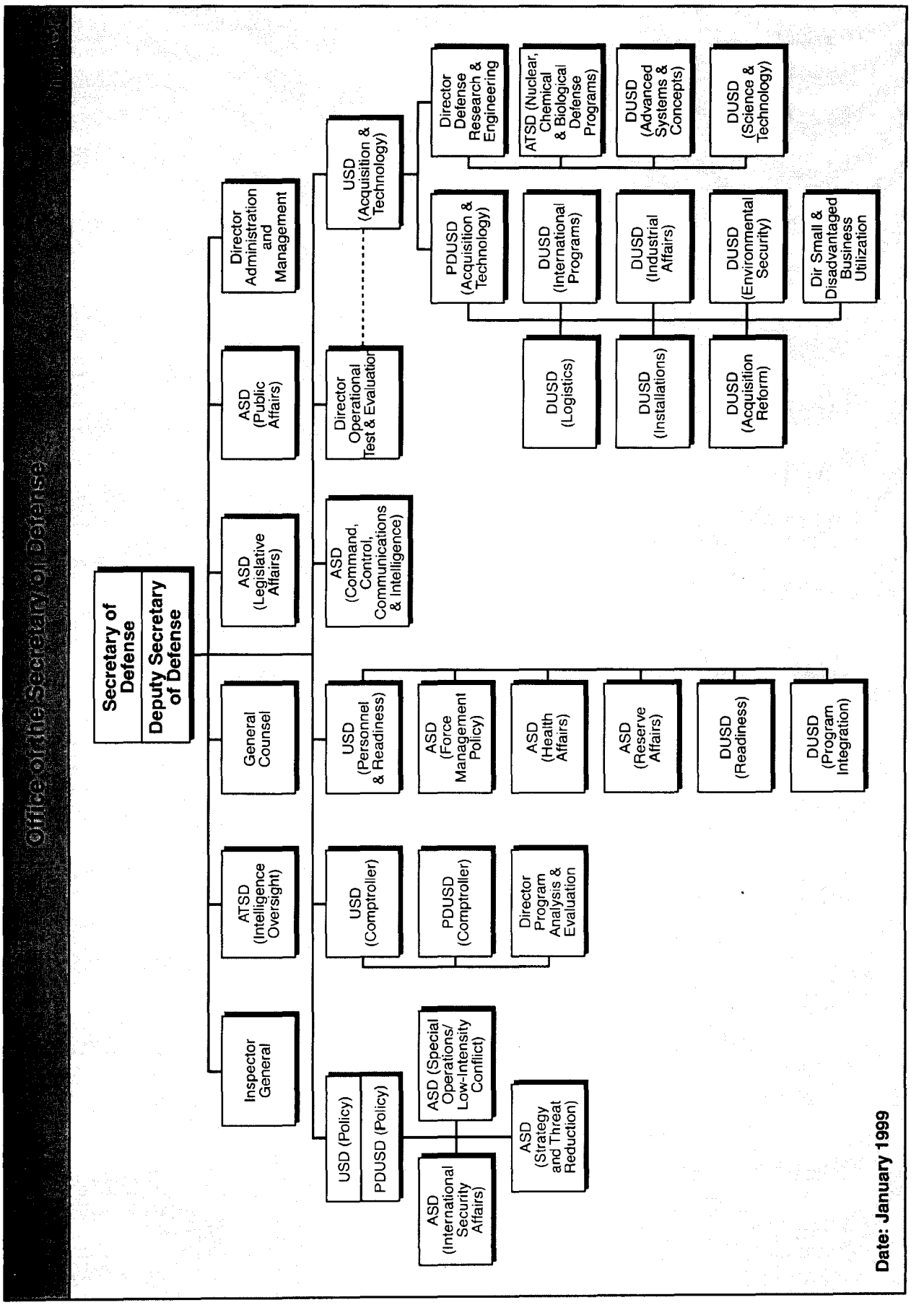
Appendices

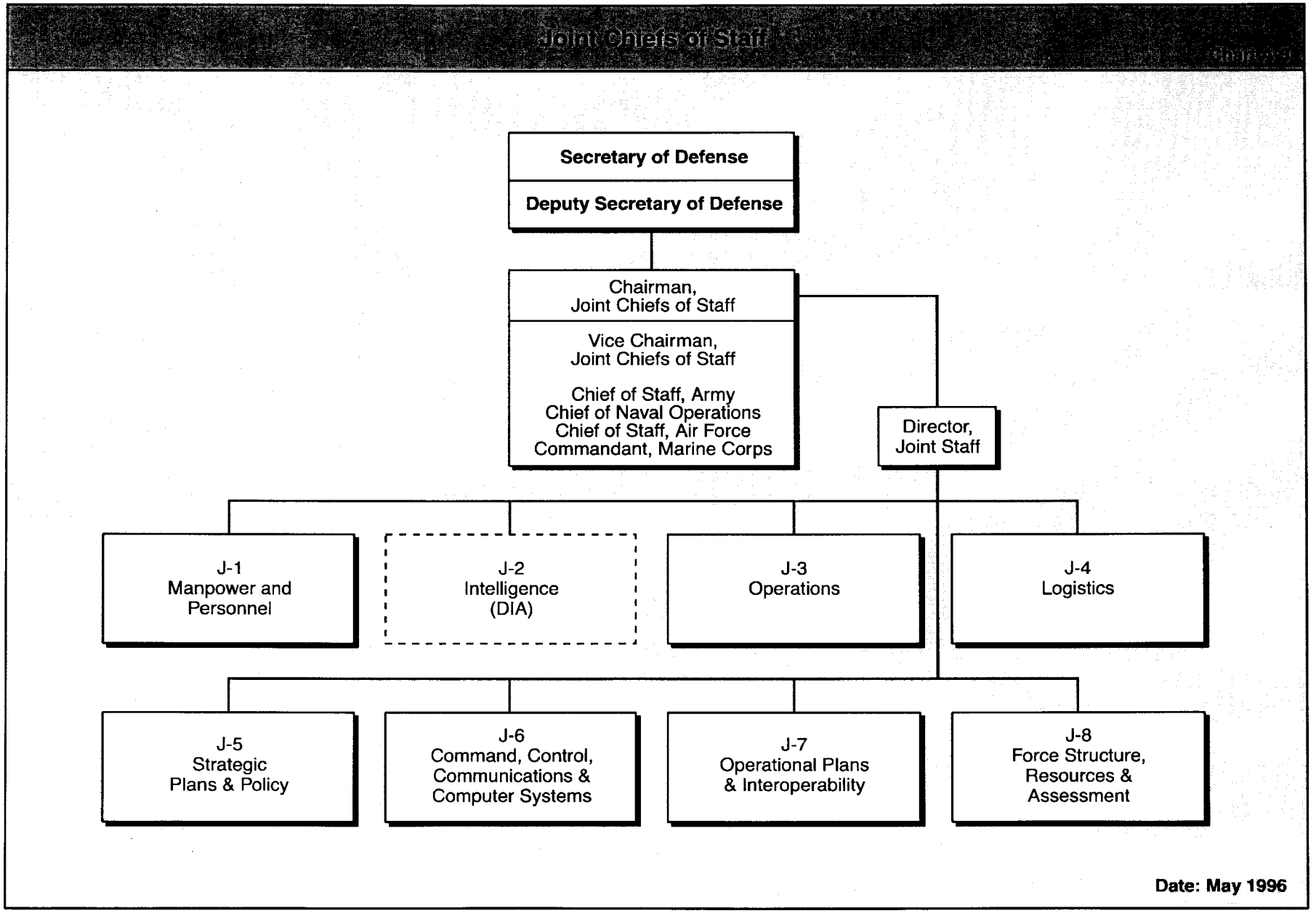
Department of Defense

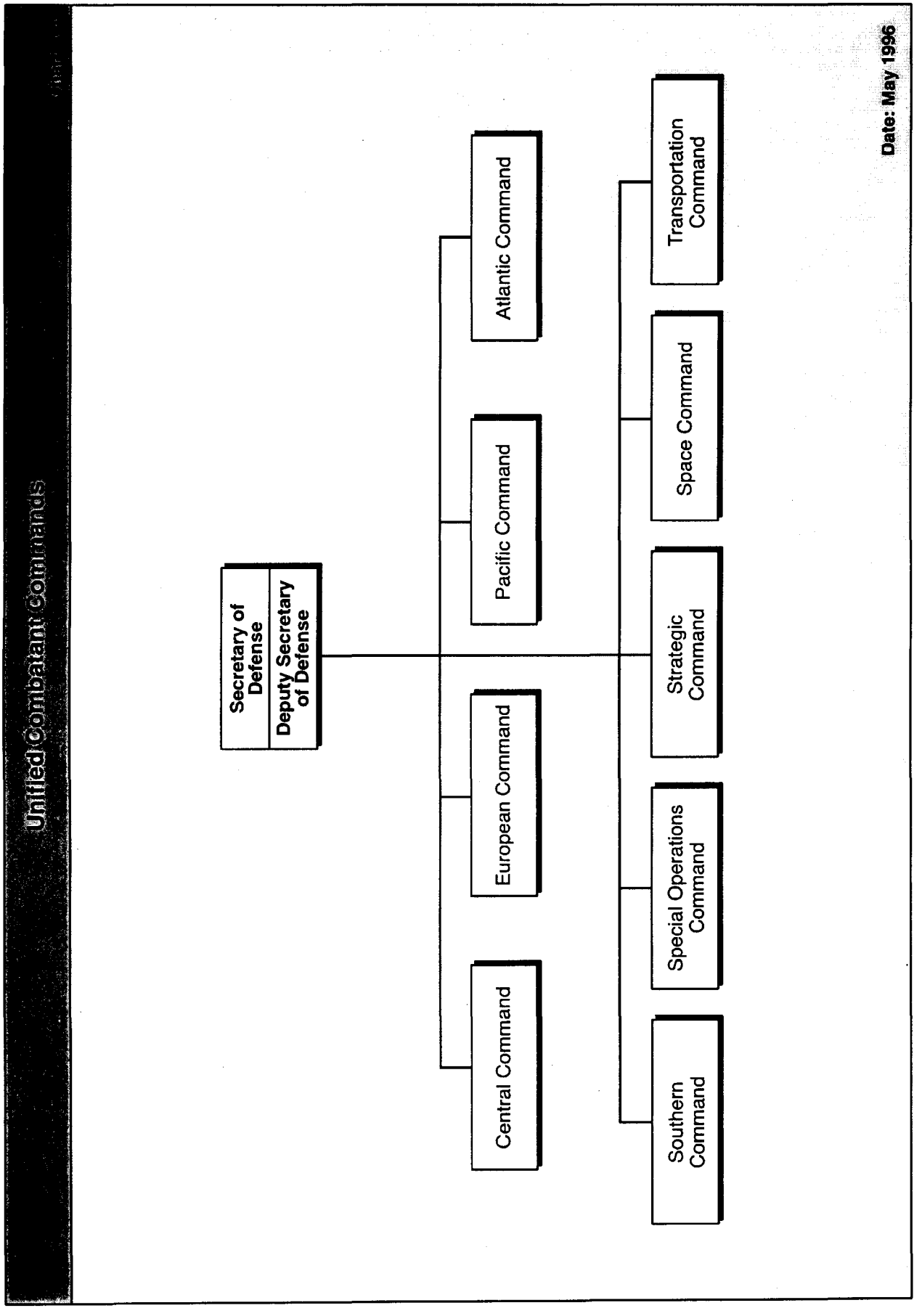
Chart A-1

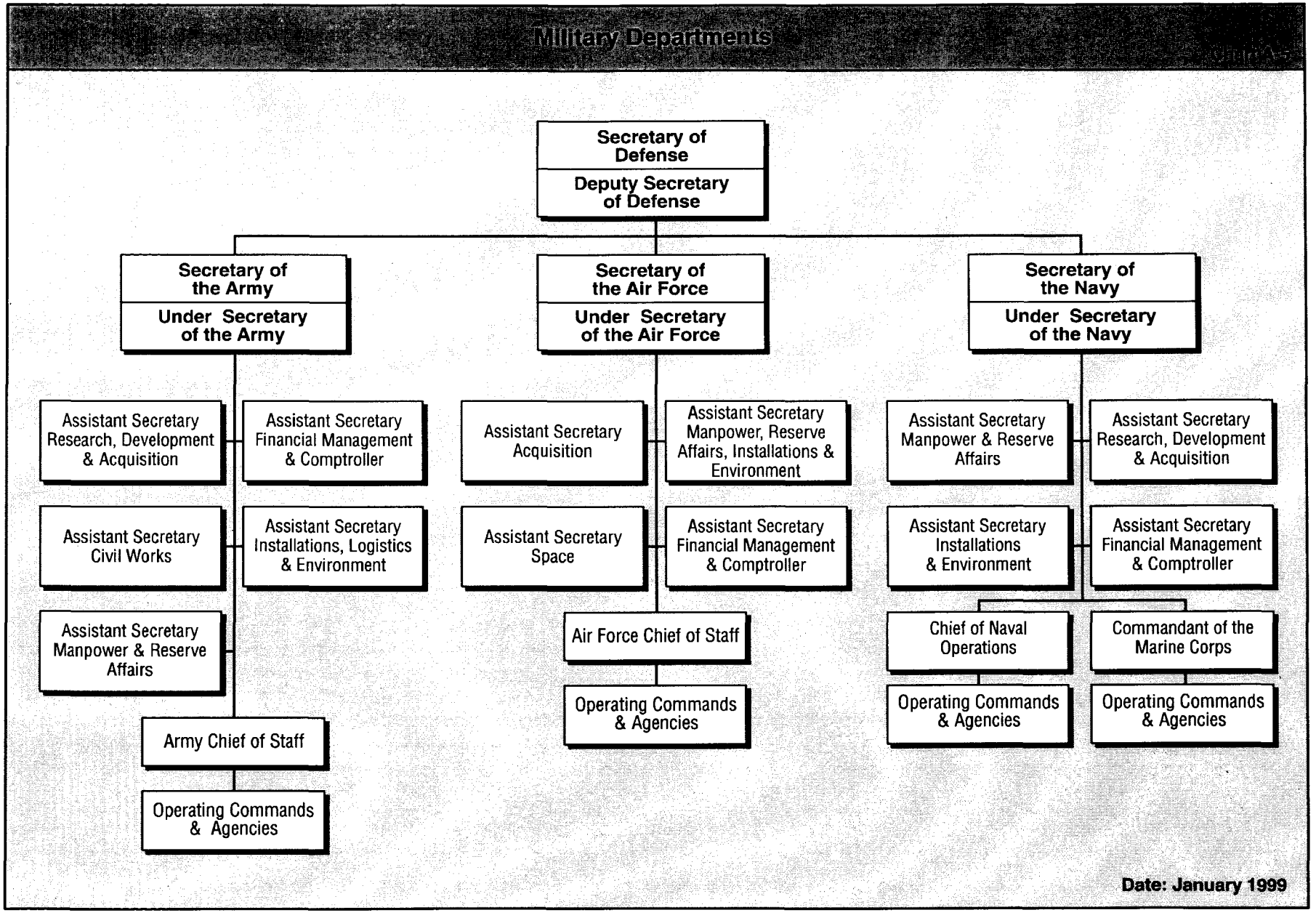


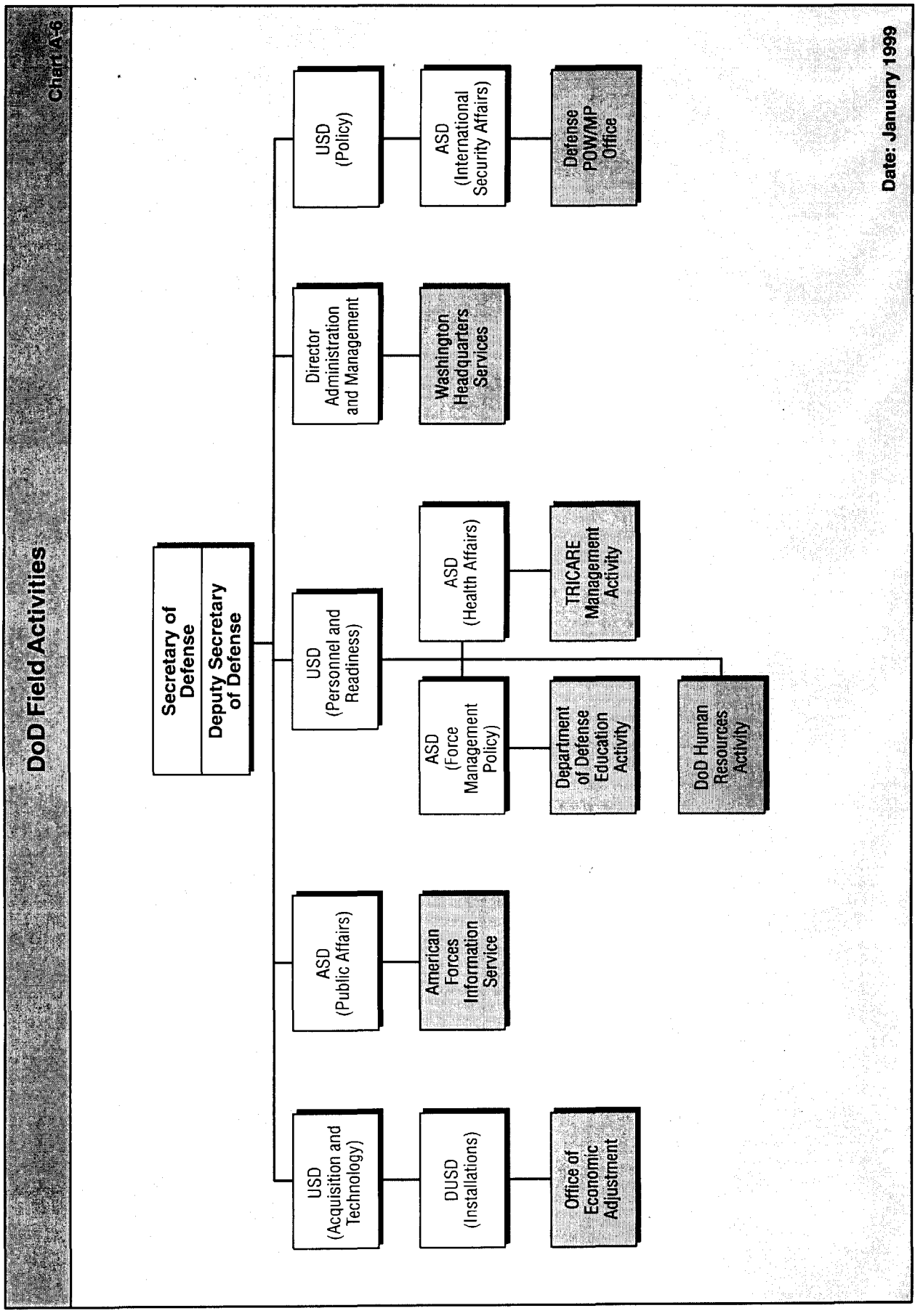
Date: October 1998

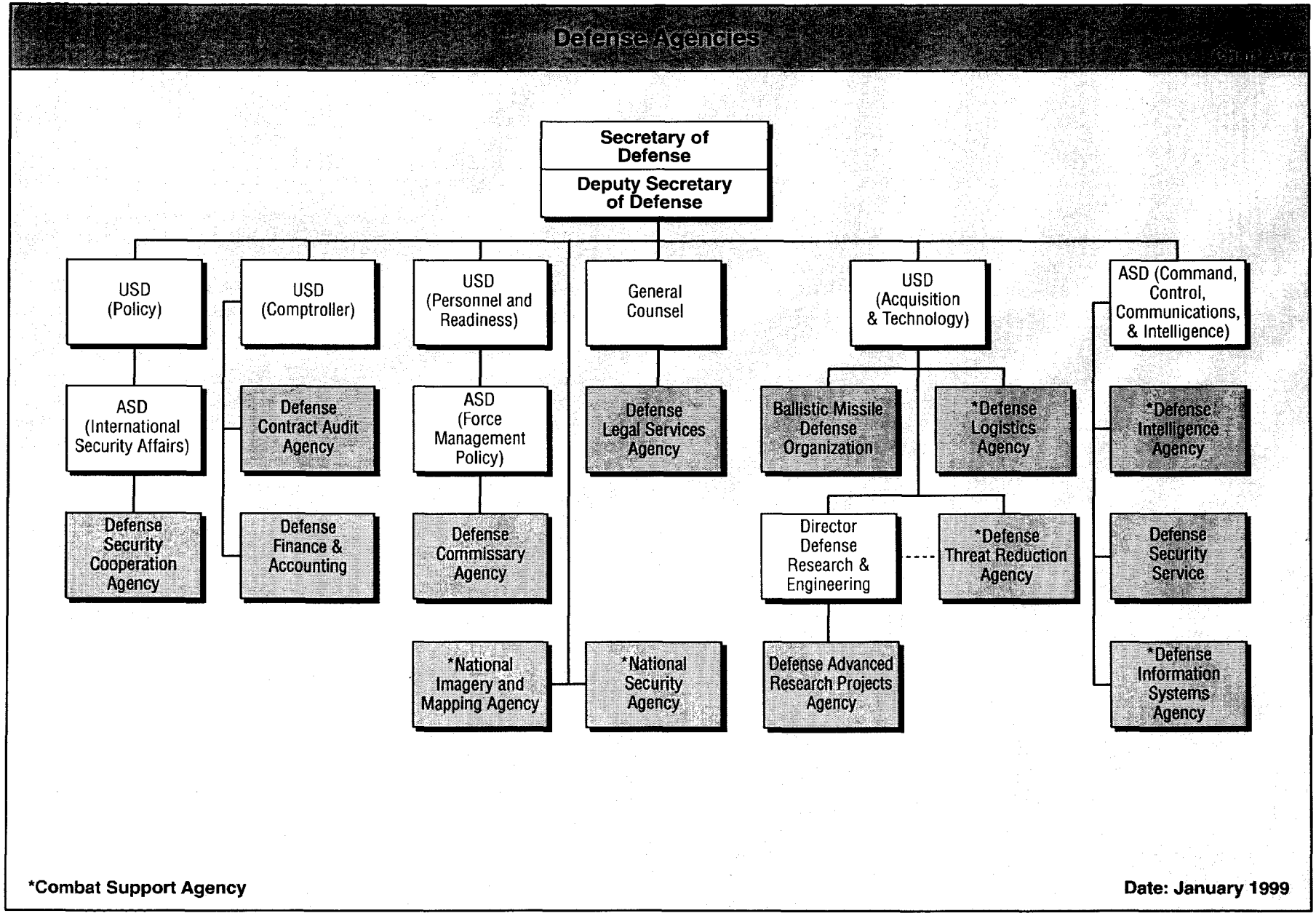

Office of the Secretary of Defense
Secretary of Defense
Deputy Secretary of Defense
Inspector General
ATSD (Intelligence Oversight)
General Counsel
ASD (Legislative Affairs)
ASD (Public Affairs)
Director Administration and Management
USD (Policy)
PDUSD (Policy)
ASD (International Security Affairs)
ASD (Special Operations/ Low-Intensity Conflict)
ASD (Strategy and Threat Reduction)
USD (Comptroller)
PDUSD (Comptroller)
Director Program Analysis & Evaluation
USD (Personnel & Readiness)
ASD (Force Management Policy)
ASD (Health Affairs)
ASD (Reserve Affairs)
DUSD (Readiness)
DUSD (Program Integration)
ASD (Command, Control, Communications & Intelligence)
Director Operational Test & Evaluation
USD (Acquisition & Technology)
PDUSD (Acquisition & Technology)
DUSD (Logistics)
DUSD (Installations)
DUSD (Acquisition Reform)
Director Defense Research & Engineering
ATSD (Nuclear, Chemical & Biological Defense Programs)
DUSD (International Programs)
DUSD (Industrial Affairs)
DUSD (Environmental Security)
DUSD (Advanced Systems & Concepts)
DUSD (Science & Technology)
Dir Small & Disadvantaged Business Utilization
Date: January 1999


Joint Chiefs of Staff
Secretary of Defense
Deputy Secretary of Defense
Chairman,
Joint Chiefs of Staff
Vice Chairman,
Joint Chiefs of Staff
Chief of Staff, Army
Chief of Naval Operations
Chief of Staff, Air Force
Commandant, Marine Corps
Director,
Joint Staff
J-1
Manpower and
Personnel
J-2
Intelligence
(DIA)
J-3
Operations
J-4
Logistics
J-5
Strategic
Plans & Policy
J-6
Command, Control,
Communications &
Computer Systems
J-7
Operational Plans
& Interoperability
J-8
Force Structure,
Resources &
Assessment
Date: May 1996


Unified Combatant Commands
Secretary of Defense
Deputy Secretary of Defense
Central Command
European Command
Pacific Command
Atlantic Command
Southern Command
Special Operations Command
Strategic Command
Space Command
Transportation Command
Date: May 1996


Military Departments
Secretary of Defense
Deputy Secretary of Defense
Secretary of the Army
Under Secretary of the Army
Secretary of the Air Force
Under Secretary of the Air Force
Secretary of the Navy
Under Secretary of the Navy
Assistant Secretary Research, Development & Acquisition
Assistant Secretary Financial Management & Comptroller
Assistant Secretary Civil Works
Assistant Secretary Installations, Logistics & Environment
Assistant Secretary Manpower & Reserve Affairs
Army Chief of Staff
Operating Commands & Agencies
Assistant Secretary Acquisition
Assistant Secretary Manpower, Reserve Affairs, Installations & Environment
Assistant Secretary Space
Assistant Secretary Financial Management & Comptroller
Air Force Chief of Staff
Operating Commands & Agencies
Assistant Secretary Manpower & Reserve Affairs
Assistant Secretary Research, Development & Acquisition
Assistant Secretary Installations & Environment
Assistant Secretary Financial Management & Comptroller
Chief of Naval Operations
Commandant of the Marine Corps
Operating Commands & Agencies
Operating Commands & Agencies
Date: January 1999


DoD Field Activities
Chart A-6
Secretary of Defense
Deputy Secretary of Defense
USD (Acquisition and Technology)
DUSD (Installations)
Office of Economic Adjustment
ASD (Public Affairs)
American Forces Information Service
USD (Personnel and Readiness)
ASD (Force Management Policy)
Department of Defense Education Activity
DoD Human Resources Activity
ASD (Health Affairs)
TRICARE Management Activity
Director Administration and Management
Washington Headquarters Services
USD (Policy)
ASD (International Security Affairs)
Defense POW/MP Office
Date: January 1999


Defense Agencies
Secretary of Defense
Deputy Secretary of Defense
USD (Policy)
USD (Comptroller)
USD (Personnel and Readiness)
General Counsel
USD (Acquisition & Technology)
ASD (Command, Control, Communications, & Intelligence)
ASD (International Security Affairs)
Defense Contract Audit Agency
ASD (Force Management Policy)
Defense Legal Services Agency
Ballistic Missile Defense Organization
*Defense Logistics Agency
*Defense Intelligence Agency
Defense Security Cooperation Agency
Defense Finance & Accounting
Defense Commissary Agency
Director Defense Research & Engineering
*Defense Threat Reduction Agency
Defense Security Service
*National Imagery and Mapping Agency
*National Security Agency
Defense Advanced Research Projects Agency
*Defense Information Systems Agency
*Combat Support Agency
Date: January 1999

BUDGET TABLES

DEPARTMENT OF DEFENSE — BUDGET AUTHORITY BY APPROPRIATION[a,b,c,d] (DOLLARS IN MILLIONS)

Table B-1

	FY 1985	FY 1990	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Current Dollars								
Military Personnel	67,773	78,876	71,557	69,775	70,338	69,821	70,933	73,723
O&M	77,803	88,309	93,751	93,658	92,353	97,215	98,059	103,534
Procurement	96,842	81,376	43,572	42,420	42,932	44,772	48,951	53,021
RDT&E	31,327	36,459	34,522	34,972	36,404	37,089	36,635	34,375
Military Construction	5,517	5,130	5,426	6,893	5,718	5,466	5,079	2,298
Family Housing	2,890	3,143	3,393	4,260	4,131	3,828	3,580	3,140
Defense-wide Contingency	9							-1,650
Revolving & Management Funds	5,088	566	5,260	3,061	7,534	2,591	951	273
Trust & Receipts	-426	-832	-1,648	-331	-1,250	-2,115	-1,492	-1,373
Deduct, Intragovernment Receipt	-21	-27	-180	-291	-186	-130	-132	-117
Total, Current $	**286,802**	**292,999**	**255,652**	**254,417**	**257,974**	**258,537**	**262,576**	**267,224**
Constant FY 2000 Dollars								
Military Personnel	107,413	107,846	82,872	79,003	77,406	74,644	73,601	73,723
O&M	116,184	112,784	103,581	101,225	97,868	100,672	99,805	103,534
Procurement	136,790	96,727	46,615	44,730	44,745	46,156	49,748	53,021
RDT&E	45,342	44,315	37,184	36,978	37,933	38,240	37,291	34,375
Military Construction	7,958	6,164	5,852	7,302	5,990	5,658	5,176	2,298
Family Housing	4,094	3,804	3,627	4.475	4,283	3,927	3,632	3,140
Defense-wide Contingency	12							-1,650
Revolving & Management Funds	7,341	692	5,712	3,293	7,838	2,704	966	273
Trust & Receipts	-615	-1,018	-1,763	-347	-1,288	-2,164	-1,514	-1,373
Deduct, Intragovernment Receipt	-30	-33	-193	-305	-191	-133	-134	-117
Total, Constant $	**424,491**	**371,283**	**283,487**	**276,353**	**274,584**	**269,704**	**268,582**	**267,224**
% Real Growth								
Military Personnel	--	--	-2.1	-4.7	-2.0	-3.6	-1.4	0.2
O&M	--	--	4.0	-2.3	-3.3	2.9	-0.9	3.7
Procurement	--	--	-2.9	-4.1	0.0	3.2	7.8	6.6
RDT&E	--	--	-2.0	-0.6	2.6	0.8	-2.5	-7.8
Military Construction	--	--	-11.1	24.8	-18.0	-5.5	-8.5	-55.6
Family Housing	--	--	-4.7	23.4	-4.3	-8.3	-7.5	-13.4
Total	**--**	**--**	**-0.3**	**-2.5**	**-0.7**	**-1.7**	**-0.4**	**-0.5**

[a] Numbers may not add to total due to rounding.

[b] Tables B-1 and B-2 show the total DoD budget, which consists of both discretionary spending and direct spending. These terms were defined by the Balanced Budget and Emergency Deficit Control Act of 1985 (commonly known as the Gramm-Rudman-Hollings Act), which was extended and amended extensively by the Budget Enforcement Act of 1990 and the Omnibus Budget Reconciliation Act of 1993. Discretionary spending is controlled through annual appropriations acts. Direct spending (sometimes called mandatory spending) occurs as a result of permanent laws. For DoD, mandatory spending consists of offsetting receipts, totaling nearly $1.3 billion in FY 1999. The 1997 Balanced Budget Act included dollar limits (caps) on discretionary spending by the federal government.

[c] Extensive budget data is available on the DoD Web site—www.dtic.mil/comptroller. Click on Defense Budget, then National Defense Budget Estimates (Green Book).

[d] Large decline in military construction in FY 2000 reflects a one-time action to allow advance funding in this account.

[e] RDT&E = Research, Development, Test, and Evaluation

DEPARTMENT OF DEFENSE — BUDGET AUTHORITY BY COMPONENT[a,b] (DOLLARS IN MILLIONS)

Table B-2

	FY 1985	FY 1990	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000
Current Dollars								
Army	74,270	78,479	63,268	64,505	64,418	64,045	65,309	67,200
Navy	99,015	99,977	76,873	79,966	79,531	80,650	81,881	83,342
Air Force	99,420	92,890	73,932	72,992	73,216	76,284	76,905	79,128
Defense Agencies/OSD/JCS	13,126	18,663	21,120	22,269	22,444	23,389	23,198	22,554
Defense-wide	970	2,989	20,460	14,686	18,366	14,169	15,271	15,000
Total, Current $	**286,802**	**292,999**	**255,652**	**254,417**	**257,974**	**258,537**	**262,564**	**267,224**
Constant FY 2000 Dollars								
Army	112,935	101,571	71,322	71,053	69,421	67,510	67,165	67,200
Navy	146,041	126,308	85,166	86,684	84,658	84,033	83,758	83,342
Air Force	144,171	116,476	81,774	79,099	77,680	79,196	78,408	79,128
Defense Agencies/OSD/JCS	19,964	23,351	23,068	23,845	23,643	24,293	23,688	22,554
Defense-wide	1,379	3,577	22,156	15,672	19,182	14,671	15,550	15,000
Total, Constant $	**424,491**	**371,283**	**283,487**	**276,353**	**274,584**	**269,704**	**268,570**	**267,224**
% Real Growth								
Army	--	--	-1.0	-04	-2.3	-2.8	-0.5	0.1
Navy	--	--	-3.3	1.8	-2.3	-0.7	-0.3	-0.5
Air Force	--	--	-2.3	-3.3	-1.8	2.0	-1.0	0.9
Defense Agencies/OSD/JCS	--	--	6.6	3.4	-0.9	2.8	-2.5	-4.8
Defense-wide	--	--	18.6	-29.3	22.4	-23.5	6.0	-3.5
Total	**--**	**--**	**-0.3**	**-2.5**	**-0.7**	**-1.8**	**-0.4**	**-.05**

[a] Number may not add to total due to rounding. Entries for the three military departments include Retired Pay accrual.

[b] Extensive budget data is available on the DoD Web site—www.dtic.mil/comptroller. Click on Defense Budget, then National Defense Budget Estimates (Green Book).

PERSONNEL TABLES

MILITARY AND CIVILIAN PERSONNEL STRENGTH[a] (END FISCAL YEAR — IN THOUSANDS)

Table C-1

	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94	FY 95	FY 96	FY 97	FY98	FY99	FY00
Active Component													
Army	771.8	769.7	750.6	725.4	611.3	572.4	541.3	508.6	491.1	491.7	483.9	480.0	480.0
Navy	592.6	592.7	582.9	571.3	541.9	510.0	468.7	434.6	416.7	395.6	382.3	372.3	371.8
Marine Corps	197.4	197.0	196.7	195.0	184.6	178.4	174.2	174.6	174.9	173.9	173.1	172.2	172.1
Air Force	576.4	570.9	539.3	510.9	470.3	444.4	426.3	400.4	389.0	377.4	367.5	365.9	360.9
Total	**2138.2**	**2130.2**	**2069.4**	**2002.6**	**1808.1**	**1705.1**	**1610.5**	**1518.2**	**1471.7**	**1438.6**	**1406.8**	**1390.4**	**1384.8**
Reserve Component Military (Selected Reserve)													
ARNG	455.2	457.0	437.0	441.3	426.5	409.9	369.9	374.9	370.0	370.0	362.4	357.0	350.0
Army Reserve	312.8	319.2	299.1	299.9	302.9	275.9	259.9	241.3	226.2	212.9	205.0	208.0	205.0
Naval Reserve	149.5	151.5	149.4	150.5	142.3	132.4	107.6	100.6	98.0	95.3	93.2	90.8	90.3
USMC Reserve	43.6	43.6	44.5	44.0	42.3	41.7	40.7	40.9	42.1	42.0	40.8	40.0	39.6
ANG	115.2	116.1	117.0	117.6	119.1	117.2	113.6	109.8	110.5	110.0	108.1	107.0	106.6
Air Force Reserve	82.1	83.2	80.6	84.3	81.9	80.6	79.6	78.3	73.7	72.0	72.0	74.2	73.7
Total	**1158.4**	**1170.6**	**1127.6[b]**	**1137.6[c]**	**1114.9**	**1057.7**	**998.3**	**945.8**	**920.4**	**902.2**	**881.5**	**877.0**	**865.3**
Civilian[d]													
Army	406.2	401.5	398.4	369.6	364.5	327.3	289.5	272.7	258.6	246.7	237.3	225.9	219.9
Navy/USMC	351.5	350.2	349.0	331.8	319.5	295.0	276.5	259.3	239.9	222.6	210.5	206.9	199.5
Air Force	256.2	258.6	255.4	235.0	215.0	208.2	196.6	188.9	182.6	180.0	174.4	168.7	162.6
DoD Agencies	97.6	97.1	99.6	112.4	139.4	153.6	154.0	144.3	137.6	136.5	125.6	122.9	118.4
Total	**1111.4**	**1107.4**	**1102.4**	**1048.7**	**1038.4**	**984.1**	**916.5**	**865.2**	**818.7**	**798.8**	**747.8**	**724.4**	**700.4**

[a] Numbers may not add to totals due to rounding.

[b] Does not include 25,600 members of the Selected Reserve who were activated for Operation Desert Shield, displayed in the FY 1990 active strength total and paid for from the Active Military Personnel Appropriations account.

[c] Does not include 17,059 members of the Selected Reserve who were activated for Operation Desert Shield/Storm, displayed in the FY 1991 active strength total and paid for from the Active Military Personnel Appropriations account.

[d] Includes direct and indirect hire civilian full-time equivalents.

U.S. MILITARY PERSONNEL IN FOREIGN AREAS (END FISCAL YEAR — IN THOUSANDS)[a,b]

Table C-2

	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92[b]	FY 93	FY 94[d]	FY 95	FY 96	FY 97	FY 98
Germany	251	249	249	228	203	134	105	88	73	49	60	70
Other Europe	73	74	71	64	62	54	44	41	37	62[e]	48	42
Europe, Afloat	31	33	21	18	20	17	17	9	8	4	3	4
South Korea	45	46	44	41	40	36	35	37	36	37	36	37
Japan	50	50	50	47	45	46	46	45	39	43	41	40
Other Pacific	18	17	16	15	9	3	1	1	1	1	1	1
Pacific Afloat (including Southeast Asia)	17	28	25	16	11	13	17	15	13	15	14	18
Latin America/ Caribbean	13	15	21	20	19	18	18	36[d]	17	12	8	11
Miscellaneous	27	29	13	160	39[c]	23	25	15	14	17	15	37
Total[c]	**524**	**541**	**510**	**609**	**448**	**344**	**308**	**287**	**238**	**240**	**226**	**260**

[a] As of September 30, 1998.

[b] Numbers may not add to totals due to rounding.

[c] Includes 118,000 shore-based and 39,000 afloat in support of Operation Desert Storm.

[d] Includes 17,500 in Haiti and 4,000 afloat in the Western Hemisphere.

[e] Includes 26,000 in the former Republic of Yugoslavia and Hungary in support of operations in Bosnia and Herzegovina.

FORCE STRUCTURE TABLES

DEPARTMENT OF DEFENSE STRATEGIC FORCES HIGHLIGHTS[a]

Table D-1

	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
Land-Based ICBMs[b]									
Minuteman II (1 warhead each) plus Minuteman III (3 warheads each)	737	625	535	530	530	500	500	500	500
Peacekeeper (10 warheads each)	50	50	50	50	50	50	50	50	34
Heavy Bombers (PAI)[c]									
B-52	84	64	74	56	56	56	56	56	56
B-1[d]	84	84	60	60	60	70	74	80	82
B-2	0	3	6	9	10	12	13	16	16
Submarine-Launched Ballistic Missiles[b]									
Poseidon (C-3) and Trident (C-4) missiles on pre-Ohio-class submarines	96	48	0	0	0	0	0	0	0
Trident (C-4 and D-5) missiles on Ohio-class submarines	312	336	360	384	408	432	432	432	432

[a] Force levels shown are for the ends of the fiscal years in question. Inventory levels for future years reflect the force structures supported by the FY 1999 budget. The actual force levels for FY 2000 and FY 2001 will depend on future decisions.

[b] Number of operational missiles. Not in maintenance or overhaul status.

[c] PAI = Primary Aircraft Inventory. PAI excludes backup and attrition reserve aircraft as well as aircraft in depot maintenance. Total inventory counts will be higher than the PAI figures given here.

[d] B-1 are accountable under START I but will not be accountable under START II.

DEPARTMENT OF DEFENSE
GENERAL PURPOSE FORCES HIGHLIGHTS

Table D-2

	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
Land Forces									
Army Divisions									
Active	14	12	12	10	10	10	10	10	10
Reserve	8	8	8	8	8	8	8	8	8
Marine Corps Divisions									
Active	3	3	3	3	3	3	3	3	3
Reserve	1	1	1	1	1	1	1	1	1
Army Separate Brigades[a]									
Active	7	7	3	3	3	3	3	3	3
Reserve	24	24	24	22	18	18	18	18	18
Army Special Forces Groups									
Active	5	5	5	5	5	5	5	5	5
Reserve	4	2	2	2	2	2	2	2	2
Army Ranger Regiments	1	1	1	1	1	1	1	1	1
Tactical Air Forces									
(PMAI/Squadron)[b]									
Air Force Fighter and Attack Aircraft[c]									
Active	1,131/56	966/53	936/53	936/52	936/52	936/52	906/49	906/49	906/46
Reserve	816/42	639/40	576/38	504/40	504/40	504/40	549/38	549/35	549/35
Conventional Bombers									
B-1 (Active/Reserve)	0	0	0	0	0	36/18	36/18	36/18	36/18
Navy Fighter and Attack Aircraft									
Active	610/56	582/50	528/44	504/37	456/36	456/36	432/36	432/36	432/36
Reserve	116/10	90/7	38/3	38/3	38/3	38/3	36/3	36/3	36/3
Marine Corps Fighter and Attack Aircraft									
Active	330/23	320/23	320/23	308/21	308/21	308/21	280/21	280/21	280/21
Reserve	72/6	68/5	48/4	48/4	48/4	48/4	48/4	48/4	48/4
Naval Forces									
Strategic Forces Ships	24	19	16	17	18	18	18	18	18
Battle Forces	342	315	300	294	292	271	256	257	256
Support Forces Ships	51	41	37	26	26	26	23	23	23
Reserve Forces Ships	18	16	19	18	18	18	18	16	16
Total Ship Battle Forces	435	391	372	355	354	333	315	314	313
Mobilization Category B: Mine Warfare Ships	15	1	1	2	6	8	10	11	11
Local Defense Mine Warfare Ships and Coastal Defense Craft	2	7	12	13	13	13	12	13	13
Total Other Forces[d]	17	8	13	15	19	21	22	24	24

[a] Includes the Eskimo Scout Group and the armored cavalry regiments.

[b] Primary mission aircraft inventory (combat-coded aircraft only).

[c] FY 2000 and FY 2001 figures are tentative pending QDR implementation decisions.

[d] Excludes auxiliaries and sealift forces.

DEPARTMENT OF DEFENSE
AIRLIFT AND SEALIFT FORCE HIGHLIGHTS

Table D-3

	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
Intertheater Airlift (PMAI)[a]									
C-5	109	107	104	104	104	104	104	104	104
C-141	214	214	199	187	163	143	136	104	88
KC-10[b]	57	54	54	54	54	54	54	54	54
C-17	2	9	17	22	24	30	37	46	58
Intratheater Airlift (PMAI)[a]									
C-130[c]	380	424	428	432	430	425	425	425	425
Sealift Ships, Active[d]									
Tankers	20	18	18	12	13	10	10	10	10
Cargo	40	51	51	49	48	43	49	52	57
Sealift Ships, Reserve									
RRF[e]	97	93	77	82	87	88	87	87	69

[a] PMAI = Primary mission aircraft inventory for active and reserve components. The numbers shown reflect only combat support and industrial funded PMAI aircraft and not development/test or training aircraft.

[b] Includes 37 KC-10s allocated to an airlift code.

[c] Does not include Department of the Navy aircraft.

[d] Includes fast sealift (FSS), afloat prepositioning, and common-user (charter) ships, plus (through FY 1998) aviation support ships. For FY 1999 on, includes LMSR and Ready Reserve Force (RRF) ships tendered to the Military Sealift Command (MSC). FSS and LMSR vessels are maintained in a reserve, four-day ready status.

[e] The RRF includes vessels assigned to 4-, 5-, 10-, or 20-day reactivation readiness groups. The ship counts shown exclude RRF vessels tendered to the MSC. Inventory figures for FY 1999, FY 2000, and FY 2001 include aviation support ships.

DEPARTMENT OF DEFENSE SPECIAL OPERATIONS FORCES HIGHLIGHTS

Table D-4

	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
Army Special Forces Groups (Active)	5	5	5	5	5	5	5	5	5
Army Special Forces Groups (National Guard)	2	2	2	2	2	2	2	2	2
Army Special Forces Groups (Reserve)	2	0	0	0	0	0	0	0	0
Army Psychological Operations Groups (Active)	1	1	1	1	1	1	1	1	1
Army Psychological Operations Groups (Reserve)	3	2	2	2	2	2	2	2	2
Army Special Operations Aviation Regiments	1	1	1	1	1	1	1	1	1
Army Ranger Regiments	1	1	1	1	1	1	1	1	1
Army Civil Affairs Battalions (Active)	1	1	1	1	1	1	1	1	1
Army Civil Affairs Brigades (Reserve)	9	9	9	9	9	8	8	8	8
Army Civil Affairs Commands (Reserve)	3	3	3	3	3	4	4	4	4
Air Force Special Operations Wings/Groups (Active)	3	3	3	3	3	3	3	3	3
Air Force Special Operations Wings/Groups (National Guard)	1	1	1	1	1	1	1	1	1
Air Force Special Operations Wing (Reserve)	1	1	1	1	1	1	1	1	1
Air Force Special Tactics Groups	1	1	1	1	1	1	1	1	1
Naval Special Warfare Groups	3	3	3	3	3	3	3	3	3
Naval Special Boat Squadrons	2	2	2	2	2	2	2	2	2

GOLDWATER-NICHOLS ACT IMPLEMENTATION REPORT

This appendix contains the Department's Joint Officer Management Annual Report for FY 1998. Except for the progress/compliance with Section 619a, Title 10, United States Code, Tables E-2, E-5, reasons in Tables E-9 and E-11, and promotion objectives, the Joint Duty Assignment Management Information System was used to produce this report.

PROGRESS/COMPLIANCE WITH SECTION 619A, TITLE 10, U.S. CODE

Section 931 of the FY 1994 National Defense Authorization Act required each Service to develop and implement personnel plans to permit the orderly promotion of officers to brigadier general or rear admiral (lower half). As addressed by the certification report submitted to Congress in June 1995, these plans have been implemented by the Department, and the Services continue to show progress in reducing the number of waivers required to promote officers to general or rear admiral (lower half). The Joint Chiefs of Staff and Secretary of Defense staffs are reviewing additional measures that will enhance compliance with Title 10 requirements.

Highlighting the Department's FY 1998 performance in joint officer management is an increase in Joint Specialty Officers (JSOs) designations, more Critical Occupational Specialists (COS) JSOs serving in second joint assignments, awarding of joint credit for temporary Joint Task Force assignments for the first time, and an increase in throughput at Armed Forces Staff College. Also, the Joint Duty Assignment List (JDAL) Validation Board completed its initial review of the defense agencies and field activities in 1998.

The following brigadier general/rear admiral (lower half) promotion boards were approved during FY 1998 (does not include professionals):

CATEGORY	USA	USAF	USMC	USN
Number of officers selected for O-7	40	43	12	32
Number (percent) of officers joint qualified	26(65%)	36(84%)	7(58%)	24(75%)
Number of joint equivalency waivers used (percent)	0(0%)	0(0%)	0(0%)	0(0%)

Given the Department's experience and lessons learned since the implementation of Goldwater-Nichols in 1986, the Department is sponsoring a working group that is reviewing both the law and policy governing joint officer management. The working group is expected to recommend improvements to the Department's overall performance and personnel management processes and amendments to those portions of law and policy that do not appear to be working as intended.

The Department is committed to ensuring that the completion of a joint duty assignment (JDA) remains an essential element of an officer's development to perform duties at the general/flag officer level. DoD will continue to devote attention to guarantee long-term compliance with the personnel policy objectives of the Goldwater-Nichols DoD Reorganization Act of 1986.

SUMMARY OF JOINT SPECIALTY OFFICER (JSO) AND JOINT SPECIALTY OFFICER NOMINEE DESIGNATIONS FOR FY 1998 **Table E-1**

Category	USA	USAF	USMC	USN	TOTAL
Number of officers designated as JSOs	192	497	71	238	998
Number of officers designated as JSO nominees	730	783	204	764	2481
Number of JSO nominees designated under COS provisions	364	387	123	432	1306

CRITICAL OCCUPATIONAL SPECIALTIES (COS) **Table E-2**

USA	USAF	USMC	USN
Infantry	Pilot	Infantry	Surface
Armor	Navigator	Tanks/AAV	Submariner
Artillery	Command/Control Operations	Artillery	Aviation
Air Defense Artillery	Space/Missile Operations	Air Control/Air Support/ Antiair Warfare	SEALS
Aviation		Aviation	Special Operations
Special Operations		Engineers	
Combat Engineers			

SUMMARY OF OFFICERS ON ACTIVE DUTY WITH A CRITICAL OCCUPATIONAL SPECIALTY (AS OF SEPTEMBER 30, 1998) **Table E-3**

CATEGORY	USA	USAF	USMC	USN	TOTAL
COS officers who have completed Joint Professional Military Education (JPME)	1551	1987	507	1367	5412
COS officers designated as JSOs	949	1160	402	779	3290
COS officers designated as JSO nominees	2305	2853	538	2182	7878
COS officers designated as JSO nominees who have not completed JPME	1592	1959	372	1644	5567
COS JSO nominees currently serving in a JDA	1104	1231	259	961	3555
COS JSO nominees who Completed a JDA and are currently attending JPME	4	16	1	9	30

SUMMARY OF JSOs WITH CRITICAL OCCUPATIONAL SPECIALTIES WHO ARE SERVING OR HAVE SERVED IN A SECOND JOINT ASSIGNMENT (AS OF SEPTEMBER 30, 1998) **Table E-4**

	USA	USAF	USMC	USN	TOTAL
Field Grade					
Have served*	219(83)	236(88)	25(13)	68(28)	548(212)
Are Serving*	128(63)	157(70)	23(8)	65(39)	373(180)
General/Flag					
Have served*	17(8)	33(9)	11(7)	12(6)	73(30)
Are serving*	14(7)	28(12)	5(4)	8(4)	55(27)

*Number in parenthesis indicates number of second joint assignments, which were to a critical joint position.

ANALYSIS OF THE ASSIGNMENT WHERE OFFICERS WERE REASSIGNED (IN FY 1998) ON THEIR FIRST ASSIGNMENT FOLLOWING DESIGNATION AS A JOINT SPECIALTY OFFICER **Table E-5**

Assignment Category	USA	USAF	USMC	USN	TOTAL
Command	28	130	7	16	181
Service HQ	14	29	6	8	57
Joint Staff critical	0	2	0	0	2
Joint Staff other	2	2	1	0	5
Other JDA critical	14	15	0	3	32
Other JDA	21	35	2	6	64
Professional Military Education (PME)	56	33	3	5	97
Retirement/separation	2	0	0	0	2
Other Operations	44	58	8	29	139
Other Staff	23	79	10	7	119
Other Shore (Navy)	-	-	-	31	31

*For the Marine Corps: Other Operations = Fleet Marine Force; Other Staff = Non-Fleet Marine Corps

AVERAGE LENGTH OF TOURS OF DUTY IN JOINT DUTY ASSIGNMENTS (FY 1998) (IN MONTHS) **Table E-6**

GENERAL/FLAG OFFICERS			
	JOINT STAFF	OTHER JOINT	JOINT TOTAL
USA	21.7	24.2	23.9
USAF	21.4	28.2	27.1
USMC	17.8	24.0	20.9
USN	23.8	26.1	25.6
DoD	21.3	26.0	25.1
FIELD GRADE OFFICERS			
	JOINT STAFF	OTHER JOINT	JOINT TOTAL
USA	32.8	37.5	37.1
USAF	35.1	36.9	36.8
USMC	38.9	37.7	37.8
USN	36.2	40.0	39.7
DoD	34.8	37.9	37.6

SUMMARY OF TOUR LENGTH EXCLUSIONS FOR FY 1998 Table E-7

CATEGORY	USA	USAF	USMC	USN	TOTAL
Retirement	131	110	6	49	296
Separation	0	2	0	45	47
Suspension from duty	12	3	1	5	21
Compassionate/Medical	8	3	0	2	13
Other joint after promotion	6	6	1	3	16
Reorganization	0	1	0	3	4
Joint overseas-short tours	209	122	8	47	386
Second Tour	23	34	0	19	76
Joint accumulation	22	10	0	2	34
COS reassignment	121	157	9	199	486
TOTAL	532	448	25	374	1379

JOINT DUTY POSITION DISTRIBUTION BY SERVICE (AS OF SEPTEMBER 30, 1998) Table E-8

	JOINT STAFF	OTHER JOINT DUTY	TOTAL JOINT DUTY	TOTAL DOD JDAs %	TOTAL DOD Officers %*
USA	266	2994	3260	34.8%	31.0%
USAF	269	3278	3547	37.9%	36.5%
USMC	64	489	553	5.9%	6.9%
USN	216	1795	2011	21.4%	25.6%
DoD	815	8556	9371	100.0%	100.0%

* Total Commissioned Officers: 0-3 through 0-10 less professional categories.

CRITICAL POSITIONS SUMMARY (AS OF SEPTEMBER 30, 1998) Table E-9

CATEGORY	USA	USAF	USMC	USN	TOTAL
Total critical positions	353	341	57	177	928
Number of vacant positions	68	75	11	33	187
Of those filled, number (and %) filled by JSOs	227(80%)	216(81%)	18(38%)	98(68%)	559(75%)
Number of critical positions filled by non-JSOs	58	50	29	46	183
Percent critical positions filled by JSOs or non-JSOs	81%	78%	82%	81%	80%

Reasons for filling critical positions with officers who are not JSOs are listed below:

Position filled by non-JSO incumbent prior to being a joint position	0
Position being converted to a noncritical position or being deleted	6
Joint specialist officer not yet available	61
Best qualified officer not joint specialist	115
Position filled by non-JSO incumbent prior to being a critical position	1
Other	0
TOTAL	**183**

The following organizations have joint duty critical positions, which are filled by officers who do not possess the joint specialty:

Office of the Secretary of Defense (OSD)	9
Joint Staff	32
United States Atlantic Command (USACOM)	5
United States Central Command (USCENTCOM)	12
United States European Command (USEUCOM)	11
United States Pacific Command (USPACOM)	5
United States Southern Command (USSOUTHCOM)	5
United States Strategic Command (USSTRATCOM)	4
United States Transportation Command (USTRANSCOM)	4
United States Space Command (USSPACECOM)	1
United States Special Operations Command (USSOCOM)	7
North American Air Defense Command (NORAD)	8
North Atlantic Treaty Organization (NATO)	3
Allied Command Europe (ACE)	16
Allied Command Atlantic (ACA)	1
National Security Agency (NSA)	1
United Nations	2
Defense Attaches	8
Defense Logistics Agency (DLA)	10
Defense Intelligence Agency (DIA)	4
Defense Information Systems Agency (DISA)	2
National Defense University (NDU)	2
Inter-American Defense Board (IADB)	1
Joint Warfare Analysis Center	2
Joint Analysis Center	2
Joint Warfighting Center	1
National Imagery and Mapping Agency (NIMA)	1
General/Flag, Other Joint	24
TOTAL	**183**

COMPARISON OF WAIVER USAGE (FY 1998) **Table E-10**

CATEGORY	USA	USAF	USMC	USN	TOTAL
Field Grade Section					
JSO Designations	186	497	68	235	986
JSO Sequence Waivers	7	10	0	7	24
JSO Two-tour Waivers	9	8	1	1	19
JSOs Graduating from JPME	8	14	2	8	32
JDA Assignment Waivers Granted	2	1	0	1	4
Field Grade Officers who departed JDAs	1107	1041	128	749	3025
Field Grade JDA tour length waivers	65	104	4	23	196
General/Flag Officer Section					
JSO Designations	6	0	3	3	12
General/Flag Officers who departed JDAs	34	38	8	29	109
General/Flag Officer JDA tour length waivers	24	21	2	12	59
Attended CAPSTONE	48	46	11	28	133
CAPSTONE Waivers	0	0	0	1	1
*Selected for Promotion to 0-7	40	43	12	32	127
Good of the Service Waivers	9	1	4	4	18
*Other Waivers	14	14	3	16	47

*Does not include professional categories.

JOINT PROFESSIONAL MILITARY EDUCATION PHASE II SUMMARY (FY 1998)					Table E-11
CATEGORY	USA	USAF	USMC	USN	TOTAL
Students graduating from Armed Forces Staff College in FY 1997	291	339	49	205	884
Students who had not completed Resident PME (percent of total)	73(25%)	169(50%)	0(0%)	28(14%)	270(31%)
Students who had completed non-resident PME (percent of total)	71(24%)	169(50%)	0(0%)	28(14%)	268(30%)
Students who had not completed resident or nonresident PME (percent of total)	2(1%)	0(0%)	0(0%)	0(0%)	2(0%)

Reasons for Students not Completing Resident Professional Military Education (PME) Prior to Attending Phase II:

Officer completed Phase I by correspondence/seminar 259
Officer completed Phase I equivalent program 9
Officer scheduled to attend a resident PME immediately following Phase II 2
Officer career path did not allow attendance at a resident PME program 0
Other 0

TEMPORARY JOINT TASK FORCE CREDIT (FY 1998)					Table E-12
CATEGORY	USA	USAF	USMC	USN	TOTAL
Full joint tour credit	0	0	0	0	0
Cumulative service	4	0	0	0	4

Summary of operations for which Joint Task Force credit was awarded:

Bosnia (operations in support of Dayton accord) 3
Haiti (United Nations Mission) 1

FY 1998 JOINT OFFICER PROMOTION RATES

Table E-13

GRADE	CATEGORY	ARE SERVING IN			HAVE SERVED IN			TOTAL IN ZONE			REMARKS
		IN ZONE %	BELOW ZONE %	ABOVE ZONE %	IN ZONE %	BELOW ZONE %	ABOVE ZONE %	CON	SEL	%	
AIR FORCE PROMOTION RATES (LINE)											
O-8	Joint Staff	33	N/A	N/A	0	N/A	N/A	5	1	20	
	JSO	N/A	N/A	N/A	N/A	N/A	N/A	58	20	35	
	Service Hqs	39	N/A	N/A	20	N/A	N/A	23	8	35	
	Other Joint	50	N/A	N/A	50	N/A	N/A	6	3	50	
	Board Avg	-	N/A	N/A	0	N/A	N/A	81	28	35	
O-7	Joint Staff	5	N/A	N/A	4	N/A	N/A	46	2	4	
	JSO	N/A	N/A	N/A	N/A	N/A	N/A	594	27	5	
	Service Hqs	5	N/A	N/A	3	N/A	N/A	145	6	4	
	Other Joint	2	N/A	N/A	1	N/A	N/A	267	5	2	
	Board Avg	-	N/A	N/A	-	N/A	N/A	1813	43	2	
O-6	Joint Staff	73	11	0	80	16	0	55	42	76	
	JSO	58	7	0	58	6	0	140	77	55	
	Service Hqs	67	5	0	62	7	0	164	105	64	
	Other Joint	58	4	0	30	1	6	232	103	44	
	Board Avg	42	3	1	42	3	1	921	384	42	
O-5	Joint Staff	90	11	50	100	0	0	22	20	91	
	JSO	100	0	0	100	0	0	6	6	100	
	Service Hqs	80	6	15	82	3	0	177	143	81	
	Other Joint	75	5	3	61	2	3	401	283	71	
	Board Avg	63	2	3	63	2	3	1774	1110	63	
O-4	Joint Staff	N/A	100	N/A	N/A	N/A	N/A	0	0	N/A	
	JSO	N/A	N/A	N/A	N/A	N/A	N/A	0	0	N/A	
	Service Hqs	96	3	67	78	0	0	31	28	90	Note 1
	Other Joint	95	4	0	63	0	0	45	40	89	
	Board Avg	83	2	12	83	2	12	2497	2062	83	
ARMY PROMOTION RATES (COMPETITIVE CATEGORY)											
O-8	Joint Staff	100	N/A	N/A	100	N/A	N/A	6	6	100	
	JSO	N/A	N/A	N/A	N/A	N/A	N/A	40	18	45	
	Service Hqs	67	N/A	N/A	82	N/A	N/A	20	15	75	
	Other Joint	0	N/A	N/A	75	N/A	N/A	10	6	60	
	Board Avg	-	N/A	N/A	-	N/A	N/A	72	34	47	
O-7	Joint Staff	15	N/A	N/A	0	N/A	N/A	69	6	9	
	JSO	N/A	N/A	N/A	N/A	N/A	N/A	799	18	2	
	Service Hqs	2	N/A	N/A	0	N/A	N/A	201	4	2	
	Other Joint	2	N/A	N/A	2	N/A	N/A	327	6	2	
	Board Avg	-	N/A	N/A	-	N/A	N/A	1774	40	2	

FY 1998 JOINT OFFICER PROMOTION RATES (Continued)

Table E-13

GRADE	CATEGORY	ARE SERVING IN			HAVE SERVED IN			TOTAL IN ZONE			REMARKS
		IN ZONE %	BELOW ZONE %	ABOVE ZONE %	IN ZONE %	BELOW ZONE %	ABOVE ZONE %	CON	SEL	%	
ARMY PROMOTION RATES (Continued)											
O-6	Joint Staff	-	-	-	-	-	-	-	-	-	Note 3
	JSO	-	-	-	-	-	-	-	-	-	
	Service Hqs	-	-	-	-	-	-	-	-	-	
	Other Joint	-	-	-	-	-	-	-	-	-	
	Board Avg	-	-	-	-	-	-	-	-	-	
O-5	Joint Staff	85	17	50	100	0	0	14	12	87	
	JSO	100	0	50	87	0	0	15	13	87	
	Service Hqs	75	3	14	72	8	0	111	81	73	
	Other Joint	82	4	16	64	0	8	304	233	77	
	Board Avg	68	4	6	68	4	6	1393	945	68	
O-4	Joint Staff	N/A	N/A	N/A	N/A	N/A	N/A	0	0	N/A	
	JSO	N/A	N/A	N/A	N/A	N/A	N/A	0	0	N/A	
	Service Hqs	91	40	0	100	0	0	13	12	92	Note 1
	Other Joint	86	0	0	0	0	0	7	6	86	
	Board Avg	77	7	7	77	7	7	1975	1522	77	
MARINE CORPS PROMOTION RATES (UNRESTRICTED)											
O-8	Joint Staff	50	N/A	N/A	38	N/A	N/A	10	4	40	
	JSO	N/A	N/A	N/A	N/A	N/A	N/A	18	5	28	
	Service Hqs	27	N/A	N/A	46	N/A	N/A	24	9	38	
	Other Joint	50	N/A	N/A	33	N/A	N/A	5	2	40	
	Board Avg	-	N/A	N/A	-	N/A	N/A	22	11	41	
O-7	Joint Staff	0	N/A	N/A	0	N/A	N/A	28	0	0	
	JSO	N/A	N/A	N/A	N/A	N/A	N/A	211	5	2	
	Service Hqs	2	N/A	N/A	0	N/A	N/A	105	1	1	
	Other Joint	5	N/A	N/A	3	N/A	N/A	71	3	4	
	Board Avg	-	N/A	N/A	-	N/A	N/A	502	12	2	
O-6	Joint Staff	70	0	0	50	0	0	26	17	65	
	JSO	50	0	0	50	0	0	44	21	48	
	Service Hqs	39	0	0	40	0	0	43	17	40	
	Other Joint	63	0	4	55	0	0	38	23	61	
	Board Avg	43	0	1	43	0	1	216	93	43	
O-5	Joint Staff	100	0	0	0	0	0	1	1	100	
	JSO	N/A	N/A	N/A	N/A	N/A	N/A	0	0	N/A	
	Service Hqs	81	0	5	72	0	10	55	41	75	
	Other Joint	70	0	14	78	0	0	65	47	72	
	Board Avg	67	0	4	67	0	4	364	243	67	

FY 1998 JOINT OFFICER PROMOTION RATES (Continued)

Table E-13

GRADE	CATEGORY	ARE SERVING IN			HAVE SERVED IN			TOTAL IN ZONE			REMARKS
		IN ZONE %	BELOW ZONE %	ABOVE ZONE %	IN ZONE %	BELOW ZONE %	ABOVE ZONE %	CON	SEL	%	
MARINE CORPS PROMOTION RATES (Continued)											
O-4	Joint Staff	N/A	N/A	N/A	N/A	N/A	N/A	0	0	N/A	
	JSO	N/A	N/A	N/A	N/A	N/A	N/A	0	0	N/A	
	Service Hqs	64	0	0	90	0	50	21	16	76	Note 1
	Other Joint	0	0	0	0	0	0	0	0	0	
	Board Avg	81	0	25	81	0	25	643	520	81	
NAVY PROMOTION RATES (NOTE 2)											
O-8	Joint Staff	0	N/A	N/A	20	N/A	N/A	3	2	67	
	JSO	N/A	N/A	N/A	N/A	N/A	N/A	22	13	59	
	Service Hqs	10	N/A	N/A	33	N/A	N/A	11	7	64	
	Other Joint	50	N/A	N/A	10	N/A	N/A	6	4	67	
	Board Avg	59	N/A	N/A	59	N/A	N/A	45	21	47	
O-7	Joint Staff	4	N/A	N/A	6	N/A	N/A	42	7	17	
	JSO	N/A	N/A	N/A	N/A	N/A	N/A	461	17	4	
	Service Hqs	2	N/A	N/A	0	N/A	N/A	325	11	3	
	Other Joint	0	N/A	N/A	0	N/A	N/A	153	3	2	
	Board Avg	4	N/A	N/A	4	N/A	N/A	1356	39	3	
O-6	Joint Staff	82	5	33	60	4	N/A	36	24	67	
	JSO	46	12	0	52	4	0	109	53	49	
	Service Hqs	51	3	0	50	7	11	96	48	50	
	Other Joint	43	2	0	28	0	0	146	49	34	
	Board Avg	44	2	2	44	2	2	646	282	44	
O-5	Joint Staff	70	0	0	100	0	0	14	11	79	
	JSO	N/A	N/A	N/A	N/A	N/A	N/A	0	0	N/A	
	Service Hqs	89	3	0	83	0	11	53	46	87	
	Other Joint	63	1	5	71	0	0	176	119	68	
	Board Avg	66	1	2	66	1	2	1210	801	66	
O-4	Joint Staff	N/A	N/A	N/A	N/A	N/A	N/A	0	0	N/A	
	JSO	N/A	N/A	N/A	N/A	N/A	N/A	0	0	N/A	
	Service Hqs	71	0	50	75	0	0	22	16	73	Note 1
	Other Joint	64	0	0	67	0	0	20	13	65	
	Board Avg	65	1	12	65	1	1	1870	1205	64	

Note 1: No officers met this board who were JSOs or were serving in, or had served, on the Joint Staff.

Note 2: The Navy conducted 45 separate promotion boards in competitive categories this fiscal year. For consistency purposes, they have been combined into one report.

Note 3: The Army did not have a reportable O-6 board for this period.

DEFENSE ACQUISITION WORKFORCE IMPLEMENTATION REPORT

Tables F-1 through F-22 display the Defense Acquisition Workforce Improvement Act (DAWIA) reporting requirements as of September 30, 1998. Reporting requirement not included is Section 1762 (c) (13), number of personnel paid a bonus under Section 317, 37 U.S. Code. During FY 1998, the Service Secretaries did not request approval from the Secretary of Defense to exercise this authority.

The number of encumbered Critical Acquisition Positions (CAPs) was down over 5 percent from last year, from 14,711 to 13,907. Additionally, the total membership in the Acquisition Corps decreased 3 percent to 21,396.

Note: 1998 is the last required year for reporting this data.

Critical Acquisition Positions Held:
- All Components ..... Table F-1
- Army ..... Table F-2
- Navy ..... Table F-3
- Marine Corps ..... Table F-4
- Air Force ..... Table F-5
- OSD, DoD Agencies, and Other Components ..... Table F-6

Acquisition Corps Members:
- Army ..... Table F-7
- Navy ..... Table F-8
- Marine Corps ..... Table F-9
- Air Force ..... Table F-10
- OSD, DoD Agencies, and Other Components ..... Table F-11

Acquisition Corps Exceptions From Educational Requirements in Effect End of FY 1998 ..... Table F-12

Personnel Participating in Acquisition Intern, Cooperative Education, Scholarship, and Tuition Reimbursement Programs During FY 1998 ..... Table F-13

Personnel Certified by Acquisition Career Program Boards in Lieu of a Baccalaureate Degree in FY 1998 ..... Table F-14

Major Defense Acquisition Program Manager Reassignments During FY 1998 ..... Table F-15

Major Defense Acquisition Deputy Program Manager Reassignments During FY 1998 ..... Table F-16

Acquisition Workforce Waivers/Exceptions Granted During FY 1998 ..... Table F-17

Officer Promotion Rate Comparisons:
- Army ..... Table F-18
- Navy ..... Table F-19
- Marine Corps ..... Table F-20
- Air Force ..... Table F-21

Critical Acquisition Position Reviews/Reassignments During FY 1998 ..... Table F-22

CRITICAL ACQUISITION POSITIONS HELD - FY 1998
{SECTION 1762 (C) (3)}
ALL COMPONENTS3

Table F-1

Position Category		Demo Pay Plan	GS/GM-13 or below	O-4	GS/ GM-14[c]	O-5	GS/ GM-15[d]	O-6	SES[e]	Gen/ Flag Officer	Civilian Total	Military Total	Combined Total
Acquisition Management: [a]	**Total**	**191**	**18**	**161**	**1215**	**814**	**832**	**487**	**141**	**69**	**2397**	**1531**	**3928**
PEOs		**0**	0	0	0	0	0	0	5	15	5	15	20
PMs [b]		**3**	0	0	0	10	10	97	5	5	18	112	130
DPMs [b]		**4**	0	0	4	5	69	16	1	1	78	22	100
Pgm Mngt/Pgm Mngt Ovrsght	Total	**182**	13	153	1042	751	770	473	134	69	2141	1446	3587
Division Heads		**23**	1	29	212	281	279	325	80	35	595	670	1265
Communication/Computer Sys	Total	**9**	5	8	173	63	62	14	7	0	256	85	341
Division Heads		**4**	2	8	41	18	15	11	0	0	62	37	99
Proc. and Contracting:	**Total**	**39**	**14**	**40**	**1143**	**282**	**393**	**155**	**52**	**7**	**1641**	**484**	**2125**
Sr. Contracting Officials		**1**	0	0	65	25	42	31	34	2	142	58	200
Division Heads		**11**	7	26	435	130	174	107	16	5	643	268	911
Business, Cost Estimating, and Financial Management:	**Total**	**35**	**7**	**9**	**392**	**35**	**140**	**10**	**6**	**1**	**580**	**55**	**635**
Division Heads		**9**	2	1	62	15	89	10	5	1	167	27	194
Auditing:	**Total**	**0**	**0**	**0**	**147**	**0**	**36**	**0**	**15**	**0**	**198**	**0**	**198**
Division Heads		**0**	0	0	109	0	35	0	15	0	159	0	159
Production/Quality:	**Total**	**6**	**1**	**6**	**217**	**12**	**57**	**46**	**2**	**2**	**283**	**66**	**349**
Division Heads		**1**	1	0	67	3	35	44	2	2	106	49	155
Acquisition Logistics:	**Total**	**18**	**6**	**9**	**357**	**50**	**115**	**49**	**11**	**4**	**507**	**112**	**619**
Division Heads		**5**	0	6	106	26	59	47	9	4	179	83	262
Systems Planning, Research, Development, and Engineering:	**Total**	**626**	**25**	**49**	**2701**	**163**	**1258**	**62**	**142**	**4**	**4752**	**278**	**5030**
Division Heads		**182**	8	24	248	41	401	49	91	1	930	115	1045
Test and Evaluation:	**Total**	**71**	**7**	**31**	**471**	**115**	**173**	**39**	**17**	**4**	**739**	**189**	**928**
Division Heads		**35**	5	18	100	55	93	36	13	4	246	113	359
Education, Training, and Career Development:	**Total**	**0**	**0**	**6**	**3**	**66**	**5**	**12**	**3**	**0**	**11**	**84**	**95**
Division Heads		**0**	0	1	1	553	0	200	2	23	3	777	780
	Total	**986**	**78**	**311**	**6646**	**1537**	**3009**	**860**	**389**	**91**	**11108**	**2799**	**13907**

a Acquisition Management includes Program Management, PM Oversight, and Communications/Computer Systems position categories.
[b] ACAT I and ACAT II only
[c] Includes pay grade AD-02
[d] Includes pay grade AD-03
[e] Includes pay grade TX.

CRITICAL ACQUISITION POSITIONS HELD - FY 1998
{SECTION 1762 (C) (3)}
COMPONENT: ARMY

Table F-2

Position Category		Demo Pay Plan	GS/ GM-13 or below	O-4	GS/ GM-14	O-5	GS/ GM-15	O-6	SES	Gen/ Flag Officer	Civilian Total	Military Total	Combined Total
Acquisition Management: [a]	**Total**	**1**	**0**	**0**	**400**	**327**	**291**	**128**	**36**	**21**	**728**	**476**	**1204**
PEOs		0	0	0	0	0	0	0	0	6		6	6
PMs b		0	0	0	0	9	4	23	2	2	6	34	40
DPMs b		0	0	0	3	1	24	2	0	0	27	3	30
Pgm Mngt/Pgm Mngt Ovrsght	Total	1	0	0	344	288	276	122	36	21	657	431	1088
Division Heads					54	122	134	90	17	0	205	212	417
Communication/Computer Sys	Total	0	0	0	56	39	15	6	0	0	71	45	116
Division Heads		0	0	0	5	6	6	5	0	0	11	11	22
Proc. and Contracting:	**Total**	**1**	**0**	**0**	**381**	**93**	**101**	**42**	**14**	**1**	**497**	**136**	**633**
Sr. Contracting Officials		1	0	0	52	23	35	20	9	0	97	43	140
Division Heads		0	0	0	94	27	29	18	1		124	45	169
Business, Cost Estimating, and Financial Management:	**Total**	**0**	**0**	**0**	**151**	**0**	**49**	**0**	**0**	**0**	**200**	**0**	**200**
Division Heads		0	0	0	23	0	36	0	0	0	59	0	59
Auditing:	**Total**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Division Heads		0	0	0	0	0	0	0	0	0	0	0	0
Production/Quality:	**Total**	**0**	**0**	**0**	**111**	**0**	**27**	**0**	**0**	**0**	**138**	**0**	**138**
Division Heads		0	0	0	15	0	16	0	0	0	31	0	31
Acquisition Logistics:	**Total**	**0**	**0**	**0**	**88**	**6**	**12**	**0**	**0**	**0**	**100**	**6**	**106**
Division Heads		0	0	0	22	2	8				30	2	32
Systems Planning, Research, Development, and Engineering:	**Total**	**28**	**0**	**0**	**1483**	**56**	**655**	**11**	**69**	**1**	**2235**	**68**	**2303**
Division Heads		9	0	0	78	4	210	7	48		345	11	356
Test and Evaluation:	**Total**	**0**	**0**	**0**	**244**	**36**	**92**	**10**	**5**	**0**	**341**	**46**	**387**
Division Heads		0	0	0	40	10	51	8	3		94	18	112
Education, Training, and Career Development:	**Total**	**0**	**0**	**0**	**0**	**33**	**2**	**5**	**0**	**0**	**2**	**38**	**40**
Division Heads		0	0	0	0	0	0	3	0	0	0	3	3
	Total	**30**	**0**	**0**	**2858**	**551**	**1229**	**196**	**124**	**23**	**4241**	**770**	**5011**

Source: DMDC data verified by Component Records

[a] Acquisition Management includes Program Management, PM Oversight, and Communications/Computer Systems position categories.
[b] ACAT I and ACAT II only

CRITICAL ACQUISITION POSITIONS HELD - FY 1998
{SECTION 1762 (C) (3)}
COMPONENT: NAVY

Table F-3

Position Category		Demo Pay Plans	GS/ GM-13 or below	O-4	GS/ GM-14	O-5	GS/ GM-15	O-6	SES	Gen/ Flag Officer	Civilian Total	Military Total	Combined Total
Acquisition Management: [a]	**Total**	**190**	**0**	**5**	**467**	**76**	**294**	**151**	**51**	**23**	**1002**	**255**	**1257**
PEOs		0	0	0	0	0	0	0	2	6	2	6	8
PMs [b]		3	0	0	0	0	4	42	2	1	9	43	52
DPMs [b]		4	0	0	0	1	28	6	1	1	33	8	41
Pgm Mngt/Pgm Mngt Ovrsght	Total	181	0	5	442	75	284	148	51	23	958	251	1209
Division Heads		23	0	0	34	22	65	95	40	15	162	132	294
Communication/Computer Sys	Total	9	0	0	25	1	10	3	0	0	44	4	48
Division Heads		4	0	0	8	0	4	2	0	0	16	2	18
Proc. and Contracting:	**Total**	**38**	0	**4**	**218**	**66**	**93**	**64**	**13**	**3**	**362**	**137**	**499**
Sr. Contracting Officials		0	0	0	0	0	3	4	6	0	9	4	13
Division Heads		11	0	1	53	22	27	58	7	2	98	83	181
Business, Cost Estimating, and Financial Management:	**Total**	**35**	0	0	**127**	**9**	**49**	**3**	**2**	0	**213**	**12**	**225**
Division Heads		9	0	0	16	0	24	3	2	0	51	3	54
Auditing:	**Total**	0	0	0	0	0	0	0	0	0	**0**	**0**	**0**
Division Heads		0	0	0	0	0	0	0	0	0			0
Production/Quality:	**Total**	**6**	0	**1**	**46**	**10**	**14**	**43**	**1**	**2**	**67**	**56**	**123**
Division Heads		1	0	0	12	3	8	43	1	2	22	48	70
Acquisition Logistics:	**Total**	**18**	0	0	**163**	**9**	**60**	**19**	**8**	**3**	**249**	**31**	**280**
Division Heads		5	0	0	38	5	29	18	8	3	80	26	106
Systems Planning, Research, Development, and Engineering:	**Total**	**598**	0	**4**	**573**	**28**	**237**	**30**	**27**	**1**	**1435**	**63**	**1498**
Division Heads		173	0	0	56	5	75	27	24	1	328	33	361
Test and Evaluation:	**Total**	**71**	0	**2**	**113**	**12**	**42**	**11**	**4**	**1**	**230**	**26**	**256**
Division Heads		35	0	0	7	2	18	10	4	1	64	13	77
Education, Training, and Career Development:	**Total**	0	0	0	**2**	0	**2**	**4**	**1**	0	**5**	**4**	**9**
Division Heads		0	0	0	0	0	0	4	1	0	1	4	5
	Total	**956**	**0**	**16**	**1709**	**210**	**791**	**325**	**107**	**33**	**3563**	**584**	**4147**

Source: DMDC data verified by Component Records

[a] Acquisition Management includes Program Management, PM Oversight, and Communications/Computer Systems position categories.
[b] ACAT I and ACAT II only

CRITICAL ACQUISITION POSITIONS HELD - FY 1998
{SECTION 1762 (C) (3)}
COMPONENT: MARINE CORPS

Table F-4

Position Category		Demo Pay Plan	GS/ GM 13 or below	O-4	GS/ GM-14	O-5	GS/ GM-15	O-6	SES	Gen/ Flag Officer	Civilian Total	Military Total	Combined Total
Acquisition Management: [a]	**Total**	**0**	**0**	**14**	**11**	**27**	**12**	**21**	**1**	**0**	**24**	**62**	**86**
PEOs		0	0	0	0	0	0	0	0	0	0	0	0
PMs [b]		0	0	0	0	0	0	4	0	0	0	4	4
DPMs [b]		0	0	0	0	0	0	0	0	0	0	0	0
Pgm Mngt/Pgm Mngt Ovrsght	Total	0	0	14	7	27	12	21	1	0	20	62	82
Division Heads		0	0	0	3	1	10	17	0	0	13	18	31
Communication/Computer Sys	Total	0	0	0	4	0	0	0	0	0	4	0	4
Division Heads		0	0	0	1	0	0	0	0	0	1	0	1
Proc. and Contracting:	**Total**	**0**	**0**	**0**	**13**	**0**	**4**	**0**	**1**	**0**	**18**	**0**	**18**
Sr. Contracting Officials		0	0	0	0	0	1	0	1	0	2	0	2
Division Heads		0	0	0	2	0	2	0	0	0	4	0	4
Business, Cost Estimating, and Financial Management:	**Total**	0	0	**0**	**2**	**1**	**2**	**0**	**0**	**0**	**4**	**1**	**5**
Division Heads		0	0	0	0	0	1	0	0	0	1	0	1
Auditing:	**Total**	0	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Division Heads		0	0	0	0	0	0	0	0	0	0	0	0
Production/Quality:	**Total**	0	0	1	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**3**	**3**
Division Heads		0	0	0	0	0	0	0	0	0	0	0	0
Acquisition Logistics:	**Total**	0	0	2	**7**	**7**	**2**	**1**	**0**	**0**	**9**	**10**	**19**
Division Heads		0	0	0	4	0	1	1	0	0	5	1	6
Systems Planning, Research, Development, and Engineering:	**Total**	0	0	**2**	**22**	**2**	**6**	**0**	**0**	**0**	**28**	**4**	**32**
Division Heads		0	0	0	11	0	2	0	0	0	13	0	13
Test and Evaluation:	**Total**	0	0	**2**	**2**	**3**	**0**	**0**	**0**	**0**	**2**	**5**	**7**
Division Heads		0	0	0	2	0	0	0	0	0	2	0	2
Education, Training, and Career Development:	**Total**	0	0	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**1**	**2**	**3**
Division Heads		0	0	0	0	0	0	0	0	0	0	0	0
	Total	**0**	**0**	**21**	**57**	**43**	**27**	**23**	**2**	**0**	**86**	**87**	**173**

Source: DMDC data verified by Component Records

[a] **Acquisition Management includes Program Management, PM Oversight, and Communications/Computer Systems position categories.**
[b] **ACAT I and ACAT II only**

CRITICAL ACQUISITION POSITIONS HELD - FY 1998
{SECTION 1762 (C) (3)}
COMPONENT: AIR FORCE

Table F-5

Position Category		Demo Pay Plan	GS/ GM 13 or below	O-4	GS/ GM-14	O-5	GS/ GM-15	O-6	SES	Gen/ Flag Officer	Civilian Total	Military Total	Combined Total
Acquisition Management: [a]	**Total**	0	**18**	**142**	**173**	**384**	**101**	**187**	**21**	**25**	**313**	**738**	**1051**
PEOs		0	0	0	0	0	0	0	3	3	3	3	6
PMs [b]		0	0	0	0	1	2	28	1	2	3	31	34
DPMs [b]		0	0	0	1	3	17	8	0	0	18	11	29
Pgm Mngt/Pgm Mngt Ovrsght	Total	0	13	134	124	361	92	182	19	25	248	702	950
Division Heads		0	1	29	46	136	53	123	13	20	113	308	421
Communication/Computer Sys	Total	0	5	8	49	23	9	5	2	0	65	36	101
Division Heads		0	2	8	26	12	4	4	0	0	32	24	56
Proc. and Contracting:	**Total**	0	**14**	**36**	**206**	**123**	**74**	**49**	**7**	**3**	**301**	**211**	**512**
Sr. Contracting Officials		0	0	0	2	2	1	7	6	2	9	11	20
Division Heads		0	7	25	65	81	50	31	2	3	124	140	264
Business, Cost Estimating, and Financial Management:	**Total**	0	**7**	**9**	**87**	**25**	**32**	**7**	**4**	**1**	**130**	**42**	**172**
Division Heads		0	2	1	23	15	27	7	3	1	55	24	79
Auditing:	**Total**	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Division Heads		0	0	0	0	0	0	0	0	0	0	0	0
Production/Quality:	**Total**	0	**1**	**4**	**16**	**1**	**4**	**2**	**1**	**0**	**22**	**7**	**29**
Division Heads		0	1	0	5	0	2	1	1	0	9	1	10
Acquisition Logistics:	**Total**	0	**6**	**7**	**81**	**28**	**33**	**29**	**3**	**1**	**123**	**65**	**188**
Division Heads		0		6	39	19	19	28	1	1	59	54	113
Systems Planning, Research, Development, and Engineering:	**Total**	**0**	**25**	**43**	**586**	**77**	**347**	**21**	**40**	**2**	**998**	**143**	**1141**
Division Heads		0	8	24	91	32	114	15	19	0	232	71	303
Test and Evaluation:	**Total**	0	**7**	**27**	**102**	**64**	**30**	**18**	**7**	**3**	**146**	**112**	**258**
Division Heads		0	5	18	51	43	24	18	5	3	85	82	167
Education, Training, and Career Development:	**Total**	**0**	**0**	**6**	**1**	**31**	**0**	**3**	**0**	**0**	**1**	**40**	**41**
Division Heads		0	0	1	1	2	0	0	0	0	1	3	4
	Total	**0**	**78**	**274**	**1252**	**733**	**621**	**316**	**83**	**35**	**2034**	**1358**	**3392**

Source: DMDC data verified by Component Records

[a] Acquisition Management includes Program Management, PM Oversight, and Communications/Computer Systems position categories.
[b] ACAT I and ACAT II only

CRITICAL ACQUISITION POSITIONS HELD - FY 1998

{SECTION 1762 (C) (3)}

COMPONENT: OSD, DoD AGENCIES, AND OTHER COMPONENTS[a]

Table F-6

(Numbers for military members assigned OSD/DoD Agencies and other components reflected in individual services totals.)

Position Category		Demo Pay Plan	GS/ GM 13 or below	AD-02	GS/ GM-14	AD-03	GS/ GM-15	TX	SES	Civilian Total	Military Total	Combined Total
Acquisition Management: [b]	**Total**	**0**	0	**23**	**141**	**8**	**126**	0	**32**	**330**	**0**	**330**
PEOs		0	0	0	0	0	0	0	0	0	0	0
PMs [c]		0	0	0	0	0	0	0	0	0	0	0
DPMs [c]		0	0	0	0	0	0	0	0	0	0	0
Pgm Mngt/Pgm Mngt Ovrsght	Total	0	0	22	103	8	98	0	27	258	0	258
Division Heads		0	0	0	75	0	17	0	10	102	0	102
Communication/Computer Sys	Total	0	0	1	38	0	28	0	5	72	0	72
Division Heads		0	0	0	1	0	1	0	0	2	0	2
Proc. and Contracting:	**Total**	**0**	0	**4**	**321**	0	**121**	0	**17**	**463**	**0**	**463**
Sr. Contracting Officials		0	0	0	11	0	2	0	12	25	0	25
Division Heads		0	0	0	221	0	66	0	6	293	0	293
Business, Cost Estimating, and Financial Management:	**Total**	**0**	0	**14**	**11**	0	**8**	0	0	**33**	**0**	**33**
Division Heads		0	0	0	0	0	1	0	0	1	0	1
Auditing:	**Total**	**0**	0	0	**147**	0	**36**	0	**15**	**198**	**0**	**198**
Division Heads		0	0	0	109	0	35	0	15	159	0	159
Production/Quality:	**Total**	**0**	0	**2**	**42**	0	**12**	0	0	**56**	**0**	**56**
Division Heads		0	0	0	35	0	9	0	0	44	0	44
Acquisition Logistics:	**Total**	**0**	0	**3**	**15**	0	**8**	0	0	**26**	**0**	**26**
Division Heads		0	0	0	3	0	2	0	0	5	0	5
Systems Planning, Research, Development, and Engineering:	**Total**	**0**	0	**4**	**33**	0	**13**	0	**6**	**56**	**0**	**56**
Division Heads		0	0	0	12	0	0	0	0	12	0	12
Test and Evaluation:	**Total**	**0**	0	**2**	**8**	0	**9**	0	**1**	**20**	**0**	**20**
Division Heads			0	0	0	0	0	0	1	1	0	1
Education, Training, and Career Development:	**Total**	**0**	0	0	0	0	0	0	**2**	**2**	**0**	**2**
Division Heads		0	0	0	0	0	0	0	1	0	0	0
	Total	**0**	**0**	**52**	**718**	**8**	**333**	**0**	**73**	**1184**	**0**	**1184**

Source: DMDC data verified by Component Records

[a] NSA / DIA / NIMA Not Included
[b] Acquisition Management includes Program Management, PM Oversight, and Communications/Computer Systems position categories.
[c] ACAT I and ACAT II only

ARMY ACQUISITION CORPS MEMBERS - FY 1998
{SECTION 1762 (C) (2)}

Table F-7

Career Field	Payband	GS/ GM-13 or below	O-4	GS/ GM-14	O-5	GS/ GM-15	O-6	SES	Gen/Flag Officer	Total
Program Management	9	40	178	333	282	203	96	23	24	1188
Communications, Computer Systems	3	12	34	37	30	12	4	1	0	133
Contracting	7	37	100	288	101	78	45	10	1	667
Industrial Property Management	0	0	0	1	0	0	0	0	0	1
Manufacturing and Production/Quality Assurance	45	13	0	58	0	21	0	2	0	139
Business, Cost Estimating, and Financial Management	3	42	0	111	0	46	0	2	0	204
Acquisition Logistics	1	33	20	109	8	40	0	2	0	213
Systems Planning, Research, Development, and Engineering	604	91	66	859	58	394	13	58	0	2143
Test and Evaluation	22	9	59	207	39	84	6	7	0	433
Total	**694**	**277**	**457**	**2003**	**518**	**878**	**164**	**105**	**25**	**5121**

Source: Component Records

NAVY ACQUISITION CORPS MEMBERS - FY 1998
{SECTION 1762 (C) (2)}

Table F-8

Career Field	Demo Plans	GS/ GM-13 below	O-4	GS/ GM-14	O-5	GS/ GM-15	O-6	SES	Gen/Flag Officer	Total
Program Management	191	472	200	394	509	255	405	39	30	2495
Communications, Computer Systems	23	12	0	17	1	7	2	0	0	62
Contracting	99	371	155	202	160	90	65	12	3	1157
Industrial Property Management	0	0	0	0	0	0	0	0	0	0
Manufacturing and Production/Quality Assurance	11	57	56	38	80	12	42	1	2	299
Business, Cost Estimating, and Financial Management	71	182	6	102	14	42	1	3	0	421
Acquisition Logistics	33	273	6	130	27	55	15	7	3	549
Systems Planning, Research, Development, and Engineering	1121	868	34	523	57	234	30	22	1	2890
Test and Evaluation	119	281	8	105	19	44	7	5	1	589
Total	1668	2516	465	1511	867	739	567	89	40	8462

Source: Component Records

MARINE CORPS ACQUISITION CORPS MEMBERS - FY 1998 {SECTION 1762 (C) (2)}

Table F-9

Career Field	Demo Plan	GS/ GM-13 or below	O-4	GS/ GM-14	O-5	GS/ GM-15	O-6	SES	Gen/Flag Officer	Total
Program Management	1	14	43	6	116	12	47	1	9	249
Communications, Computer Systems	0	2	0	4	0	0	0	0	0	6
Contracting	0	18	0	13	0	4	0	1	0	36
Industrial Property Management Manufacturing and Production/	0	0	0	0	0	0	0	0	0	0
Quality Assurance	0	3	0	0	0	1	0	0	0	4
Business, Cost Estimating, and Financial Management	0	6	0	2	0	2	0	0	0	10
Acquisition Logistics	0	20	2	5	2	2	1	0	0	32
Systems Planning, Research, Development, and Engineering	0	27	2	21	0	6	0	0	0	56
Test and Evaluation	0	3	0	2	1	0	0	0	0	6
Total	1	93	47	53	119	27	48	2	9	399

Source: Component Records

AIR FORCE ACQUISITION CORPS MEMBERS - FY 1998 {SECTION 1762 (C) (2)}

Table F-10

Career Field	GS/ GM-13 or Below	O-4	GS/ GM-14	O-5	GS/ GM-15	O-6	SES	Gen/Flag Officer	Total
Program Management	6	170	147	722	94	223	20	31	1413
Communications, Computer Systems	2	10	58	42	15	9	1	0	137
Contracting	8	38	204	195	75	57	6	2	585
Industrial Property Management	0	0	0	0	0	0	0	0	0
Manufacturing and Production/ Quality Assurance	1	2	19	3	4	2	1	0	32
Business, Cost Estimating, and Financial Management	5	11	98	50	35	11	6	2	218
Acquisition Logistics	1	4	106	86	49	36	4	5	291
Systems Planning, Research, Development, and Engineering	10	42	563	159	354	46	41	2	1217
Test and Evaluation	2	30	104	174	27	31	6	6	380
Total	**35**	**307**	**1299**	**1431**	**653**	**415**	**85**	**48**	**4273**

Source: Component Records

OSD, DoD AGENCIES, OTHER COMPONENTS ACQUISITION CORPS MEMBERS[a] - FY 1998 {SECTION 1762 (C) (2)}

Table F-11

Career Field	GS/ GM-13 or below	AD-01	GS/ GM-14	AD-02	GS/ GM-15	AD-03	SES	Total
Program Management	72	1	127	29	93	8	38	368
Communications, Computer Systems	45	0	52	0	40	0	5	142
Contracting	769	0	344	5	128	0	14	1260
Industrial Property Management	28	0	4		2	0	0	34
Manufacturing and Production/ Quality Assurance	348	0	105	2	20	0	0	475
Business, Cost Estimating, and Financial Management	9	0	8	17	9	0	0	43
Auditing	786	0	208		13	0	14	1021
Acquisition Logistics	6	0	21	3	12	0	2	44
Systems Planning, Research, Development, and Engineering	137	0	88	9	29	0	6	269
Test and Evaluation	3	0	9	1	8	0	4	25
Total	2203	0	966	66	354	8	83	3681

Source: Component Records

[a] NSA / DIA / NIMA not included

ACQUISITION CORPS EXCEPTIONS FROM EDUCATIONAL *REQUIREMENTS IN EFFECT END OF FY 1998* *{SECTION 1762 (C) (6) AND 1732 (B) (2) (A) AND (B)}*

Table F-12

Component	10 Years of Experience Section 1732 (c)(1)	24 Semester Hour Exam Section 1732 (c)(2)	Total
Army	32	1	33
Navy	80	2	82
Marine Corps	1	0	1
Air Force	1000	0	1000
OSD, DoD agencies, and other components	89	1	90
Total	1202	4	1206

Source: Component Records

PERSONNEL PARTICIPATING IN ACQUISITION INTERN, *COOPERATIVE EDUCATION, SCHOLARSHIP, AND TUITION REIMBURSEMENT PROGRAMS DURING FY 1998 {SECTION 1762 (C) (12)}*

Table F-13

Component	Interns {Sec 1742}	Cooperative Education {Sec 1743}	DoD Scholarships {Sec 1744}	Tuition Reimbursement {Sec 1745 (a)}	Repayment of Student Loans {Sec 1745 (b)}
Army	11	1	0	21	0
Navy	450	26	0	2440	0
Marine Corps	10	2	0	344	0
Air Force	283	0	0	490	0
OSD, DoD agencies, and other components	353	34	0	490	0
Total	1107	63	0	3785	0

Source: OSD and Component Records

PERSONNEL CERTIFIED BY ACQUISITION CAREER *PROGRAM BOARDS IN LIEU OF A BACCALAUREATE DEGREE IN FY 1998 {SECTIONS 1762 (C) (7) AND 1732 (B) (2) (A) (II)}*

Table F-14

Component	Military	Civilian
Army	0	0
Navy	1	0
Marine Corps	0	0
Air Force	0	0
OSD, DoD agencies, and other components	N/A	0
Total	1	0

Source: Component Records

MAJOR DEFENSE ACQUISITION PROGRAM MANAGER REASSIGNMENTS
DURING FY 1998 {SECTION 1762 (C) (8) AND 1734 (B) (1) (A)}
PROGRAM MANAGERS FOUR YEAR/MILESTONE

Table F-15

PROGRAM MANAGERS FOUR YEAR/MILESTONE							
	Number of Reassignments				Average Length of Assignments (Months)		
Component	Full-term	Less than Full-term	Total	Percent Full-term	Full-term	Less than Full-term	All
Army	3	2	5	60%	48	22	38
Navy	3	4	7	43%	56	35	44
Marine Corps	1	0	1	100%	62	N/A	62
Air Force	0	4	4	0%	N/A	16.8	16.8
OSD, DoD agencies, and other components	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	7	10	17	60%	166.0	73.8	40.2

Source: Verified by OUSD(A&T)/AET&CD Records

MAJOR DEFENSE ACQUISITION DEPUTY PROGRAM MANAGER REASSIGNMENTS
DURING FY 1998 {SECTION 1762 (C) (8) AND 1734 (B) (1) (A)}

Table F-16

DEPUTY PROGRAM MANAGERS FOUR YEAR/MILESTONE							
	Number of Reassignments				Average Length of Assignments (Months)		
Component	Full-term	Less than Full-term	Total	Percent Full-term	Full-term	Less than Full-term	All
Army	0	0	0	0%	N/A	N/A	N/A
Navy	1	0	1	100%	43	N/A	43
Marine Corps	0	0	0	N/A	N/A	N/A	N/A
Air Force	0	6	6	0%	N/A	22.50	22.5
OSD, DoD agencies, and other components	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total							

Source: Verified by OUSD(A&T)/AET&CD Records

ACQUISITION WORK FORCE WAIVERS/EXCEPTIONS *GRANTED DURING FY 1998 {SECTION 1762 (C) (10)}*

Table 17

	Contracting Officer/ GS-1102 Qualification Requirements: Section 1724 (d)		Acquisition Corps Eligibility Criteria: Section 1732 (d)		Critical Acquisition Positions Assignment Period/ Qualifications/ Service Obligations: Section 1734 (d)		Other Waivers to Acquisition Work Force Provisions		Incumbent Qualification Exceptions: 1736 (c) Critical Positions 10/92 PMs 10/91	Total By Service
Component	Reason Code	Number	Reason Code	Number	Reason Code	Number	Reason Code	Number	Number	
Army					C,D,F	16, 43, 1				60
Navy			E	10	B, C, D	1, 68, 25				104
Marine Corps										
Air Force					B, C, D F, G, H	5, 154, 73 9, 1, 5				247
OSD, DoD, and other components*			B, C, D	1, 8, 2						11
Total				21		401				422

Source: OUSD(A&T)/AET&CD Records

* NSA / DIA / NIMA excluded

REASON CODE:
(A) ACPB screened based on demonstrated potential
(B) Promotion
(C) Reassignment in government's interest
(D) Humanitarian reassignment/discharge
(E) Service Secretary determination (PEO/PM waivers)
(F) GO/SES Assignment
(G) ACAT I PM Reassignment
(H) Qualifications obviate need for meeting training, education and experience requirements

OFFICER PROMOTION RATE COMPARISONS FY 1998
COMPONENT: ARMY

Table F-18

To Grade	Categories	TOTAL NUMBER PROMOTED	% PROMOTION RATES		
			IN ZONE	BELOW ZONE	ABOVE ZONE
O-8	Acquisition Corps	4	57.1	N/A	N/A
	Non-Acquisition Equivalent/Line Officers[a]	30	41.6	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	34	47.2	N/A	N/A
O-7	Acquisition Corps	2	1.4	N/A	N/A
	Non-Acquisition Equivalent/Line Officers[a]	38	2.1	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	40	2.3	N/A	N/A
O-6	Acquisition Corps	33	36.7	0.0	9.7
	Non-Acquisition Equivalent/Line Officers[a]	367	39.2	1.1	4.5
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	400	39.0	1.0	4.7
				N/A	N/A
O-5	Acquisition Corps	89	56.6	0.6	3.7
	Non-Acquisition Equivalent/Line Officers[a]	961	69.2	3.9	6.3
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	1050	67.8	3.5	6.0
				N/A	N/A

Source: Service Selection Board Results

[a] Army PERSCOM Officer Personnel Management Directorate—Managed Officers

OFFICER PROMOTION RATE COMPARISONS FY 1998
COMPONENT: NAVY

Table F-19

To Grade	Categories	TOTAL NUMBER PROMOTED	% PROMOTION RATES		
			IN ZONE	BELOW ZONE	ABOVE ZONE
O-8	Acquisition Corps	4	36.4%	N/A	N/A
	Non-Acquisition Equivalent/Line Officers	20	55.6%	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	24	51.1%	N/A	N/A
O-7	Acquisition Corps	7	2.3%	N/A	N/A
	Non-Acquisition Equivalent/Line Officers	25	2.5%	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	32	2.5%	N/A	N/A
O-6	Acquisition Corps	100	53.9%	1.6%	8.0%
	Non-Acquisition Equivalent/Line Officers	220	40.2%	2.3%	1.6%
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	320	43.7%	2.2%	2.8%
				N/A	N/A
O-5	Acquisition Corps	59	52.9%	0.6%	6.4%
	Non-Acquisition Equivalent/Line Officers	722	68.9%	0.7%	2.0%
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	781	67.4%	0.7%	2.3%
				N/A	N/A

Source: Service Selection Board Results

OFFICER PROMOTION RATE COMPARISONS FY 1998
COMPONENT: MARINE CORPS

Table F-20

To Grade	Categories	TOTAL NUMBER PROMOTED	% PROMOTION RATES		
			IN ZONE	BELOW ZONE	ABOVE ZONE
O-8	Acquisition Corps	2	50.0%	N/A	N/A
	Non-Acquisition Equivalent/Line Officers	9	39.0%	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	11	40.7%	N/A	N/A
O-7	Acquisition Corps	1	2.4%	N/A	N/A
	Non-Acquisition Equivalent/Line Officers	11	2.4%	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	12	2.4%	N/A	N/A
O-6	Acquisition Corps	12	54.5%	0.0%	0.0%
	Non-Acquisition Equivalent/Line Officers	85	41.8%	0.0%	1.5%
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	97	43.1%	0.0%	1.4%
O-5	Acquisition Corps	7	70.0%	0.0%	0.0%
	Non-Acquisition Equivalent/Line Officers	248	66.7%	0.0%	3.9%
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	255	66.8%	0.0%	3.7%

Source: Service Selection Board Results

OFFICER PROMOTION RATE COMPARISONS FY 1998
COMPONENT: AIR FORCE

Table F-21

To Grade	Categories	TOTAL NUMBER PROMOTED	% PROMOTION RATES		
			IN ZONE	BELOW ZONE	ABOVE ZONE
O-8	Acquisition Corps	4	30.8%	N/A	N/A
	Non-Acquisition Equivalent/Line Officers	24	35.3%	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	28	34.6%	N/A	N/A
O-7	Acquisition Corps	7	2.8%	N/A	N/A
	Non-Acquisition Equivalent/Line Officers	33	2.4%	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	40	2.5%	N/A	N/A
O-6	Acquisition Corps	81	41.2%	1.2%	0.6%
	Non-Acquisition Equivalent/Line Officers	380	41.8%	3.3%	0.9%
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	461	41.7%	2.9%	0.8%
O-5	Acquisition Corps	64	65.9%	3.6%	4.2%
	Non-Acquisition Equivalent/Line Officers	1178	62.4%	2.3%	3.0%
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	1242	62.6%	2.3%	3.1%

Source: Service Selection Board Results

CRITICAL ACQUISITION POSITION REVIEWS/REASSIGNMENTS *DURING FY 1998 {SECTION 1762 (C) (9), SECTION 1762 (C) (11) AND 1734 (E) (2)}*

Table F-22

	In CAP 3 Years or Longer			In CAP 5 Years or Longer		
Component	**Number of Reviews**	**Number of Reassignments[a]**	**Percent[a]**	**Number of Reviews**	**Number of Reassignments**	**Percent**
Army	625	25	4.0%	907	265	29.2%
Navy	175	167	95.4%	216	199	92.1%
Marine Corps	1	1	100.0%	8	6	75.0%
Air Force	0	0	0.0%	159	140	88.0%
OSD, DoD agencies, and other components	0	0	0.0%	190	69	36.3%
Total	**801**	**193**	**24.1%**	1480	679	**45.9%**

Source: Verified by OUSD(A&T)/AET&CD Records

[a] Excludes ACAT I/II Program Managers/Deputy Program Managers

PERSONNEL READINESS FACTORS BY RACE AND GENDER

This appendix responds to the National Defense Authorization Act FY 1996 (Public Law 103-337, Section 533) which requires that the Department submit a report of readiness factors by race and gender as part of its annual report.

INDISCIPLINE TRENDS

The Department of Defense has issued a directive requiring the military services and DoD components to submit reports on criminal incidents to a central repository under the Defense Incident-Based Reporting System (DIBRS). This system was designed to incorporate the crime reporting requirements of the Uniform Federal Crime Reporting Act of 1988; the Victims Rights and Restitution Act of 1990; and the Brady Handgun Violence Prevention Act of 1994. The DIBRS includes a requirement to report information on incidents involving sexual harassment and race-motivated offenses.

The military departments began partial reporting of data to DIBRS in 1997. Funding and other problems, however, have prevented the Services from fully implementing DIBRS.

Military Complaint Trends

Since FY 1987, the Services have reported annually to DoD the number of resolved formal complaints from active duty personnel of sexual harassment and all other discrimination (e.g., complaints based on race, sex, national origin, and religion) filed by military personnel. At the end of FY 1997, the number of formal complaints of sexual harassment and all other discrimination totaled 1,897, representing one complaint per each thousand active duty military personnel.

The percentage of confirmed sexual harassment complaints has remained at 50 percent or above since FY 1991. The percentage of confirmed all other discrimination complaints remained over 30 percent from FY 1992 through FY 1996. In FY 1997, the percentage of confirmed all other discrimination complaints decreased to 24 percent. Although not a direct comparison, these results are higher than the 12 percent confirmation rate for DoD equal employment opportunity complaints in FY 1993. While complaint confirmation rates may appear to be a positive sign, they are not clear-cut indicators of the effectiveness of Service military equal opportunity programs. Because several factors may lead to allegations of sexual harassment or discrimination (i.e., misperceptions, mismanagement, failures to communicate, etc.), complaints that were not confirmed may be indicative of other forms of organizational problems or morale issues. Service military equal opportunity programs are composed of several dimensions (e.g., formal and informal complaint systems, education and training, climate assessment, and affirmative action initiatives), which must be assessed collectively to rate program effectiveness.

Complaint trend data from FY 1987 through FY 1997 have been similar for both complaints of sexual harassment and all other discrimination.

Sexual Harassment Complaints

The total number of sexual harassment complaints began at 513 in FY 1987, fluctuated through FY 1994, and declined steadily through FY 1997. The number of sexual harassment complaints peaked at 1,599 in FY 1993. The percent of substantiated sexual harassment complaints reflects an upward trend from 38 percent in FY 1987 to a high of 59 percent in FY 1995 and FY 1996. The percentage of confirmed sexual harassment complaints has remained at 50 percent or above since FY 1991.

All Other Discrimination Complaints

The total number of all other discrimination complaints in FY 1987 was 523. This number has fluctuated throughout the last 10 years, though never falling below the starting figure. The number of all other discrimination complaints peaked at 2,103 in FY 1992. The percent of all other discrimination complaints that were substantiated reflects an upward trend from 26 percent in FY 1987 to a high of 41 percent in FY 1995, with a reported decline to 24 percent in FY 1997.

NONDEPLOYABILITY TRENDS

The Office of the Secretary of Defense, in conjunction with the Services, continuously reviews permanent and temporary limitations on the deployability of service

members and addresses the issue of nondeployability in relation to readiness. Current Department policy recognizes Service-unique and unit-unique circumstances and provides the Services with the flexibility to manage those situations to meet readiness goals.

Nondeployability is measured in three permanent condition categories: HIV-positive, other Medical Permanent, and Hazardous Duty Restriction. A service member can be counted as nondeployable in one category only. Since the Services are given some latitude in determining who is or is not deployable based on certain conditions, a meaningful comparison between Services in a number of categories is not always possible.

Permanent medical limitations (HIV-positive, cancer, heart disease, asthma, diabetes, and other progressive medical conditions) are a small part of the overall nondeployable population. The actual number of members with permanent limitations remains relatively small—around one-tenth of 1 percent of the active force. This small number is manageable, through the assignment process, minimizing readiness impact.

Tables G-23 to G-27 present the data for all DoD and each of the Services as of the end of FY 1998.

Retention Rates

The Department of Defense continues to closely monitor retention. Overall, enlisted and officer continuation rates are adequate, but many of the most skilled and marketable enlisted members in the Navy and Air Force are leaving at higher than normal rates. The Navy and Air Force are particularly hard hit because of the large number of people they train in high-tech skills—the same skills that are frequently in demand in the civilian economy.

This is the strongest economy the nation has have experienced in the history of the all-volunteer force, and it certainly has opened new opportunities to service members who might be considering other options. The discipline associated with military duty, the level of responsibility placed on service members, and the technical training the military provides all serve to make military members a valuable commodity in the job market. Attractive salary and benefits packages, coupled with geographic stability, and predictable quality of life time, influence many to consider private-sector opportunities.

After years of drawing down the force, the Services have focused on retaining adequate numbers of quality people to successfully meet Service missions into the next century. Retention of quality personnel in sufficient numbers remains a top priority. DoD continues to focus on improving the quality of the force and its readiness while maintaining the commitment to treat people equally fair. Today the nation's armed forces continue to be the best qualified, most experienced, and most diverse in the history of the all-volunteer force, however retention is increasingly challenging.

The Department of Defense is taking a wide range of compensation and quality of life initiatives to address upcoming retention challenges.

First-Term Reenlistment Rates

Overall, first-term reenlistments were stable in 1998. The Navy's efforts to increase first-term reenlistments were successful at lessening the effects of their accession shortfall. The Army and Air Force each saw a decline, with the Air Force failing for the first time since 1990 to meet first-term reenlistment goals. The Marine Corps is stable, given the fact that it only has a set number of positions available for reenlistment.

Of greatest concern is the decline in the population serving within the first-term reenlistment window. The undersized cohorts recruited during the drawdown are now reaching a retention decision point. A number of influences, e.g., perceived erosion of benefits, quality of life, family separation, and the lure of a robust economy on these undersized cohorts are of great concern to the Department of Defense.

Each Service continues to monitor this critical population, utilize all available retention incentives, and develop initiatives to improve first term reenlistments.

TRENDS IN PROPENSITY TO ENLIST

Since 1975, the Department of Defense annually has conducted the Youth Attitude Tracking Study (YATS), a computer-assisted telephone interview of a nationally representative sample of 10,000 young men and women. This survey provides information on the propensity, attitudes, and motivations of young people toward military service. Enlistment propensity is the percentage of youth who state they plan to definitely or probably be serving on active duty in one of the Services in the next few years. Research has shown that the expressed intentions of young men and women are strong predictors of enlistment behavior.

Enlistment Propensity Trends

Results from the 1998 YATS show that, overall, young men's propensity for military service has not changed significantly in the last three years (see Table G-18). In 1998, 26 percent of 16 to 21 year-old men expressed interest in at least one active duty Service, the same as in 1997 (26 percent) and similar to 1996 (27 percent). Propensity for each of the Services also remained about the same in 1998 as in 1996 and 1997.

Following the Cold War, young black men's propensity dropped from 54 percent in 1989 to 32 percent in 1994. White men's propensity also dropped, from 26 percent in 1989 to 22 percent in 1994. Neither propensity of black nor white young men has changed significantly since 1994. Through 1996, Hispanic men's propensity declined only slightly, but dropped from 43 percent in 1996 to 37 percent in 1997. However, 1998 YATS results show Hispanic men's propensity has risen to 44 percent.

In recent years, career opportunities for women in the Services have opened, and more women are enlisting. As men's propensity declined, women's propensity remained at approximately the same level. Thus, women represent a growing portion of youth interested and serving in military service.

To downsize the military following the Cold War, the Services reduced their accession objectives below the levels required to replace individuals leaving military service. Although the post-Cold War decline in young men's propensity was troubling, propensity figures nevertheless indicated a sufficient number of young men were interested in the military to allow the Services to meet reduced recruiting goals. That is no longer true. Today, recruiting missions have risen to levels required to sustain the force. Current YATS results indicate the supply of young men and women with propensity for military service, relative to accession requirements, is less than before the end of the Cold War. Thus, recruiting high-quality youth into the armed forces will continue to be a challenge.

Factors Influencing Propensity

Regardless of their propensity for military service, YATS respondents are asked to provide, in their own words, reasons for joining and not joining the military. The most frequently mentioned reasons for joining are money for college, job training and/or experience, duty to country, pay, travel, and self-discipline.

Most young men and women see postsecondary education as the key to prosperity and job security in America. The percent of youth going to college is increasing, and YATS results show that young people are aware that the military offers money for a college education. Educational funding is the most frequently cited reason for enlisting. In 1998, 32 percent of men and 35 percent of women identified money for college as a reason for joining; comparable 1991 figures were 24 percent of men and 31 percent of women. Many young people have the will and the talent for college, but lack the funds. The Montgomery GI Bill, the Army/Navy/Marine Corps College Funds, the Service academies, and Reserve Officer Training Corps scholarship programs provide the Services with an effective means of attracting these talented young men and women to the military, and provide these youth the means to gain a college education.

For many non-college bound youth, military service offers an opportunity for job experience and specialized training. In the past few years, 24 percent of men and 17 percent of women mentioned job training and experience as a reason for entering military service. Other reasons for joining are mentioned much less frequently. Pay was mentioned by 11 percent of men and 9 percent of women; duty to country was mentioned by 13 percent of men and 9 percent of women; travel by 8 percent of men and 6 percent of women; and discipline by 6 percent of men and 4 percent of women. The percentages of men and women mentioning job training, pay, duty to country, travel, and discipline as reasons for joining have not changed significantly in the past few years.

The most frequently cited reason for not entering military service concerns military lifestyle, mentioned by 19 percent of men and 25 percent of women in 1998. Military service evokes images of discipline and regimentation for most youth. These images tend to deter many youth from interest in the military. Many college-bound young people believe they have the self-discipline to achieve their goals and see regimentation as stifling. Others, however, see externally imposed discipline as beneficial. Following the 1995 and 1997 YATS surveys, DoD conducted extended interviews with young men and women who seemed likely to enter military service. Some noted that learning discipline served an important maturing role in their lives; others indicated they looked forward to learning this critical life lesson in military service and that the military would provide a guiding structure within which to get their priorities straight. It is ironic that the reason most frequently cited for not entering military service might, for some, be an important motivation for enlisting.

Other reasons cited by youth for not entering military service suggest not a rejection of the military, but consideration of a commitment to other options in life. In recent years, 12 percent of men and 10 percent of women mentioned other career interests as a reason for not joining. Nine percent of men and 16 percent of women mentioned family obligations; extended interviews report that many enlistment-age youth feel they are not able to enlist because they are needed to care for ailing parents or for their own families. Some youth (11 percent of men; 10 percent of women) suggested the length of commitment to the military is too long. While youth acknowledge that some military service might be beneficial, many are reluctant to defer their career or education plans for four years. Finally, about 11 percent of men and 10 percent of women cite danger as a reason for not entering military service; six percent of both men and women stated military service was against their beliefs.

Relative to whites and Hispanics, young black men and women are more likely to mention pay as a reason for joining, and less likely to mention duty to country. As reasons for not entering military service, white men and women are more likely to mention other career interests, or to object to the length of commitment, perhaps because they have more career opportunities than minority men and women. Finally, familial obligations are mentioned as an obstacle to military service more frequently by women (compared to men) and Hispanics (compared to whites and blacks).

CONCLUSION

Both men's and women's propensity remain substantially below pre-drawdown levels and, if past experience is a guide, below the levels needed to meet FY 1999's increased accession requirements while maintaining the high quality required for today's military. These findings underscore the need for education benefits to attract an important segment of college-bound youth (those needing money). Many other youth, however, are attracted by the prospects of job training and experience, and by the discipline universally viewed as intrinsic to military service. To meet recruiting goals, DoD must address the needs of all market segments.

Table G-1 to G-2	(Equal Opportunity Discrimination and Sexual Harassment Complaints)
Table G-3	First Term-Reenlistment Rates
Table G-4 to G-6	(Army Retention Trends)
Table G-7 to G-9	(Navy Retention Trends)
Table G-10 to G-12	(Marine Corps Retention Trends)
Table G-13 to G-15	(Air Force Retention Trends)
Table G-16 to G-18	(Coast Guard Retention Trends)
Table G-19	(Total DoD Retention Trends)
Table G-20 to G-22	(Trends in Enlistment Propensity)
Table G-23 to G-32	(Nondeployable Unit Personnel)

EQUAL OPPORTUNITY DISCRIMINATION COMPLAINTS

Table G-1

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
ARMY											
Complaints Filed	87	79	50	996	1140	1119	943	691	429	615	584
Substantiated Complaints	14	17	6	227	196	156	181	165	77	110	78
Percent Substantiated	16%	22%	12%	23%	17%	14%	19%	24%	18%	23%	13%
NAVY											
Complaints Filed	90	126	156	168	177	297	75	53	52	45	59
Substantiated Complaints	5	4	0	11	9	233	38	38	47	29	34
Percent Substantiated	6%	3%	0%	7%	5%	78%	51%	72%	90%	64%	58%
MARINE CORPS											
Complaints Filed	51	27	29	51	28	30	38	32	56	43	62
Substantiated Complaints	3	1	3	5	6	9	5	9	21	22	27
Percent Substantiated	6%	4%	10%	10%	21%	30%	13%	28%	38%	51%	44%
AIR FORCE											
Complaints Filed	295	363	564	591	489	657	826	452	559	483	309
Substantiated Complaints	115	166	272	299	213	318	357	217	299	201	105
Percent Substantiated	39%	46%	48%	51%	44%	48%	43%	48%	53%	42%	34%
TOTAL DOD											
Complaints Filed	523	595	799	1806	1834	2103	1882	1228	1096	1186	1014
Substantiated Complaints	137	188	281	542	424	716	581	429	444	362	244
Percent Substantiated	26%	32%	35%	30%	23%	34%	31%	35%	41%	31%	24%

SEXUAL HARASSMENT COMPLAINTS

Table G-2

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
ARMY											
Complaints Filed	240	197	151	971	432	497	649	512	424	355	390
Substantiated Complaints	38	45	46	315	152	184	262	146	165	156	128
Percent Substantiated	16%	23%	30%	32%	35%	37%	40%	29%	39%	44%	33%
NAVY											
Complaints Filed	10	38	31	51	45	438	133	200	184	197	173
Substantiated Complaints	5	6	10	11	13	318	93	165	178	148	119
Percent Substantiated	50%	16%	32%	22%	29%	73%	70%	83%	97%	75%	69%
MARINE CORPS											
Complaints Filed	28	38	46	67	33	116	93	90	96	82	77
Substantiated Complaints	14	5	26	26	14	52	36	37	48	48	55
Percent Substantiated	50%	13%	57%	39%	42%	45%	39%	41%	50%	59%	71%
AIR FORCE											
Complaints Filed	235	331	315	315	345	451	724	463	329	279	243
Substantiated Complaints	137	215	201	219	247	331	507	332	216	183	155
Percent Substantiated	58%	65%	64%	70%	72%	73%	70%	72%	66%	66%	64%
TOTAL DoD											
Complaints Filed	513	604	543	1404	855	1502	1599	1265	1033	913	883
Substantiated Complaints	194	271	283	571	426	885	898	680	607	535	457
Percent Substantiated	38%	45%	52%	41%	50%	59%	56%	54%	59%	59%	52%

First-Term Retention Rates - FY 1998 **Table G-3**

	FY 1996	FY 1997	FY 1998
Army Enlisted Manpower			
Number eligible to reenlist	46,405	45,787	40,027
Number reenlisting	21,107	24,354	20,578
Percent reenlisting	45.5%	53.2%	51.4%
Navy Enlisted Manpower			
Number eligible to reenlist	27,144	29,185	22,399
Number reenlisting	14,665	14,723	12,402
Percent reenlisting	54.0%	50.4%	55.4%
Air Force Enlisted Manpower			
Number eligible to reenlist	21,974	21,807	19,194
Number reenlisting	12,883	12,294	10,324
Percent reenlisting	58.6%	56.4%	53.8%
***Marine Corps Enlisted Manpower**			
Number eligible to reenlist	22,072 (4,296)	24,000 (4,600)	21,824 (4,634)
Number reenlisting	4,300	4,615	4,709
Percent reenlisting	19.5%	19.2%	21.5%
****DoD Totals**			
Number eligible to reenlist	117,595	120,779	103,444
Number reenlisting	52,955	55,986	48,013
Percent reenlisting	45% (53%)	46.4% (55.2%)	46.4% (55.6%)

* The number eligible reflects the total number of Marines at the end of their active service status. The Marine Corps only has so many slots per year available (shown in parentheses) to fill; these slots are considered reenlistment opportunity slots and are filled by eligible Marines.

** The totals are based on the Marines total number eligible to reenlist. Percentages in parentheses reflect the totals based on the Marines' available slots, not their overall total eligible.

CONTINUATION RATES FY 1996 - FY 1998*

ACTIVE DUTY PERCENTAGE CHANGES — **Table G-4**

ARMY MALE

	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**
0-10	72.7	91.7	63.6	0	100	100	0	0	0	0	0	0	72.7	92.3	66.7
0-9	79.4	72.7	69.2	100	33.3	100	0	0	0	100	50	100	79.5	68.4	70.7
0-8	77.6	89	88.4	90	72.7	77.8	100	100	100	100	0	0	79.4	87.4	87.6
0-7	89.9	93.4	88.7	90	90.9	93.3	0	0	100	0	100	100	89.9	93.3	89.3
0-6	84.5	84.3	82.7	87.9	86.8	84.7	88.5	73.1	89.4	90.8	92.1	80.6	84.8	84.4	82.8
0-5	89.7	89.8	86.9	90.7	91.6	87.9	92.2	92.2	90.8	90.5	92.4	91.2	89.9	90.1	87.2
0-4	88	91.3	94.8	86.2	87.2	95.7	81.7	87.1	94.3	86.6	88.1	94.7	87.5	90.6	94.9
0-3	90.8	91.7	91.1	90.2	91.3	93.2	91.1	91.9	90.7	89.5	90.7	90.8	90.7	91.6	91.3
0-2	88.3	87.7	87	87.7	86	89.3	86.9	88.5	91.1	90.5	87.8	91.7	88.3	87.6	87.6
0-1	97.2	97.8	97.9	96.4	96.7	96.9	95.9	98.7	96.8	98.3	98.8	98.9	97.1	97.8	97.8
TOTAL OFFICER	90.2	91.1	91	89.7	90.2	92.7	89.7	91.2	92.2	90.8	91.4	92.7	90.2	91.1	91.3
W-5	82.6	79.9	80.8	91.7	89.3	81.5	80	75	40	100	83.3	40	83.3	80.6	79.6
W-4	76.7	85.2	83.6	89	86.6	86.4	79.5	88.9	82.1	80	92.1	93.2	77.9	85.6	84.2
W-3	87	86.9	90.4	89.1	89.4	85.2	85.9	88.4	85.2	88.9	90.4	87.2	87.3	87.4	89.4
W-2	91.3	92.6	93.5	91.5	91.9	94	89.9	92.3	90.5	91	92.1	95.4	91.2	92.5	93.5
W-1	98.7	99.1	98.6	99.7	99.1	98.4	100	100	98.7	99.1	99	100	99	99.2	98.6
TOTAL WARRANT	88.9	90.6	91.6	92.7	92.5	91.8	89.4	92.1	89.1	91.4	93	93.4	89.5	91	91.6
TOTAL WARRANT & OFFICER	90	91.1	91.1	90.3	90.6	92.5	89.6	91.4	91.6	90.9	91.6	92.8	90	91.1	91.3
E-9	78	80.1	80	84.2	81.7	84.4	80.8	81.3	82.9	84.7	82.3	77.1	80.3	80.8	81.3
E-8	74.9	77.5	76	79.3	80.9	77.8	79.2	79.9	77.6	76.7	79.9	77.8	76.7	79	76.9
E-7	88	87.6	86.1	87	86.6	83.6	89.3	87.8	85.8	86.7	86.7	84.5	87.6	87.2	85.1
E-6	91.7	92.1	90.5	92.1	92.2	90.7	92.2	92.8	91.1	92.4	93.2	91.5	91.9	92.3	90.7
E-5	83.3	83.6	83.2	87.2	88.3	88.5	87	88.2	86.5	86.7	86.1	86.4	84.9	85.4	85.1
E-4	70.7	71.1	74.4	76.6	78.1	81.9	74.9	76.2	78.4	75.1	75.2	78.2	72.5	73.2	76.6
E-3	78.9	82.8	84.2	80.5	84.3	85.3	81.9	86.4	88.4	80.4	85.2	87.1	79.5	83.5	84.9
E-2	82.7	85.1	82.9	81.8	85.2	83.9	88.6	89.9	87.7	85.5	85.6	85.4	83.1	85.5	83.7
E-1	81.2	80.4	79.4	79.5	80.6	80.9	87.2	88.2	85	84.1	81.8	82.5	81.5	81.3	80.4
TOTAL ENLISTED	79.7	81.2	81.8	84	85.4	85.5	84.1	85.7	85.1	83.1	84	84.6	81.3	82.8	83.2
TOTAL	81.8	83.3	83.8	84.5	85.8	86	84.7	86.2	85.7	84.1	84.9	85.6	82.8	84.2	84.5

* In previous additions, these matrices were labeled Retention Rates. Continuation is a type of retention rate and more accurately defines this data.

CONTINUATION RATES FY 1996 - FY 1998
ACTIVE DUTY PERCENTAGE CHANGES

Table G-5

ARMY FEMALE

	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**
0-7	100	100	100	0	100	100	0	0	0	0	0	0	100	100	100
0-6	87.3	84.4	81.3	84.2	90.5	77.3	100	83.3	83.3	90.5	91.3	84	87.6	85.7	81.3
0-5	88.2	85.4	88.3	89.8	93.5	90.1	100	85.2	92.3	97.6	88.9	88	89.1	86.8	88.7
0-4	86.8	87.3	92.4	90.8	89.9	92.3	79.7	85.5	89.7	84.4	87.5	91.8	87.3	87.8	92.3
0-3	86.8	86.8	86.5	89.2	89.4	92.7	92.4	90.6	88	90.2	90.4	90	87.7	87.7	88.2
0-2	83	75.4	80.4	88	80.3	81.3	91.5	81.1	85.7	81.4	80.2	74.4	84.1	76.9	80.3
0-1	95.4	96.3	96.9	97.8	96.7	97.5	93.1	97.1	95.5	94.9	92.6	98.3	95.7	96.1	97.1
TOTAL OFFICER	87.9	86.3	88.4	90.6	89.5	91.2	90.5	89	89.5	89.4	88.4	88.3	88.6	87.2	89
W-5	100	100	50	0	0	0	0	0	0	0	0	0	100	100	50
W-4	80	93.8	84	66.7	50	50	100	0	0	100	100	0	80	85	78.6
W-3	86.8	86.1	81.5	86.2	83.9	91.7	100	100	100	83.3	100	80	86.8	86.7	84.8
W-2	88.7	94.4	92.3	88.1	92.1	92.4	100	100	100	82.4	100	100	88.4	94.1	93.1
W-1	100	99	98.8	98.7	98.9	99	100	100	100	100	100	100	99.5	99.1	99
TOTAL WARRANT	91.2	93.9	90.7	91.7	93.3	94.6	100	96	100	87.1	100	93	91.5	94.1	92.6
TOTAL WARRANT & OFFICER	88	86.7	88.5	90.7	89.9	91.6	91.1	89.5	90.2	89.3	89	88.6	88.8	87.6	89.2
E-9	75.9	70.7	79.4	86.7	91.4	82.9	77.8	85.7	100	80	83.3	100	80.5	81.4	82.9
E-8	77	77.3	75.5	84.9	88.9	80.1	72.7	77.8	91.9	78.9	90.4	79.7	80.2	83.4	78.7
E-7	88	85.8	80.9	91.6	90.9	87.6	89.4	93.9	86.3	92.6	90.5	89.4	90.3	89.4	85.7
E-6	92.4	91.8	87.8	95.4	95.8	90.7	94.6	94	91.2	94.9	91.9	89.8	94.5	94.4	89.9
E-5	80.3	82.2	79.8	87.5	89.3	88.3	85.5	87.1	85.5	86	87.1	86.5	84.9	86.7	85.2
E-4	70.7	71.1	71.9	78.7	80.1	81.6	80.3	80.2	80.1	76.1	78.4	79.1	75.2	76.1	77.1
E-3	78.2	78.6	79.1	83.7	85.1	85	82.8	86.7	86.1	82.2	85.6	85.1	80.9	82.2	82.4
E-2	76.6	78.5	75.1	84.1	86.7	81.4	87.5	84.4	83.2	85.1	88.1	80.3	80.5	82.6	78.3
E-1	70.4	74.1	67.3	80.4	80.4	76.1	82.9	81.4	80.3	81.7	79.9	74.7	75.2	77.1	71.6
TOTAL ENLISTED	76.8	77.8	76	85.2	86.7	85.1	84.2	84.9	83.7	82.8	84.5	83.3	81.6	82.9	81.2
TOTAL	79.6	79.9	78.8	85.6	87	85.5	85	85.4	84.3	83.8	85.1	84	82.7	83.6	82.4

CONTINUATION RATES FY 1996 - FY 1998
ACTIVE DUTY PERCENTAGE CHANGES

Table G-6

ARMY TOTAL

	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**
0-10	72.7	91.7	63.6	0	100	100	0	0	0	0	0	0	72.7	92.3	66.7
0-9	79.4	72.7	70	100	33.3	100	0	0	0	100	50	100	79.5	68.4	71.4
0-8	77.6	89	88.5	90	72.7	77.8	100	100	100	100	0	0	79.4	87.4	87.7
0-7	90.1	93.6	88.9	90	91.7	93.8	0	0	100	0	100	100	90.1	93.5	89.5
0-6	84.6	84.3	82.6	87.5	87.2	84	89.3	74.1	88.7	90.7	92	81.4	85	84.5	82.7
0-5	89.6	89.3	87	90.6	91.9	88.3	93	91.4	90.9	91.5	91.9	90.6	89.8	89.7	87.4
0-4	87.8	90.8	94.5	87.3	87.8	94.9	81.3	86.9	93.5	86.2	88	94.3	87.5	90.2	94.5
0-3	90.3	91	90.5	89.9	90.8	93.1	91.3	91.7	90.3	89.6	90.6	90.7	90.2	91	90.8
0-2	87.4	85.7	86	87.8	84.3	86.9	87.7	87.3	90.2	88.5	86.1	87.5	87.5	85.6	86.3
0-1	96.9	97.5	97.7	96.8	96.7	97.1	95.4	98.4	96.6	97.5	97.5	98.8	96.9	97.5	97.7
TOTAL OFFICER	89.9	90.5	90.7	89.9	90	92.3	89.8	90.9	91.8	90.5	90.8	91.8	89.9	90.5	91
W-5	82.6	80	80.6	91.7	89.3	81.5	80	75	40	100	83.3	40	83.3	80.7	79.5
W-4	76.8	85.3	83.6	88.4	86	85.8	80	86.5	82.1	80.5	92.3	91.1	78	85.6	84
W-3	87	86.9	90.1	88.9	88.9	85.8	86.3	88.8	85.7	88.6	90.8	86.7	87.3	87.4	89.2
W-2	91.2	92.7	93.4	91.1	91.9	93.7	90.2	92.7	91.1	90.5	92.6	95.8	91.1	92.6	93.5
W-1	98.8	99.1	98.6	99.5	99.1	98.5	100	100	98.8	99.1	99.2	100	99	99.1	98.7
TOTAL WARRANT	89	90.8	91.6	92.6	92.6	92.3	89.9	92.3	89.7	91.1	93.5	93.3	89.6	91.2	91.7
TOTAL WARRANT & OFFICER	89.8	90.6	90.8	90.4	90.5	92.3	89.8	91.1	91.4	90.6	91.2	92	89.9	90.6	91.1
E-9	77.9	79.8	80	84.4	82.3	84.3	80.6	81.5	83.5	84.6	82.3	77.8	80.3	80.8	81.4
E-8	75	77.5	76	79.8	81.8	78.1	79	79.8	78.3	76.8	80.6	78	77	79.3	77.1
E-7	88	87.5	85.7	87.7	87.3	84.3	89.3	88.2	85.8	87.2	87	85	87.9	87.4	85.2
E-6	91.8	92.1	90.3	92.7	92.8	90.7	92.4	92.9	91.1	92.6	93.1	91.3	92.2	92.5	90.6
E-5	83.1	83.5	82.9	87.3	88.5	88.5	86.9	88.1	86.4	86.6	86.2	86.4	84.9	85.6	85.1
E-4	70.7	71.1	74.1	77.2	78.6	81.8	75.7	76.8	78.6	75.3	75.8	78.4	72.9	73.7	76.7
E-3	78.8	82.3	83.5	81.3	84.5	85.3	82	86.5	88.1	80.7	85.2	86.7	79.7	83.3	84.5
E-2	81.9	84.2	81.7	82.4	85.6	83.2	88.4	89	86.9	85.4	86.1	84.3	82.7	85	82.7
E-1	79.9	79.6	77.7	79.7	80.6	79.8	86.7	87.2	84.3	83.7	81.4	81.2	80.6	80.6	79
TOTAL ENLISTED	79.4	80.9	81.2	84.3	85.7	85.4	84.1	85.6	84.9	83.1	84.1	84.4	81.4	82.8	82.9
TOTAL	81.6	83	83.2	84.7	86	85.9	84.7	86.1	85.5	84	85	85.3	82.8	84.1	84.2

CONTINUATION RATES FY 1996 - FY 1998
ACTIVE DUTY PERCENTAGE CHANGES

Table G-7

NAVY MALE

	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**
0-10	54.5	42.9	100	0	0	100	0	0	0	0	0	0	54.5	42.9	100
0-9	57.9	83.3	77.3	100	50	0	0	0	0	0	0	0	61.9	80	77.3
0-8	69.9	74.3	77.3	0	0	100	0	100	0	0	0	100	68.9	74.6	76.9
0-7	92.8	91.8	88.2	100	66.7	75	50	0	0	100	100	0	92.2	91.1	87.7
0-6	87.3	86	82.9	93.1	90.3	88.6	89.3	100	84.8	90.9	87.5	84.8	87.5	86.2	83.1
0-5	91.6	90.8	89.9	95.7	93.4	93.3	91.9	95.6	94.4	90.1	85.6	90.5	91.7	90.8	90.1
0-4	90	90.3	92.6	89.5	89.4	91.6	92.4	94.8	92.1	91	91.6	92.7	90.1	90.5	92.5
0-3	88.4	87.4	86.2	91.3	91.4	89.2	89.6	89	87.2	88.1	89.5	85	88.6	87.8	86.3
0-2	95.8	96.1	96.3	96.6	94.6	94.6	95.9	95.7	96.4	94	95	95.9	95.8	95.9	96.1
0-1	99.3	99.5	99	99.3	99	98.4	98.7	98.8	99.1	99.3	100	100	99.3	99.5	99
TOTAL OFFICER	91	90.6	90.2	93.9	93	92.3	92.9	93.5	92.2	91.5	92.1	90.9	91.2	90.8	90.4
W-4	71.8	64.7	70.3	85.3	68.6	76.7	70	66.7	70	76.7	73.3	82.8	73.2	65.7	71.8
W-3	89.6	81.8	84	94.8	88.9	87.8	94.7	87.5	75	88.5	95.7	80.5	90.2	83.6	84.1
W-2	91.8	94.1	93.4	91.3	94.6	92.6	100	100	80	81.8	96.3	100	91.4	94.3	93.4
W-1	100	0	0	100	0	0	0	0	0	100	0	0	100	0	0
TOTAL WARRANT	86.9	82.8	85.1	91.8	88.6	88.8	89.7	84.8	74.1	84	89.3	86	87.4	83.9	85.5
TOTAL WARRANT & OFFICER	90.9	90.3	90	93.7	92.6	91.9	92.8	93.4	91.9	91	91.9	90.6	91.1	90.6	90.2
E-9	81.5	81.4	80.5	83.7	84.9	81.6	87.9	88.7	83.3	85.1	83.6	80	82.3	82.1	80.6
E-8	85.3	85.4	80.8	87.1	88.7	85.2	88.1	86.3	82.6	86.3	84.4	83.3	85.6	85.6	81.5
E-7	88.7	89.7	88.8	92.3	92.2	91.1	93.4	91.6	89.4	86.7	87.2	85.7	89	89.8	88.9
E-6	87.3	89.3	88.7	91	90.7	89.3	90.8	90.5	90	90.7	90.3	91.4	88.3	89.7	89
E-5	85.9	85.9	86.3	91.2	91.7	91.7	88.1	89.1	88.9	94.4	94.4	94.3	87.7	87.9	88.2
E-4	78.1	74.1	77.1	83.9	81.6	82.4	79.2	76.2	79.5	87.5	84.3	86.2	79.8	76.3	78.9
E-3	81.1	73.7	80.2	81.3	75.7	80.6	82.1	76.9	81.6	88.5	82.5	86.7	81.6	74.9	80.9
E-2	82.3	82.5	84	79.6	79.3	81.8	83.6	86.5	87.4	87.3	88.3	90	82.1	82.7	84.4
E-1	80	78.8	80.3	79.6	78.9	80.8	84.5	84.9	83.8	88.6	85.5	86	80.9	80	81.3
TOTAL ENLISTED	83.7	82.3	83.8	86.3	84.9	85.9	84.5	83.3	84.8	89.8	88.3	89.1	84.6	83.2	84.7
TOTAL	84.9	83.6	84.9	86.6	85.3	86.2	85	83.9	85.3	89.9	88.6	89.2	85.4	84.2	85.5

CONTINUATION RATES FY 1996 - FY 1998
ACTIVE DUTY PERCENTAGE CHANGES

Table G-8

NAVY FEMALE

	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	96	97	98	96	97	98	96	97	98	96	97	98	96	97	98
0-7	100	80	100	0	0	0	0	0	0	0	0	0	100	80	100
0-6	93	87.8	85.7	72.7	90	100	100	100	66.7	100	100	78.6	92.5	88.7	85.8
0-5	91.1	91.9	89.7	95.7	96.1	94.9	83.3	90.9	92.9	96.7	97.1	82.9	91.4	92.3	89.8
0-4	91.3	91	93.9	94.3	95	96.3	95.7	98.1	98.3	94	96.7	95.5	91.8	91.9	94.4
0-3	89.1	87.5	86.7	89.5	88.2	91.4	89.6	87.5	87.7	87.8	86.5	87.6	89.1	87.5	87.2
0-2	87.4	89.7	91.1	91.5	91.4	92.7	91	88.2	94.9	95	94.7	88.9	88.3	90.1	91.3
0-1	98.7	98.4	98	98.3	98.3	99	97.5	100	100	100	100	100	98.7	98.6	98.4
TOTAL OFFICER	90.8	90.4	90.4	92.3	92.3	94.2	92.1	92	93	93.4	93.8	91	91.1	90.8	90.9
W-4	100	87.5	77.8	0	0	0	0	0	0	0	0	0	100	87.5	77.8
W-3	92.9	71.4	72.7	100	100	60	100	100	100	0	0	0	91.9	77.1	71.4
W-2	92.4	93.3	90.9	90	93.3	92.9	100	100	100	100	100	100	92.6	93.6	91.8
W-1	100	0	0	0	0	0	0	0	0	0	0	0	100	0	0
TOTAL WARRANT	93	86.5	84	94.1	95.2	84.2	100	100	100	80	100	100	92.7	88.4	84.7
TOTAL WARRANT & OFFICER	90.8	90.4	90.3	92.4	92.4	93.9	92.1	92.1	93	93.2	93.8	91.1	91.1	90.8	90.8
E-9	71.4	84.2	73.3	100	100	87.5	100	100	66.7	50	100	100	73.3	85.9	74.5
E-8	86.8	85.5	82	92.5	88.7	85.2	75	87.5	75	100	90	90.9	87.3	86	82.5
E-7	88.2	90.8	89.2	94.9	91.5	92.9	87.5	97	91.5	86.6	93.8	91	89.2	91.2	90.1
E-6	87.3	90.3	88.9	90.6	93.7	92.3	92.8	91.5	90.7	90.1	88.9	92	88.5	91.2	90.1
E-5	85.4	85.1	83.4	91.9	92.2	90.3	88.2	86.7	87.5	90.4	89.3	86.5	88.1	88	86.4
E-4	75.2	73	74.7	82.7	82.1	79.3	78.2	74.5	78.6	81.2	81.5	83.1	78.1	76.3	76.9
E-3	77.4	74.2	75.6	84.2	79.8	79.2	81	77.6	78.8	86.4	79.3	84.2	80.1	76.5	77.7
E-2	81.8	81.3	82.3	87.6	86.2	86.3	88	86.7	89.5	89.4	85.8	83.3	84.4	83.7	84.4
E-1	83.1	81.1	80.4	89.9	87.5	85.7	91.5	85	83.3	84.5	89.2	85.6	86.3	83.8	82.5
TOTAL ENLISTED	81.4	80.2	80.4	87.5	86	84.5	84.7	81.5	82.7	86.6	84.3	85.2	83.7	82.3	82.1
TOTAL	83.3	82.3	82.6	87.8	86.3	85.1	85.2	82.2	83.4	87.6	85.8	86.2	84.8	83.6	83.5

CONTINUATION RATES FY 1996 - FY 1998

ACTIVE DUTY PERCENTAGE CHANGES **Table G-9**

NAVY TOTAL

	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**
0-10	54.5	42.9	100	0	0	100	0	0	0	0	0	0	54.5	42.9	100
0-9	57.9	83.3	78.3	100	50	0	0	0	0	0	0	0	61.9	80	78.3
0-8	69.9	74.3	76.6	0	0	100	0	100	0	0	0	100	68.9	74.6	76.3
0-7	93.1	91.2	88.8	100	66.7	75	50	0	0	100	100	0	92.5	90.6	88.3
0-6	87.6	86.1	83.1	89.9	90.3	90.1	90.3	100	83.3	93	90.2	83.3	87.8	86.4	83.3
0-5	91.6	90.9	89.9	95.7	94	93.7	91.4	95.2	94.2	91.2	87.8	89.1	91.7	91	90.1
0-4	90.2	90.4	92.8	91	91.3	93.2	92.9	95.3	93.1	91.4	92.5	93.3	90.3	90.7	92.8
0-3	88.5	87.4	86.2	90.9	90.7	89.7	89.6	88.7	87.3	88	89	85.5	88.6	87.7	86.5
0-2	94.5	95.2	95.5	95.6	94.1	94.2	94.8	94.4	96.2	94.2	94.9	94.7	94.6	95.1	95.4
0-1	99.2	99.4	98.8	99.1	98.8	98.6	98.6	98.9	99.2	99.4	100	100	99.2	99.3	98.9
TOTAL OFFICER	91	90.5	90.2	93.5	92.9	92.7	92.8	93.3	92.3	91.9	92.4	90.9	91.2	90.8	90.5
W-4	72.2	65.2	70.5	85.3	68.6	76.7	70	66.7	70	76.7	73.3	82.8	73.5	66.1	72
W-3	89.7	81.4	83.5	95.1	89.5	86.4	95	88.2	76.9	87.1	95.7	80.5	90.2	83.3	83.6
W-2	91.8	94	93.2	91.2	94.4	92.6	100	100	83.3	83.8	96.6	100	91.5	94.2	93.3
W-1	100	0	0	100	0	0	0	0	0	100	0	0	100	0	0
TOTAL WARRANT	87.2	83	85	92	89.1	88.4	90.2	85.7	75.9	83.8	89.5	86.3	87.6	84.2	85.4
TOTAL WARRANT & OFFICER	90.8	90.3	90.1	93.4	92.6	92.4	92.7	93.2	92.1	91.4	92.3	90.7	91.1	90.6	90.3
E-9	81.2	81.5	80.3	84.1	85.3	81.8	88.1	89	82.8	84.9	83.6	80	82	82.2	80.4
E-8	85.4	85.4	80.9	87.4	88.7	85.2	87.6	86.4	82.4	86.4	84.5	83.4	85.7	85.6	81.6
E-7	88.7	89.7	88.9	92.6	92.1	91.3	93	92	89.5	86.7	87.4	85.8	89	89.9	88.9
E-6	87.3	89.4	88.7	90.9	91.1	89.7	90.9	90.5	90.1	90.6	90.2	91.4	88.3	89.8	89.1
E-5	85.9	85.8	86.1	91.3	91.8	91.4	88.1	88.8	88.8	94.2	94.1	93.9	87.7	87.9	88
E-4	77.8	74	76.8	83.7	81.7	81.8	79.1	76	79.4	86.8	83.9	85.8	79.6	76.3	78.6
E-3	80.5	73.7	79.4	82.1	76.9	80.2	81.9	77	81	88.1	81.9	86.2	81.3	75.2	80.2
E-2	82.2	82.4	83.8	81.6	80.9	82.6	84.4	86.5	87.7	87.7	87.9	89.1	82.5	82.9	84.4
E-1	80.5	79.1	80.3	82.2	80.4	81.6	85.8	84.9	83.7	87.7	86	85.9	81.8	80.5	81.5
TOTAL ENLISTED	83.4	82.1	83.5	86.5	85.1	85.7	84.5	83	84.5	89.5	87.9	88.8	84.5	83.1	84.4
TOTAL	84.7	83.5	84.7	86.8	85.5	86	85	83.7	85	89.7	88.3	88.9	85.4	84.2	85.2

CONTINUATION RATES FY 1996 - FY 1998
ACTIVE DUTY PERCENTAGE CHANGES **Table G-10**

USMC MALE

	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**
0-10	100	66.7	66.7	0	0	0	0	0	0	0	0	0	100	66.7	66.7
0-9	44.4	100	81.8	0	0	0	0	0	0	0	0	0	44.4	100	81.8
0-8	85.7	90.5	72	0	0	0	0	0	0	0	0	0	85.7	90.5	72
0-7	100	90.6	94.4	100	100	100	0	0	100	0	0	0	100	91.2	95
0-6	86.8	83.9	84.9	88.9	88.2	95.8	100	90.9	100	75	100	100	87	84.3	85.7
0-5	88.2	88.4	87.8	94.1	93.2	90.9	100	88	93.8	93.8	88.2	81.8	88.7	88.6	87.9
0-4	91.7	91.3	91.5	85.8	94.5	92.6	93.1	93.3	89.5	86.8	94.9	92.8	91.4	91.6	91.5
0-3	89.2	87.4	89.3	91.2	86.9	91	88.7	88.1	88.6	90.3	87.3	90.6	89.3	87.4	89.4
0-2	87.8	90.7	92.2	86.8	93.3	89.1	90.3	94.5	95.1	87.4	91.1	90.6	87.8	91.1	92.1
0-1	98.6	98.9	99	98	97.9	97.5	99.2	98.1	99.3	100	97.7	98.9	98.6	98.8	98.9
TOTAL OFFICER	90.3	90.2	91.2	91	92.6	92.5	92.9	93	93.3	90.5	91.5	92.4	90.5	90.5	91.4
W-5	96.6	90	71.6	66.7	100	50	100	100	25	0	0	0	93.9	91	68.3
W-4	85.4	71.5	82.3	78.6	80.8	90.3	71.4	100	85.7	66.7	50	100	84.2	72.8	83.6
W-3	90.4	85.4	88.7	95.4	90	91.8	100	92.3	92.3	80	87.5	100	91.3	86.4	89.4
W-2	96.1	95.4	95.3	98.9	93.9	98.9	100	90.9	87.8	100	94.1	93.8	96.8	94.9	95.2
W-1	99.1	99.3	97.9	95.7	100	100	100	100	100	100	100	100	98.6	99.4	98.4
TOTAL WARRANT	92.8	89.4	90.6	94.3	92	94.9	97.8	92.8	88.1	92.6	89.7	96.3	93.2	89.9	91.1
TOTAL WARRANT & OFFICER	90.6	90.2	91.1	91.7	92.4	93	93.6	93	92.6	90.6	91.4	92.6	90.7	90.4	91.3
E-9	80.6	77.6	76.7	84	80.9	81.1	83.9	82.6	78	73	81.3	90.3	81.4	78.9	78.2
E-8	80.5	77.2	79.2	87.4	86.2	85.7	84.8	80.1	85	88.8	78.7	78.3	82.8	79.8	81.5
E-7	87.8	87.5	87.4	90.5	89.2	90.4	89.6	89.2	87.6	86.3	85.8	84.8	88.6	88	88.1
E-6	92.8	92	92.5	94.1	93.4	92.7	94.6	91.4	92.3	94.9	92.6	92.5	93.3	92.3	92.6
E-5	81.9	81.5	80.9	86.2	87.5	88.4	86.7	85.5	83.5	85.6	86.8	84.6	83.4	83.3	82.7
E-4	63.9	60.4	60.3	72.7	74.4	72.8	67.4	62.3	65.7	69.7	65.2	63.8	65.6	62.5	62.7
E-3	83	81.7	83.1	79.4	80.3	83.9	85.9	84.8	87	83	84.2	84.6	82.9	82	83.8
E-2	87.4	87.1	87.5	84	83.6	84.2	90.6	90.1	91.1	87	89.3	89.5	87.3	87.1	87.6
E-1	82.5	81.4	81	80.6	76.7	78.2	87.4	87.9	84.7	85.1	87.4	81.2	82.9	81.8	81
TOTAL ENLISTED	80.3	79	79.8	83.5	83.6	84.5	84	82.2	83	82.4	82.3	81.8	81.3	80.2	81
TOTAL	81.6	80.4	81.2	83.8	83.9	84.8	84.4	82.6	83.4	83	82.9	82.5	82.3	81.3	82.1

CONTINUATION RATES FY 1996 - FY 1998
ACTIVE DUTY PERCENTAGE CHANGES

Table G-11

USMC FEMALE

	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**
0-8	0	100	100	0	0	0	0	0	0	0	0	0	0	100	100
0-7	100	0	0	0	0	0	0	0	0	0	0	0	100	0	0
0-6	90.9	90	72.7	0	0	0	0	0	0	0	0	0	90.9	90	72.7
0-5	77.3	78.6	84.1	100	100	100	100	100	100	0	0	0	80	81.3	86
0-4	90.6	92.7	88.4	100	100	85.7	0	0	0	0	0	0	91.2	93.2	88.2
0-3	85.1	77	84.3	100	92.3	100	100	100	62.5	100	100	71.4	86.9	79.9	84.2
0-2	91	87	88.7	87.5	100	88.2	75	100	71.4	66.7	100	83.3	89.4	88.9	87.8
0-1	95	97.9	97	92.3	100	94.7	100	100	100	100	100	100	95.2	98.2	97.2
TOTAL OFFICER	89.1	87.9	89.1	95.3	98.2	93.8	93.8	100	80.8	90.9	100	88.9	89.8	89.4	89.2
W-5	0	0	100	100	100	100	0	0	100	0	0	0	100	100	100
W-4	90	66.7	53.8	100	100	100	100	100	100	0	0	0	92.9	75	64.7
W-3	88.9	90.9	81.8	100	100	100	100	33.3	50	100	0	100	91.2	82.8	82.8
W-2	89.7	100	97.6	84.6	100	100	87.5	88.9	77.8	100	100	100	88.7	98.4	95.2
W-1	100	100	100	100	100	100	100	100	0	100	0	0	100	100	100
TOTAL WARRANT	90.5	92.9	86.4	88.9	100	100	94.1	82.4	78.6	100	83.3	100	91.1	92	88.2
TOTAL WARRANT & OFFICER	89.3	88.6	88.8	93.4	98.6	95.2	93.9	91.7	80	93.8	94.4	90.3	90	89.9	89.1
E-9	77.8	100	71.4	77.8	71.4	100	100	100	100	0	0	0	80	89.5	82.6
E-8	86.1	74	80.8	77.4	86.1	92.3	85.7	71.4	80	75	100	100	83.5	78.2	84.6
E-7	91.4	90.8	86.1	92.1	98.7	87.5	92.9	89.4	87	83.3	84.6	100	91.5	93.1	87.2
E-6	92.4	87.3	91.9	91.9	94.5	91.8	93.1	93	94	100	93.8	82.1	92.5	90.7	91.6
E-5	78.7	76.5	77.3	88.1	87.7	86.3	80.5	87.9	84.8	82.3	89.7	85	82.3	82.5	81.9
E-4	70.2	70.3	63.3	77.2	77.6	75	80.5	72.9	72.5	73.4	74.7	67.7	73.3	72.4	67.3
E-3	81.1	81.4	82.9	86.3	84.4	86.9	87	88.8	89.9	86.4	83.5	83.1	83.1	83	84.7
E-2	82.3	84.7	85.9	85.3	86.2	86.9	89.6	87.9	92.4	85.9	85.9	93.2	83.9	85.5	87.3
E-1	75.3	79.5	70.3	80.2	81.3	75.9	85.2	81.7	76.8	79.2	78.6	83.3	77.5	80.1	72.7
TOTAL ENLISTED	80.1	80	78.6	85.7	86.6	85.1	85.7	85	84.9	82.6	83.6	82.7	82.2	82.4	81.2
TOTAL	81.2	81	79.8	85.9	87	85.4	86	85.2	84.7	83	84.1	83.2	82.9	83.1	81.9

CONTINUATION RATES FY 1996 - FY 1998

ACTIVE DUTY PERCENTAGE CHANGES **Table G-12**

USMC TOTAL

	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**
0-10	100	66.7	66.7	0	0	0	0	0	0	0	0	0	100	66.7	66.7
0-9	44.4	100	83.3	0	0	0	0	0	0	0	0	0	44.4	100	83.3
0-8	86.4	90.5	72	0	0	0	0	0	0	0	0	0	86.4	90.5	72
0-7	100	90.6	94.4	100	100	100	0	0	100	0	0	0	100	91.2	95
0-6	86.9	84	84.6	88.9	88.2	95.8	100	90.9	100	75	100	100	87.1	84.3	85.4
0-5	87.9	88.2	87.7	94.5	93.7	91.5	100	88.5	93.9	93.8	88.2	81.8	88.4	88.4	87.9
0-4	91.7	91.4	91.4	86.6	94.9	92.3	93.1	93.3	89.5	86.8	94.9	92.8	91.4	91.6	91.4
0-3	89.1	87.1	89.2	91.6	87.2	91.5	89	88.5	87.6	90.6	87.6	89.8	89.2	87.2	89.3
0-2	87.9	90.5	91.9	86.8	93.7	89	89.7	94.8	94.2	86.8	91.6	90.1	87.9	90.9	91.8
0-1	98.3	98.9	98.9	97.6	98.1	97.3	99.2	98.2	99.3	100	97.8	99.1	98.4	98.7	98.8
TOTAL OFFICER	90.3	90.2	91.1	91.3	92.9	92.6	92.9	93.2	92.8	90.5	91.8	92.2	90.4	90.5	91.3
W-5	96.6	90	72	75	100	60	100	100	40	0	0	0	94.1	91.2	69.4
W-4	85.6	71.2	80.3	79.3	81.5	90.9	80	100	88.9	66.7	50	100	84.6	72.9	82.3
W-3	90.3	85.7	88.3	95.5	90.5	92.3	100	86.2	89.3	83.3	77.8	100	91.3	86.2	89.1
W-2	95.8	95.7	95.5	97.1	94.5	99	98.4	90.6	86.2	100	95.5	94.7	96.2	95.2	95.2
W-1	99.1	99.4	97.9	95.8	100	100	100	100	100	100	100	100	98.7	99.5	98.5
TOTAL WARRANT	92.7	89.6	90.4	93.9	92.6	95.4	97.2	91.2	87	93.8	88.6	96.8	93.1	90	90.9
TOTAL WARRANT & OFFICER	90.5	90.1	91	91.8	92.8	93.1	93.6	92.9	92	90.8	91.5	92.5	90.7	90.4	91.2
E-9	80.6	77.9	76.6	83.8	80.7	81.5	84.3	83	78.4	73	81.3	90.3	81.4	79	78.3
E-8	80.7	77.1	79.3	87	86.2	86	84.8	79.9	84.8	88.3	79.3	78.9	82.8	79.8	81.6
E-7	88	87.7	87.4	90.6	89.9	90.1	89.8	89.2	87.6	86.2	85.8	85.8	88.7	88.3	88.1
E-6	92.7	91.8	92.5	94	93.4	92.6	94.5	91.5	92.4	95.2	92.7	91.9	93.3	92.2	92.5
E-5	81.7	81.3	80.7	86.4	87.6	88.2	86.3	85.7	83.5	85.3	87	84.7	83.3	83.3	82.7
E-4	64.1	60.8	60.5	73.1	74.7	73	68.1	62.9	66.1	70	65.9	64.1	65.9	63	63
E-3	83	81.7	83.1	79.8	80.6	84.1	86	85	87.1	83.2	84.2	84.5	82.9	82.1	83.8
E-2	87.1	87	87.5	84.1	83.8	84.5	90.6	89.9	91.1	86.9	89.1	89.8	87.1	87	87.6
E-1	82.2	81.3	80.4	80.6	76.9	78	87.3	87.6	84.2	84.8	87	81.3	82.7	81.7	80.6
TOTAL ENLISTED	80.3	79.1	79.7	83.6	83.8	84.5	84.1	82.3	83.1	82.4	82.4	81.9	81.3	80.3	81
TOTAL	81.6	80.5	81.2	83.9	84.2	84.9	84.4	82.7	83.5	83	83	82.6	82.3	81.4	82.1

CONTINUATION RATES FY 1996 - FY 1998
ACTIVE DUTY PERCENTAGE CHANGES

Table G-13

USAF MALE

	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**
0-10	90	50	70	0	0	100	0	0	0	0	0	0	90	50	72.7
0-9	80.6	64.7	82.9	100	66.7	100	0	0	0	0	0	0	82.4	64.9	83.3
0-8	85.1	75.9	86.8	0	0	100	100	50	100	0	100	100	84.3	75.6	87.5
0-7	88.6	83.7	92.2	100	100	80	100	100	50	60	100	50	88.1	85.1	90
0-6	84.5	80.7	81.1	85	83.9	93.2	85.4	85.4	76.7	87.4	83.7	84.3	84.6	80.9	81.4
0-5	87.9	87.3	86.9	92.4	91.5	90.7	86.5	92	87.6	88.2	88.1	87.6	88.1	87.7	87.2
0-4	89.5	90	91.2	89	89.8	89.1	89.6	89	87.2	88.1	86.6	90.5	89.4	89.9	91
0-3	92	91.6	90.4	90.8	91.3	90.9	92.9	92	89.1	90.3	91.8	89.4	91.9	91.6	90.4
0-2	97.2	95.3	96.1	96.5	93.9	95.3	97.2	97.4	95.5	97.3	96	94.3	97.2	95.4	95.9
0-1	99.1	99.1	98.9	99.6	98.7	97.5	98.1	99.3	100	98.6	99.5	99.5	99.1	99.1	98.9
TOTAL OFFICER	91.5	90.9	90.7	91.8	91.7	91.6	91.6	92.2	89.8	92	92.4	91.6	91.5	91	90.8
E-9	75.5	79.2	76.6	82.1	83.5	81.8	74.7	81	70.3	80.4	75	83.5	76.7	79.9	77.5
E-8	82.1	80.7	81.2	84.9	79	82.5	84.2	83.3	81.9	75.3	71.2	81.3	82.4	80.2	81.4
E-7	85.1	85.2	84.4	84.9	85.2	84.3	83.2	84.5	83.4	84.6	81.6	83.1	85	85	84.3
E-6	93.2	92.8	91.5	94	93.1	91.6	92.7	91.9	89.8	91.2	91.4	89.1	93.3	92.8	91.4
E-5	95.5	95.1	94.3	96.3	96.4	95.8	96.1	95.3	94.2	96.4	96.4	95.3	95.7	95.4	94.5
E-4	80.8	79.1	78.9	85.1	84.2	83.7	81.9	81.4	78.6	85	83.8	83	81.5	79.9	79.6
E-3	88.8	89.7	90.7	88.5	88.9	90.5	90.5	92.5	92.7	91.3	92.9	93.3	89	89.9	91
E-2	91.8	91.8	92.2	88.3	87.8	88.4	94.5	94.3	94	93.3	92.6	94.7	91.5	91.5	91.9
E-1	85.9	86.3	85.4	77.5	81	80.8	87.2	88.1	81.9	80.3	76.5	86	84.6	85.2	84.5
TOTAL ENLISTED	88.3	88	87.8	89.9	89.8	89.4	89.3	89.7	87.9	89.6	88.9	89.5	88.6	88.4	88.1
TOTAL	89	88.7	88.4	90	89.9	89.5	89.6	89.9	88.1	90.1	89.7	90	89.2	88.9	88.6

CONTINUATION RATES FY 1996 - FY 1998
ACTIVE DUTY PERCENTAGE CHANGES **Table G-14**

USAF FEMALE															
	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	96	97	98	96	97	98	96	97	98	96	97	98	96	97	98
0-8	0	0	0	100	0	0	0	0	0	0	0	100	100	0	100
0-7	100	100	75	0	0	100	0	0	0	100	100	0	100	100	80
0-6	76.6	87.4	85.7	80	100	93.3	80	85.7	88.9	81.8	90.5	90	77.5	88.2	86.7
0-5	85.8	88.9	89.4	90.7	91.4	87.6	84.6	95.5	92.9	88.2	83.3	83.9	86.3	89.1	89.1
0-4	88.4	89.3	91.4	91.3	88.9	90.5	91.2	89.5	98.5	93.8	84.4	89.2	89.1	89	91.4
0-3	88.5	88	87.6	91.5	93.1	90.4	87.6	85.1	92.7	90.2	90.5	91.9	88.9	88.6	88.3
0-2	91.3	90.3	89.1	97	93.7	94.7	89.5	92.3	94.4	96.2	95.4	91.7	92.2	91	89.9
0-1	98.5	97.4	98.1	97.1	99.2	99.4	100	95.2	94.7	96.9	98.2	97.6	98.3	97.6	98.2
TOTAL OFFICER	89.7	89.8	89.8	92.4	92.6	91.8	88.9	88.8	94.5	92.6	91.5	92.1	90.1	90.2	90.3
E-9	85	84.2	87.1	91.9	89.4	80	77.8	90	54.5	83.3	85.7	90	85.9	85.5	84.4
E-8	86.9	82.5	83.8	87.9	86.5	88.2	90	91.3	85.7	88	85.7	82.1	87.3	83.8	84.8
E-7	86.2	85.7	81.6	88.1	88.9	86.1	92.2	88.2	84.7	85	86.7	85.9	86.9	86.8	83.3
E-6	92.5	91.2	89.2	94.7	95.6	89.2	90.6	97.7	84.4	88	92.2	87.9	92.9	92.9	88.9
E-5	93.1	93	91.8	96.4	96.1	95.2	93.5	93.2	92.7	94.6	94.9	91.8	94.2	94	92.9
E-4	78.7	78.8	77.7	86.1	83.9	85.4	82.4	82.7	80	82.9	80.4	82.8	80.6	80.1	79.7
E-3	87.5	87.7	89.8	90.8	90.4	90.6	88.8	90.6	90.8	92	91.5	92.4	88.4	88.7	90.2
E-2	90.9	91.3	91.1	92.7	91.6	92.2	94.5	96.4	93.6	91.4	94.3	92.6	91.5	91.9	91.6
E-1	85.2	87.5	86.4	89.1	90.3	90.3	89.1	88.9	91.2	86.5	79.5	87.1	86.3	87.7	87.8
TOTAL ENLISTED	86.1	86.3	85.8	91.2	90.7	89.9	88.6	89.8	87.7	88.6	88.3	88.6	87.6	87.6	87.1
TOTAL	86.9	87.1	86.7	91.3	90.8	90.1	88.7	89.7	88.2	89.5	89.1	89.4	88	88.1	87.7

CONTINUATION RATES FY 1996 - FY 1998

ACTIVE DUTY PERCENTAGE CHANGES **Table G-15**

USAF TOTAL

	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**
0-10	90	50	70	0	0	100	0	0	0	0	0	0	90	50	72.7
0-9	80.6	64.7	82.9	100	66.7	100	0	0	0	0	0	0	82.4	64.9	83.3
0-8	85.1	75.9	86.8	50	0	100	100	50	100	0	100	100	84.4	74.7	87.7
0-7	89	84.3	91.7	100	100	83.3	100	100	50	66.7	100	50	88.6	85.6	89.7
0-6	84.2	81	81.3	84.4	85.3	93.2	84.9	85.4	78.8	86.2	85	85.4	84.3	81.3	81.8
0-5	87.7	87.5	87.2	92.1	91.5	90.1	86.3	92.3	88.2	88.2	87.6	87.1	87.9	87.8	87.4
0-4	89.3	89.9	91.2	89.6	89.5	89.4	89.9	89.1	89.1	89.1	86.2	90.2	89.4	89.8	91
0-3	91.5	91	90	91	91.9	90.8	92	90.8	89.7	90.3	91.5	90	91.4	91.1	90
0-2	96.1	94.3	94.6	96.7	93.8	95.1	96	96.9	95.4	97.1	95.9	93.6	96.2	94.4	94.6
0-1	99	98.7	98.8	99	98.9	98.1	98.3	98.7	99.4	98.2	99.2	99.1	98.9	98.8	98.8
TOTAL OFFICER	91.2	90.7	90.6	92	92	91.7	91.2	91.7	90.5	92.1	92.2	91.7	91.3	90.9	90.7
E-9	76	79.5	77.4	82.8	84	81.6	75	82	68.6	80.6	75.8	84.3	77.2	80.3	78.1
E-8	82.5	80.9	81.4	85.2	79.9	83.3	84.6	84	82.3	76.7	73.2	81.4	82.9	80.6	81.8
E-7	85.2	85.2	84.1	85.4	85.8	84.6	84	84.9	83.5	84.6	82.1	83.4	85.2	85.2	84.1
E-6	93.1	92.6	91.3	94.1	93.5	91.1	92.5	92.5	89.2	90.8	91.5	89	93.2	92.8	91.1
E-5	95.2	94.9	94	96.3	96.4	95.6	95.8	95.1	94	96.2	96.2	94.8	95.5	95.2	94.3
E-4	80.4	79	78.7	85.4	84.1	84.2	82	81.7	78.9	84.5	83	83	81.3	80	79.7
E-3	88.6	89.3	90.5	89.2	89.4	90.5	90.1	92	92.2	91.5	92.5	93.1	88.8	89.6	90.8
E-2	91.6	91.7	91.9	89.7	89.1	89.8	94.5	94.8	93.9	92.8	93.1	94.1	91.5	91.6	91.8
E-1	85.8	86.6	85.6	80.9	84	84.2	87.6	88.3	84.3	82.1	77.3	86.3	85	85.8	85.3
TOTAL ENLISTED	87.9	87.8	87.5	90.2	90	89.5	89.2	89.7	87.9	89.4	88.8	89.3	88.4	88.3	87.9
TOTAL	88.7	88.4	88.2	90.3	90.1	89.7	89.4	89.9	88.1	90	89.5	89.8	89	88.8	88.5

CONTINUATION RATES FY 1996 - FY 1998
ACTIVE DUTY PERCENTAGE CHANGES

Table G-16

USCG MALE															
	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	96	97	98	96	97	98	96	97	98	96	97	98	96	97	98
0-10	100	100	0	0	0	0	0	0	0	0	0	0	100	100	0
0-9	75	75	75	0	0	0	0	0	0	0	0	0	75	75	75
0-8	71.4	64.3	76.9	0	0	0	0	0	0	0	0	0	71.4	64.3	76.9
0-7	100	100	100	0	0	0	0	0	0	0	0	0	100	100	100
0-6	78.9	75.1	77.6	100	100	100	100	100	100	100	100	100	79.5	76	78.8
0-5	88	87.9	91.1	93.3	93.3	85.7	100	87.5	100	90	91.7	66.7	88.3	88.1	90.8
0-4	92.6	91.5	93.9	81.3	100	87.5	94.7	88.9	100	90	90.9	92.9	92.4	91.6	93.9
0-3	93.8	93.5	94.3	90	95.9	96.6	96.8	97.2	93.6	96.6	93.5	98.4	93.9	93.8	94.5
0-2	91.6	92.2	91.9	86.2	83.7	90.5	92.9	92.5	87.2	92	89.4	81.3	91.3	91.6	91
0-1	99.7	99.1	99.4	100	96.9	100	100	96	100	100	91.4	100	99.8	98.2	99.5
TOTAL OFFICER	91.6	91.2	92.6	89.8	92.7	94.4	96.1	94.5	94.2	94.9	91.7	91.7	91.7	91.3	92.7
W-4	77.1	73.3	74.7	100	100	71.4	75	100	66.7	73.7	73.3	91.7	77.1	74	75.2
W-3	88.2	89.7	90.2	90	75	91.7	88.9	75	90	86.7	85.7	66.7	88.2	89	89.7
W-2	94.3	95.4	94.1	78.3	90.5	94.3	100	88.2	100	80	100	100	93.7	95	94.5
UNKNOWN WARRANT	100	0	0	0	0	0	0	0	0	0	0	0	100	0	0
TOTAL WARRANT	87.9	87.9	88.2	83.8	87.2	90.7	92	84.4	94.9	79.5	81.8	84.4	87.7	87.7	88.4
TOTAL WARRANT & OFFICER	90.7	90.4	91.6	88.7	91.6	93.6	95.5	92.9	94.3	91.9	90.1	90.5	90.8	90.5	91.7
E-9	82.4	82	77.9	86.7	92.9	71.4	100	100	62.5	85.7	69.2	75	83.1	82.2	77
E-8	82.3	85.4	84.8	82.1	88.5	84.6	100	94.4	93.8	72.7	72.2	93.8	82.4	85.4	85.4
E-7	89.1	90.1	90.1	90	92.3	88.4	87.1	94.4	90.5	88.1	84.5	84.6	89.1	90.3	89.8
E-6	93	93.5	93.7	90.3	92.3	88	94.3	93.2	90.7	95.3	96.1	91.6	92.9	93.4	93.1
E-5	91.4	92.3	91.3	93.1	93	95.3	93.4	95	96	89.9	90.9	92	91.6	92.5	92
E-4	79	83.7	84.7	79.9	87.7	85.2	82.1	88.8	85.9	79.7	87	88.8	79.3	84.6	85.2
E-3	81.7	86	89	83	87.2	91.6	81.6	89.7	87.8	85.5	81.1	89.4	82	86	89
E-2	89.5	89.3	89.5	89.6	84.4	87.1	86.2	88	90.5	90.2	85.8	85.7	89.2	88.7	89.2
E-1	80	88	83.8	51.7	66.7	86.4	74.3	73.5	93	62.5	70.6	84	75.6	84.6	84.8
UNKNOWN ENLISTED	100	100	0	0	0	0	0	0	0	0	0	0	100	100	0
TOTAL ENLISTED	86.9	89.1	89.3	87.4	90.1	89.4	87	90.8	89.9	85.4	86.7	89	86.9	89.2	89.3
TOTAL	87.8	89.4	89.8	87.6	90.3	89.9	87.9	91	90.4	86.3	87.2	89.3	87.7	89.5	89.8

CONTINUATION RATES FY 1996 - FY 1998

ACTIVE DUTY PERCENTAGE CHANGES **Table G-17**

USCG FEMALE

	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**
0-6	100	100	80	0	0	0	0	0	0	0	0	0	100	100	80
0-5	90	94.1	93.1	0	0	0	0	0	0	0	0	100	90	94.1	93.3
0-4	94.9	98.4	95.7	100	100	100	100	66.7	50	100	100	0	95.3	97.1	94.7
0-3	93.9	91.3	95.5	100	100	85.7	100	80	100	100	90.9	80	94.6	91.4	94.2
0-2	88.6	87.3	88.7	90.9	62.5	100	87.5	100	92.3	66.7	100	94.1	87.9	87.4	90.1
0-1	97.3	96.6	97.5	100	100	100	100	100	100	92.3	100	100	96.9	97.5	98.3
TOTAL OFFICER	92.7	92.3	93.4	95	90.3	97.2	95.2	91.3	92.6	89.7	97.1	92.9	92.7	92.4	93.5
W-4	50	100	100	0	0	0	0	0	0	0	100	100	50	100	100
W-3	88.9	90.9	80	0	0	0	0	0	0	100	0	0	90	90.9	80
W-2	90	90	100	100	100	100	0	100	0	0	100	100	90.9	92.9	95.5
TOTAL WARRANT	85.7	90.9	92.9	100	100	100	0	100	0	100	100	100	87	92.6	91.4
TOTAL WARRANT & OFFICER	92.4	92.2	93.3	95.2	90.9	97.4	95.2	91.7	89.3	90	97.2	93.3	92.5	92.4	93.4
E-9	100	100	100	0	0	0	0	0	0	0	0	0	100	100	100
E-8	80	72.7	100	0	100	100	0	0	0	0	0	0	80	75	100
E-7	88.8	88.2	96.6	81	80	88.2	100	71.4	100	100	0	100	88.2	86	95.5
E-6	91.6	92.8	96.1	96.9	93.8	91.4	90.5	100	85.7	85.7	90.9	100	92.7	93.4	94.5
E-5	87.9	92.5	90	90.7	95.3	94.1	95	87.5	100	88	79.2	88.2	88.8	92.2	91.4
E-4	75.4	80.2	81.6	80	85.7	89.3	65.5	84.4	82.6	65.5	76.3	87.5	75.1	80.9	82.9
E-3	82.4	82.5	81.5	82.6	91.2	90.6	89.1	81.4	81.4	89.5	77.4	97	83.5	82.7	83.2
E-2	86	83.4	82.2	90	87.5	91.4	86.5	73.9	88.1	80.5	89.7	84.2	85.8	83.3	83.9
E-1	88.1	78.2	75.3	37.5	88.9	100	75	100	88.9	41.7	50	100	72.7	78.9	79.1
TOTAL ENLISTED	84.1	85.2	85.6	87.2	90.9	91.6	85.5	83	87	78.8	81	89.9	84.3	85.7	86.8
TOTAL	85.6	86.6	87.2	87.6	90.9	92.2	86.6	84	87.3	80.5	84.2	90.7	85.6	86.9	88.1

CONTINUATION RATES FY 1996 - FY 1998
ACTIVE DUTY PERCENTAGE CHANGES

Table G-18

USCG TOTAL															
	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	96	97	98	96	97	98	96	97	98	96	97	98	96	97	98
0-10	100	100	0	0	0	0	0	0	0	0	0	0	100	100	0
0-9	75	75	75	0	0	0	0	0	0	0	0	0	75	75	75
0-8	71.4	64.3	76.9	0	0	0	0	0	0	0	0	0	71.4	64.3	76.9
0-7	100	100	100	0	0	0	0	0	0	0	0	0	100	100	100
0-6	79	75.5	77.6	100	100	100	100	100	100	100	100	100	79.6	76.3	78.8
0-5	88.1	88.1	91.2	93.3	93.3	85.7	100	87.5	100	90	91.7	70	88.3	88.3	90.9
0-4	92.7	91.9	94	82.4	100	89.5	95.5	85.7	94.7	90.9	91.7	92.9	92.6	91.9	93.9
0-3	93.8	93.3	94.4	91.1	96.5	95.5	96.9	96.1	93.9	97.1	93.2	95.9	94	93.6	94.4
0-2	91.2	91.4	91.3	87	80.7	92.5	92	93.8	88.5	89.3	91.1	84.6	90.9	91	90.8
0-1	99.3	98.6	99.1	100	97.8	100	100	96.9	100	97.5	93.8	100	99.2	98	99.3
TOTAL OFFICER	91.7	91.3	92.6	90.4	92.3	94.9	96	94.1	94	94.1	92.6	91.9	91.8	91.4	92.8
W-4	76.9	73.4	74.9	100	100	71.4	75	100	66.7	73.7	75	92.3	77	74.1	75.5
W-3	88.2	89.7	90	90	75	91.7	88.9	75	90	87.5	85.7	66.7	88.2	89	89.5
W-2	94.3	95.3	94.3	79.2	91.3	94.7	100	88.9	96.3	80	100	100	93.7	94.9	94.5
UNKNOWN WARRANT	100	0	0	0	0	0	0	0	0	0	0	0	100	0	0
TOTAL WARRANT	87.9	88	88.3	84.2	87.8	91.2	92	84.8	92.5	80	82.9	85.7	87.6	87.8	88.5
TOTAL WARRANT & OFFICER	90.8	90.6	91.7	89.3	91.5	94.1	95.5	92.8	93.7	91.6	91.2	91.1	90.9	90.7	91.8
E-9	82.6	82.2	78.2	86.7	92.9	71.4	100	100	62.5	85.7	69.2	75	83.2	82.4	77.2
E-8	82.2	85.1	85.2	82.1	88.9	85.2	100	94.4	93.8	72.7	72.2	93.8	82.4	85.2	85.7
E-7	89.1	90	90.3	89.2	91.5	88.4	88.2	92.4	91.1	88.3	84.5	84.9	89.1	90.1	90.1
E-6	92.9	93.4	93.8	91.6	92.6	88.7	94	93.8	90.3	94.4	95.7	92.2	92.9	93.4	93.2
E-5	91.1	92.3	91.2	92.6	93.4	95	93.5	94.5	96.2	89.7	89.6	91.7	91.3	92.5	91.9
E-4	78.7	83.4	84.4	79.9	87.3	86.1	81.1	88.5	85.7	78.7	86.1	88.7	78.9	84.2	84.9
E-3	81.8	85.4	87.9	82.9	87.9	91.4	82.8	88.5	86.8	86	80.6	90.6	82.3	85.5	88.2
E-2	89	88.5	88.4	89.6	85.1	88	86.2	85.6	90.1	88	86.7	85.4	88.7	87.8	88.4
E-1	81.2	86.4	82.6	48.6	73.3	89.7	74.4	75.7	92.4	55.6	66.7	85.2	75.1	83.6	84
UNKNOWN ENLISTED	100	100	0	0	0	0	0	0	0	0	0	0	100	100	0
TOTAL ENLISTED	86.7	88.8	89	87.4	90.3	89.8	86.9	90	89.6	84.6	86	89.1	86.7	88.9	89.1
TOTAL	87.6	89.2	89.6	87.6	90.4	90.3	87.7	90.3	90.1	85.6	86.8	89.4	87.5	89.2	89.7

CONTINUATION RATES FY 1996 - FY 1998
ACTIVE DUTY PERCENTAGE CHANGES

Table G-19

DOD TOTAL

	WHITE			BLACK			HISPANIC			OTHER			TOTAL		
GRADE	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**	**96**	**97**	**98**
0-10	75	65.7	71.9	0	100	100	0	0	0	0	0	0	75	66.7	74.3
0-9	72.2	74.7	77.2	100	50	100	0	0	0	100	50	100	73.8	72.5	77.8
0-8	78.3	80.3	82.9	83.3	66.7	81.8	100	75	66.7	50	100	100	78.5	79.7	83
0-7	91.5	90.1	90.5	94.1	90.9	89.7	83.3	100	66.7	71.4	100	66.7	91.2	90.3	90
0-6	85.2	83.5	82.3	87.5	87.5	88.4	88.7	84.7	85.4	89.3	89.1	83.7	85.4	83.7	82.6
0-5	89.3	89	88	92	92.1	89.7	90.5	92.3	90.9	90.3	89.4	88.6	89.5	89.3	88.2
0-4	89.4	90.5	92.6	88.4	89.1	92.8	88	90.3	91.8	88.5	88.8	92.6	89.2	90.3	92.6
0-3	90.3	89.9	89.2	90.5	91	91.7	90.9	90.5	89.1	89.7	90.5	89.2	90.3	90	89.4
0-2	92	91.3	91.6	91.4	89.3	90.7	91.9	92.3	93.3	92.4	92	91.1	92	91.2	91.6
0-1	98.2	98.5	98.4	97.9	97.8	97.7	97.5	98.6	98.4	98.3	98.5	99.2	98.2	98.4	98.4
TOTAL OFFICER	90.7	90.6	90.6	91.2	91.3	92.3	91.4	92.1	91.8	91.5	91.7	91.6	90.8	90.7	90.8
W-5	83.6	81.6	78.9	89.3	90.9	78.1	83.3	85.7	40	100	83.3	40	84.1	82.4	77.5
W-4	77.1	78.2	79.8	86.7	82.5	84.8	78.1	85.7	80.3	77.4	81.6	88.6	77.8	78.9	80.6
W-3	88	86.2	88.9	90.9	88.9	86.7	89.8	87.4	85.9	88	91	84.8	88.4	86.7	88.3
W-2	92	93.4	93.7	91.5	92.5	94.1	92.5	92.3	90.5	90.1	93.3	96.2	91.9	93.2	93.7
W-1	98.9	99.1	98.5	99.3	99.1	98.6	100	100	99	99.2	99.2	100	99	99.2	98.7
UNKNOWN WARRANT	100	0	0	0	0	0	0	0	0	0	0	0	100	0	0
TOTAL WARRANT	89.1	89.4	90.4	92.5	92.1	92.1	91.3	91.4	88.8	89.4	92.2	92.2	89.5	89.9	90.6
TOTAL WARRANT & OFFICER	90.6	90.5	90.6	91.4	91.4	92.3	91.4	92	91.5	91.3	91.8	91.6	90.7	90.7	90.8
E-9	78.8	80.1	78.9	83.9	82.9	82.8	81.4	83.5	78.6	83.8	82	80.2	80.1	80.9	79.7
E-8	81	81	79.5	82.6	82.8	80.8	82.7	81.8	80.9	81.8	81.4	80.7	81.4	81.5	80
E-7	87.3	87.5	86.4	87.9	87.8	85.8	88.6	88.2	86.2	86.5	86.1	85	87.5	87.5	86.2
E-6	90.4	91.2	90.2	92.6	92.6	90.7	92.2	91.9	90.6	91.6	91.7	91.1	91.1	91.6	90.4
E-5	88	88.1	87.7	90.4	91.2	91	89.3	89.6	88.6	91.3	91.1	90.6	88.8	89.1	88.7
E-4	74.7	73.4	74.9	80	80.3	81.7	76.8	75.2	76.9	79.3	78.6	80.3	76.1	75.1	76.7
E-3	82.7	81.7	84.2	82.6	82.3	84.4	84.3	83.7	86.1	85.4	85.2	87.5	82.9	82.2	84.6
E-2	85.1	85.9	85.6	83.5	84.4	84.3	88.2	88.9	89.1	87.6	88.3	88.4	85.2	86	85.8
E-1	81.7	81.2	80.3	80.8	80.4	80.7	86.5	86.5	84.2	84.6	83.2	83.7	82.1	81.7	81
TOTAL ENLISTED	83.2	83.1	83.6	85.9	86.2	86.2	85.1	84.8	85	86.3	86.1	86.5	84.1	84.1	84.4
TOTAL	84.7	84.6	85	86.3	86.6	86.6	85.6	85.4	85.5	87	86.8	87.2	85.2	85.1	85.4

TRENDS IN ENLISTMENT PROPENSITY WILL DEFINITELY OR PROBABLY BE SERVING ON ACTIVE DUTY[1]

Table G-20

	MALES				FEMALES			
	White	Black	Hispanic	Total[2]	White	Black	Hispanic	Total[2]
Army								
1996	8	18	22	12	3	13	11	6
1997	9	16	18	11	3	11	9	5
1998	9	14	21	12	3	10	13	6
Navy								
1996	7	14	18	10	4	10	11	6
1997	7	15	14	10	2	7	7	4
1998	6	10	20	9	2	13	8	5
Marine Corps								
1996	7	15	22	11	2	8	5	4
1997	7	15	20	11	2	4	8	3
1998	7	12	22	11	2	6	9	4
Air Force								
1996	9	13	22	12	4	13	14	7
1997	9	17	18	12	3	11	10	6
1998	8	15	24	12	4	12	14	7
Active Composite[3]								
1996	20	34	43	27	9	23	25	14
1997	21	34	37	26	7	19	21	12
1998	20	30	44	26	7	23	26	13

Source: Youth Attitude Tracking Study, administered fall of 1996, 1997, and 1998.

[1] Percent of 16 to 21 year-olds with no more than two years of postsecondary education, by gender and race/ethnicity.

[2] Asians and Pacific Islanders, and Alaskan Natives/Native Americans are included in the total, but not counted as white, black, or Hispanic.

[3] Active Composite propensity is the percent saying they will definitely or probably be in one or more of the Services.

THEMES IN ENLISTMENT PROPENSITY
COMMON REASONS FOR JOINING THE MILITARY[1]

Table G-21

	MALES				FEMALES			
	White	Black	Hispanic	Total[2]	White	Black	Hispanic	Total[2]
Educational Funding 1996-1998	33	29	31	32	38	34	34	37
Job Training/Experience 1996-1998	25	21	27	24	16	21	21	17
Duty to Country 1996-1998	13	10	13	13	11	6	9	9
Pay 1996-1998	11	14	11	11	9	12	8	9
Travel 1996-1998	7	9	7	8	6	9	6	6
Develop Self Discipline 1996-1998	6	4	6	6	3	4	3	4

Source: Youth Attitude Tracking Study, administered fall of 1996, 1997, and 1998.

[1] Percent of 16 to 21 year-olds with no more than two years postsecondary education, by gender and race/ethnicity.

[2] Asians and Pacific Islanders, and Alaskan Natives/Native Americans are included in the total, but not counted as white, black, or Hispanic.

THEMES IN ENLISTMENT PROPENSITY
COMMON REASONS FOR NOT JOINING THE MILITARY[1]

Table G-22

	MALES				FEMALES			
	White	Black	Hispanic	Total[2]	White	Black	Hispanic	Total[2]
Don't Like Military Lifestyle								
1996-1998	21	20	13	19	25	26	25	25
Have Other Career Interests								
1996-1998	14	8	7	12	12	5	5	10
Too Long a Commitment								
1996-1998	13	5	11	11	11	7	8	10
Danger, Threat to Life								
1996-1998	9	17	11	11	8	14	11	10
Family Obligations								
1996-1998	8	5	14	9	16	13	21	16
Against Beliefs								
1996-1998	6	9	5	6	6	5	5	6

Source: Youth Attitude Tracking Study, administered fall of 1996, 1997, and 1998.

[1] Percent of 16 to 21 year-olds with no more than 2 years postsecondary education, by gender and race/ethnicity.

[2] Asians and Pacific Islanders, and Alaskan Natives/Native Americans are included in the total, but not counted as white, black, or Hispanic.

ARMY NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER)

Table G-23

	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		COUNTRY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMINISTRATIVE		TOTAL TEMPORARY		ARMY NONDEPLOYABLE UNIT PERSONNEL		
GRADE	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	TOTAL
O-6	0	0	4	7	0	0	0	0	4	7	0	0	0	0	0	1	13	0	3	2	16	3	20	10	30
O-5	3	0	34	8	0	0	0	0	37	8	0	0	2	0	0	6	28	6	7	10	37	22	74	30	104
O-4	8	1	38	24	3	2	0	0	49	27	0	0	8	2	0	10	36	17	24	15	68	44	117	71	188
O-3	5	0	29	17	1	0	0	0	35	17	0	0	16	8	0	66	44	38	25	27	85	139	120	156	276
O-2	0	0	6	17	0	1	0	0	6	18	0	0	13	0	0	140	6	35	7	16	26	191	32	209	241
O-1	1	0	3	2	0	0	0	0	4	2	0	0	8	1	0	59	25	26	1	4	34	90	38	92	130
TOT OFR	17	1	114	75	4	3	0	0	135	79	0	0	47	11	0	282	152	122	67	74	266	489	401	568	969
W-5	0	0	2	1	0	0	0	0	2	1	0	0	1	0	0	0	2	0	0	0	3	0	5	1	6
W-4	1	0	18	2	0	0	0	0	19	2	0	0	0	0	0	0	2	0	1	0	3	0	22	2	24
W-3	2	0	12	2	0	0	0	0	14	2	0	0	5	0	0	1	9	1	3	0	17	2	31	4	35
W-2	0	0	6	7	0	0	0	0	6	7	0	0	7	0	0	6	11	3	0	0	18	9	24	16	40
W-1	2	0	0	1	0	0	0	0	2	1	0	0	3	0	0	8	2	0	0	0	5	8	7	9	16
TOT WO	5	0	38	13	0	0	0	0	43	13	0	0	16	0	0	15	26	4	4	0	46	19	89	32	121
E-9	4	0	19	9	0	0	0	0	23	9	0	0	0	0	0	0	18	1	6	0	24	1	47	10	57
E-8	5	2	64	40	1	1	0	0	70	43	0	0	5	0	0	1	55	4	16	4	76	9	146	52	198
E-7	38	2	228	118	5	1	0	0	271	121	0	5	22	0	0	31	181	33	75	20	278	89	549	210	759
E-6	68	3	284	178	10	0	0	0	362	181	3	11	74	7	0	74	205	80	98	64	380	236	742	417	1159
E-5	68	9	362	290	37	2	0	0	467	301	5	11	219	21	0	619	179	54	357	122	760	827	1227	1128	2355
E-4	40	8	372	458	20	7	0	0	432	473	26	16	289	73	0	522	267	162	161	167	743	940	1175	1413	2588
E-3	10	3	145	188	6	2	0	0	161	193	40	10	364	75	0	1003	89	91	181	62	674	1241	835	1434	2269
E-2	1	0	35	69	3	1	0	0	39	70	47	5	365	53	0	404	49	16	136	35	597	513	636	583	1219
E-1	0	0	14	35	1	1	0	0	15	36	23	2	1005	66	0	77	9	10	66	14	1103	169	1118	205	1323
TOT EN	234	27	1523	1385	83	15	0	0	1840	1427	144	60	2343	295	0	2731	1052	451	1096	488	4635	4025	6475	5452	11927
COL TOT	256	28	1675	1473	87	18	0	0	2018	1519	144	60	2406	306	0	3028	1230	577	1167	562	4947	4533	6965	6052	13017

NOTES:

1 Army data is as of September 15, 1998. Army data sources are Army Major Command reports and HQDA HIV+ Data Base.

2. Army strength data source is Defense Manpower Data Center end of month September 1998 Active Duty Master File.

3. Army Medical Permanent data is an approximation.

4. M = Male; F = Female; TOT OFR = Total Officer; TOT WO = Total Warrant Officer; TOT EN = Total Enlisted; COL TOT = Column Total.

ARMY NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER) (BY PERCENT)

Table G-24

	PERMANENT										TEMPORARY												TOTAL		
	HIV+		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		COUNTRY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMINISTRATIVE		TOTAL TEMPORARY		ARMY NONDEPLOYABLE UNIT PERSONNEL		
GRADE	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	TOTAL
O-6	0.0	0.0	0.1	2.7	0.0	0.0	0.0	0.0	0.1	2.7	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.1	0.8	0.5	1.2	0.6	3.9	0.8
O-5	0.0	0.0	0.4	0.8	0.0	0.0	0.0	0.0	0.5	0.8	0.0	0.0	0.0	0.0	0.0	0.6	0.3	0.6	0.1	1.0	0.5	2.2	0.9	3.0	1.2
O-4	0.1	0.1	0.3	1.3	0.0	0.1	0.0	0.0	0.4	1.5	0.0	0.0	0.1	0.1	0.0	0.5	0.3	0.9	0.2	0.8	0.6	2.4	1.0	3.8	1.4
O-3	0.0	0.0	0.2	0.5	0.0	0.0	0.0	0.0	0.2	0.5	0.0	0.0	0.1	0.2	0.0	2.0	0.2	1.1	0.1	0.8	0.4	4.1	0.6	4.6	1.2
O-2	0.0	0.0	0.1	1.0	0.0	0.1	0.0	0.0	0.1	1.1	0.0	0.0	0.2	0.0	0.0	8.4	0.1	2.1	0.1	1.0	0.3	11.5	0.4	12.5	2.5
O-1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	3.9	0.4	1.7	0.0	0.3	0.5	6.0	0.6	6.1	1.6
TOT OFR	0.0	0.0	0.2	0.8	0.0	0.0	0.0	0.0	0.2	0.8	0.0	0.0	0.1	0.1	0.0	2.9	0.3	1.3	0.1	0.8	0.5	5.1	0.7	5.9	1.4
W-5	0.0	0.0	0.6	100.0	0.0	0.0	0.0	0.0	0.6	100.0	0.0	0.0	0.3	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.9	0.0	1.5	100.0	1.8
W-4	0.1	0.0	1.4	6.9	0.0	0.0	0.0	0.0	1.5	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.2	0.0	1.7	6.9	1.8
W-3	0.1	0.0	0.4	1.5	0.0	0.0	0.0	0.0	0.5	1.5	0.0	0.0	0.2	0.0	0.0	0.8	0.3	0.8	0.1	0.0	0.6	1.5	1.1	3.0	1.2
W-2	0.0	0.0	0.1	1.8	0.0	0.0	0.0	0.0	0.1	1.8	0.0	0.0	0.1	0.0	0.0	1.5	0.2	0.8	0.0	0.0	0.4	2.3	0.5	4.1	0.8
W-1	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.2	0.0	0.0	3.9	0.1	0.0	0.0	0.0	0.3	3.9	0.4	4.4	0.9
TOT WO	0.0	0.0	0.4	1.7	0.0	0.0	0.0	0.0	0.4	1.7	0.0	0.0	0.1	0.0	0.0	2.0	0.2	0.5	0.0	0.0	0.4	2.5	0.8	4.2	1.0
E-9	0.1	0.0	0.6	5.5	0.0	0.0	0.0	0.0	0.8	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.2	0.0	0.8	0.6	1.6	6.1	1.8
E-8	0.1	0.2	0.7	4.0	0.0	0.1	0.0	0.0	0.7	4.3	0.0	0.0	0.1	0.0	0.0	0.1	0.6	0.4	0.2	0.4	0.8	0.9	1.6	5.2	1.9
E-7	0.1	0.0	0.7	2.8	0.0	0.0	0.0	0.0	0.8	2.9	0.0	0.1	0.1	0.0	0.0	0.7	0.6	0.8	0.2	0.5	0.9	2.1	1.7	5.1	2.1
E-6	0.1	0.0	0.6	2.7	0.0	0.0	0.0	0.0	0.8	2.7	0.0	0.2	0.2	0.1	0.0	1.1	0.4	1.2	0.2	1.0	0.8	3.6	1.5	6.3	2.1
E-5	0.1	0.1	0.6	2.7	0.1	0.0	0.0	0.0	0.7	2.8	0.0	0.1	0.4	0.2	0.0	5.8	0.3	0.5	0.6	1.1	1.2	7.8	2.0	10.6	3.2
E-4	0.0	0.0	0.4	2.6	0.0	0.0	0.0	0.0	0.5	2.6	0.0	0.1	0.3	0.4	0.0	2.9	0.3	0.9	0.2	0.9	0.9	5.3	1.4	7.9	2.5
E-3	0.0	0.0	0.3	1.8	0.0	0.0	0.0	0.0	0.3	1.9	0.1	0.1	0.8	0.7	0.0	9.7	0.2	0.9	0.4	0.6	1.4	12.0	1.8	13.9	3.9
E-2	0.0	0.0	0.1	1.2	0.0	0.0	0.0	0.0	0.1	1.2	0.2	0.1	1.2	0.9	0.0	6.7	0.2	0.3	0.5	0.6	2.0	8.6	2.1	9.7	3.4
E-1	0.0	0.0	0.1	1.3	0.0	0.0	0.0	0.0	0.1	1.3	0.1	0.1	5.4	2.4	0.0	2.8	0.0	0.4	0.4	0.5	5.9	6.0	6.0	7.3	6.1
TOT EN	0.1	0.0	0.5	2.3	0.0	0.0	0.0	0.0	0.5	2.4	0.0	0.1	0.7	0.5	0.0	4.6	0.3	0.8	0.3	0.8	1.4	6.8	1.9	9.2	3.0
COL TOT	0.1	0.0	0.4	2.1	0.0	0.0	0.0	0.0	0.5	2.2	0.0	0.1	0.6	0.4	0.0	4.3	0.3	0.8	0.3	0.8	1.2	6.5	1.7	8.6	2.7

NOTES:

1 Army data is as of September 15, 1998. Army data sources are Army MACOM reports and HQDA HIV+ Data Base.

2. Army does not report Country Restrictions.

3. M = Male; F = Female; TOT OFR = Total Officer; TOT WO = Total Warrant Officer; TOT EN = Total Enlisted; COL TOT = Column Total.

NAVY NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER)

Table G-25

	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		COUNTRY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMINISTRATIVE		TOTAL TEMPORARY		ARMY NONDEPLOYABLE UNIT PERSONNEL		
GRADE	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	TOTAL
O-6	1	0	3	0	-	-	-	-	4	0	0	0	1	0	0	0	6	2	160	17	167	19	171	19	190
O-5	2	0	2	0	-	-	-	-	4	0	0	0	0	0	0	0	12	6	380	37	392	43	396	43	439
O-4	8	0	2	3	-	-	-	-	10	3	0	0	7	0	0	0	13	10	483	65	503	75	513	78	591
O-3	4	0	6	2	-	-	-	-	10	2	0	0	7	0	0	0	39	13	482	77	528	90	538	92	630
O-2	0	0	4	0	-	-	-	-	4	0	0	0	5	0	0	0	18	11	83	15	106	26	110	26	136
O-1	0	0	0	0	-	-	-	-	0	0	1	0	1	1	0	0	4	0	30	5	36	6	36	6	42
TOT OFR	15	0	17	5	-	-	-	-	32	5	1	0	21	1	0	0	92	42	1618	216	1732	259	1764	264	2028
C-5	0	0	0	0	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C-4	0	0	0	0	-	-	-	-	0	0	0	0	0	0	0	0	2	0	16	1	18	1	18	1	19
C-3	0	0	0	0	-	-	-	-	0	0	0	0	0	0	0	0	2	1	31	3	33	4	33	4	37
C-2	0	0	0	1	-	-	-	-	0	1	0	0	1	0	0	0	6	1	27	1	34	2	34	3	37
C-1	0	0	0	0	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT WO	0	0	0	1	-	-	-	-	0	1	0	0	1	0	0	0	10	2	74	5	85	7	85	8	93
E-9	3	0	1	0	-	-	-	-	4	0	0	0	0	0	0	0	24	1	171	6	195	7	199	7	206
E-8	2	0	6	0	-	-	-	-	8	0	0	0	0	0	0	0	82	7	430	26	512	33	520	33	553
E-7	11	0	34	10	-	-	-	-	45	10	0	0	3	0	0	3	338	51	1901	178	2242	232	2287	242	2529
E-6	80	5	94	16	-	-	-	-	174	21	0	4	20	0	0	18	999	139	4209	462	5228	623	5402	644	6046
E-5	126	6	49	9	-	-	-	-	175	15	11	1	27	3	0	98	1113	197	3274	506	4425	805	4600	820	5420
E-4	43	2	7	1	-	-	-	-	50	3	44	2	53	1	0	320	910	273	1147	249	2154	845	2204	848	3052
E-3	9	1	6	1	-	-	-	-	15	2	117	1	81	2	0	395	679	239	402	104	1279	741	1294	743	2037
E-2	0	0	1	0	-	-	-	-	1	0	153	6	178	12	0	167	299	76	210	33	840	294	841	294	1135
E-1	4	0	0	0	-	-	-	-	4	0	11	278	301	10	0	9	36	14	206	19	554	330	558	330	888
TOT EN	278	14	198	37	-	-	-	-	476	51	336	292	663	28	0	1010	4480	997	11950	1583	17429	3910	17905	3961	21866
COL TOT	293	14	215	43	-	-	-	-	508	57	337	292	685	29	0	1010	4582	1041	13642	1804	19246	4176	19754	4233	23987

NOTES:

1. Navy data is as of end of month September 1998. Navy source files are the Enlisted and Officer Master Files, the Diary Message Reporting System, and HIV+ Data Base.
2. Navy strength data is Defense Manpower Data Center end of month September 1998 Active Duty Master File.
3. Navy does not report Hazardous Duty Restriction or Country Restriction categories.
4. Navy manages Legal Nondeployables in the individuals account.
5. Navy pregnancy data is understated. The Navy is working to improve its accounting capability for this category.
6. M = Male; F = Female; TOT OFR = Total Officer; TOT WO = Total Warrant Officer; TOT EN = Total Enlisted; COL TOT = Column Total.

NAVY NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER) (BY PERCENT)

Table G-26

	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		COUNTRY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMINISTRATIVE		TOTAL TEMPORARY		ARMY NONDEPLOYABLE UNIT PERSONNEL		
GRADE	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	TOTAL
O-6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7	5.4	5.9	5.6	6.6	5.7	6.6	5.8
O-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	6.1	4.0	6.3	4.6	6.4	4.6	6.1
O-4	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.7	6.0	4.6	6.3	5.3	6.4	5.6	6.3
O-3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	3.4	3.1	3.8	3.7	3.8	3.7	3.8
O-2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	1.2	1.9	1.6	2.5	2.8	2.6	2.8	2.6
O-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.0	0.0	0.2	0.0	1.7	1.0	2.0	1.2	2.0	1.2	1.8
TOT OFR	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.6	4.3	3.3	4.6	4.0	4.7	4.0	4.6
C-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	4.7	10.0	5.3	10.0	5.3	10.0	5.5
C-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	5.0	5.5	15.0	5.8	20.0	5.8	20.0	6.3
C-2	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.2	0.0	0.0	0.0	0.9	2.1	4.2	2.1	5.2	4.2	5.2	6.3	5.3
C-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOT WO	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.1	0.0	0.0	0.0	0.6	2.6	4.8	6.4	5.5	9.0	5.5	10.3	5.7
E-9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.0	5.7	5.9	6.5	6.9	6.7	6.9	6.7
E-8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.7	7.0	6.4	8.3	8.1	8.5	8.1	8.4
E-7	0.0	0.0	0.1	0.5	0.0	0.0	0.0	0.0	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.2	1.5	2.6	8.3	9.0	9.7	11.7	9.9	12.2	10.1
E-6	0.2	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.3	0.4	0.0	0.1	0.0	0.0	0.0	0.4	2.0	2.7	8.3	9.1	10.4	12.3	10.7	12.7	10.9
E-5	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	1.4	1.8	2.8	5.4	7.3	7.2	11.6	7.5	11.8	8.0
E-4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	3.6	1.9	3.1	2.4	2.8	4.6	9.5	4.7	9.6	5.4
E-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.3	0.0	0.0	5.1	2.1	3.1	1.2	1.3	4.0	9.5	4.0	9.6	5.1
E-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.2	1.1	0.4	0.0	5.6	1.8	2.5	1.3	1.1	5.1	9.8	5.1	9.8	5.8
E-1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	31.2	8.0	1.1	0.0	1.0	1.0	1.6	5.5	2.1	14.8	37.0	14.9	37.0	19.2
TOT EN	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.8	0.3	0.1	0.0	2.9	1.8	2.8	4.9	4.5	7.2	11.1	7.4	11.3	7.9
COL TOT	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.7	0.2	0.1	0.0	2.4	1.6	2.5	4.8	4.3	6.8	10.0	7.0	10.2	7.4

NOTES:

1. Navy data is as of end of month September 1998. Navy source files are the Enlisted and Officer Master Files, the Diary Message Reporting System, and HIV+ Data Base.
2. Navy strength data is Defense Manpower Data Center end of month September 1998 Active Duty Master File.
3. Navy does not report Hazardous Duty Restriction or Country Restriction categories.
4. Navy manages Legal Nondeployables in the individuals account.
5. Navy pregnancy data is understated. The Navy is working to improve its accounting capability for this category.
6. M = Male; F = Female; TOT OFR = Total Officer; TOT WO = Total Warrant Officer; TOT EN = Total Enlisted; COL TOT = Column Total.

MARINE CORPS NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER)

Table G-27

	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		COUNTRY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMINISTRATIVE		TOTAL TEMPORARY		ARMY NONDEPLOYABLE UNIT PERSONNEL		
GRADE	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	TOTAL
O-6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	3	0	0	4	3	4	3	7
O-5	1	0	3	0	0	0	0	0	4	0	0	0	0	0	0	1	14	2	1	0	15	3	19	3	22
O-4	0	0	1	0	5	0	0	0	6	0	0	0	1	0	0	2	20	7	1	0	22	9	28	9	37
O-3	1	0	2	0	7	0	0	0	10	0	0	0	1	0	0	8	21	2	0	0	22	10	32	10	42
O-2	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	5	10	1	0	0	10	6	11	6	17
O-1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2	0	2	0	4	0	5	0	5
TOT OFR	3	0	6	0	12	0	1	0	22	0	0	0	2	0	0	16	71	15	4	0	77	31	99	31	130
W-5	0	0	1	0	2	0	0	0	3	0	0	0	0	0	0	0	4	0	0	0	4	0	7	0	7
W-4	0	0	1	0	4	0	0	0	5	0	0	0	0	0	0	0	4	0	0	0	4	0	9	0	9
W-3	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	7	2	0	0	7	2	13	2	15
W-2	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	1	6	2	7	0	13	3	15	3	18
W-1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	1
TOT WO	0	0	4	0	12	0	0	0	16	0	0	0	1	0	0	1	21	4	7	0	29	5	45	5	50
E-9	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	28	2	72	0	101	2	101	2	103
E-8	1	0	4	0	4	0	0	0	9	0	1	0	0	1	0	1	88	5	184	7	273	14	282	14	296
E-7	12	0	16	2	33	0	0	0	61	2	2	0	2	0	0	9	200	21	419	29	623	59	684	61	745
E-6	13	0	4	1	18	0	0	0	35	1	16	0	2	0	0	25	281	50	549	40	848	115	883	116	999
E-5	17	1	2	0	3	0	0	0	22	1	27	1	7	1	0	64	559	87	384	17	977	170	999	171	1170
E-4	4	0	0	0	2	0	0	0	6	0	67	0	36	0	0	136	685	129	114	4	902	269	908	269	1177
E-3	3	0	1	0	1	0	0	0	5	0	310	2	71	1	0	145	908	181	97	7	1386	336	1391	336	1727
E-2	0	0	0	0	0	0	0	0	0	0	439	6	89	0	0	17	143	20	66	1	737	44	737	44	781
E-1	1	0	0	0	0	0	0	0	1	0	480	7	461	2	0	0	50	7	69	2	1060	18	1061	18	1079
TOTAL EN	51	1	27	3	61	0	0	0	139	4	1342	16	669	5	0	397	2942	502	1954	107	6907	1027	7046	1031	8077
COL TOT	54	1	37	3	85	0	1	0	177	4	1342	16	672	5	0	414	3034	521	1965	107	7013	1063	7190	1067	8257

NOTES:

1. Marine Corps data is as of end of month September 1998. Marine Corps source files are the Marine Corps Total Force System and HIV+ Data Base.
2. Marine Corps strength data source is as of September 30, 1998.
3. M = Male; F = Female; TOT OFR = Total Officer; TOT WO = Total Warrant Officer; TOT EN = Total Enlisted; COL TOT = Column Total.

MARINE CORPS NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER) (BY PERCENT)

Table G-28

	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		COUNTRY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMINISTRATIVE		TOTAL TEMPORARY		ARMY NONDEPLOYABLE UNIT PERSONNEL		
GRADE	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	TOTAL
O-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	27.3	0.0	0.0	0.7	27.3	0.7	27.3	1.1
O-5	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.8	3.4	0.1	0.0	0.9	5.2	1.1	5.2	1.3
O-4	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.6	7.3	0.0	0.0	0.7	9.4	0.9	9.4	1.1
O-3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.4	1.3	0.0	0.0	0.5	6.5	0.7	6.5	0.8
O-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.4	0.5	0.0	0.0	0.4	2.9	0.4	2.9	0.6
O-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.2	0.0	0.2	0.0	0.2
TOT OFR	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.5	2.0	0.0	0.0	0.5	4.2	0.6	4.2	0.8
W-5	0.0	0.0	1.1	0.0	2.2	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.0	4.4	0.0	7.8	0.0	7.4
W-4	0.0	0.0	0.4	0.0	1.6	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	1.6	0.0	3.6	0.0	3.5
W-3	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	5.6	0.0	0.0	1.4	5.6	2.6	5.6	2.8
W-2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.8	3.4	0.9	0.0	1.7	5.2	2.0	5.2	2.2
W-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.0	0.5
TOT WO	0.0	0.0	0.2	0.0	0.7	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.1	0.0	0.0	0.8	1.2	3.2	0.4	0.0	1.6	4.0	2.5	4.0	2.6
E-9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	2.4	7.4	6.1	0.0	8.5	7.4	8.5	7.4	8.5
E-8	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.6	0.0	0.6	2.7	3.2	5.7	4.5	8.4	9.0	8.7	9.0	8.7
E-7	0.1	0.0	0.2	0.4	0.4	0.0	0.0	0.0	0.7	0.4	0.0	0.0	0.0	0.0	0.0	1.9	2.4	4.4	5.0	6.1	7.5	12.3	8.2	12.8	8.4
E-6	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.3	0.1	0.1	0.0	0.0	0.0	0.0	3.5	2.1	7.1	4.2	5.6	6.5	16.2	6.7	16.4	7.2
E-5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	5.0	2.5	6.8	1.7	1.3	4.4	13.3	4.4	13.3	4.9
E-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	7.4	2.5	7.0	0.4	0.2	3.3	14.7	3.3	14.7	4.0
E-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.1	0.2	0.0	0.0	6.0	2.4	7.4	0.3	0.3	3.6	13.8	3.6	13.8	4.3
E-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.4	0.5	0.0	0.0	1.3	0.7	1.5	0.3	0.1	3.9	3.3	3.9	3.3	3.8
E-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	1.0	3.5	0.3	0.0	0.0	0.4	1.0	0.5	0.3	8.1	2.5	8.1	2.5	7.8
TOTAL EN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.9	0.2	0.5	0.1	0.0	4.4	2.0	5.6	1.3	1.2	4.7	11.5	4.8	11.5	5.2
COL TOT	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.8	0.2	0.4	0.1	0.0	4.2	1.9	5.3	1.2	1.1	4.3	10.8	4.4	10.9	4.8

NOTES:

1. Marine Corps data is as of end of month September 1998. Marine Corps source files are the Marine Corps Total Force System and HIV+ Data Base.
2. Marine Corps strength data source is as of September 30, 1998.
3. The Exceptional Family Member Program comprises 1,848 of Administrative Temporary Nondeployables of which 130 are actually Nondeployable.
4. M = Male; F = Female; TOT OFR = Total Officer; TOT WO = Total Warrant Officer; TOT EN = Total Enlisted; COL TOT = Column Total.

AIR FORCE NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER)

Table G-29

	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		COUNTRY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMINISTRATIVE		TOTAL TEMPORARY		ARMY NONDEPLOYABLE UNIT PERSONNEL		
GRADE	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	TOTAL
O-6	1	0	43	8	1	0	3	0	45	8	0	0	1	0	0	0	10	1	92	2	103	3	148	11	159
O-5	2	0	110	25	2	0	0	0	114	25	0	0	11	1	0	10	25	4	300	31	336	46	450	71	521
O-4	4	0	95	18	0	0	1	1	99	18	0	0	11	0	0	93	31	20	465	76	507	189	606	207	813
O-3	3	1	96	24	1	2	1	0	100	27	0	0	14	1	0	325	45	30	933	205	992	561	1092	588	1680
O-2	0	0	14	2	0	0	0	0	14	2	0	0	9	0	0	53	5	7	375	87	389	147	403	149	552
O-1	0	0	2	0	0	0	0	0	2	0	0	0	4	1	0	30	3	5	554	146	561	182	563	182	745
TOT OFR	10	1	360	77	4	2	5	1	374	80	0	0	50	3	0	511	119	67	2719	547	2888	1128	3262	1208	4470
W-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOT WO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E-9	0	0	62	6	0	0	0	0	62	6	0	0	0	0	0	0	12	0	75	5	87	5	149	11	160
E-8	0	0	90	9	0	0	0	0	90	9	0	0	4	0	0	7	35	3	170	21	209	31	299	40	339
E-7	9	1	401	60	3	0	0	0	413	61	0	0	27	3	0	48	186	55	923	102	1136	208	1549	269	1818
E-6	21	0	512	73	2	0	6	1	535	73	0	0	46	3	0	119	264	51	1189	119	1499	292	2034	365	2399
E-5	32	1	705	140	2	2	0	0	739	143	4	0	81	11	0	652	449	127	2259	331	2793	1121	3532	1264	4796
E-4	12	1	163	61	2	0	377	141	177	62	2	0	134	12	0	1361	350	155	2178	506	2664	2034	2841	2096	4937
E-3	0	0	17	6	0	0	730	308	17	6	1	0	134	18	0	1029	183	77	1925	568	2243	1692	2260	1698	3958
E-2	0	0	1	2	0	0	290	140	1	2	1	1	73	18	0	222	70	36	1366	432	1510	709	1511	711	2222
E-1	1	0	0	1	0	0	176	68	1	1	3	1	342	43	0	9	11	2	1384	505	1740	560	1741	561	2302
TOTAL EN	75	3	1951	358	9	2	1579	658	2035	363	11	2	841	108	0	3447	1560	506	11469	2589	13881	6652	15916	7015	22931
COL TOT	85	4	2311	435	13	4	1584	659	2409	443	11	2	891	111	0	3958	1679	573	14188	3136	16769	7780	19178	8223	27401

NOTES:

1. Air Force data is as of September 1998. Air Force source file is the Personnel Data System.
2. Air Force strength data is as of September 1998.
3. M = Male; F = Female; TOT OFR = Total Officer; TOT WO = Total Warrant Officer; TOT EN = Total Enlisted; COL TOT = Column Total.

AIR FORCE NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER) (BY PERCENT)

Table G-30

	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		COUNTRY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMINISTRATIVE		TOTAL TEMPORARY		ARMY NONDEPLOYABLE UNIT PERSONNEL		
GRADE	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	TOTAL
O-6	0.0	0.0	1.2	3.0	0.0	0.0	0.1	0.0	1.3	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	2.6	0.7	2.9	1.1	4.2	4.1	4.2
O-5	0.0	0.0	1.2	1.9	0.0	0.0	0.0	0.0	1.3	1.9	0.0	0.0	0.1	0.1	0.0	0.8	0.3	0.3	3.3	2.4	3.7	3.5	4.9	5.4	5.0
O-4	0.0	0.0	0.7	0.8	0.0	0.0	0.0	0.0	0.7	0.8	0.0	0.0	0.1	0.0	0.0	4.1	0.2	0.9	3.5	3.3	3.8	8.3	4.5	9.1	5.2
O-3	0.0	0.0	0.4	0.5	0.0	0.0	0.0	0.0	0.4	0.5	0.0	0.0	0.1	0.0	0.0	6.4	0.2	0.6	4.2	4.0	4.4	11.0	4.9	11.5	6.1
O-2	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.2	0.0	0.0	3.3	0.1	0.4	6.4	5.5	6.7	9.2	6.9	9.3	7.4
O-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	2.1	0.1	0.4	10.2	10.2	10.4	12.8	10.4	12.8	10.9
TOT OFR	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.6	0.7	0.0	0.0	0.1	0.0	0.0	4.3	0.2	0.6	4.6	4.6	4.8	9.4	5.5	10.1	6.2
W-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOT WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E-9	0.0	0.0	2.3	2.1	0.0	0.0	0.0	0.0	2.3	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	2.8	1.8	3.3	1.8	5.6	3.9	5.4
E-8	0.0	0.0	1.7	1.3	0.0	0.0	0.0	0.0	1.7	1.3	0.0	0.0	0.1	0.0	0.0	1.0	0.7	0.4	3.3	3.1	4.0	4.6	5.7	5.9	5.8
E-7	0.0	0.0	1.5	1.8	0.0	0.0	0.0	0.0	1.6	1.9	0.0	0.0	0.1	0.1	0.0	1.5	0.7	1.7	3.5	3.1	4.3	6.4	5.9	8.2	6.1
E-6	0.1	0.0	1.5	1.6	0.0	0.0	0.0	0.0	1.6	1.6	0.0	0.0	0.1	0.1	0.0	2.7	0.8	1.1	3.5	2.7	4.4	6.5	6.0	8.2	6.3
E-5	0.1	0.0	1.1	1.3	0.0	0.0	0.0	0.0	1.2	1.3	0.0	0.0	0.1	0.1	0.0	6.1	0.7	1.2	3.6	3.1	4.5	10.5	5.6	11.8	6.5
E-4	0.0	0.0	0.3	0.4	0.0	0.0	0.7	0.9	0.3	0.4	0.0	0.0	0.3	0.1	0.0	9.0	0.7	1.0	4.1	3.3	5.1	13.4	5.4	13.8	7.3
E-3	0.0	0.0	0.1	0.1	0.0	0.0	2.2	2.6	0.1	0.1	0.0	0.0	0.4	0.2	0.0	8.8	0.6	0.7	5.8	4.9	6.8	14.5	6.9	14.6	8.9
E-2	0.0	0.0	0.0	0.0	0.0	0.0	2.2	3.1	0.0	0.0	0.0	0.0	0.6	0.4	0.0	4.9	0.5	0.8	10.4	9.5	11.5	15.6	11.5	15.6	12.6
E-1	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.5	0.0	0.0	0.0	0.0	3.9	1.6	0.0	0.3	0.1	0.1	16.0	18.6	20.1	20.6	20.1	20.6	20.2
TOT EN	0.0	0.0	0.8	0.7	0.0	0.0	0.7	1.2	0.9	0.7	0.0	0.0	0.4	0.2	0.0	6.4	0.7	0.9	4.8	4.8	5.8	12.4	6.7	13.1	7.9
COL TOT	0.0	0.0	0.8	0.7	0.0	0.0	0.5	1.0	0.8	0.7	0.0	0.0	0.3	0.2	0.0	6.0	0.6	0.9	4.8	4.8	5.6	11.9	6.4	12.6	7.5

NOTES:

1. Air Force data is as of September 1998. Air Force source file is the Personnel Data System.
2. Air Force strength data is as of September 1998.

DOD NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER)

Table G-31

	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		COUNTRY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMINISTRATIVE		TOTAL TEMPORARY		ARMY NONDEPLOYABLE UNIT PERSONNEL		
GRADE	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	TOTAL
O-6	2	0	50	15	1	0	3	0	53	15	0	0	2	0	0	1	33	6	255	21	290	28	343	43	386
O-5	8	0	149	33	2	0	0	0	159	33	0	0	13	1	0	17	79	18	688	78	780	114	939	147	1086
O-4	20	1	136	45	8	2	1	1	164	48	0	0	27	2	0	105	100	54	973	156	1100	317	1264	365	1629
O-3	13	1	133	43	9	2	1	0	155	46	0	0	38	9	0	399	149	83	1440	309	1627	800	1782	846	2628
O-2	1	0	24	19	0	1	0	0	25	20	0	0	27	0	0	198	39	54	465	118	531	370	556	390	946
O-1	1	0	5	2	0	0	0	0	6	2	1	0	13	3	0	89	34	31	587	155	635	278	641	280	921
TOT OFR	45	2	497	157	20	5	5	1	562	164	1	0	120	15	0	809	434	246	4408	837	4963	1907	5525	2071	7596
W-5	0	0	3	1	2	0	0	0	5	1	0	0	1	0	0	0	6	0	0	0	7	0	12	1	13
W-4	1	0	19	2	4	0	0	0	24	2	0	0	0	0	0	0	8	0	17	1	25	1	49	3	52
W-3	2	0	12	2	6	0	0	0	20	2	0	0	5	0	0	1	18	4	34	3	57	8	77	10	87
W-2	0	0	8	8	0	0	0	0	8	8	0	0	8	0	0	7	23	6	34	1	65	14	73	22	95
W-1	2	0	0	1	0	0	0	0	2	1	0	0	4	0	0	8	2	0	0	0	6	8	8	9	17
TOT WO	5	0	42	14	12	0	0	0	59	14	0	0	18	0	0	16	57	10	85	5	160	31	219	45	264
E-9	7	0	82	15	0	0	0	0	89	15	0	0	1	0	0	0	82	4	324	11	407	15	496	30	526
E-8	8	2	164	49	5	1	0	0	177	52	1	0	9	1	0	9	260	19	800	58	1070	87	1247	139	1386
E-7	70	3	679	190	41	1	0	0	790	194	2	5	54	3	0	91	905	160	3318	329	4279	588	5069	782	5851
E-6	182	8	894	268	30	0	6	1	1106	276	19	15	142	10	0	236	1749	320	6045	685	7955	1266	9061	1542	10603
E-5	243	17	1118	439	42	4	0	0	1403	460	47	13	334	36	0	1433	2300	465	6274	976	8955	2923	10358	3383	13741
E-4	99	11	542	520	24	7	377	141	665	538	139	18	512	86	0	2339	2212	719	3600	926	6463	4088	7128	4626	11754
E-3	22	4	169	195	7	2	730	308	198	201	468	13	650	96	0	2572	1859	588	2605	741	5582	4010	5780	4211	9991
E-2	1	0	37	71	3	1	290	140	41	72	640	18	705	83	0	810	561	148	1778	501	3684	1560	3725	1632	5357
E-1	6	0	14	36	1	1	176	68	21	37	517	288	2109	121	0	95	106	33	1725	540	4457	1077	4478	1114	5592
TOT EN	638	45	3699	1783	153	17	1579	658	4490	1845	1833	370	4516	436	0	7585	10034	2456	26469	4767	42852	15614	47342	17459	64801
COL TOT	688	47	735	1954	185	2139	1584	659	5111	2023	1834	370	4654	451	0	8410	10525	2712	30962	5609	47975	17552	53086	19575	72661

NOTES:

1. DoD data is a composite of service data. Service data as of dates are: Army - September 15 1998; Navy - September 30, 1998; Marine Corps - September 30, 1998; Air Force - September 30, 1998.
2. M = Male; F = Female; TOT OFR = Total Officer; TOT WO = Total Warrant Officer; TOT EN = Total Enlisted; COL TOT = Column Total.
3. Unique record for each service member.

DOD NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER) (BY PERCENT)

Table G-32

	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		COUNTRY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMINISTRATIVE		TOTAL TEMPORARY		ARMY NONDEPLOYABLE UNIT PERSONNEL		
GRADE	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	TOTAL
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
GRADE	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	TOTAL
O-6	0.0	0.0	0.5	1.8	0.0	0.0	0.0	0.0	0.5	1.8	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.7	2.4	2.6	2.8	3.4	3.3	5.2	3.4
O-5	0.0	0.0	0.6	1.0	0.0	0.0	0.0	0.0	0.6	1.0	0.0	0.0	0.1	0.0	0.0	0.5	0.3	0.5	2.7	2.4	3.1	3.5	3.7	4.5	3.8
O-4	0.1	0.0	0.4	0.8	0.0	0.0	0.0	0.0	0.5	0.9	0.0	0.0	0.1	0.0	0.0	1.9	0.3	1.0	2.7	2.8	3.0	5.6	3.5	6.5	3.9
O-3	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.3	0.4	0.0	0.0	0.1	0.1	0.0	3.6	0.2	0.7	2.4	2.8	2.7	7.2	2.9	7.6	3.7
O-2	0.0	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.1	0.0	0.0	4.5	0.2	1.2	2.2	2.7	2.6	8.4	2.7	8.9	3.8
O-1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	2.4	0.2	0.9	3.6	4.3	3.9	7.6	3.9	7.7	4.6
TOT OFR	0.0	0.0	0.3	0.5	0.0	0.0	0.0	0.0	0.3	0.6	0.0	0.0	0.1	0.1	0.0	2.8	0.3	0.9	2.6	2.9	2.9	6.6	3.3	7.2	3.8
W-5	0.0	0.0	0.7	16.7	0.5	0.0	0.0	0.0	1.2	16.7	0.0	0.0	0.2	0.0	0.0	0.0	1.4	0.0	0.0	0.0	1.7	0.0	2.8	16.7	3.0
W-4	0.1	0.0	1.0	4.1	0.2	0.0	0.0	0.0	1.3	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.9	2.0	1.3	2.0	2.6	6.1	2.7
W-3	0.1	0.0	0.3	1.1	0.2	0.0	0.0	0.0	0.5	1.1	0.0	0.0	0.1	0.0	0.0	0.5	0.5	2.1	0.9	1.6	1.4	4.2	2.0	5.3	2.1
W-2	0.0	0.0	0.1	1.6	0.0	0.0	0.0	0.0	0.1	1.6	0.0	0.0	0.1	0.0	0.0	1.4	0.4	1.2	0.6	0.2	1.1	2.8	1.2	4.4	1.4
W-1	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.2	0.0	0.0	3.7	0.1	0.0	0.0	0.0	0.3	3.7	0.4	4.1	0.8
TOT WO	0.0	0.0	0.3	1.5	0.1	0.0	0.0	0.0	0.4	1.5	0.0	0.0	0.1	0.0	0.0	1.7	0.4	1.0	0.6	0.5	1.1	3.2	1.5	4.7	1.7
E-9	0.1	0.0	0.8	2.6	0.0	0.0	0.0	0.0	0.9	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.7	3.3	1.9	4.2	2.6	5.1	5.2	5.1
E-8	0.0	0.1	0.7	2.2	0.0	0.0	0.0	0.0	0.7	2.3	0.0	0.0	0.0	0.0	0.0	0.4	1.1	0.8	3.3	2.6	4.5	3.9	5.2	6.2	5.3
E-7	0.1	0.0	0.8	1.9	0.0	0.0	0.0	0.0	0.9	2.0	0.0	0.1	0.1	0.0	0.0	0.9	1.0	1.6	3.7	3.3	4.7	5.9	5.6	7.9	5.8
E-6	0.1	0.0	0.6	1.6	0.0	0.0	0.0	0.0	0.8	1.6	0.0	0.1	0.1	0.1	0.0	1.4	1.2	1.9	4.2	4.1	5.5	7.5	6.2	9.1	6.5
E-5	0.1	0.1	0.5	1.5	0.0	0.0	0.0	0.0	0.7	1.6	0.0	0.0	0.2	0.1	0.0	4.8	1.1	1.6	3.0	3.3	4.3	9.9	5.0	11.4	5.8
E-4	0.0	0.0	0.3	1.2	0.0	0.0	0.2	0.3	0.3	1.2	0.1	0.0	0.2	0.2	0.0	5.3	1.0	1.6	1.7	2.1	3.0	9.3	3.4	10.6	4.6
E-3	0.0	0.0	0.1	0.6	0.0	0.0	0.5	1.0	0.1	0.6	0.3	0.0	0.4	0.3	0.0	8.0	1.2	1.8	1.7	2.3	3.7	12.5	3.8	13.1	5.5
E-2	0.0	0.0	0.0	0.5	0.0	0.0	0.4	0.9	0.1	0.5	0.8	0.1	0.9	0.6	0.0	5.4	0.7	1.0	2.3	3.4	4.7	10.5	4.7	11.0	5.7
E-1	0.0	0.0	0.0	0.5	0.0	0.0	0.4	1.0	0.0	0.5	1.2	4.0	4.8	1.7	0.0	1.3	0.2	0.5	3.9	7.6	10.1	15.1	10.1	15.7	10.9
TOT EN	0.1	0.0	0.4	1.1	0.0	0.0	0.2	0.4	0.5	1.2	0.2	0.2	0.5	0.3	0.0	4.8	1.0	1.6	2.7	3.0	4.4	9.9	4.9	11.1	5.8
COL TOT	0.1	0.0	0.1	1.0	0.0	1.1	0.1	0.4	0.4	1.1	0.2	0.2	0.4	0.2	0.0	4.5	0.9	1.5	2.7	3.0	4.2	9.4	4.6	10.5	5.4

NOTES:

1. DoD data is a composite of service data. Service data as of dates are: Army - September 15 1998; Navy - September 30, 1998; Marine Corps - September 30, 1998; Air Force - September 30, 1998.
2. M = Male; F = Female; TOT OFR = Total Officer; TOT WO = Total Warrant Officer; TOT EN = Total Enlisted; COL TOT = Column Total.
3. Unique record for each service member.

NATIONAL SECURITY AND THE LAW OF THE SEA CONVENTION

In the modern security environment, it is increasingly important that the United States move quickly to accede to the Law of the Sea Convention. The Convention, as modified, provides a written legal regime that will protect U.S. national security interests, principally by preserving freedom of navigation and overflight worldwide. In dealing with threats such as the proliferation of weapons of mass destruction, international terrorism, and worldwide narcotics trafficking, U.S. forces must have freedom to move swiftly and as a matter of right through the world's oceans and straits. U.S. accession of the Convention would protect these rights and preserve reciprocity with other coastal nations.

The President transmitted the Law of the Sea Convention to the Senate in October 1994. U.S. accession to the Convention is necessary not only to ensure the protection of U.S. national security interests, but also to preserve U.S. credibility and standing within the international community on law of the sea issues.

DoD continues to fully support ratification of the Law of the Sea Convention. National security interests are intimately tied to the need to move warfighting units through international straits, archipelagic sea lanes, and international waters, as the Convention allows. The Convention guarantees the right of innocent passage through foreign territorial seas and constrains coastal nations from unreasonably extending their maritime boundaries. These assurances of vessel and aircraft mobility and limitations on unreasonable maritime claims will ensure preservation of U.S. capability to deter and respond whenever and wherever required pursuant to national security objectives.

The United States is currently the only maritime power that has not become a State Party to the Convention. As of November 1998, 130 nations are parties to the Treaty, including most U.S. allies. The failure to accede to the Convention continues to be detrimental to U.S. international reputation and adversely affects U.S. credibility in international fora, where the United States continues its efforts to preserve the right to freely move throughout the world's oceans. Because the United States failed to accede to the Convention by November 1998, the United States has forfeited its provisional membership on the International Seabed Authority. Upon accession, however, the United States will regain membership in that body. For these reasons, acceding to the Convention at this time will substantially advance U.S. national security and economic interests.

FREEDOM OF NAVIGATION

For 19 years, the U.S. Freedom of Navigation program has ensured that excessive coastal state claims over the world's oceans and airspace are repeatedly challenged. By diplomatic protests and operational assertions, the United States has insisted upon adherence by the nations of the world to the international law of the sea, as reflected in the UN Law of the Sea Convention. A significant majority of countries (130) are now Parties to the Convention, and there is an encouraging trend toward the rolling-back of excessive maritime claims. Nonetheless, some coastal states continue to assert maritime claims inconsistent with international law, which left unchallenged would limit navigational freedoms vital to U.S. national security and essential to peaceful uses of the world's oceans.

In FY 1998, U.S. armed forces conducted operational assertions challenging the excessive maritime claims listed in the accompanying table. In addition, military vessels and aircraft frequently conducted routine transits through international straits, such as the Straits of Gibraltar, Hormuz, and Malacca. Air and surface units also transited the Indonesian Archipelago in archipelagic sea lanes passage on 20 occasions and transited the Philippine Archipelago by exercising high seas freedoms, transit passage, and innocent passage, as applicable, on 32 occasions. Combined with robust and highly visible routine operations by U.S. forces on, over, and under the world's oceans, and scrupulous adherence by the United States to the navigational provisions of the UN Law of the Sea Convention, Freedom of Navigation operations have continued to underscore the U.S. commitment to a stable legal regime for the world's oceans.

FY 1998 DOD OPERATIONAL ASSERTIONS

Country	Excessive Claims Challenged
Albania	Prior permission for warship to enter the territorial sea
Algeria	Prior permission for warship to enter the territorial sea
Bangladesh	Excessive straight baselines; claimed security zone
Burma	Excessive straight baselines; claimed security zone
Cambodia	Excessive straight baselines; claimed security zone
Croatia	Prior permission for warship to enter the territorial sea
Cuba	Require state aircraft to comply with directions from air traffic control within flight information region
El Salvador	200 nautical miles (nm) territorial sea
Iran	Excessive straight baselines; prior permission for warship to enter the territorial sea
Kenya	Excessive straight baselines; historic bay claim (Ungwana Bay)
Liberia	200 nm territorial sea
Libya	Claims all waters south of 32-30 north latitude Gulf of Sidra closure line as internal waters
Malaysia	Excessive restrictions on military activities in exclusive economic zone
Maldives	Prior permission for warship to enter the territorial sea
Malta	Prior permission for warship to enter the territorial sea
Nicaragua	200 nm territorial sea
Pakistan	Claimed security zone; excessive restrictions on military activities in the exclusive economic zone

FY 1998 DOD OPERATIONAL ASSERTIONS (Continued)	
Country	**Excessive Claims Challenged**
Philippines	Excessive straight baselines; claims archipelagic waters as internal waters
Saudi Arabia	Excessive straight baselines; claimed security zone
Seychelles	Prior permission for warship to enter the territorial sea
Sierra Leone	200 nm territorial sea
Somalia	200 nm territorial sea; prior permission for warship to enter the territorial sea
Sudan	Prior permission for warship to enter the territorial sea; claimed security zone
Syria	35 nm territorial sea; prior permission for warship to enter the territorial sea
United Arab Emirates	Prior permission for warship to enter the territorial sea; claimed security zone
Viet Nam	Excessive straight baselines; claimed security zone; prior permission for warship to enter the territorial sea
Yemen	Prior permission for warship to enter the territorial sea; claimed security zone

Decisions about whether and when to employ U.S. forces should be guided, first and foremost, by the interests at stake—be they vital, important, or humanitarian in nature—and by whether the costs and risks of a particular military involvement are commensurate with those interests. When the interests are vital—that is, of broad, overriding importance to the survival, security, and vitality of the nation—the United States will do whatever it takes to defend them, including, when necessary, the unilateral use of military power. Vital U.S. national interests include:

- Protecting the sovereignty, territory, and population of the United States.
- Deterring the emergence of hostile regional coalitions or hegemons.
- Promoting and facilitating uninhibited access to key markets, energy supplies, and strategic resources.
- Deterring and, if necessary, defeating aggression against U.S. allies and friends.
- Ensuring freedom of the seas, airways, and space, and the security of vital lines of communication.

In some cases, the interests at stake may be important but not vital—that is, they do not affect the nation's survival, but they have a significant influence on the national well-being and the character of the world in which Americans live. In such cases, military forces should be used only if they advance U.S. strategic interests, if they are likely to accomplish their objectives, and if other means are inadequate to achieve U.S. goals. Such uses of force should be both selective and limited, reflecting the relative saliency of the U.S. interests involved.

When the interests at stake are primarily humanitarian in nature, the U.S. military is generally not the best means of addressing a crisis. In some situations, however, use of the military's unique capabilities may be both necessary and appropriate: when a humanitarian catastrophe dwarfs the ability of civilian relief agencies to respond or when the need for immediate relief is urgent and only the U.S. military has the ability to jumpstart the longer-term response to the disaster. In such cases, if the United States decides to commit military forces to assist in the situation, the military mission should be clearly defined, the risk to American troops should be minimal, and substantial U.S. military involvement should be confined to the initial period of providing relief until broader international assistance efforts get under way.

In all cases where the commitment of U.S. forces is considered, determining whether the associated costs and risks are commensurate with the U.S. interests at stake should be the central calculus of U.S. decisions. Such decisions should also depend on the United States' ability to identify a clear mission, the desired end state of the situation, and the exit strategy for the forces committed.

DoD Mission

The mission of the Department of Defense is to support and defend the Constitution of the United States; to provide for the common defense of the United States, its citizens, and its allies; and to protect and advance U.S. interests around the world. To accomplish this mission, the Department maintains trained forces ready to respond to threats to U.S. security arising anywhere on the globe.

In peacetime, the United States works with friends and allies to promote a stable world that supports economic growth and provides opportunities for emerging democracies. The routine deployment of U.S. forces overseas, combined with the maintenance of ready forces at home, both promotes stability and deters the use of force against U.S. interests. The same military forces that help shape the environment can also respond quickly to threats to U.S. security when crises arise. The performance goals presented in the Department's FY 2000 performance plan derive from the national security strategy. Objectives related to shaping the international environment and responding to threats are embodied in one corporate goal, while goals and objectives relating to preparing for future requirements are captured in a second goal.

DoD Vision

The Department of Defense:

- Fields the best trained, best equipped, best prepared fighting force in the world.
- Supports alliances and security relationships that protect and advance U.S. security interests.
- Advances national interests by working effectively with other federal agencies, Congress, and the private sector.
- Serves as a model of effective, efficient, innovative management and leadership.

DoD Corporate-Level Goals

DoD has established two corporate-level goals:

DoD Corporate-Level Goals
Goal 1. Shape the international environment and respond to the full spectrum of crises by providing appropriately sized, positioned, and mobile forces.
Goal 2. Prepare now for an uncertain future by pursuing a focused modernization effort that maintains U.S. qualitative superiority in key warfighting capabilities. Transform the force by exploiting the Revolution in Military Affairs, and reengineer the Department to achieve a 21st century infrastructure.

The Department's corporate goals are fully consistent with the departmental objectives articulated in the 1997 Quadrennial Defense Review (QDR). In a letter to Congress accompanying the QDR and in last year's Government Performance and Results Act (GPRA) performance plan, DoD divided the shape, respond, and prepare objectives into six corporate goals. This year, the Department has regrouped the objectives into two corporate goals: "shape and respond" and "prepare," more accurately reflecting the necessary resource tradeoffs between current and future needs.

THE ANNUAL PERFORMANCE PLAN AND THE GPRA REQUIREMENTS

The Government Performance and Results Act of 1993 seeks to improve government-wide program effectiveness, government accountability, and, ultimately, public confidence by focusing on results achieved for resources expended. The Department of Defense employs the Planning, Programming, and Budgeting System (PPBS) to create a budget that fully implements the national security strategy within available resources. The DoD budget has one principal output: military forces that are ready to go to war. Because these forces are intended to deter potential adversaries, the Department's output is considerably more difficult to measure than are the bottom-line returns (net profits or losses) of most private enterprises. Nonetheless, the Department has developed a methodology that allows it to present output-oriented goals and accompanying measures within the context of GPRA.

As stated earlier, DoD's two corporate goals guide the annual implementation of the PPBS. Thus, the two corporate goals form the basis for using GPRA as a management tool. They serve as strategic goals for the Department, and the document that introduced them, the May 1997 *Report of the Quadrennial Defense Review*, is the Department's strategic plan.

The Department's annual performance plan plots a short-term course toward achieving its multiyear strategic plan. Annual performance goals (hereafter referred to as performance goals) establish a measurable path to incremental achievement of specific corporate goals articulated in the strategic plan. Performance goals are supported and evaluated by quantifiable output, which is assessed using performance measures or performance indicators. Normally, one performance goal encompasses several performance measures or indicators. For the portion of the performance goal they evaluate, performance measures are sufficient in themselves to judge results. Performance indicators are not sufficient to gauge the success of a program; rather, they provide meaningful insights for qualitative assessments. Performance measures and indicators quantify the output of the defense program for key measures associated with providing a ready force and preparing for the future.

This appendix presents the Department's performance plan for FY 2000. DoD will evaluate its progress in executing this plan in the *FY 2000 Annual Performance Report*, to be submitted in the spring of 2001. Additionally, this appendix updates and replaces DoD's FY 1999 performance plan, the report on which will be submitted in the spring of 2000.

CORPORATE GOAL 1 – SHAPE AND RESPOND

Corporate Goal 1. Shape the international environment and respond to the full spectrum of crises by providing appropriately sized, positioned, and mobile forces.

Annual performance goals supporting Corporate Goal 1 include:

- Supporting U.S. regional security alliances through military-to-military contacts and the routine presence of ready forces overseas, maintained at force levels determined by the QDR.
- Maintaining ready forces and ensuring they have the training necessary to provide the United States with the ability to shape the international environment and respond to the full range of crises.
- Maintaining sufficient airlift and sealift capability, with adequate prepositioning, to move military forces from the United States to any location in the world.

In addition to the performance goals cited above, several less quantifiable but equally important efforts contribute to achieving the Department's first corporate goal. For example, the Department's role in shaping the international environment is closely integrated with the State Department's diplomatic efforts. Diplomacy serves as a critical force multiplier in times of crisis, when the United States seeks to establish and work with coalition partners. In addition, to defend against terrorism (including potential terrorist use of weapons of mass destruction), DoD provides technical support to the Federal Bureau of Investigation. DoD also works closely with the Department of Justice and the Federal Emergency Management Agency (FEMA) to ensure the security of the increasingly interconnected and vulnerable infrastructures of the United States against physical or cyber attack. Finally, DoD provides airborne and seaborne surveillance of high-intensity drug-trafficking routes in support of the White House Office of National Drug Control Policy.

Performance Goal 1.1 – Support U.S. regional security alliances through military-to-military contacts and the routine presence of ready forces overseas, maintained at force levels determined by the QDR.

Overseas presence promotes regional security and stability, deters potential conflicts, and gives substance to U.S. security commitments. It contributes to deterrence by demonstrating the nation's determination to defend U.S., allied, and friendly interests in critical regions, while enabling U.S. forces to respond rapidly to crises in distant locales. Further, the routine presence of U.S. forces abroad enhances coalition operations across the spectrum of conflict by promoting joint and combined training and encouraging responsibility-sharing on the part of friends and allies. In support of these principles, the QDR established force-level objectives of roughly 100,000 military personnel both in Europe and in the Asia/Pacific region. In addition, the QDR directed the continuation of rotational deployments to key regions like Southwest Asia. Maintenance of these levels of forward-deployed forces forms the basis for Performance Measures 1.1.1 through 1.1.4.

Military-to-military contacts are also a key component of these efforts. Such contacts strengthen core alliances and enhance the ability of U.S. forces to operate as part of international coalitions, when such needs arise. Military-to-military contacts result from having forces both permanently stationed abroad and on rotational or temporary deployments. These activities complement and reinforce other efforts, such as International Military Education and Training programs. In addition, the Department conducts an international exercise program that leverages the benefits of forces present in a region with overarching U.S. assets (such as space systems and global mobility) to demonstrate U.S. capabilities and resolve. Performance Indicator 1.1.5 reflects the Department's commitment to international military exercise programs.

Performance Measure 1.1.1 – Army Overseas Presence			
	FY 1998 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Mechanized Divisions in Pacific Region	1	1	1
Divisions with Elements in Europe	2	2	2

Performance Measure 1.1.2 – Naval Overseas Presence (Percentage of time regions are covered by an aircraft carrier battle group)			
	FY 1998 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Pacific	67	100	100
Europe	40	75	75
Southwest Asia	82	75	75
NOTE: See Performance Measure 1.1.4 for coverage by amphibious ready groups.			

Performance Measure 1.1.3 – Air Force Overseas Presence (Fighter wing equivalents)			
	FY 1998 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Pacific	2	2	2
Europe	2	2	2
Southwest Asia	1	1	1

Performance Measure 1.1.4 – Marine Corps Overseas Presence (Percentage of time regions are covered by a Marine expeditionary unit/amphibious ready group)			
	FY 1998 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Pacific	100	100	100
Europe	82	80	80
Southwest Asia	50	50	50

Performance Indicator 1.1.5 – Number of Overseas Exercises			
	FY 1998 Baseline	FY 1999 Goal	FY 2000 Goal
Number of Combined Exercises	165	161	146
NOTE: Combined exercises involve the participation of U.S. forces with military forces of other nations.			

The primary purpose of joint training is to prepare U.S. forces to conduct joint and multinational operations. The Chairman of the Joint Chiefs of Staff (CJCS) Exercise Program provides critical mission-based readiness training required by unified commanders to deploy and employ combat forces worldwide. Exercises conducted under this program demonstrate U.S. resolve and the ability to project U.S. forces to distant theaters in support of national interests and commitments to allies. CJCS exercises provide joint force training that emphasizes interoperability, joint warfighting doctrine, and rapid deployment. Such training, conducted in conjunction with allies, provides opportunities to test and evaluate combined systems, lines of communication, and support agreements.

Exercises with foreign militaries must be balanced against the full list of tasks assigned to U.S. military units. The QDR directed that the number of joint exercise man-days be reduced by 15 percent from historic levels as a means of reducing excessive operational demands on troops and equipment. As a result, combatant commanders continuously reevaluate their exercise programs and have reduced the number of exercises through program consolidations.

Performance Goal 1.2 – Maintain ready forces and ensure they have the training necessary to provide the United States with the ability to shape the international environment and respond to the full range of crises.

The force structure objectives established in the QDR reflect the need for a balance between investments in existing forces and adequate preparation for the future. Today's security environment presents the same pressing needs for military forces as existed when the QDR was conducted. The force-level objectives for FY 2000 are, therefore, largely the same as the goals set in the QDR. The intent of these goals is to provide forces that can fight and win two major theater wars nearly simultaneously. At the same time, the goals reflect the fact that the United States must remain prepared to respond to smaller-scale contingencies. Although they are much less demanding than major theater wars, smaller-scale contingencies can become a very high priority, particularly when swift intervention of military forces is needed to contain, resolve, or mitigate the consequences of a conflict that could otherwise become far more costly and deadly.

Because crises can arise quickly, U.S. military forces must be continuously ready to respond. Readiness was a central concern in FY 1999, and both the FY 1999 and FY 2000 budgets were increased to correct deficiencies in the readiness of both combat and support forces. At the same time, the Department recognizes that tempo can have a significant impact on readiness. High tempos can impede readiness by adversely affecting the quality of life of military personnel, lowering morale as well as annual retention rates. High tempos can also result in excessive wear on military equipment and, where forces are performing tasks outside their primary mission area, can cause some perishable skills to degrade.

In recognition of the need to more closely monitor tempo across the force, the Joint Staff, in coordination with the Services, has instituted a tempo management process. Due to variations among the four Services in equipment, internal organization, operational concepts, and methods of managing tempo, it was necessary to establish Service-specific goals. The metric, for each Service, is the number of units exceeding its tempo goal.

Performance Measure 1.2.1 – Army Force Levels			
	FY 1997 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Active Corps	4	4	4
Divisions (Active/National Guard)	10/8	10/8	10/8
Active Armored Cavalry Regiments	2	2	2
Enhanced Brigades (National Guard)	15	15	15

Performance Indicator 1.2.2 – Army Deployment Tempo			
	FY 1998 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Number of Units Deploying More Than 120 Days per Year	18	0	0
Number of Units Deploying More Than 179 Days per Year	6	0	0

Performance Measure 1.2.3 – Naval Force Levels			
	FY 1997 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Aircraft Carriers (Active/Reserve)	11/1	11/1	11/1
Air Wings (Active/Reserve)	10/1	10/1	10/1
Amphibious Ready Groups	12	12	12
Attack Submarines	73	57	56
Surface Combatants (Active/Reserve)	118/10	106/10	108/8

Performance Indicator 1.2.4 – Navy Personnel Tempo			
	FY 1998 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Units Not Meeting Personnel Tempo Goal	2	0	0
NOTE: The Navy uses a combination metric for personnel tempo. To meet the goal, a unit must deploy for not more than six months at a time, spend twice as much time nondeployed as deployed, and spend 50 percent of its time in home port over a five-year cycle.			

Performance Measure 1.2.5 – Air Force Force Levels			
	FY 1997 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Fighter Wings (Active/Reserve)	13/7	13/7.2	12.6/7.6[a]
Air Defense Squadrons (Reserve)	10	6	4
Bombers (Active/Reserve)	175/25	158/27	163/27
[a] Fighter wing equivalents are preliminary and may be increased slightly on a temporary basis while F-16 units transition between roles or to newer-model aircraft.			

Performance Indicator 1.2.6 – Air Force Tempo			
	FY 1998 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Percent of Personnel Assigned to Combat Systems Who Are Deployed Under 120 Days TDY per Year[a]	77	100	100
Average Number of Days Deployed for Those Personnel Exceeding 120 Days TDY per Year	142	N/A	N/A
NOTE: TDY = temporary duty. TDY is a measure of the time that a unit is deployed away from its home station.			
[a] Includes personnel in occupational specialties directly associated with the operation of aircraft, weaponry, or other systems required for overseas deployments.			

Performance Measure 1.2.7 – Marine Corps Force Levels			
	FY 1997 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Marine Expeditionary Forces	3	3	3
Divisions (Active/Reserve)	3/1	3/1	3/1
Air Wings (Active/Reserve)	3/1	3/1	3/1
Force Service Support Groups (Active/Reserve)	3/1	3/1	3/1

Performance Indicator 1.2.8 – Marine Corps Deployment Tempo			
	FY 1998 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Units Deploying More Than 180 Days per Year Over a 36-Month Scheduling Period	1	0	0

There are two sets of measures that are classified and are therefore omitted from the FY 2000 performance plan. Performance Measures 1.2.9-1.2.12 set goals for the readiness of forces from each of the Services, while Performance Indicators 1.2.13–1.2.16 define goals for the percentage of billets filled in each Service. The *Quarterly Readiness Report to the Congress, January–March 1999* contains the performance plan for these measures. The *Quarterly Readiness Report to the Congress, October-December 1999* will provide the FY 1999 performance report for these measures.

Trained and ready forces provide the flexibility needed to shape the global environment, deter potential foes, and, if required, rapidly respond to a broad spectrum of threats. Each Service strives to optimize its limited training resources by establishing priorities for allocating them among major units, whether it be by assigning higher priority to first-to-fight units, following a cyclical readiness pattern, or maintaining a high state of overall readiness. The Services sustain different levels of readiness based on missions, response requirements, and force characteristics. While each Service employs a different approach to ensuring force readiness, all U.S. military forces must be trained and ready to bring their unique core competencies to bear. Performance Indicators 1.2.17 through 1.2.19 illustrate the significant resources the Services devote toward ensuring that U.S. forces have the capability and flexibility needed to respond to changing requirements.

Performance Indicator 1.2.17 – Number of Flying Hours per Month

	FY 1998 Baseline	FY 1999 Goal	FY 2000 Goal
Army (Active)	14.0	14.1	14.5
Army (Reserve Components)	8.7	8.0	9.0
Navy and Marine Corps (Active)	20.2	22.1	22.3
Navy and Marine Corps (Reserve)	11.0[a]	11.0[a]	11.0
Air Force Fighter/Attack (Active)	17.0	17.7	17.2
Air Force Fighter/Attack (AFR)	10.8	10.7	11.1
Air Force Fighter/Attack (ANG)	11.6	11.6	11.6
Air Force Bombers (Active)	19.3	17.9	15.8
Air Force Bombers (AFR)	16.5	16.0	17.2
Air Force Bombers (ANG)	19.7	19.7	19.7

NOTES: AFR = Air Force Reserve
ANG = Air National Guard
Army data reflect monthly flying hours per aircraft. Data for all other Services are expressed in monthly flying hours per crew.

[a] Naval Reserve only.

Performance Indicator 1.2.18 – Number of Tank-Miles per Year

	FY 1998 Baseline	FY 1999 Goal	FY 2000 Goal
Army (Active)	800	800	800
Army National Guard (Enhanced Separate Brigades)	288	288	278[a]

[a] Includes 100 miles per year for individual tank crew and squad training, 76 miles per year for platoon-level training, and 102 miles per year for transit to and from training areas.

Performance Indicator 1.2.19 – Number of Steaming Days per Quarter			
	FY 1998 Baseline	FY 1999 Goal	FY 2000 Goal
Navy (Active Deployed)	50.5	50.5	50.5
Navy (Reserve Deployed)	50.5	50.5	50.5
Navy (Active Nondeployed)	26.8	28.0	28.0
Navy (Reserve Nondeployed)	18.0	18.0	18.0

Performance Goal 1.3 – Maintain the capability to move military forces from the United States to any location in the world in response to aggression, using a combination of airlift, sealift, and prepositioned equipment.

Global power projection ensures that the nation has the ability to respond, with appropriate numbers and types of forces, to crises worldwide. As in its assessment of combat force levels and readiness, the QDR recognized that mobility forces must be able to respond across the spectrum of operations, from peacetime engagements to major theater wars. Further, the QDR reaffirmed the baseline requirements for an intertheater airlift capability of approximately 50 million ton-miles per day (MTM/D) and a surge sealift capacity of 10 million square feet of cargo space. (Surge sealift refers to seaborne transport capacity that can be brought to bear at the outset of a crisis. It does not include ships routinely used for prepositioning purposes, discussed under Performance Measure 1.3.3.) Programmed aircraft and ship acquisitions will enable the Department to reach its goals for airlift and sealift in FY 2005 and FY 2001, respectively.

The prepositioning of military equipment and supplies near potential conflict regions reduces response time in contingencies. With materiel stored on land or afloat at overseas locations, only troops and a relatively small amount of equipment need to be airlifted to a theater in a crisis. Objectives for prepositioning are based on those forces required very early in a conflict to halt an enemy's advance.

Performance Measure 1.3.1 – Intertheater Airlift Capacity (MTM/D)				
	FY 1996 Baseline	FY 1999 Goal	FY 2000 Goal	FY 2005 Goal
Military Airlift Capacity	27	26	26	30
Total Airlift Capacity	47	46	46	50

The FY 2005 goal of 50 MTM/D represents the minimum combined civil and military airlift capability that U.S. forces would need to fight and win two major theater wars at an acceptable level of risk. This goal was established by the 1995 *Mobility Requirements Study Bottom-Up Review Update* (MRS BURU). Military airlift is required for carrying outsize loads (such as Patriot missile systems, tanks, and helicopters) and for unloading cargo rapidly, particularly at airfields lacking materiel-handling equipment.

MTM/D is an aggregate measure of airlift capacity used as a top-line comparative metric. It combines measures such as aircraft flight hours per day, speed, and payload. Typical or average values are selected for each of these measures for each aircraft type in order to compute MTM/D. Thus, changes in MTM/D values reflect changes in the number and type of airlift aircraft. There are no known verification or validation deficiencies with this metric.

Performance Measure 1.3.2 – Surge Sealift Capacity (Million Square Feet)				
	FY 1998 Baseline	FY 1999 Goal	FY 2000 Goal	FY 2001 Goal
Organic Surge Sealift[a]	7.3	7.7	8.7	10
[a] Capacity contributed by DoD-owned or -chartered vessels. Excludes additional capacity provided by commercial ships that could be requisitioned for military use in a major operation.				

Based on lessons learned from the Gulf War and detailed mobility studies, the QDR reaffirmed the goal set by the MRS BURU of achieving 10 million square feet of surge sealift capacity by FY 2001. Square footage serves as an aggregate measure of ship capacity and is computed from ship deck plans by the Maritime Administration or the Military Sealift Command; it is tracked as a planning consideration by the United States Transportation Command. Square footage is the preferred capacity measure for roll-on/roll-off ships. For containerships and break-bulk ships, the standard measures (number of containers or volumetric capacity) are converted to square footage based on the vessels' ability to carry equivalent military cargo.

Performance Measure 1.3.3 – Forces Supported by Land- and Sea-Based Prepositioning Programs			
	FY 1998 Baseline	FY 1999 Goal	FY 2000 Goal
Army Heavy Brigades			
Land-based	5	5	6
Afloat	1	1	1
Marine Expeditionary Forces (MEFs)			
Land-based	partial[a]	partial[a]	partial[a]
Afloat	3	3	3
[a] Material is prepositioned only for the lead elements of a MEF.			

Land-based prepositioning programs are maintained in Europe, Southwest Asia, and the Pacific region. Sea-based prepositioning provides an additional means of stockpiling military materiel abroad; it complements land-based storage programs by providing the flexibility to move stocks between theaters of operation, as needs arise. Additional prepositioning programs, not covered in Performance Measure 1.3.3, provide base, fuel, and medical support for contingency operations.

CORPORATE GOAL 2 – PREPARE

Corporate Goal 2. Prepare now for an uncertain future by pursuing a focused modernization effort that maintains U.S. qualitative superiority in key warfighting capabilities. Transform the force by exploiting the Revolution in Military Affairs, and reengineer the Department to achieve a 21st century infrastructure.

Annual performance goals supporting Corporate Goal 2 include:

- Recruiting, retaining, and developing personnel to maintain a highly skilled and motivated force capable of meeting tomorrow's challenges.
- Transforming U.S. forces for the future.
- Streamlining the defense infrastructure by redesigning the Department's support structure and pursuing business practice reforms.

- Meeting combat forces' needs smarter and faster, with products and services that work better and cost less, by improving the efficiency of DoD's acquisition processes.

Performance Goal 2.1 – Recruit, retain, and develop personnel to maintain a highly skilled and motivated force capable of meeting tomorrow's challenges.

No amount of technological sophistication will enable the U.S. military to respond to future challenges if it fails to maintain the quality of its personnel or to make the investments necessary to develop them to their fullest potential. The Department is committed to recruiting high-quality service members, providing robust training for them, and improving the quality of life of its military personnel and their families.

The measures for Performance Goal 2.1 address recruiting and retention. The recruiting metrics focus on enlisted personnel, where the Department's major challenges lie. Officer recruiting is monitored annually, and recruiting goals are generally met. The primary management challenge with respect to the officer corps is maintaining the proper mix of specialties. For example, the Navy has recently had difficulty recruiting naval flight officers (non-pilot officer aircrew personnel) and nuclear propulsion officers, and in retaining aviation, surface, and nuclear specialists. Legislative initiatives to expand specialty pay have been developed to help remedy this situation. The Air Force currently is experiencing a shortfall of about 650 pilots, particularly within the fighter and theater airlift specialties. Despite actions to increase the size of pilot training classes and other management measures, the shortage is projected to grow over the next several years. The Air Force also has lengthened the time pilots are required to serve on active duty following flight training, but anticipates long-term challenges.

Performance Measure 2.1.1 – Enlisted Recruiting

	FY 1998 Baseline	FY 1999 Goal	FY 2000 Goal
Active Force	186,200	196,400	203,900
Selected Reserve	141,100	151,100	157,200

In FY 1998, the baseline year, the Department reached 97 percent of its numeric goal for active-duty recruits and 96 percent of its goal for recruits in the Selected Reserve. Each of the Services reports these data monthly in a standardized format.

Performance Indicator 2.1.2 – Quality Benchmarks for Enlisted Recruits (In percents)

	FY 1998 Baseline (Active/Reserve)	FY 1999 Goal	FY 2000 Goal
Recruits Holding High School Diplomas	94/ 89	>90	>90
Recruits in AFQT Categories I-IIIA	68/ 64	>60	>60
Recruits in AFQT Category IV	0.9/ 2	<4	<4

NOTE: AFQT = Armed Forces Qualifying Test. The AFQT is a subset of the standard aptitude test administered to all applicants for enlistment. It measures math and verbal aptitude and has proven to correlate closely with trainability and on-the-job performance.

The quality benchmarks for recruiting were established in 1992, after a study conducted jointly by DoD and the National Academy of Sciences produced a model linking recruit quality and recruiting resources to the job performance of enlistees. The model illuminates the relationships among costs associated with recruiting, training, attrition, and retention. It uses as a standard the performance level demonstrated by the recruit cohort that served in the Gulf War. The Department has adopted recruiting targets derived from this model—90 percent high school diploma graduates and 60 percent top-half aptitude (AFQT categories I-IIIA)—as its minimum acceptable quality thresholds. Adhering to these benchmarks reduces personnel and training costs, while ensuring that the force meets high performance standards.

Performance Measure 2.1.3A – Active Component Enlisted Retention Rates (In percents)

	FY 1987 Pre-Drawdown Baseline	FY 1998 Post-Drawdown Baseline	FY 1999 Goal	FY 2000 Goal
Army First Term	36.5	51.4	55	55
Army Second Term	70.5	74.8	75	75
Navy First Term	35.7	30.5	32	33.5
Navy Second Term	51.8	46.3	48	49.5
Air Force First Term	62	54	55	55
Air Force Second Term	76	69	75	75
Marine Corps First Term	35.4	21.6	23	23
Marine Corps Second Term	53.2	57.7	N/A[a]	N/A[a]

[a] The Marine Corps, while monitoring trends, does not set management goals for second-term retention.

The post-Cold War drawdown of U.S. military forces affected retention goals for nearly a decade. The Services gave some members early retirement and released others from active duty in order to achieve force reduction targets. Since retention rates are based on required manning in each pay-grade, retention goals were relaxed while the military was reducing in size.

The force drawdown is now effectively over, and personnel levels have begun to stabilize. Retention rates still reflect effects of the drawdown, however. For that reason, the table for Performance Measure 2.1.3A provides FY 1987 retention rates for purposes of comparison. The FY 1987 rates do not necessarily represent goals; rather, they serve as reference points from a period when the force was stable. The retention figures for FY 1998 serve as references against which to compare the FY 1999 and FY 2000 objectives.

Performance Measure 2.1.3B – Selected Reserve Enlisted Attrition Rates (In percents)			
	FY 1987 Pre-Drawdown Baseline	FY 1998 Post-Drawdown Baseline	FY 1999 Goal
Army National Guard	19.2	18.3	Establish Attrition Goals for FY 2000
Army Reserve	29.1	32.6	
Naval Reserve	29.6	26.3	
Marine Corps Reserve	34.7	29.6	
Air National Guard	11.7	11.1	
Air Force Reserve	19.6	13.6	

In assessing retention trends in the reserve components, DoD employs attrition rates rather than reenlistment rates. Attrition is computed by dividing total losses for a fiscal year by the average personnel strength for that year. This metric is preferable to reenlistment rates because only a small portion of the reserve population is eligible for reenlistment during any given year. In addition to monitoring attrition, the Department has decided to create attrition goals in order to enhance reserve personnel management. A reserve component recruiting/retention task force recently developed a common reserve component attrition formula based on information from the Defense Manpower Data Center's Reserve Component Personnel Data System. The reserve components are now defining attrition performance goals for FY 2000 and beyond.

As the Department develops these goals, it is important to recognize that attrition rates below targeted levels can present challenges, albeit not as severe as the problems created by excessively high attrition rates. For example, insufficient attrition can hamper career progression. An additional consideration in developing attrition goals is the fact that desired attrition rates vary among, and even within, individual reserve components. Accordingly, the Department's goals will reflect the unique needs of each reserve component.

Performance Goal 2.2 – Transform U.S. military forces for the future.

In *Joint Vision 2010*, issued by the Joint Chiefs of Staff in 1997, the nation's senior military leaders outlined the transformation needed to ensure a fully capable military force in the 21st century. Key attributes of such a force include the ability to read the battlefield and maneuver multiple elements to achieve maximum advantage, attack enemy targets with precision, protect U.S. forces and facilities, and support U.S. military operations anywhere in the world. The transformation to the *Joint Vision 2010* force requires maintaining U.S. technological superiority through the fielding of state-of-the-art weaponry and equipment while continuing research into designs for subsequent generations of combat systems. Yet a purely technological solution to future military needs is insufficient; history is replete with examples of militaries that failed to understand the proper use of the technologies they had harnessed. Joint experimentation into new operational concepts must be closely coupled with, and at times precede, the development of new weapons.

Fielding modern and capable forces in the near to mid-future requires aggressive action today. Sustained, adequate spending on the modernization of U.S. forces will be essential to ensure that tomorrow's forces continue to dominate across the spectrum of military operations. The procurement objectives established by the Department strike a balance between the need to devote continued resources to the operation and maintenance of existing forces and the need to sustain a high level of performance through the replacement of aging equipment.

Looking farther into the future, the Department sees research as critical in pursuing the Revolution in Military Affairs (RMA). The RMA will result from the application of communication, information, and associated technologies to military operations. To maintain technological superiority and pursue the RMA, the DoD science and technology (S&T) program will continue to invent, develop, and harness technology to provide new warfighting capabilities. The RMA is discussed in Chapter 10.

To ensure U.S. military preeminence in the long term, the Department must continue to focus investments on new generations of defense technologies. The Defense Science and Technology Strategy, with its supporting Basic Research Plan, Joint Warfighting Science and Technology Plan, and Defense Technology Area Plan, is the foundation of the science and technology program. The Office of the Secretary of Defense (OSD), the Joint Staff, the military departments, and the various defense agencies collaboratively develop the S&T program.

The Department's commitment to transforming U.S. military forces requires robust and stable funding for the science and technology program. S&T expenditures support basic research as well as focused investments guided by Defense Technology Objectives (DTOs). DTOs provide a framework for S&T efforts by identifying:

- What specific technologies will be developed and/or demonstrated.
- What specific milestones are to be reached, using what approaches.
- What quantitative metrics will indicate progress.
- Which customers will benefit.
- What specific benefits the customers will gain.
- What level of funding will be programmed and from which sources.

Joint experimentation is critical to gaining insights into new operational concepts and validating their ability to meet future battlefield requirements. The Department is committed to an aggressive program of joint experimentation that integrates Service efforts and fosters innovation and the rapid fielding of new joint concepts and capabilities. With the June 1998 designation of the United States Atlantic Command (USACOM) as DoD's executive agent for joint experimentation, the Department has taken a major step toward realizing the integrated military capabilities described in *Joint Vision 2010*.

The joint experimentation program will facilitate development of the new doctrines, organizations, and training and education programs needed to meet operational requirements in the 21st century. The program will test new concepts by exploiting synergies in the experimentation programs planned by the individual Services and the acquisition and information technology communities, building eventually to large-scale joint experiments.

Performance Measure 2.2.1 – Annual Procurement Spending ($ in Billions)

	FY 1997 Baseline	FY 1999 Goal	FY 2000 Goal
Budget Request	38.9	48.7	53.0
Amount Appropriated	44.3	49.2	N/A

Following the end of the Cold War, the Department scaled back its weapons modernization investments, in line with the ongoing downsizing and restructuring of the U.S. military. At the same time as modernization expenditures were being cut, unanticipated contingencies and other unplanned operating expenses caused a steady migration of funds from the investment accounts to the operation and maintenance (O&M) accounts. This lower level of investment initially was appropriate, as it allowed older equipment and systems to be retired from the inventory as the force was being reduced in size. However, elements of the force structure have now aged to the point that selected weapons and items of equipment must be replaced. To achieve the appropriate balance between modernization investments and O&M expenditures, the QDR identified a goal of $60 billion in annual procurement spending, to be attained by FY 2001. The FY 2000 budget requests $53 billion for procurement. Although this figure falls slightly short of the QDR's FY 2000 expenditure target of $54 billion, it represents a substantial increase over the $44.3 billion appropriated in FY 1997 and the $48.7 billion requested in FY 1999. The FY 2000 budget is on track to meeting the QDR goal.

The Department's procurement spending goals are closely linked to its plan to exploit the Revolution in Business Affairs, addressed in the Quadrennial Defense Review. Implementing the recommendations of the QDR and the Defense Reform Initiative (DRI) will help reduce cost growth in the operating accounts, which causes the migration of funds from investment accounts.

Performance Indicator 2.2.2 – Status of Defense Technology Objectives as Judged by Technology Area Review Assessments

	FY 1998 Baseline	FY 1999 Goal	FY 2000 Goal
Percent of DTOs Judged Green (on track)	70	≥ 70	≥ 70
Total Number of DTOs	345	N/A	N/A

Beginning in FY 2000, each DTO will be reviewed every two years. Half the DTOs will be evaluated one year and the other half the next year. Independent peer review panels, called Technology Area Review and Assessment (TARA) teams, will conduct the reviews. Each TARA team will comprise 10 to 12 members, of whom at least two-thirds will come from outside DoD. Members will include experts in relevant fields from other U.S. government agencies, private industry, and academia. Other science and technology stakeholders (e.g., senior S&T officials, the Joint Staff, and technology customers) will be invited to attend the reviews as observers. The TARA teams will assess the DTOs in terms of three factors—budget, schedule, and technical performance—and will give the programs a Red, Yellow, or Green rating based on how well they are progressing toward their goals. The following criteria will be used in assigning the ratings:

- Green – Progressing satisfactorily toward goals.
- Yellow – Generally progressing satisfactorily, but some aspects of the program are proceeding more slowly than expected.
- Red – Doubtful that any of the goals will be attained.

The DTO ratings are semi-quantitative metrics reflecting the opinions of independent experts. This method of peer review is accepted and endorsed by the science and technology stakeholders. Adjustments will be made to program plans and budgets based on the ratings awarded.

Performance Indicator 2.2.3 – Joint Experiments

	FY 1999 Goal	FY 2000 Goal
Number of Joint Experiments Conducted	Establish Program	14

The joint experimentation program will proceed in building-block fashion from simple to more complex experiments. Initial experiments will piggyback on already-planned experiments. While the initial experiments are being conducted, new doctrine will be written and scheduled for testing in future experiments. As with all experiments, both successes and failures will occur. The results of these experiments, whether successful or not, will provide insights leading to the new capabilities envisioned in the RMA. Ultimately, stand-alone large-scale experiments are anticipated.

The task of establishing a joint experimentation office has been assigned to USACOM. The FY 1999 objective is to establish the organization and prepare a detailed experimentation plan. The FY 2000 goal shown in the table is based on preliminary plans that, with only a few

exceptions, do not yet identify specific experiments to be carried out.

In reviewing the table, it should be noted that the number of experiments conducted, while useful for illustrating annual activity levels, is an incomplete indicator of the degree of commitment to, or the amount of progress achieved in, joint experimentation. More experiments are not necessarily better. Fewer, more meaningful experiments are vastly superior to larger numbers of lower-quality experiments that do not produce any lessons learned. Neither is success a valid measure of progress attained in experimentation programs, as much can be learned from failed experiments. The FY 1999 and FY 2000 performance reports will identify the number of joint experiments conducted and assess their contribution toward the long-term goal of *Joint Vision 2010* implementation.

Performance Goal 2.3 – Streamline the DoD infrastructure by redesigning the Department's support structure and pursuing business practice reforms.

U.S. military forces and operations are changing dramatically in response to the changing security environment and advances in technology. The forces contemplated by *Joint Vision 2010* and the RMA will require a radically different support structure. Effecting these changes will necessitate steadily increasing investments that can best be offset by increased efficiencies in support operations. Just as combat forces will become more agile and capable, the changes in infrastructure are designed to produce an increasingly responsive support structure. Performance Indicator 2.3.1 shows the relative portion of the defense budget dedicated to support.

The 1998 DoD Logistics Strategic Plan identifies areas of opportunity for reducing the total cost of logistics—throughout the full life cycle—for supported personnel, weapons, and equipment. Goals for increased efficiency in this area are covered by measures of logistics response time and the ability to track items in the supply channel. Faster delivery and worldwide visibility of assets will allow the Department to reduce supply inventories. More detailed information on logistics metrics can be found in *OSD Operation and Maintenance Overview, FY 1999 Amended Budget Estimates* (February 1998).

There is an inherent expense in holding any property. Inventory must be warehoused; inventory and real estate must be protected and maintained. Inventory reduction and consolidation of unneeded real assets is a sound business practice. The performance measures for this area therefore assess progress in reducing inventories and eliminating excess real property.

Performance Indicator 2.3.1 – Percentage of the DoD Budget Spent on Infrastructure

	FY 1997 Baseline	FY 1999 Projected	FY 2000 Projected
Infrastructure Spending	46	43	43

As the Department pursues innovations to streamline its support operations, the proportion of defense resources devoted to infrastructure is expected to decline. However, the lack of a standard definition for infrastructure makes it difficult to evaluate overall trends. To address this situation, the Department has developed a definition of infrastructure based on categories of funding in the Future Years Defense Program (FYDP). Because FYDP data extend as far back as 1962, this metric is a useful indicator, but not a precise measure, of infrastructure trends.

Performance Indicator 2.3.1 defines infrastructure as activities that support or provide control over military forces from fixed installations. Real property maintenance, environmental compliance, test ranges, and some depot logistics support are part of the infrastructure that supports military facilities and equipment. Also included are personnel support costs, such as recruiting, pilot training, and the Defense Health Program, as well as command and control elements, such as unified commanders in chief headquarters and air traffic control systems.

Because there is no single best value for this indicator, actual and projected budget shares are presented in lieu of a goal. A downward trend in this metric would tend to indicate that the balance is shifting toward less infrastructure and more combat forces. Performance Indicator 2.3.1 is calculated by analyzing the annual budget request.

Performance Indicator 2.3.2 – Unfunded Depot Maintenance Requirements ($ in Millions)			
	FY 1998 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Army	538	451	174
Navy	608	585	581
Air Force	218	46	107

The unfunded depot maintenance requirement is the difference, in dollars, between the Services' estimates of the cost of depot maintenance needed to keep all equipment fully operational and the amount of maintenance actually funded in the budget. The FY 1999 and FY 2000 goals reflect the outcome of budget decisions made during the PPBS process.

The Services estimate maintenance requirements based on projected usage rates of their equipment. Service funding requests are generally lower than forecast requirements, but the unfunded portion of the requirement does not necessarily mean that maintenance will be forgone. Inspections accomplished prior to and during depot maintenance sometimes identify overhaul options that would be less costly to carry out than those reflected in the original workload projections. Moreover, unscheduled repairs often satisfy depot maintenance requirements. This metric enables the comparison of unfunded requirements over time. An upward trend indicates a higher likelihood that needed maintenance will not be accomplished. This metric is not intended to measure success of the depot maintenance program in any given year. For information on the annual financial performance of depot working capital funds, see Performance Indicator 2.3.8.

Performance Measure 2.3.3 – Public-Private Sector Competitions			
	FY 1998 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Number of Positions Subject to A-76 Competition Studies	32,600	52,000	53,400

The size of the defense infrastructure is directly related to how many functions the Department maintains the internal ability to perform as opposed to those it outsources.

Competition forces organizations to improve quality, reduce costs, and focus on customer needs. For functions that are not inherently governmental, the Department is relying increasingly on the competitive powers of the marketplace to generate efficiencies and savings.

To ensure that competition between the public and private sectors occurs on a level playing field, DoD uses the competitive process established by Office of Management and Budget Circular A-76, *Performance of Commercial Activities*.

Defense Reform Initiative Directive #20 instituted a review of the entire military and civilian work force to identify those functions that are commercial in nature and could be opened up to competition. The review was completed in January 1999. Based on the results, the

Department will develop master plans defining the number and scope of future competitions. Because such changes will affect local communities and other constituent groups, the Department will need congressional support as it institutes these changes.

Performance Measure 2.3.3 reflects the number of A-76 competitions planned as of December 1998. It is subject to change based on the master plans developed as a result of the January 1999 review.

Performance Measure 2.3.4 – Logistics Response Time			
	FY 1997 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Logistics Response Time (Days)	35	24	18

Logistics response time is the elapsed time (in days) from customer requisition to receipt of material ordered from the DoD wholesale system. Reducing delivery time improves the readiness of operational units, while lowering inventories and costs. In addition to reducing order-to-receipt time, DoD is moving aggressively to reduce cycle times across all elements of the supply chain. These efforts include placing greater reliance on electronic contracting (to shorten administrative lead times) and on flexible manufacturing (to reduce production lead times).

In 1997, DoD began measuring the performance of the wholesale logistics pipeline in a uniform manner using the Logistics Metrics Analysis Reporting System. This system is the source of the data reported in Performance Measure 2.3.4. The reporting system allows the Department to identify and correct causes of delay and to build predictability, and hence customer confidence, into the wholesale delivery system. Future enhancements to logistics response time measurement include efforts to capture retail transactions, local commercial purchases, and use of government purchase cards. Alternative measures of customer service, such as on-time delivery rates, also are being explored.

Performance Indicator 2.3.5 – Visibility and Accessibility of DoD Materiel Assets (In percents)			
	FY 1996 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Materiel Asset Visibility and Accessibility	50	80	90

The goal of the Total Asset Visibility (TAV) program is to provide DoD users with timely, accurate information on the location, movement, status, and identity of military assets (units, personnel, equipment, and supplies) and the capability to perform transactions using that information. The objectives for TAV capability will be achieved in large part by integrating existing and evolving business systems employed by the Services and defense agencies.

Asset visibility is defined as the percentage of DoD's worldwide inventory that is both visible and accessible to Integrated Materiel Managers (IMMs). IMMs are the DoD organizations assigned wholesale management responsibility for given assets or classes of assets Department-wide. Currently, 94 percent of DoD's worldwide inventory is visible to Service or defense agency tracking systems, but only 80 percent is accessible by the appropriate IMM due to data system interoperability problems.

The strategy for FY 2000 is to enhance the interface among the Services and defense agencies in order to achieve a TAV level of 90 percent. This strategy relies upon initiatives that facilitate the sharing of information among formerly stand-alone Service and defense

agency data systems. A potential complication in executing the strategy is the fact that TAV initiatives must compete with Year 2000 (Y2K) requirements for scarce information technology resources. However, as described in Appendix K, sufficient management attention is being placed on the timing of these system changes to mitigate the risks of funding shortfalls.

DoD will shortly require quarterly status reports from the Services and defense agencies, which it will use in monitoring progress toward joint TAV goals. These reports will be reviewed and progress tracked through the National Partnership for the Reinvention of Government High-Impact Agency working group.

Performance Measure 2.3.6 – Disposal of Excess National Defense Stockpile (NDS) Inventory and Reduction of Supply Inventory

	Baseline	FY 1999 Goal	FY 2000 Goal
NDS Inventory Disposed (FY 1996 $B)	0.6[a]	0.6	0.5
Supply Inventory (FY 1995 $B)	67[b]	59	56

[a] Baseline year is FY 1997.
[b] Baseline year is FY 1996.

This performance measure includes two related but distinct metrics. The first tracks reductions in the National Defense Stockpile, which is composed of general commodities and raw materials. The second measures the supply system inventory of repair parts and finished goods.

The NDS inventory contains strategic and critical materials needed to meet military, industrial, and essential civilian demands during a national emergency, when domestic and foreign supplies are likely to be insufficient. The baseline value of the stockpile was $6.1 billion in 1996. Since prices of individual commodities in the stockpile are subject to market fluctuations, the total value of the stockpile is also subject to large changes. For this reason, the value of material disposed of, rather than stocks remaining, is used as the metric. The Department's goal is to reduce the value of the NDS inventory through the disposal of $2.2 billion (in FY 1996 dollars) worth of excess stockpile materials by FY 2000.

Excess NDS materials are disposed of through public sales using competitive contracting procedures or, where no market exists, by other disposal methods. DoD coordinates with the Department of Commerce and other interested parties through an interagency process to ensure that stockpile sales do not unduly influence prices on the world market. A portion of the revenue from NDS sales is used to fund high-priority DoD programs, including those financed through the operation and maintenance accounts. Based on recent world economic events leading to a decreased value of commodities, DoD projects a $250 million shortfall against the FY 2000 goal of $2.2 billion in disposals.

The Defense National Stockpile Center (DNSC) within the Defense Logistics Agency compiles data on NDS sales. There are no known deficiencies with regard to DNSC data-collection means. The DNSC is planning to downsize both storage sites and personnel as the sales program reduces the inventory of stockpiled materials. The long-term goal is to shut down DNSC operations by 2007.

The supply inventory is larger than required to support today's smaller force structure. Since 1995, the Department has planned to reduce supply inventories. The goal is to cut holdings from an FY 1989 high of $107 billion to $56 billion by FY 2000 and $48 billion by FY 2003. The key metric associated with this goal is the value of the supply inventory, measured in constant FY 1995 dollars. Surprisingly, some logistics reforms may tend to slow the real or perceived rate of inventory reduction. For example, improvements in total asset visibility (Performance Measure 2.3.5) may cause documented inventory to increase. In addition, selective inventory increases are being made in some areas (notably aircraft parts) in response to operational requirements. A new model reflecting these factors is expected

to produce revised inventory reduction goals late in FY 1999.

The Department will pursue its inventory reduction objectives through improved business practices. The Services and the Defense Logistics Agency are reducing their supply inventories by:

- Improving equipment reliability.
- Reducing logistics response times and other cycle times (see Performance Measure 2.3.4).
- Improving requirements-generation processes.
- Selectively outsourcing weapons support and other functions.
- Having vendors ship stock directly to end users.
- Promptly disposing of supply stocks when their associated weapon systems are retired from U.S. or allied inventories.

The Department will validate and verify the data generated by the components' automated inventory data-collection processes. These processes are approved accounting sources for defense and component supply inventories. No known data or inventory system deficiencies have been identified. Valuation is also reviewed during the preparation of component and working capital fund financial statements as part of the PPBS process.

Performance Measure 2.3.7 – Disposal of Excess Real Property

	FY 1996 Baseline	FY 1999 Goal	FY 2000 Goal
Excess Acreage	291,000	182,000	145,000
Cumulative Square Feet Disposed (Millions)	N/A	25	41
Cost per Cumulative Square Foot Disposed ($)	N/A	11	11

Maintaining excess property places a drain on resources that could be applied to force modernization and readiness. While the problem of excess bases has captured media and public attention through the actions of the Base Realignment and Closure (BRAC) commission, there is a lesser but real problem of excess and obsolete structures on bases the Department does not desire to close.

Through BRAC, DoD has closed or will close 97 major bases, realigned 55 major bases, and taken action on 235 minor closure and realignment decisions, at a net cost savings of approximately $14.5 billion during implementation. The excess-acres metric tracks land on bases that have been authorized for closure by BRAC decisions but are still under DoD control. The excess acreage is reduced through direct transfers to other federal agencies and by deed conveyances through public benefit transfers, economic development transfers, and market sales. The Department intends to achieve a 50 percent reduction in excess acreage, relative to the FY 1996 baseline, by the end of FY 2000.

The excess-acreage metric has been modified through the removal from consideration of certain properties. Three parcels from Jefferson Proving Ground, Idaho (55,270 acres), Adak, Alaska (73,923 acres), and Sierra Army Depot, California (Honey Lake, consisting of 60,108 acres) were excluded from the metric due to their large size or technical complications associated with the presence of unexploded ordnance. Therefore, the 50 percent goal has been applied to the remaining 291,420 acres associated with the installations approved for closure under BRAC. The goal of disposing of 50 percent of the surplus property equates to a reduction of 146,000 acres. The Department has requested $0.7 billion in FY 2000 and $1.6 billion in FY 2001 to support BRAC closures.

Property disposal data are obtained from base transition coordinators and the Base Closure and Transition Office (BCTO), verified by the appropriate Service, and maintained by the BCTO. Updates to the number of acres approved for transfer are made as property transactions are completed. These properties are well defined, since

they are connected to BRAC actions. The risk of data deficiencies is minimal.

On bases not slated for closure, installation commanders report that they are often forced to retain obsolete and excess facilities because they lack the funds necessary to demolish or dispose of the properties. This excess inventory wastes O&M funds that are needed elsewhere and presents serious safety concerns. To ameliorate this situation, the Department has undertaken a Defense Reform Initiative to demolish and dispose of 80 million square feet of excess space at military facilities during FY 1998–2003. This action will prepare DoD for the future by streamlining the facilities infrastructure and reducing the potential for migration of resources from investment to operating accounts. For each Service, the Department has established a separate group of program elements and provided funding sufficient to meet the year-by-year targets and the overall goal of disposal of 80 million square feet of excess property by FY 2003.

Performance Indicator 2.3.8 – Defense Working Capital Funds Net Operating Results ($ in Millions)

	FY 1998 Goal/Actual	FY 1999 Goal	FY 2000 Goal
Army			
Supply Management	+9.8/-21.9	-4.9	+38.2
Depot Management	+18.3/+8.3	+9.6	0
Navy			
Supply Management	+87.5/-26.3	+65.9	+42.7
Aviation Depot Management	-21.8/-18.3	-13.8	+1.2
Shipyard Management	+83.1/+83.4	+4.0	-2.6
Air Force			
Supply Management	+36.6/+172.1	-216.2	0
Depot Management	+200.1/+92.9	+133.2	-45.5
United States Transportation Command			
Transportation	+80.7/+63.8	+8.7	-155.3

Defense working capital funds (DWCFs) are used to finance selected DoD activities. Customers purchase products and services at prices that reflect all direct and indirect costs of a given DWCF budget activity. Customer accounts are financed through direct appropriations at a level commensurate with expected purchases from the respective fund. In addition to selling products and services to customers, DWCF budget activities may make purchases from one another using sales revenue. As the DWCFs cover widely differing areas of the Department's business operations, they each have unique management goals, which are reflected in their budget submissions.

Net operating result (NOR) is a management measure common to all working capital funds. NOR is the difference between an individual fund's revenue and its costs. During the PPBS process, NOR goals are created to cancel out any shortages or surpluses from previous years. An NOR that is higher than the assigned goal indicates that a fund may have exceeded expectations; conversely, one that is lower suggests a fund may have been less efficient than desired. If the NOR target for a working capital fund is not met, the unique management goals for that fund will provide insights into the underlying causes.

Performance Goal 2.4 – Meet combat forces' needs smarter and faster, with products and services that work better and cost less, by improving the efficiency of DoD's acquisition processes.

The QDR stressed the need to exploit the Revolution in Business Affairs (RBA) in order to radically reengineer defense infrastructure and defense support activities. The RBA calls for reducing overhead and streamlining infrastructure; taking maximum advantage of acquisition reform; outsourcing and privatizing a wide range of support activities; leveraging commercial and dual-use technology; reducing unneeded standards and specifications; using integrated process and product development; and increasing cooperative development programs with allied nations. Performance Goal 2.3 included aspects of the RBA that involve management of services and physical property held by DoD. Performance Goal 2.4 addresses acquisition reform and defense reform initiatives involving the acquisition of new property, systems, and services. The ultimate purpose of all business efficiency efforts in the Department is to shift resources to the operating forces.

This goal echoes the themes of modern procurement practices: minimizing product introduction times and cost growth, while simplifying the purchase process through the adoption of modern practices, such as purchase cards and electronic commerce.

Performance Measure 2.4.1 – Major Defense Acquisition Program (MDAP) Cost Growth

	FY 1998 Baseline	FY 1999 Goal	FY 2000 Goal
MDAP Cost Growth (Percents)	-0.3	<1.0	<1.0

Cost growth can arise for various reasons, including technical risk, schedule slips, and overly-optimistic cost-estimating. Acquisition reform seeks to reduce cost growth from all sources as a true output goal that the procurement manager for an individual system, or for an entire Service, must make hard choices to attain. Managerial responses are expected to include both specific cost-control initiatives and process changes. The objective is to keep the metric below a 1 percent increase annually.

Cost growth is the difference between the current year's and the previous year's budgets, divided by the budget for the previous year. Only programs continuing from the previous year are considered; adjustments are made to account for changes in quantities ordered and for the effects of inflation.

Within the Planning, Programming, and Budgeting System, the Department reviews projected spending on MDAPs to detect early signs of cost growth. Further reviews, conducted prior to submission of the President's Budget, serve to detect possible causes of MDAP growth before additional funds are requested for the programs in question.

Data on cost growth are collected from the annual Selected Acquisition Reports (SARs) for MDAPs. SAR data provide a means to verify and validate the measured values. There are no known SAR data deficiencies. It is important to emphasize that this metric is not an absolute measure of research and development and procurement cost performance. Some cost growth in MDAPs can be the unavoidable result of program changes; such increases can occur as a result of the best management practices. When the 1 percent goal is exceeded, the SAR reports provide data useful for isolating the specific causes of cost growth.

Performance Indicator 2.4.2 – MDAP Cycle Time			
	FY 1996 Baseline	FY 1999 Goal	FY 2000 Goal
Average Months from Program Start to Initial Operational Capability	132	<99	<99

During the 1960s, a typical acquisition took only seven years to complete. By 1996, the same acquisition required 11 years to progress from program start to initial operational capability (IOC). Recent efforts to reverse this trend include attempts to enhance program stability through secure, long-term funding; improved management oversight afforded by Integrated Product Teams; and more extensive use of commercially-derived items. Advanced concept technology demonstrations (ACTDs) represent another means of rapidly introducing new technologies. ACTDs emphasize technological integration rather than technology development. The goal is to provide prototype capabilities to operational commanders and to support evaluations of those capabilities through military exercises. These initiatives are beginning to bear fruit; however, more work is needed to understand the complex web of factors that conspire to lengthen programs.

DoD has established the objective of delivering new MDAPs to the field in 25 percent less time than was the case for programs initiated prior to 1992. The key measure for this goal is the average elapsed time from program start to IOC, measured in months, for all MDAPs in development during a given calendar year. The 1996 baseline is 132 months, representing the average cycle time for 58 MDAPs begun before 1992. Programs initiated after 1992 have a current (predicted) cycle time of 100 months. Average cycle time will be computed using schedule estimates or actual data taken from the Selected Acquisition Reports or the Acquisition Program Baselines.

The Department will continue to monitor MDAPs through the PPBS process, emphasizing the need for program funding stability and identifying possible unintended effects of short-term budget decisions.

Performance Measure 2.4.3 – Successful Completion of Weapon System Operational Test and Evaluation (OT&E) Events		
	FY 1999 Goal	FY 2000 Goal
Percentage of OT&E Events Successfully Completed	Establish Methodology	100

DoD testing programs aim to provide U.S. forces with defect-free, effective, and suitable weaponry and equipment. Future U.S. combat systems will be increasingly interoperable and interdependent; new systems entering service will have to function effectively not only with other systems in the U.S. inventory but also with weaponry and equipment operated by allied and coalition forces. The increasing complexity of modern warfare demands a rigorous testing effort aimed at providing superior weapons to U.S. forces in a timely manner. The OT&E program is designed to support decision makers in maintaining program schedules (Performance Measure 2.4.2) and costs (Performance Measure 2.4.1).

Operational testing and evaluation entails numerous tests of new weapon systems, simulating the needs of, and conditions expected to be faced by, combat forces. These OT&E events are designed to collect data on the systems' effectiveness, performance, suitability, and survivability.

The Director of OT&E will track the number of events in acquisition program test and evaluation master plans that have been accomplished successfully. Success in a test event is defined as the collection of data supporting all learning objectives for a given test. Rules must be established reflecting the interplay between the system tested and the testing process. FY 1999 will be the baseline year for this new indicator. Goals for FY 1999 include establishing methodology and collecting initial data. This indicator will be limited in scope to acquisition programs under OSD oversight.

The Department's senior leaders are emphasizing early involvement by operational testers, early operational insights from a variety of OT&E events, and early identification and correction of operational deficiencies. The Director of OT&E will track how soon in the weapons system life-cycle testing events are accomplished, with an eye toward the earliest possible feedback to decision makers.

Performance Indicator 2.4.4 – Purchase Card Micro-Purchases (In percents)			
	FY 1996 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Percentage of Purchases Made by Purchase Card	52	80	90

The Army Audit Agency estimates savings of $92 per transaction when supplies or services are procured using government purchase cards. In the traditional acquisition process, a requisition document is forwarded sequentially to various functional elements, such as the purchasing component's resource management office (for commitment of funds) and supply manager (to screen for local or national inventories). If the requirement cannot be filled through the component's supply system, a purchase request is forwarded to the local contracting activity. Use of government purchase cards for micro-purchases virtually eliminates this entire workload. Micro-purchases are supplies or services (other than construction) valued at less than $2,500. Through purchase card use, the Department has already realized sizable manpower-related savings, which it has redirected to mission elements of the force.

Since 1997, all contracting officers have been required to use purchase cards for micro-purchases except in narrowly defined circumstances. The military departments and defense agencies have likewise been directed to abolish nonessential technical screening requirements and to reduce the categories of items that require such screening controls for purchases made with government purchase cards.

Performance relative to the goal will be measured by dividing the purchase card transactions within the micro-purchase threshold by the total number of micro-purchases. These data, which are provided to the Federal Procurement Data System, will be used to verify and validate the measured values. There are no known data system deficiencies.

Performance Indicator 2.4.5A – Percentage of DoD Paperless Transactions			
	FY 1998 Baseline	**FY 1999 Goal**	**FY 2000 Goal**
Purchase Requests	71	85	90
Funding Documents	69	80	80
Solicitations	49	70	90
Awards/Modifications	21	65	90
Receipts	16	50	90
Payments/Invoices	13	50	90

The Department is committed to employing contemporary information technology and commercial best practices to reinvent its contracting processes. Contracting, particularly that related to high-cost weapon systems, consumes a large portion of the defense budget and employs a significant portion of the DoD work force. To inject information technology and best practices into all contracting processes, the Paperless Contracting Defense Reform Initiative is reengineering and standardizing the Department's contracting and payment

practices. Over time, paperless contracting will contribute significantly to reducing acquisition cycle time (Performance Measures 2.3.4 and 2.4.2) and streamlining the acquisition work force (Performance Measure 2.4.6). Use of government purchase cards (Performance Measure 2.4.4) will be the primary means of achieving paperless contracting for small purchases. The Services and defense agencies, under the auspices of the Defense Reform Initiative, will employ Internet technologies, workflow systems, electronic commerce/electronic data interchange transactions, and digital signature/public key encryption capabilities to accomplish this goal.

The Department will seek legislative authority to expand the use of purchase cards in lieu of contracts. Increases in the number and type of transactions made by purchase cards must be pursued judiciously, as many of the specific clauses in small purchase contracts support socioeconomic goals. The lack of widespread acceptance of digital signature and paperless/Web-based transactions, both within and outside DoD, remains the largest impediment to achieving this objective.

The Services and defense agencies compile quarterly reports on transactions in each area covered by Performance Indicator 2.4.5A, using data gathered from field operating sites. Heuristics have been developed to validate these statistics using data generated by formal DoD reporting systems. Performance Indicators 2.4.5A and 2.4.5B use the same data sources.

For more information on this and other reforms sponsored by the Defense Reform Initiative, see Chapter 13.

Performance Indicator 2.4.5B – Paperless Acquisition Transactions (In percents)

	FY 1997 Baseline	FY 1999 Goal	FY 2000 Goal
Total Electronic Contracting and Payment Transactions	29	82	90

The DoD acquisition community is implementing the DRI Paperless Contracting Initiative, discussed above under Performance Indicator 2.4.5A, through a three-pronged approach. The approach is designed to achieve paperless life-cycle management through the introduction of paperless acquisition management/integrated digital environments, life-cycle support practices, and electronic contracting. Acquisition community goals for electronic contracting and payments are shown in Performance Indicator 2.4.5B. Metrics for the other two areas will be added when data-collection issues have been resolved.

Electronic contracting focuses on the elimination of paper from the acquisition process. Efforts in this area span all phases of the process, from contract requirements generation to final deliveries, including paperless payments to industry. The primary metric for this goal is the annual percentage of contracting and payment transactions that are conducted electronically.

Performance Indicator 2.4.6 – Reductions in the Acquisition Work Force (In percents)

	FY 1998 Baseline	FY 1999 Goal	FY 2000 Goal
Reduction from FY 1997 Work Force	5.8	11.3	15

The Department is making an active effort to reduce and restructure its acquisition work force. The goal is to eliminate duplicative functions, consolidate organizations, simplify procedures, improve professionalism, streamline processes, and increase efficiency throughout the Department. Initiatives in this area also contribute to the reduction of defense infrastructure, discussed under Performance Goal 2.3 and Performance Indicator 2.3.1.

Reports submitted to the Defense Manpower Data Center by DoD components will serve as a basis for verifying and validating work force reductions.

Performance Measure 2.4.7 – Disposal of Unneeded Government Property Held by Contractors			
	FY 1997 Baseline	FY 1998 Goal	1999 Goal[a]
Cumulative Value of Tooling and Equipment Disposed of ($B)	1.1	2.5	3.0
[a] To be achieved by December 31, 1999.			

Between FY 1986 and FY 1997, the acquisition value of DoD property in the possession of defense contractors grew to $91 billion, despite repeated efforts to curb growth. The military buildup of the 1980s and the renewed emphasis on developing new weapon systems under cost-reimbursement contracts were factors in that growth.

In order to reverse the property growth trend and reduce the amount of government-owned tooling and equipment in contractors' possession, the Department will either dispose of property no longer needed for contract performance or directly fund its storage separate from the acquisition contracts. The key measurement for this performance goal will be the current dollar value of special tooling, special test equipment, and other equipment and material disposed of relative to the total value of such materials in the possession of DoD contractors as of September 30, 1997. DoD contractors are required to report this information on a fiscal-year basis. Reports for the immediately-prior year are due during the first quarter of each fiscal year.

The baseline excludes military property (typically provided to contractors for repair or test and evaluation purposes) and real property. There are millions of items in the baseline, some acquired more than 25 years ago. Therefore, it is impractical to convert the acquisition cost for each item to constant dollars. Data will be based on contractor reports of excess and underutilized property. There are no known deficiencies in the data-collection process.

PERFORMANCE INDICATOR 2.4.8

Performance Indicator 2.4.8 is a qualitative assessment of reengineered defense transportation documentation and financial processes. This reengineering effort attempts to eliminate DoD-unique documentation requirements, improve data accuracy, decrease documentation process costs, reduce payment cycle times, and increase the effectiveness of transportation movement and financial processes. The goal is to increase transportation efficiency and reduce infrastructure costs for DoD and commercial partners.

Means and strategies for accomplishing this goal include:

- Using commercial rather than government-unique transportation documentation.
- Reducing data requirements.
- Using purchase cards to pay for both commercial and intragovernmental transportation services.
- Prototyping concepts in four modes of transportation—airlift, sealift, truckload/less-than-truckload, and express carrier—to validate concepts and identify and resolve issues.

VERIFICATION AND VALIDATION OF DATA

Procedures for verifying and validating data were discussed in previous sections of this performance plan, along with the performance measures and indicators that the data support. Many of the metrics refer back to DoD financial and accounting systems that have experienced problems in the past accurately capturing costs and tracking disbursements. To remedy these shortcomings, the Department has undertaken a number of financial management reforms designed to enhance system effectiveness while cutting costs. Many of the improvements provide for the consolidation of multiple Service- and agency-specific systems into a smaller number of standardized systems. For an expanded discussion of these and other financial management reforms, see Chapter 14.

THE PPBS PROCESS

The Planning, Programming, and Budgeting System is the process employed by the Department of Defense to ensure that its strategic plan—the QDR—is implemented in its budget. Through the PPBS, the Department

apportions resources annually in support of the corporate goals articulated in the QDR, consistent with the DoD vision statement presented earlier in this appendix.

Each year, the Department issues detailed planning guidance based upon the results of previous years' budget execution, as well as upon changes in defense policy. The Deputy Secretary of Defense supplements this programmatic guidance by providing fiscal guidance to each of the Services and defense agencies. The Services and defense agencies then use the planning and fiscal guidance to adjust their individual programs. The product of these adjustments is a Program Objective Memorandum (POM) prepared by each of the military departments and defense agencies, outlining the programs they propose to pursue to achieve the Department's goals. Each of the POMs addresses the multiyear period reflected in the associated Future Years Defense Program. The Department evaluates the combined Service and agency POMs to ensure they properly implement the planning and fiscal guidance. Alternative approaches for implementing the guidance are defined and resolved through a process known as the Program Review. During the Program Review, the Department selects those alternatives most consistent with its corporate goals.

With this programmatic guidance in hand, the Services and defense agencies have a clear roadmap to use in preparing their Budget Estimate Submissions (BESs). The BES funding profiles collectively reflect the financial strategy the Department will follow to achieve its corporate goals. The combined BESs are vetted through a Budget Review conducted by the staffs of the Department's Comptroller and the Office of Management and Budget. During the Budget Review, the Department's ability to accomplish its goals at the planned funding levels is carefully examined. Following the Budget Review, the Deputy Secretary approves either the estimates from the BES submissions or alternative estimates developed by the Comptroller. Taken together, these decisions constitute a financial blueprint for achieving the corporate goals derived from the Department's strategic plan. With the issuance of these decisions, the process of preparing the defense portion of the President's Budget is complete.

In sum, the PPBS process is an effective mechanism for the Department to match the national military strategy with the appropriate budgetary resources in a fiscally constrained environment. At every step of the way, senior leaders have visibility into those issues that could threaten the Department's ability to properly match means to ends as expressed in the QDR. The end result of PPBS execution is an annual budget that fully supports the Department's corporate goals.

CROSS-CUTTING PROGRAMS

There are several national security issues that the Department addresses as part of an interagency team. As noted earlier, DoD provides technical support to the Federal Bureau of Investigation in its efforts to combat terrorism, including potential terrorist use of weapons of mass destruction. DoD likewise works closely with the Department of Justice and the Federal Emergency Management Agency to ensure the security of the increasingly interconnected and vulnerable U.S. infrastructures against physical or cyber attack. DoD also works closely with FEMA to prepare for and respond to natural disasters. Finally, DoD conducts airborne and seaborne surveillance of high-intensity drug-trafficking routes in support of the White House Office of National Drug Control Policy.

INFORMATION TECHNOLOGY MANAGEMENT GOALS

The Clinger-Cohen Act of 1996 (formerly the Information Technology Management Reform Act (ITMRA) of 1996) is being implemented throughout the Department of Defense. Section 5123 of ITMRA requires that the Department establish goals for improving the efficiency and effectiveness of agency operations through the use of information technology (IT) and prepare an annual report, to be included in the agency's budget submission to Congress, on the progress in achieving the goals. This is the Department's second Section 5123 annual report.

DOD INFORMATION TECHNOLOGY MANAGEMENT GOALS

The DoD Chief Information Officer (CIO) has published a DoD Information Technology Management Strategic Plan (DoD ITM Strategic Plan). This plan focuses on information superiority achieved through global, affordable, and timely access to reliable and secure information for worldwide decision making and operations. To realize this vision, the Department has established the goals described in Table K-1.

Table K-1

DOD INFORMATION TECHNOLOGY GOALS

Goal 1 - Become a mission partner:

- Increase and promote information technology interaction with mission.
- Serve mission information users as customers.
- Facilitate process improvement.

Goal 2 - Provide services that satisfy customer information needs:

- Build architecture and performance infrastructure.
- Modernize and integrate defense information infrastructure.
- Upgrade technology base.
- Improve information technology management tools.

Goal 3 - Reform information technology management processes to increase efficiency and mission contribution:

- Institutionalize ITMRA provisions.
- Institute fundamental information technology management reform efforts.
- Upgrade DoD information technology work force.

Goal 4 - Ensure DoD's vital information resources are secure and protected:

- Build information assurance framework.
- Build information assurance architecture and support services.
- Improve acquisition processes and regulations.
- Assess information assurance posture of DoD operational systems.

DOD INFORMATION TECHNOLOGY MANAGEMENT GOALS - ACCOMPLISHMENTS

Goal 1 - Become a mission partner:

- The Department established the DoD CIO Council as its executive management body for information technology. The Department is strengthening the DoD CIO Council by creating a working level council to develop draft policies and veteran issues for resolution. This tiered structure will enable broad participation, decision making, and a stronger defense for information technology resource requirements.

- The Department is integrating information technology management strategic planning into the DoD Planning, Programming, and Budgeting System (PPBS). The DoD ITM Strategic Plan was used as a guide for information technology planning in the Department's high level planning guidance. DoD components have used the DoD ITM Strategic Plan and planning process to help structure their CIO organizations. The plan is being revised to better link to the *Report of the Quadrennial Defense Review*, the Defense Reform Initiative, and *Joint Vision 2010*. Components' strategic plan proposals and concepts are also being used to update the DoD ITM Strategic Plan, making it a more effective tool for managing the Department's information technology resources.

- On July 25, 1997, the DoD CIO approved the Information Technology Investment Management Insight Policy for Acquisition. The policy simplifies and streamlines the way that DoD components inform the DoD CIO about their major information technology acquisitions. In 1998, the DoD CIO reviewed 20 such notifications.

- To further streamline the current IT acquisition policy, and institutionalize IT investment management for IT acquisitions, the DoD CIO is developing a capability-based risk-sharing methodology that can be used to decide the level of risk the CIO may share with the component CIOs.

- DoD components are applying extraordinary efforts to meet the technical challenges related to Year 2000 compliance. The Department has assessed virtually all of its known systems and identified Year 2000 issues for corrective action. Renovation of systems is in process, and schedules have been developed for testing each system. Resources are identified and available for accomplishing these actions.

Goal 2 - Provide services that satisfy customer information needs:

- The Department is taking several key initiatives to manage its worldwide information infrastructure as a coherent Global Networked Information Enterprise, to provide forces with affordable information dominance, anywhere and any time. These initiatives include the increased exchange of information across the enterprise through the use of enterprise data exchange tools, which facilitate the sharing of data elements among today's disparate applications.

- The DoD CIO is exploring ways to reduce the total cost of ownership for software by collaborating across DoD in an Enterprise Software Initiative. DoD components have decided to leverage their buying power by negotiating DoD-wide agreements for software. They are also creating a DoD business process for estimating software requirements, agreeing on common terms and conditions, electronic software shopping and distribution, software funding, and tracking and managing software.

- The Department conducted an information technology investment process pilot study for the Department's CIO using the Office of the Assistant Secretary of Defense for Health Affairs as the subject. The study concluded that the office has effective management and oversight structures that ensure extensive involvement by the functional community and the Health Affairs CIO. A key success factor is that Health Affairs has a consolidated tri-Service (Army, Navy, Air Force) program that allows prioritization of investments across the entire Departmental enterprise. Continual program evaluation, monitoring, and problem resolution within Health Affairs result in an effective investment program that reflects the priorities of the health affairs community.

Goal 3 - Reform information technology management processes to increase efficiency and mission contribution:

- In July 1998, the Deputy Secretary disestablished the Major Automated Information System Review Council (MAISRC). The MAISRC was DoD's primary body for overseeing major automated information systems (AISs) and other IT investments. DoD will continue to oversee major AISs and other IT investments through the IT Overarching Integrated Product Team and, when necessary, special reviews by the DoD CIO. The focus of IT investment oversight will evolve over the next year to place greater emphasis on the planning phase, on portfolios of investments, and on evaluating performance outcomes.

- Section 5122 requires an integrated information technology Capital Planning and Investment Control Process. The Department uses the PPBS, in conjunction with its requirements and acquisition processes, to ensure that the correct information technology investments are selected. Over the past year, changes have been made in the PPBS to ensure full participation of the DoD CIO in the decision making process and to strengthen the linkages of information technology programs to the missions they support. The DoD CIO has become a member of the Defense Resource Board, thus ensuring that the CIO position is heard on all budget deliberations.

- DoD has been instrumental in the adoption of a new Information Technology Budget reporting exhibit by the Federal CIO Council and the Office of Management and Budget. The new exhibit will explicitly tie information technology systems to the mission they support and provide performance measures, as well as progress toward those measures, for major information technology systems.

- The DoD CIO has made information technology management literacy a primary goal within the Department by developing Clinger-Cohen competencies that depict skill requirements and knowledge required by CIOs and information resource management personnel. The competencies have been adopted government-wide by the Federal CIO Council as desired skill requirements of senior managers. DoD led the government-wide effort to update the competencies in 1998.

- The Department continued to sponsor CIO Executive training sessions for CIOs, Deputy CIOs, and senior managers with CIO responsibilities. Four sessions were held in 1998 and four sessions are planned for 1999. In addition, during 1998 two CIO Certificate Web-based courses were established to reach a broader audience.

- Under the auspices of acquisition reform, a live satellite broadcast on the Clinger-Cohen Act was held in June 1998 and questions were fielded from the DoD community regarding the new laws, regulations, and implementation guidance. A video training tape on the Clinger-Cohen Act and its implementation in the Department was also developed for use by DoD schools and personnel.

Goal 4 - Ensure DoD's vital information resources are secure and protected:

- To respond to Presidential Decision Directive 63, Critical Infrastructure Protection, May 1998, and to formulate an integrated, comprehensive defense-wide critical infrastructure protection program, the Department:

  - Assigned the DoD CIO as the Department's Chief Infrastructure Assurance Officer.

  - Submitted a DoD-wide critical infrastructure protection plan to the National Coordinator in November 1998, with the goal of implementing the plan within two years.

- Information assurance is a critical component of the Department's operational readiness because it assures that Defense Information Infrastructure systems and networks stand ready to provide continuous and dependable service. The Department took major steps in 1998 to improve its information assurance posture:

  - In January 1998, the Deputy Secretary of Defense established the defense-wide Information Assurance Program to provide for the planning, coordination, integration, and oversight of the Department's information assurance activities and resources.

- The Department initiated a defense-wide action to baseline the information assurance and information technology skills and resources within the Department, determine future requirements, and address personnel training, certification, and retention issues.

- The Department instituted a positive control process to ensure that information concerning information system vulnerabilities are appropriately disseminated and countermeasures are implemented.

CONCLUSION

While the Department made progress in 1998, it has yet to fully institutionalize all of the mandates of the Clinger-Cohen Act of 1996. The aggressive DoD CIO agenda for 1999 will do much to ameliorate this condition by:

- Addressing known Year 2000 and information assurance deficiencies.

- Reorienting the DoD CIO Council from an information gathering to a decision making body.

- Promoting Capital Planning for information technology.

- Pursuing cross-component reviews of information technology investment portfolios in lieu of system by system oversight

- Evaluating Value Chain Analysis for its utility in end-to-end function and information technology portfolio reviews.

- Utilizing mission outcome based performance measurements as the cornerstone for information technology performance assessments.

With the accomplishment of these steps, the Department will achieve the intent of the Clinger-Cohen Act of 1996.

JUSTIFICATIONS FOR FY 1999 DOD COMMITTEES SUBJECT TO THE FEDERAL ADVISORY COMMITTEE ACT

Committee Name	Committee Type	Justification	Projected Cost of Committee - FY 1999
Advisory Group on Electron Devices	Discretionary	To assist DoD in planning, directing, and coordinating an effective and economical research and development program in electron device technology. These devices play a critical role in military systems in determining overall system performance, reliability, and life-cycle.	$886,000
Air University Board of Visitors	Discretionary	To assist the Air University to sustain effective programs by obtaining advice and recommendations on performance of the educational mission from members of the education, professional, public affairs, industrial, and business communities.	$61,600
Armament Retooling and Manufacturing Support Executive Advisory Committee	Discretionary	To provide oversight of the Armament Retooling and Manufacturing Support Program and a communications forum where a group of experts may advise the Secretary of the Army concerning the changing roles for Government-Owned, Contractor Operated Army ammunition plants.	$160,473
Armed Forces Epidemiological Board	Discretionary	To advise the Assistant Secretary of Defense (Health Affairs) on operational programs, policy development, and research requirements and programs for the prevention of disease and injury and the promotion of health. Board recommendations are used to shape DoD and Service force protection policy.	$243,000
Army Education Advisory Committee	Discretionary	To advise the Secretary of the Army on Army educational programs and educational matters of interest through five subcommittees concerned with the Command and General Staff College, the Reserve Officers Training Corps, the School of the Americas, the U.S. Army War College, and Distance Learning/Training Technology Applications.	$134,400
Army Science Board	Discretionary	To advise the Secretary of the Army and the Chief of Staff of the Army and their staffs on scientific, technological, and acquisition matters of interest to the Department of the Army.	$986,685
Ballistic Missile Defense Advisory Committee	Discretionary	To provide the Secretary of Defense with advice and insights into the ballistic missile defense program, and make recommendations on the acquisition and development of systems related to the program.	$125,500
Board of Advisors to the President, Naval War College	Discretionary	To advise and assist the President, Naval War College, by examining and making recommendations regarding the educational, doctrinal, enrollment, and research policies and programs at the college.	$8,250

Committee Name	Committee Type	Justification	Projected Cost of Committee - FY 1999
Board of Advisors to the Superintendent, Naval Postgraduate School	Discretionary	To advise the Secretary of the Navy on Naval Graduate Educations Programs by reviewing curricula, instruction, physical plant and equipment, administration, state of the student body, fiscal affairs and resources, and other matters relating to the operation of school programs.	$39,016
Board of Visitors for the Department of Defense Centers for Regional Security	Discretionary	To advise the Secretary of Defense on matters related to mission, policy, faculty, students, curricula, educational methods, research, facilities, and administration of the George C. Marshall European Center for Security Studies and the Asia-Pacific Center for Defense Studies.	$156,400
Board of Visitors, Joint Military Intelligence College	Discretionary	To advise the Director, Defense Intelligence Agency, and the President, Joint Military Intelligence College, on matters related to mission, policy, accreditation, faculty, students, facilities, curricula, educational methods, research, and administration.	$15,404
Board of Visitors, National Defense University	Discretionary	To provide the President, National Defense University, and Commandants of the National War College and the Industrial College of the Armed Forces with observations, reviews, and criticism of University and College programs, policies, research, and administration.	$13,000
Chief of Engineers Environmental Advisory Board	Discretionary	To advise the Chief of Engineers on policy development and procedural recommendations for consideration within the Corps of Engineers.	$169,000
Chief of Naval Operations Executive Panel	Discretionary	To provide advice to the Chief of Naval Operations related to the role of naval power in the international strategic environment; review current and proposed Navy policies to provide advice on enhancing the Navy's effectiveness in support of national security policy; and recommend alternative policies in the light of evolving political, economic, technological, military, and social circumstances.	$743,744
Community College of the Air Force Board of Visitors	Discretionary	To advise the Commander, Air Education and Training Command, and the Community College of the Air Force administration on the development and maintenance of career-related associate degree programs which meet the needs of the Air Force.	$29,500
Defense Advisory Committee on Military Personnel Testing	Discretionary	To review the calibration of personnel selection and classification tests to ensure the accuracy of resulting scores; review relevant validation studies to ensure that the tests have utility in predicting success in technical training and on the job; review ongoing testing research and development in support of the enlistment program; and make recommendations for improvements to make the testing process more responsive to the needs of Department of Defense and the Services.	$77,678

Committee Name	Committee Type	Justification	Projected Cost of Committee - FY 1999
Defense Advisory Committee on Women in the Services	Discretionary	To provide the Secretary of Defense with advice and recommendations on matters and policies relating to women in the armed forces.	$670,020
Defense Intelligence Agency Scientific Advisory Board	Discretionary	To advise the Director, Defense Intelligence Agency, on the impact of advanced science and technology on intelligence collection and production programs.	$156,833
Defense Policy Advisory Committee on Trade	Discretionary	To provide general defense policy advice to the United States Trade Representative in conjunction with the Secretary of Defense concerning trade matters referred to in 19 U.S.C. Sec 2155.	$2,600
Defense Policy Board Advisory Committee	Discretionary	To provide the Secretary of Defense, Deputy Secretary, and Under Secretary for Policy with independent, informed advice and opinion concerning major matters of defense policy.	$190,000
Defense Science Board	Discretionary	Make recommendations to the Under Secretary of Defense (Acquisition and Technology) and the Secretary of Defense on issues in areas relating to scientific, technical, and manufacturing matters of special interest to DoD.	$2,313,540
Department of Defense Historical Advisory Committee	Discretionary	To provide advice to the Secretary of Defense and the Secretaries of the military departments regarding the professional standards, historical methodology, program priorities, liaison with professional groups and institutions, and adequacy of resources connected with the various historical programs and associated activities of the Department of Defense.	$115,000
Department of Defense Wage Committee	Discretionary	To make recommendations regarding wage survey and wage schedules for blue-collar employees to the Department of Defense Wage Fixing Authority to discharge the responsibility assigned by P. L. 92-392 and the Office of Personnel Management. DoD has lead agency responsibility for setting wage rates in 238 of 260 wage areas established by the Federal Wage System.	$21,880
Joint Advisory Council on Nuclear Weapons Surety	Discretionary	To advise the Secretary of Defense and the Department of Energy and inform the Joint Nuclear Weapons Council on nuclear weapons systems surety matters.	$125,000
National Security Agency/ Central Security Service (NSA/CSS) Scientific Advisory Board	Discretionary	To advise the Director, NSA, Chief, CSS and senior agency management on matters involving science, technology, signals intelligence production, information security, procedures, and management related to the mission of the NSA/CSS.	$301,000
Naval Research Advisory Committee	Discretionary	To maintain an understanding of the technological needs confronting the Navy and Marine Corps, keep abreast of the research and development which is being carried on to address them, and offer a judgement to the Navy and Marine Corps as to whether these efforts are adequate.	$557,074

Committee Name	Committee Type	Justification	Projected Cost of Committee - FY 1999
Navy Planning and Steering Advisory Committee	Discretionary	To provide objective advice and recommendations to the Secretary of the Navy and the Chief of Naval Operations on matters relating to ballistic missile security and anti-submarine warfare.	$16,200
Scientific Advisory Board of the Armed Forces Institute of Pathology	Discretionary	To serve in the public interest as a scientific advisory board to the Director, Armed Forces Institute of Pathology (AFIP) and provide his or her staff with scientific and professional advice and guidance in matters pertaining to operational programs, policies, and procedures of AFIP and the central laboratory of pathology for DoD and other federal agencies with responsibilities for consultation, education, and research in pathology.	$80,550
Senior Advisory Board on National Security	Discretionary	To investigate the wide range of security challenges facing the United States in the early 21st century and lend expert advice and direction to the National Security Study Group.	$100,000
Strategic Advisory Group for the U. S. Strategic Command	Discretionary	To provide timely advice on scientific, technical, and policy related issues to Commander in Chief, United States Strategic Command, during the development of the nation's strategic war plans.	$364,025
Telecommunications Service Priority System Oversight Committee	Discretionary	To provide advice and recommendations to the Secretary of Defense regarding the priority treatment of national security and emergency preparedness telecommunications services.	$40,623
Threat Reduction Advisory Committee	Discretionary	To provide advice and assistance to the Under Secretary of Defense (Acquisition and Technology) with respect to technology security, counterproliferation, chemical and biological defense, sustainment of the nuclear weapons stockpile, and other matters related to the Defense Threat Reduction Agency mission.	$373,060
United States Air Force Scientific Advisory Board	Discretionary	To provide independent wisdom and insight to Air Force senior leaders on science and technology for continued air and space dominance.	$1,495,000
President's Information Technology Advisory Committee	Presidential	Executive Order 13035 dated February 11, 1997, and amended July 24, 1998.	$903,000
American Heritage Rivers Initiative Advisory Committee	Presidential	Executive Order 13080 dated April 7, 1998.	$61,000
Defense Labor Management Partnership Council	Presidential	Executive Orders 12871 dated July 14, 1994; 12983 dated December 21, 1995; 13062 dated September 19, 1997.	$40,272
President's National Security Telecommunications Advisory Committee	Presidential	Executive Order 12382 dated September 13, 1982; Executive Order 13062 dated September 29, 1997.	$2,485,600

Committee Name	Committee Type	Justification	Projected Cost of Committee - FY 1999
President's Security Policy Advisory Board	Presidential	Presidential Decision Directive NSC dated September 16, 1994.	$39,000
Special Oversight Board for DoD Investigations of Gulf War Chemical and Biological Incidents	Presidential	Executive Order 13075 dated February 19, 1998.	$1,057,500
Advisory Committee on Dependents' Education	Statutory	20 U.S.C. Sec 929.	$143,000
Board of Regents, Uniformed Services University of the Health Sciences	Statutory	P. L. 101-511 dated October 1, 1990.	$165,000
Board of Visitors, Marine Corps University	Statutory	10 U.S.C. Sec 7102.	$50,183
Defense Acquisition University Board of Visitors	Statutory	10 U.S.C. Sec 1746.	$30,600
Defense Environmental Response Task Force II	Statutory	P. L. 102-380 dated October 15, 1992.	$851,400
Department of Defense Domestic Advisory Panel on Early Intervention and Education for Infants, Toddlers, and Preschool Children and Children with Disabilities	Statutory	20 U.S.C. Sec 1413.	$13,400
Department of Defense Education Benefits Board of Actuaries	Statutory	10 U.S.C. Sec 1464.	$47,000
Department of Defense Government-Industry Advisory Committee on the Operation and Modernization of the National Stockpile	Statutory	50 U.S.C. 98h-1(a).	$10,100
DoD Healthcare Quality Initiatives Review Panel	Statutory	P.L. 105-174, dated May 1, 1998.	$350,000

Committee Name	Committee Type	Justification	Projected Cost of Committee - FY 1999
Department of Defense Retirement Board of Actuaries	Statutory	10 U.S.C. 1464.	$66,000
Inland Waterways Users Board	Statutory	33 U.S.C. 2251.	$230,000
National Security Education Board	Statutory	P. L. 102-183, dated December 4, 1991.	$111,300
Ocean Research Advisory Panel	Statutory	10 U.S.C. Sec 7903 as amended by P. L. 105-85 dated November 18, 1998.	$34,000
Overseas Dependent Schools National Advisory Panel on the Education of Dependents with Disabilities	Statutory	20 U.S.C. 1413, as amended dated October 1, 1990.	$35,650
Semiconductor Technology Council	Statutory	P. L. 103-160.	$13,000
Strategic Environmental Research and Development Program Scientific Advisory Board	Statutory	10 U.S.C. 2904.	$363,309
United States Air Force Academy Board of Visitors	Statutory	10 U.S.C. 9355.	$15,955
United States Army Coastal Engineering Research Board	Statutory	33 U.S.C. 462-2 and P. L. 88-172 dated November 11, 1963.	$333,000
United States Military Academy Board of Visitors	Statutory	10 U.S.C. 4355.	$65,500
United States Naval Academy Board of Visitors	Statutory	10 U.S.C. 6968.	$5,000
Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction Advisory Panel	Statutory	P. L. 105-261, Section 1405,	$600,000
		TOTAL PROJECTED FY 1999 COSTS	$18,891,824

RESOURCES ALLOCATED TO SUPPORT AND MISSION ACTIVITIES

Information required to be reported under Section 113 of Title 10 U.S.C. was not available at time of publication of the Annual Report. It will be included in the 2000 report.

GLOSSARY

AAAV	Advanced Amphibious Assault Vehicle
ABL	Airborne Laser
ABM	Anti-Ballistic Missile
AC	Active Component
AC^2ISRC	Aerospace Command and Control, Intelligence, Surveillance and Reconnaissance Center
ACE	Acquisition Center of Excellence
ACRI	African Crisis Response Initiative
ACSC	Armaments Cooperation Steering Committee
ACTD	Advanced Concept Technology Demonstration
ADL	Advanced Distributed Learning
AEF	Aerospace Expeditionary Force
AFB	Air Force Base
AFDO	Advanced Full Dimensional Operation
AFIP	Armed Forces Institute of Pathology
AFQT	Armed Forces Qualification Test
AFR	Air Force Reserve
AGS	Advanced Gun System
AIS	Automated Information System
AMEC	Arctic Military Environmental Cooperation Program
AMRAAM	Advanced Medium-Range Air-to-Air Missile
ANG	Air National Guard
AOR	Area of Responsibility
ARG	Amphibious Ready Group
ARNG	Army National Guard
ASCM	Antiship Cruise Missile
ASD(C3I)	Assistant Secretary of Defense for Command, Control, Communications, and Intelligence
ASEAN	Association of Southeast Asian Nations
ASMP	Army Strategic Mobility Program
ASW	Antisubmarine Warfare
ATACMS	Army Tactical Missile System
ATAV	Army Total Asset Visibility
AWACS	Airborne Warning and Control System
AWE	Advanced Warfighting Experiment
BAT	Brilliant Antiarmor Submunition
BCTO	Base Closure and Transition Office
BCTP	Battle Command Training Program
BES	Budget Estimate Submission
BM/C^3	Battle Management/Command, Control, and Communications
BM/C^4I	Battle Management/Command, Control, Communications, Computers, and Intelligence
BMDO	Ballistic Missile Defense Organization
BMT	Basic Military Training
BRAC	Base Realignment and Closure
BTU	British Thermal Unit
C^2	Command and Control
C^4I	Command, Control, Communications, and Computers
C^4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
CAP	Critical Acquisition Position
CAS	Cost Accounting Standard
CBIRF	Chemical/Biological Incident Response Force
CBW	Chemical and Biological Weapons
CDL	Common Data Link
CEC	Cooperative Engagement Capability
CFC	Combined Forces Command
CFJO	Concept for Future Operations
CFO	Chief Financial Officer
CINC	Commander in Chief
CINCNORAD	Commander in Chief, North American Aerospace Defense Command

Appendix N
GLOSSARY

CINCSTRAT	Commander in Chief, United States Strategic Command
CIO	Chief Information Officer
CJCS	Chairman of the Joint Chiefs of Staff
CLU	Command Launch Unit
CMD	Cruise Missile Defense
COE	Common Operating Environment
CONUS	Continental United States
COP	Common Operational Picture
COP/CSE	Combat Support Enabled Common Operational Picture
COS	Critical Occupational Specialties
COSSI	Commercial Operations and Support Savings Initiative
COTS	Commercial Off-The-Shelf
CRAF	Civil Reserve Air Fleet
CTC	Combat Training Center
CTR	Cooperative Threat Reduction
CVBG	Carrier Battle Group
DACOWITS	Defense Advisory Committee on Women in the Services
DAWIA	Defense Acquisition Workforce Improvement Act
DCAA	Defense Contract Audit Agency
DCPDS	Defense Civilian Personnel Data System
DCPS	Defense Civilian Pay System
DeCA	Defense Commissary Agency
DFAS	Defense Finance and Accounting Service
DIA	Defense Intelligence Agency
DIBRS	Defense Incident Based Reporting System
DII	Defense Information Infrastructure
DISA	Defense Information Systems Agency
DISN	Defense Information System Network
DJMS	Defense Joint Military Pay System
DLAMP	Defense Leadership and Management Program
DMLSS	Defense Medical Logistics Standard Support
DMS	Defense Message System
DNSC	Defense National Stockpile Center
DoD	Department of Defense
DoDEA	DoD Education Activity
DPAS	Defense Property Accountability System
DPPS	Defense Procurement Payment and Disbursement Systems
DPRK	Democratic People's Republic of Korea
DRI	Defense Reform Initiative
DSC	Decision Support Center
DSCS	Defense Satellite Communications System
DTO	Defense Technology Objective
DTRA	Defense Threat Reduction Agency
DVA	Department of Veteran's Affairs
DWCF	Defense Working Capital Funds
DXXI	Division XXI
EAF	Expeditionary Aerospace Force
EB	Electric Boat Corporation
EDC	Economic Development Conveyance
EDI	Electronic Data Interchange
EDM	Electronic Document Management
EELV	Evolved Expendable Launch Vehicle
EFT	Electronic Funds Transfer
EFX	Expeditionary Force Experiments
ELV	Expendable Launch Vehicle
EMD	Engineering and Manufacturing Development
ERGM	Extended-Range Guided Munition
ESH	Environmental, Safety, and Health
ESSM	Evolved Sea Sparrow Missile
EUSC	Effective U.S. Control Fleet
FAA	Federal Aviation Administration
FBE	Fleet Battle Experiment
FCR	Fire Control Radar
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FHP	Force Health Protection
FLIR	Forward-looking Infrared
FMTV	Family of Medium Tactical Vehicles
FOS	Family of Systems

FSS	Fast Sealift
FTE	Full-time Equivalent
FUE	First Unit Equipped
FWE	Fighter Wing-Equivalent
FYDP	Future Years Defense Program
G-CPR	Government-Computerized Patient Record
GANS	Global Access, Navigation, and Safety
GAO	General Accounting Office
GATM	Global Air Traffic Management
GCCS	Global Command and Control System
GCCS-T	Global Command and Control System-Top Secret
GCSS	Global Combat Support System
GMFP	Global Military Force Policy
GPRA	Government Performance and Results Act
GPS	Global Positioning System
HAE	High Altitude Endurance
HHS	Health and Human Services
HUMINT	Human Intelligence
IA	Information Assurance
IADS	Integrated Air Defense System
ICBM	Intercontinental Ballistic Missile
ICOG	International Cooperative Opportunities Group
ID	Identification
IDTC	Interdeployment Training Cycle
IFSAR	Interferometric Synthetic Aperture Radar
IMET	International Military Education and Training
IMINT	Integrate Imagery Intelligence
IMM	Integrated Materiel Manager
INS	Inertial Navigation System
IO	Information Operations
IOC	Initial Operational Capability
IOT&E	Initial Operational Testing and Evaluation
IR	Infrared
ISO	International Standards Organization
ISR	Intelligence, Surveillance, and Reconnaissance
IT	Information Technology
ITM	Information Technology Management
ITMRA	Information Technology Management Reform Act
JASSM	Joint Air-to-Surface Standoff Missile
JCF AWE	Joint Contingency Force Advanced Warfighting Experiment
JCSE	Joint Continuous Strike Environment
JDA	Joint Duty Assignment
JDAL	Joint Duty Assignment List
JDAM	Joint Direct Attack Munition
JPME	Joint Professional Military Education
JRICP	Joint Reserve Intelligence Connectivity Program
JRIP	Joint Reserve Intelligence Program
JROC	Joint Requirements Oversight Council
JSAF	Joint SIGINT Avionics Family
JSEAD	Joint Suppression of Enemy Air Defenses
JSF	Joint Strike Fighter
JSO	Joint Specialty Officer
JSOW	Joint Standoff Weapon
JSTARS	Joint Surveillance Target Attack Radar System
JTA	Joint Technical Architecture
JTRS	Joint Tactical Radio System
JWCO	Joint Warfighting Capabilities Objective
LAMPS	Light Airborne Multipurpose System
LASM	Land-Attack Version of the Standard Missile
LAWS	Land Attack Weapons System
LCAC	Landing Craft Air Cushion
LEAP	Lightweight Exoatmospheric Projectile
LMSR	Large, Medium Speed Roll-on/Roll-off
LRIP	Low-Rate Initial Production
MAGTF	Marine Air-Ground Task Force
MAISRC	Major Automated Information System Review Council
MAP	Military Assistance Program
MARITECH	Maritime Technology
MASINT	Measurement and Signature Intelligence

MCDP	Military Child Development Program
MCM	Mine Countermeasure
MCTFS	Marine Corps Total Force System
MDAP	Major Defense Acquisition Program
MEADS	Medium Extended Air Defense System
MEB	Marine Expeditionary Brigade
MEF	Marine Expeditionary Force
MEU(SOC)	Marine Expeditionary Unit (Special Operations Capable)
MILCON	Military Construction
MILSATCOM	Military Satellite Communications
MLRS	Multiple-Launch Rocket System
MPA	Maritime Patrol Aircraft
MPF	Maritime Prepositioning Force
MRS BURU	Mobility Requirements Study Bottom-Up Review Update
MSC	Military Sealift Command
MSF	Million Square Feet
MTI	Moving Target Indicator
MTM/D	Million Ton-Miles per Day
MTVR	Medium Tactical Vehicle Replacement
MTW	Major Theater War
MWR	Morale, Welfare, and Recreation
NASA	National Aeronautics and Space Administration
Navwar	Navigation Warfare
NBC	Nuclear, Biological, and/or Chemical
NCW	Network Centric Warfare
NDS	National Defense Stockpile
NIS	New Independent States
nm	Nautical Mile
NMD	National Missile Defense
NNS	Newport News Shipbuilding
NOR	Net Operating Result
NORAD	North American Aerospace Defense Command
NPOESS	National Polar-orbiting Operational Environmental Satellite System
NSA	National Security Agency
NSA/CSS	National Security Agency/ Central Security Service
NSFS	Naval Surface Fire Support
NSSN	New Attack Submarine
NTW	The Navy Wide
O&M	Operation and Maintenance
O&S	Operations and Support
OMB	Office of Management and Budget
OMFTS	Operational Maneuver From the Sea
OPM	Office of Personnel Management
OPTEMPO	Operating Tempo
OSD	Office of the Secretary of Defense
OT&E	Operational Test and Evaluation
PAC-3	Patriot Advanced Capability-3
PAI	Primary Aircraft Inventory
PDT	Permanent Duty Travel
PERSTEMPO	Personnel Tempo
PFP	Partnership for Peace
PMAI	Primary Mission Aircraft Inventory
PME	Professional Military Education
POM	Program Objective Memorandum
PPBS	Planning, Programming, and Budgeting System
PPI	Past Performance Information
PPV	Public-Private Venture
PSRC	Presidential Selected Reserve Call-up
QDR	Quadrennial Defense Review
QoL	Quality of Life
R&D	Research and Development
RAM	Rolling Airframe Missile
RBA	Revolution in Business Affairs
RC	Reserve Component
RDT&E	Research, Development, Test, and Evaluation
RMA	Revolution in Military Affairs
RO/RO	Roll-on/roll-off
ROK	Republic of Korea

ROSC	Rear Operations Support Center
RRF	Ready Reserve Force
RRT	Ready Reserve Travel
RSOI	Reception, Staging, Onward Movement, and Integration
RTS	Rapid Targeting System
RV	Reentry Vehicle
S&T	Science and Technology
SADARM	Sense and Destroy Armor Munition
SAM	Surface-to-Air Missile
SBIR	Small Business Innovation Research Program
SBIRS	Space-Based Infrared System
SBP	Strategic Business Plan
SDB	Small Disadvantaged Business
SBP	Strategic Business Plan
SFW	Sensor-Fuzed Weapon
SIGINT	Signals Intelligence
SLAM	Standoff Land Attack Missile
SLBM	Submarine-launched Ballistic Missile
SLEP	Service Life Extension Program
SOC	Special Operations Command
SOF	Special Operations Forces
SSC	Smaller-Scale Contingency
SSN	Attack Submarine
START	Strategic Arms Reduction Treaty
STOM	Ship-to-Objective Maneuver
STOVL	Short Takeoff and Vertical Landing
TADSS	Training Aids, Devices, Simulators, and Simulation
TAMD	Theater Air and Missile Defense
TARA	Technology Area Review and Assessment
TAV	Total Asset Visibility
TBM	Theater Ballistic Missile
TBMD	Theater Ballistic Missile Defense
TCDL	Tactical Common Data Link
TCS	Tactical Control System
TD-1	Taepo Dong-1
TDY	Temporary Duty
THAAD	Theater High Altitude Area Defense
TMD	Theater Missile Defense
TUAV	Tactical Unmanned Aerial Vehicle
UAV	Unmanned Aerial Vehicle
UFO	Ultra\-High Frequency Follow-on
URD	Uniform Resource Demonstration
USACOM	United States Atlantic Command
USAR	United States Army Reserve
USAREUR	U.S. Army Europe
U.S.C.	United States Code
USCENTCOM	United States Central Command
USCINCEUR	Commander in Chief of USEUCOM
USELEMNORAD	U.S. Element NORAD
USEUCOM	United States European Command
USFK	United States Forces Korea
USMCR	Marine Corps Reserve
USNR	Naval Reserve
USPACOM	United States Pacific Command
USSOCOM	United States Special Operations Command
USSOUTHCOM	United States Southern Command
USSPACECOM	United States Space Command
USSTRATCOM	United States Strategic Command
USTRANSCOM	United States Transportation Command
VAMOSC	Visibility and Management of Operating and Support Cost
VISA	Voluntary Intermodal Sealift Agreement
VMF	Variable Message Format
WCMD	Wind-Corrected Munition Dispenser
WMD	Weapons of Mass Destruction
WOSB	Women-Owned Small Business
Y2K	Year 2000
YATS	Youth Attitude Tracking Study

☆ U. S. GOVERNMENT PRINTING OFFICE: 1999-449-221/10033