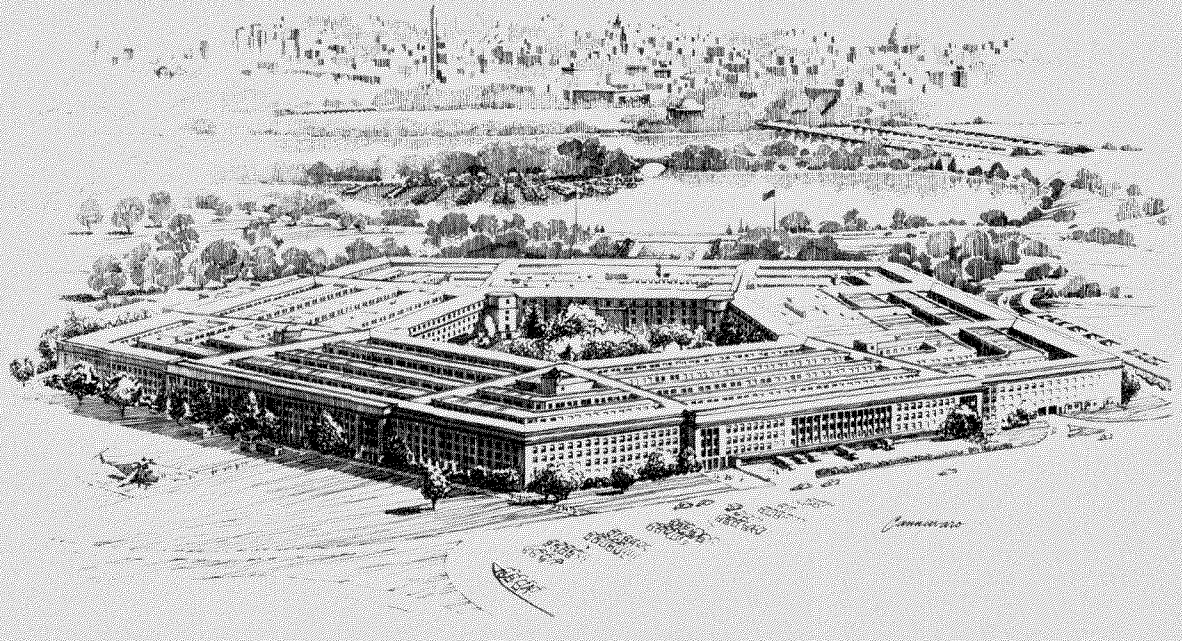
Annual Report

to the
President
and the
Congress



William S. Cohen
Secretary of Defense

April 1997

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).

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

April 1997

For sale by the U.S. Government Printing Office
Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328
ISBN 0-16-049045-6

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MESSAGE OF THE SECRETARY OF DEFENSE

The world today is one that is constantly evolving with new security challenges. The threat of a nuclear holocaust has been greatly diminished, but the proliferation of weapons of mass destruction threatens our interests, our forces, and even our homeland. Hostile regimes, instability, and ethnic tensions threaten American interests in key regions. Terrorism, international organized crime, and drug trafficking remain threats to our national interests and to peace and stability. Finally, as recent history clearly reminds us, new dangers can arise suddenly and unpredictably.

Even as our security picture evolves, the world is undergoing unprecedented economic, political, and technological change — at a pace that is sometimes breathtaking. These changes are binding our destiny ever more closely to that of our allies and economic partners around the world. This works to our advantage as we seek to promote free markets and principles of democracy, but it also increases the degree to which we are affected by developments overseas. We should not — and cannot — insulate ourselves from the forces that are sweeping the globe.

The Department of Defense is committed to pursuing national security policies designed not merely to react to the changing environment, but also to shape the environment in ways that are favorable to our interests — to shift our focus from dealing with the end of one era toward shaping the next one.

In Europe, we have a real opportunity to finally overcome centuries of division that in the 20th century culminated in two world wars and a cold war. We need to seize this opportunity by moving forward with NATO enlargement, strengthening and expanding the Partnership for Peace, and continuing to forge a new pragmatic partnership with Russia designed to increase our bilateral cooperation and decrease the potential nuclear threat.

In the Asia-Pacific region, we must remain present and engaged to ensure the region's continued stability, which has helped to fuel regional economic growth and to create opportunities for American businesses and workers. We need to deter the near-term threat from North Korea, while over the long term shape the security environment to prevent threats that could arise from rivalry among major regional powers.

In Southwest Asia, particularly in the Persian Gulf region, we need to continue to protect our interests, especially the energy resources that remain critical to the world economy.

In the Western Hemisphere, we need to seize the unique opportunity presented by the changing strategic environment — the current burgeoning of democracy and open markets — and seek to advance the frontiers of military-to-military engagement and humanitarian assistance.

Finally, the proliferation of ballistic and cruise missile technologies presents an increasing threat to Americans in their homes and at their workplaces. In conjunction with our allies, we must pursue programs to thwart these threats.

Getting it right on these key components on the international security agenda depends not only on pursuing the proper policies, but backing up those policies with military strength. Today, the United States has the finest military in the nation's history, the finest the world has ever seen. We intend to keep our military that way by focusing on the Department's top priorities:

- **Attracting and retaining high quality people.** This is vital to the preservation of U.S. military superiority. Only the best men and women America has to offer can handle the increasing complexity of technology, the quickening pace of warfare, and the growing unpredictability of the international scene. A key to retaining the best people is to provide them a decent quality of life. The Department will continue to carry out President Clinton's 1994 military quality of life initiative to improve compensation, housing, and family support and will continue to find ways to make life even better for our troops and their families. Housing will receive a special focus as we will seek newer and faster ways of replacing obsolete facilities and providing sufficient modern housing for our people and their families.

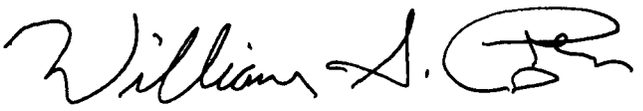
- **Maintaining ready forces.** Quality of life is key to readiness as a means to attract and retain high quality personnel. And so is a well-funded operations and maintenance program that ensures the essentials of readiness, especially training. The United States military has the world's best, most realistic combat training programs and facilities. We need to keep this competitive edge.

- **Modernizing the forces.** Tomorrow's readiness requires us to embark on a modernization program today. The massive reduction in force structure following the end of the Cold War allowed us to terminate or defer a multitude of programs within acceptable risks, but the time has come to reverse this trend. The FY 1998 budget retains the goal of increasing procurement funding to approximately $60 billion by FY 2001 and projects nearly a 40 percent real increase in procurement spending between FY 1998 and FY 2002. This increase is designed to ensure a ready, flexible, and technologically superior force for a changing security environment.

- **Reforming the support elements of the Department of Defense.** Our goal is to operate more efficiently, acquire the best technology, and find ways of saving money for force modernization. Acquisition reform is already revolutionizing the quality and speed of technology acquisition — allowing us to get more for our investment dollars. Achieving program stability, long recognized as a key enabler in limiting cost growth in our modernization programs, is a major objective. The Department will continue to pursue other efficiency initiatives such as examining excess infrastructure, adopting best business practices, and pursuing outsourcing and privatization initiatives where appropriate, as a means to do all we can to work smarter and more efficiently.

The defense programs described in this report represent a good faith effort to develop a proper match of strategy and resources. But we are under no illusions. The reductions of recent years have exhausted the easy options. The Quadrennial Defense Review (QDR) — which is taking a top-to-bottom look at the security threats and our future security needs — is likely to present difficult choices about apportioning resources for the future. Modernization is one of the most important areas being analyzed in the QDR. The QDR will focus both on the content of modernization and on potential sources for budget savings so that validated programs can be sufficiently funded.

In his book, *On the Origins of War*, historian Donald Kagan writes, "In the modern world . . . the sense that peace is natural and war an aberration . . . has prevented the efforts needed to preserve the peace." Maintaining a strong, ready, and capable military is a key to preserving peace. The Department of Defense programs and objectives will keep us on track to accomplish this. The challenge is not an easy one, but with the resources our nation possesses in its technology, in its leadership, and in the men and women of its armed forces, we will meet the challenge now and into the 21st century. Each element of the defense program described in this report is aimed at meeting this challenge.



Part I
Defending the Nation

Chapter 1

U.S. DEFENSE STRATEGY

Since the founding of the Republic, the U.S. government has always sought to secure for the American people a set of basic objectives:

- The protection of their lives and personal safety, both at home and abroad.
- The maintenance of the nation's sovereignty, political freedoms, and independence, with its values, institutions, and territory intact.
- Their material well-being and prosperity.

On the eve of the 21st century, the international environment is more complex and interrelated than at any other time in history. The number and diversity of nations, organizations, and other actors vying for influence continue to grow. At the same time, the global economy is increasingly interdependent. Not only does this offer the United States the promise of greater prosperity, it also ties the security and well-being of Americans to events beyond their borders more than ever before. Today, incidents formerly considered peripheral to American security — the spread of ethnic and religious conflict, the breakdown of law and order, or the disruption of trade in faraway regions — can pose real threats to the United States. Likewise, new opportunities have arisen for the United States, in concert with other like-minded nations, to advance its long-term interests and promote stability in critical regions.

In order to shape the international security environment in ways that protect and advance U.S. interests, the United States must remain engaged and exert leadership abroad. U.S. leadership can deter aggression, foster the peaceful resolution of dangerous conflicts, encourage stable and free foreign markets, promote democracy, and inspire others to create a safer world and to resolve global problems. Without active U.S. leadership and engagement abroad, threats to U.S. security will worsen and opportunities will narrow.

Threats to the interests of the United States, its allies, and its friends can come from a variety of sources. Prominent among these are:

- Attempts by regional powers hostile to U.S. interests to gain hegemony in their regions through aggression or intimidation.

- Internal conflicts among ethnic, national, religious, or tribal groups that threaten innocent lives, force mass migration, and undermine stability and international order.
- Threats by potential adversaries to acquire or use nuclear, chemical, or biological weapons and their means of delivery.
- Threats to democracy and reform in the former Soviet Union, Central and Eastern Europe, and elsewhere.
- Terrorism.
- Subversion and lawlessness that undermine friendly governments.
- Threats to U.S. prosperity and economic growth.
- Global environmental degradation.
- Illegal drug trade.
- International crime.

Many of these threats are global in scale and cannot be adequately addressed unilaterally, either by the United States or any other single nation state. Thus, the United States will need to secure the cooperation of a number of nations, groups, and international organizations to protect Americans from such threats.

THE NATIONAL SECURITY STRATEGY

The Administration's National Security Strategy acknowledges both the inescapable reality of interdependence and the serious threats to U.S. interests posed by actors beyond its borders. To protect and advance U.S. interests, the American government must be able to shape the international environment, influencing the policies and actions of others. This mandates that the United States remain engaged abroad, particularly in regions where its most important interests are at stake. At the same time, it is essential that U.S. allies and friends share responsibility for regional and global security. The United States and its allies must work together to help build a more peaceful and prosperous world. This means, among other things, taking pragmatic steps to enlarge the world's community of free market democracies. As the President's National Security Strategy states, "The more that democracy and political and economic liberalization take hold in the world, particularly in countries of strategic importance to us, the safer our nation is likely to be and the more our people are likely to prosper."

The three principal objectives of the U.S. strategy of engagement and enlargement are:

- Enhancing security. The United States must maintain a strong defense capability and promote cooperative security measures.
- Promoting prosperity. The United States will promote prosperity at home and work with other countries to create a more open and equitable international trading system and spur global economic growth.
- Promoting democracy. The United States will work to protect, consolidate, and enlarge the community of free market democracies around the globe.

These objectives underscore that the only responsible strategy for the United States is one of international engagement. Isolationism in any form would reduce U.S. security by undercutting the United States' ability to influence events abroad that can affect the well-being of Americans. This does not mean that the United States seeks the role of global policeman. But it does mean that America must be ready and willing to protect its interests, both now and in the future.

As the United States moves into the next century, being militarily ready means that U.S. forces must be prepared to conduct a broad range of military missions without being spread too thin. This will require suitable types and levels of forces to accomplish missions across the spectrum of operations, as well as sustaining a high level of training and morale and maintaining modern, reliable equipment and facilities.

The Administration has also argued for balance between defense and domestic priorities. While these priorities may compete for resources in the short term, they are wholly complementary in the longer term. The United States cannot be prosperous if its major trade and security partners are threatened by aggression or intimidation; nor can it be secure if international economic cooperation is breaking down, because the health of the U.S. economy is interwoven with that of the global economy. Prudence dictates that U.S. strategy strike a balance — America's overall budget must invest in future prosperity and productivity while

avoiding the instabilities and risks that would accompany attempts to withdraw from its security responsibilities in critical regions.

The forces and programs developed in the 1993 Bottom-Up Review and the Nuclear Posture Review have provided the capabilities needed to support this ambitious strategy. U.S. forces today are without question the best in the world and this Administration is committed to keeping them that way.

The Department of Defense is currently in the midst of a congressionally mandated Quadrennial Defense Review (QDR) that involves a comprehensive reassessment of U.S. defense strategy, force structure, readiness, modernization, and infrastructure. This review could produce changes in strategy, resulting force structure and modernization, and other resource needs.

REGIONAL SECURITY STRATEGIES

The security relationships established by the United States and its allies and friends during the Cold War are essential to advancing America's post-Cold War agenda. To meet the unique challenges of the post-Cold War era, the United States seeks to further strengthen and adapt these partnerships and to establish new security relationships in support of U.S. interests.

In Europe, the end of the Cold War has brought new opportunities and new challenges. Hand in hand with its North Atlantic Treaty Organization (NATO) allies, the United States has sought to promote a free and undivided Europe that will work with the United States to keep the peace and promote prosperity. In the new security architecture of an integrated Europe, NATO is the central pillar, complemented by the Western European Union and a strengthened Organization for Security and Cooperation in Europe. This is the essential motivation behind U.S. support for NATO enlargement and establishment of a strong NATO-Russia relationship. NATO's Partnership for Peace (PFP) has provided a means for expanding and intensifying political and military cooperation throughout Europe. NATO members and partners have participated in many dozens of PFP exercises and hundreds of other training, planning, and consultation activities. PFP serves as a pathway for nations to qualify for NATO membership; for those partners that do not choose to join NATO, PFP provides an enduring framework for their relations with NATO and constitutes concrete proof that the alliance is concerned about their security. Partnership for Peace bolsters efforts by Central and Eastern European nations and the New Independent States to build democratic societies and strengthen regional stability. Other efforts, including the European Command's Joint Contact Team Program and Marshall Center, similarly advance U.S. defense engagement with Central and Eastern Europe and the New Independent States.

Secretary Perry made building cooperative defense and military ties with Russia, Ukraine, and the other New Independent States one of the Department of Defense's highest priorities. Moving away from the hostility of the Cold War and reducing its lethal nuclear legacy will be neither instantaneous nor easy. Steady, continued engagement that focuses on mutual security interests is the cornerstone in building constructive relationships with the New Independent States. Through the pursuit of a pragmatic partnership, the United States is striving to manage differences with Russia to ensure that shared security interests and objectives take priority. A central objective is to encourage Russia to play a constructive role in the new European security architecture through the development of NATO-Russia relations and through Russia's active participation in PFP.

The East Asian-Pacific region continues to grow in importance to U.S. security and prosperity. This region has experienced unprecedented economic growth in the past decade and is projected to have the highest rate of economic growth in the world over the next 25 years. The security and stability provided by the presence of U.S. military forces in the East Asian-Pacific region over the past 40 years created the conditions and potential for such tremendous growth. Security, open markets, and democracy, the three strands of the President's National Security Strategy, are thoroughly intertwined in this region.

Today, the United States retains its central role as a force for stability in East Asia-Pacific, but it has begun to share greater responsibility for regional security with its friends and allies. The United States constructively participates in and supports regional security dialogues. It actively encourages efforts by East Asian-Pacific nations to provide host-nation support for U.S. forces, contribute to United Nations (UN) peace operations, and participate in international assistance efforts throughout the world. While these regional initiatives are important, there is no substitute for a forward-stationed U.S. military presence — essential to both regional security and America's global military posture — or for U.S. leadership like that which brought together the broad coalition that convinced North Korea to

relinquish its nuclear weapons program. The United States will remain active in this vital region.

The United States has enduring interests in the Middle East, especially pursuing a comprehensive Middle East peace, assuring the security of Israel and U.S. principal Arab partners, and maintaining the free flow of oil at reasonable prices. The United States will continue to work to extend the range of Middle East peace and stability. Integral to that effort is the Administration's strategy of dual containment of Iraq and Iran for as long as those states pose a threat to U.S. interests, to other states in the region, and to their own citizens. Maintaining the United States' long-standing military presence in Southwest Asia is critical to protecting the vital interests America shares with others in the region.

The United States seeks to strengthen its security relationships with the countries of South Asia, particularly India and Pakistan. In recent years, DoD has worked closely on peacekeeping operations with the armed forces of not only India and Pakistan, but also Nepal and Bangladesh. DoD has also expanded its combined military exercise programs with these countries. While U.S. defense ties are important in their own right, they also support broader U.S. objectives in the South Asian region, such as reducing tensions, by building mutual trust and understanding. To support these goals, the Department has annual security talks with both India and Pakistan.

The overarching U.S. objectives in the Western Hemisphere are to sustain regional stability and to increase regional cooperation. The continuation of a stable and cooperative environment will help ensure that current strides in democracy, free markets, and sustainable development will continue and that further progress can be made by the nations of the region. The United States also has a key interest in countering the steady flow of narcotics into the United States from source countries in Latin America and the Caribbean. As in other regions, DoD is working to foster greater transparency and confidence building throughout the region and enhance the sharing of responsibility for mutual security interests with its friends and allies in the Western Hemisphere, while supporting U.S. law enforcement agencies and many countries in the fight against narcotics trafficking. Contributions from the region have included the provision of forces to coalition operations, support for international development and democratization, and the contribution of personnel or resources to UN peace operations.

Although at present their is no permanent or significant military presence in Africa, the United States does desire access to facilities and strengthened relations with African nations through initiatives that have been or might be especially important in the event of a wide range of contingencies. The United States has significant interests in Africa in countering state-sponsored terrorism, narcotics trafficking, and proliferation of conventional weapons, fissile materials, and related technology. The United States must continue to work with the continent's nations to help secure U.S. interests.

Africa also provides fertile ground for promoting democracy, sustaining development, and resolving conflict. The United States does not seek to resolve Africa's many conflicts, but rather to empower African states and organizations to do so themselves. It also supports the democratization and economic growth that are necessary for the long-term stability of the region. The United States actively participates in efforts to address the root causes of conflicts and disasters that affect U.S. national interests before they erupt. Such efforts include support for military downsizing, demining, effective peace operations, including the African Crisis Response Force, and strong indigenous conflict resolution facilities, including those of the Organization of African Unity and subregional organizations.

In all these regions, nations contribute to global and regional security in a wide variety of ways; the notion of responsibility sharing reflects the broad range of such contributions. In addition to providing host-nation support for U.S. forces, states can contribute to international security by maintaining capable military forces, assigning those forces to coalition missions like Operation Desert Storm and the Implementation Force (IFOR) in Bosnia, or to UN peacekeeping operations, and providing political and financial support for such shared objectives as international economic development or the dismantlement of North Korea's nuclear program. Since the end of the Cold War, U.S. friends and allies have taken on increased shares of the burden for international security, providing, for example, over 245,000 troops to Operation Desert Storm and $70 billion to the United States and other coalition members to help defray their expenses in the war. Yet room for more equitable and cost-effective responsibility sharing remains. The Department of Defense is committed to working with Congress and with U.S. friends and allies toward this goal.

U.S. MILITARY MISSIONS

As stated in the National Security Strategy, the 1993 Bottom Up Review, and the National Military Strategy, the Department of Defense will field and sustain the military capabilities needed to protect the United States and advance its interests. The United States is the only nation capable of unilaterally conducting effective, large-scale military operations far beyond its borders. There is and will continue to be a great need for U.S. forces with such capabilities, not only to protect the United States from direct threats but also to shape the international environment in favorable ways, particularly in regions critical to U.S. interests, and to support multinational efforts to ameliorate human suffering and bring peace to regions torn by ethnic, tribal, or religious conflicts.

Supporting the National Security Strategy has required that the United States maintain robust and versatile military forces that can concurrently accomplish a wide variety of missions:

- U.S. forces must be able to offset the military power of regional states with interests opposed to those of the United States and its allies. To do this, the United States must be able to credibly deter and, if required, decisively defeat aggression, in concert with regional allies, by projecting and sustaining U.S. power in two nearly simultaneous major regional conflicts.

- U.S. forces must be forward deployed or stationed in key overseas regions in peacetime to deter aggression, demonstrate U.S. commitment to allies and friends, underwrite regional stability, gain familiarity with overseas operating environments, promote joint and combined training among friendly forces, and provide initial capabilities for timely response to crises.

- The United States must be prepared for a wide range of contingency operations in support of U.S. interests. These operations include, among others, smaller-scale combat operations, multilateral peace operations, counterdrug, counterterrorism, sanctions enforcement, noncombatant evacuations, and humanitarian and disaster relief operations.

- While the United States is redoubling its efforts to prevent the proliferation of nuclear, biological, and chemical (NBC) weapons and associated delivery systems, it must at the same time improve its military capabilities to deter and prevent the effective use of these weapons, to defend against them, and to fight more effectively in an environment in which such weapons are used.

Finally, to meet all these requirements successfully, U.S. forces must be capable of responding quickly and operating effectively. That is, they must be ready to fight. This demands highly qualified and motivated people; modern, well-maintained equipment; viable joint doctrine; realistic training; strategic mobility; and sufficient support and sustainment capabilities.

Deterring and Defeating Aggression

The focus of U.S. planning for major regional conflicts is based on the need to be able to project power and to deter, defend against, and defeat aggression by potentially hostile regional powers. Today, such states are capable of fielding sizable military forces that can cause serious imbalances in military power within regions important to the United States, with allied or friendly states often finding it difficult to match the power of a potentially aggressive neighbor. Such aggressive states may also possess NBC capabilities. Hence, to deter aggression, to prevent coercion of allied or friendly governments and, ultimately, to defeat aggression should it occur, the United States must prepare its forces to assist its friends and allies in confronting this scale of threat.

U.S. planning for fighting and winning these major regional conflicts envisages an operational strategy that, in general, unfolds as follows (recognizing that in practice some portions of these phases may overlap):

- Halt the invasion.

- Build up U.S. and allied/coalition combat power in the theater while reducing the enemy's.

- Decisively defeat the enemy.

- Provide for post-war stability.

The United States will never know with certainty who the next opponent will be, how that opponent will fight, or how the conflict might unfold. Moreover, the contributions of allies to the coalition's overall capabilities will vary from place to place and over time. Thus,

balanced U.S. forces are needed in order to provide a wide range of complementary capabilities and to cope with the unpredictable and unexpected.

U.S. military strategy calls for the capability, in concert with regional allies, to fight and decisively win two major regional conflicts that occur nearly simultaneously. This, along with overseas presence, has been the principal determinant of the size and composition of U.S. conventional forces. A force with such capabilities is required to avoid a situation in which an aggressor in one region might be tempted to take advantage of a perceived vulnerability when substantial numbers of U.S. forces are committed elsewhere. More fundamentally, maintaining a two-major regional conflict force helps ensure that the United States will have sufficient military capabilities to defend against a coalition of hostile powers or a larger, more capable adversary than is foreseen today.

U.S. forces fighting alongside their regional allies are capable of fighting and winning two nearly simultaneous major regional conflicts today. With programmed enhancements to U.S. mobility/prepositioning assets, as well as improvements to surveillance assets, accelerated acquisition of more effective munitions, and other key improvements, U.S. military forces will maintain and improve upon this capability.

Stability Through Overseas Presence

The need to forward deploy or station U.S. military forces abroad in peacetime is also an important factor in determining overall U.S. force structure. In an increasingly interdependent world, U.S. forces must sustain credible military presence in several critical regions in order to shape the international security environment in favorable ways. Toward this end, U.S. forces permanently stationed and rotationally or periodically deployed overseas serve a broad range of U.S. interests. Specifically, these forces:

- Help to deter aggression, adventurism, and coercion against U.S. allies, friends, and interests in critical regions.
- Underwrite regional stability by dampening pressures for competition among regional powers and by encouraging the development of democratic institutions and civilian control of the military.
- Improve U.S. forces' ability to respond quickly and effectively in crises.
- Increase the likelihood that U.S. forces will have access to the facilities they need in theater and enroute.
- Improve the ability of U.S. forces to operate effectively with the forces of other nations.

Through foreign military interactions, including training programs, multinational exercises, military-to-military contacts, defense attache offices, and security assistance programs that include judicious foreign military sales, the United States can strengthen the self-defense capabilities of its friends and allies and increase its access and influence in a region. Through military-to-military contacts and other exchanges, the United States can reduce regional tensions, increase transparency, and improve bilateral and multilateral cooperation.

By improving the defense capabilities of U.S. friends and demonstrating U.S. commitment to defend common interests, U.S. forces abroad enhance deterrence and raise the odds that U.S. forces will find a relatively favorable situation should a conflict arise. Working closely with friends and allies greatly enhances the United States' ability to organize successful coalitions. The stabilizing presence of U.S. forces also helps to prevent conflicts from escalating to the point where they threaten greater U.S. interests at higher costs.

Contingency Operations

U.S. defense strategy also requires that military forces be prepared for a wide range of contingency operations in support of U.S. interests. Contingency operations are military operations that go beyond the routine deployment or stationing of U.S. forces abroad but fall short of large-scale theater warfare. Such operations range from smaller-scale combat operations to peace operations and noncombatant evacuations. They are an important component of U.S. strategy and, when undertaken selectively and effectively, can protect and advance U.S. interests.

The United States will always retain the capability to intervene unilaterally when its interests are threatened. The United States also will advance its interests and fulfill its leadership responsibilities by providing military forces to selected allied/coalition operations, some of which may support UN Security Council (UNSC) Resolutions (for example, U.S. participation in coalition sanctions enforcement and no-fly zone enforcement in Southwest Asia). Further, the United

States will continue to participate directly in UN peace operations when it serves U.S. interests. UN and multinational peace operations can help prevent, contain, and resolve conflicts that affect U.S. interests. When it is appropriate to support a multinational peace operation, participating U.S. forces benefit from the authority and support of the international community and from sharing costs and risks with other nations.

SMALLER-SCALE COMBAT OPERATIONS

The United States will maintain the capability to conduct smaller-scale combat operations unilaterally, or in concert with others, when important U.S. interests are at stake. These operations generally are undertaken to provide for regional stability (for example, U.S. operations in Grenada), promote democracy (for example, U.S. operations in Panama and Haiti), or otherwise respond to conflicts that affect U.S. interests.

PEACE OPERATIONS AND HUMANITARIAN ASSISTANCE

Peace operations provide the United States with an effective and flexible instrument to cope with the dynamic nature of the international environment. Although the Cold War is over, the United States faces serious threats to its interests from a variety of sources, including regional powers with expansionist ambitions; the proliferation of weapons of mass destruction; efforts to undermine new democracies; and instability caused by ethnic or religious conflicts within or between states. While internal conflicts in many states often have limited effect on vital American interests, their cumulative effect can be very significant. If ignored, localized conflicts can spill over into other states, disrupt international commerce, and create humanitarian disasters and refugee flows that require an international response.

The Administration's National Security Strategy supports selective American participation in peace operations as part of a broader effort to protect and advance U.S. interests in the post-Cold War era. Of course, selective involvement in peace operations is only one of many tools available to defend U.S. interests. Diplomacy is the instrument of first resort. Nonetheless, if diplomatic means are insufficient, the United States remains prepared to use other instruments — including military forces — to protect U.S. interests.

The United States must, and does, retain the capability to employ its armed forces unilaterally, whether that employment be a conventional war or a peace operation. Therefore, U.S. forces, forward deployed and continental United States (CONUS)-based, active and reserve, must also train and sustain their Service and joint skills to execute peace operations. Improving Service and joint doctrine and training for these operations remains an important priority of the Department of Defense. However, in most cases, and especially in peace operations, it is in U.S. interests to act in concert with other, like-minded states either by lending political, material, and financial support to an operation or by participating directly. Multilateral action, particularly when undertaken with the explicit approval of the United Nations, the Organization for the Security and Cooperation in Europe, or other international bodies, can enhance the legitimacy of U.S. efforts, encourage other states to join in coalition with the United States, and lower both the human and financial costs to the United States of taking appropriate action. Mounting timely operations in concert with friends and allies spreads the burden of maintaining international peace and security with other states that can and should contribute.

The Department of Defense has launched an effort known as the Enhanced International Peacekeeping Capabilities (EIPC) initiative to increase the pool of capable foreign peacekeepers and thereby lessen the need for U.S. participation in peace operations. This multiyear endeavor will also have other positive benefits such as increasing foreign militaries' awareness of U.S. norms of human rights protection. Eventually, the effort could reduce the operational costs of peace operations by producing more effective forces that will reduce the number of troops typically required for operations.

On the occasions when the United States considers contributing forces to a UN peace operation, DoD employs rigorous criteria, including the same principles that guide any decision to deploy U.S. forces. In addition, DoD ensures that the risks to U.S. personnel and the command and control arrangements governing the participation of American and foreign forces are acceptable to the United States. In general, as the U.S. military role in a particular peace operation increases, or as the possibility of combat increases, the likelihood that a foreign commander will exercise operational control over U.S. forces decreases. Under no circumstances will the President relinquish his command authority over U.S. forces.

During 1996, Task Force Eagle, comprised of approximately 20,000 U.S. troops, participated as part of IFOR in the implementation of the Dayton Peace Accords throughout its assigned sector in Bosnia. It

successfully assisted in the establishment of a Zone of Separation between the former warring factions and maintained its portion of the zone without any major incidents. Task Force Eagle also assisted in separating the former warring factions, accounting for all heavy weapons, shutting down all air defense artillery systems within Bosnia, and getting each faction's army back into their barracks.

In addition to the demanding mission in Bosnia, the United States has participated in other peace operations designed to defuse potentially explosive situations around the world. During 1996, significant U.S. participation was limited to two UN missions — Haiti (UNMIH) and the Former Yugoslav Republic of Macedonia (UNPREDEP). A small number of U.S. military personnel also served as military observers or headquarters staff in other UN peace operations in the Western Sahara, the Republic of Georgia, Iraq-Kuwait, and Eastern Slavonia. Lastly, the United States also contributed forces to non-UN peacekeeping missions in the Sinai as part of the Multinational Force and Observers and along the Peru-Ecuador border as part of the Military Observer Mission, in order to promote stability given a long-standing territorial dispute.

In many cases humanitarian assistance activities go hand-in-hand with peace operations. In this regard, humanitarian assistance bolsters peace operations as well as mitigating human suffering. Other situations, such as natural disasters, can destabilize a region by destroying shelter and infrastructure, disrupting commerce, preventing effective government, and causing widespread human suffering. U.S. military forces and assets are frequently called upon to initiate international efforts to meet urgent humanitarian needs and prevent instability from occurring after manmade and natural disasters. Assisting countries in coping with such events, and thereby promoting good will, is integral to the U.S. strategy of engagement and enlargement. Humanitarian assistance not only provides relief from suffering, but also assists in returning victims of violence and disasters to the path of recovery and sustainable development. Therefore, the Department of Defense actively seeks to improve the capabilities of the international community to deal effectively with humanitarian crises by developing closer ties with and providing assistance to international agencies, nongovernmental organizations, private voluntary organizations, and other federal agencies that contribute to relief operations.

In 1996, approximately 100 countries benefited from DoD humanitarian assistance. DoD provided humanitarian assistance in support of several major DoD operations and U.S. government initiatives. In Operation Pacific Haven, for example, U.S. armed forces facilitated the evacuation and care of thousands of Kurds and other peoples from Northern Iraq, who were evacuated by the United States in response to threats to them by the Iraqi government. The Department of Defense has assisted, as well, in the emergency and routine transport of relief supplies provided by both private and government relief organizations, including such private organizations as AmeriCares and U.S. government agencies such as the U.S. Agency for International Development. During 1996, DoD provided emergency transportation of relief supplies in response to natural disasters in China, Nepal, Kazakstan, Honduras, St. Maarten, and Indonesia. During the same time, the Department also significantly expanded its humanitarian demining program to train and assist other countries in developing effective demining programs and to expand efforts to develop better mine detection and mine clearing technology for use in the many countries still plagued by mines sown during prolonged internal conflicts.

When the United States considers involvement in humanitarian assistance operations, decisions focus on the use of military forces rather than the use of force. Generally, the military is not the most appropriate tool to address humanitarian concerns. But under certain conditions, the use of U.S. military forces may be appropriate: when a humanitarian catastrophe dwarfs the ability of civilian relief agencies to respond; when the need for relief is urgent and only the military has the ability to jump-start the longer-term response to the disaster; when the response requires resources unique to the military; and when the risk to U.S. troops is minimal.

In support of the Federal Emergency Management Agency, DoD also helps provide assistance to victims of domestic disasters. Responses to floods, hurricanes, forest fires, and other disasters, such as the Oklahoma City bombing, have rapidly placed U.S. forces in stricken areas to help provide support, infrastructure repair, and restoration of critical services.

OTHER KEY MISSIONS

U.S. military forces and assets will also be called upon to perform a wide range of other important missions. Some of these can be accomplished by conventional forces fielded primarily for theater operations. Often,

however, these missions call for specialized units and capabilities.

Combating Terrorism. To protect American citizens and interests from the threat posed by terrorist groups, the United States needs units available with specialized counterterrorist capabilities. From time to time, the United States might also find it necessary to strike terrorists at their bases abroad or to attack assets valued by the governments that support them.

Countering terrorism effectively requires close day-to-day coordination among Executive Branch agencies. The Department of Defense will continue to cooperate closely with the Department of State; the Department of Justice, including the Federal Bureau of Investigation; and the Central Intelligence Agency. Positive results come from integrating intelligence, diplomatic, and legal activities and through close cooperation with other governments and international counterterrorist organizations.

The United States has made concerted efforts to punish and deter terrorists and those who support them. Such actions by the United States send a firm message that terrorist acts will be punished, thereby deterring future threats.

In recognition of the increasing threat that terrorism poses to the national interest, the President, in September 1996, signed a supplemental authorization totaling $1.3 billion to be used for programs and special initiatives to combat terrorism. Of the total, DoD received $353 million, which is being used primarily to increase the security of U.S. troops and installations overseas. These funds are part of a package of comprehensive initiatives designed to provide better protection to the American people and U.S. forces. Finally, the Joint Staff created a new Deputy Directorate to assist in coordinating all DoD efforts to combat terrorism.

Noncombatant Evacuation Operations. The U.S. government's responsibility for protecting the lives and safety of Americans abroad extends beyond dealing with the threat of terrorism. Situations like the outbreak of civil or international conflict and natural or manmade disasters require that selected U.S. military forces be trained and equipped to evacuate Americans from threatening situations. For example, U.S. forces evacuated Americans from Monrovia, Liberia, in April-June 1996, and from the Central African Republic in May 1996.

Counterdrug Operations. The Department of Defense, in support of U.S. law enforcement agencies (LEAs), the Department of State, and cooperating foreign governments, continues to participate in combating the flow of illicit drugs into the United States. The Department strives to achieve the objectives of the National Drug Control Strategy through the effective application of available resources consistent with U.S. law.

The Department supports the counterdrug mission in five key areas:

- Dismantling the Cartels. DoD continues to enhance its technical support to domestic and international drug LEAs through its all-source intelligence collection, analysis, and sharing programs, and by providing linguist and documentation exploitation support.

- Source Nation Support. DoD provides support to those nations that demonstrate the political will to combat narcotraffickers. Support is aimed at encouraging national resolve and regional cooperation; enhancing air, land, river and maritime interdiction performance; and further developing endgame (effective arrest, seizure of drugs, and prosecution) capabilities. DoD achieves these objectives by providing intelligence, target cueing, initial detection and monitoring, operational planning assistance, training in tactical procedures and equipment maintenance, forward operating base infrastructure improvements, and logistics/ communication support to source nation LEAs and military.

- Detection and Monitoring the Transport of Illegal Drugs. DoD supports domestic law enforcement and host nation detection and monitoring efforts by emphasizing activities in the drug source countries; expanding military-to-military contacts with the counterdrug units of source nation armed forces' to improve their capability to conduct effective interdiction operations; conducting robust but streamlined detection and monitoring operations in the transit zone (the region between the source nations and the U.S. border region); focusing on intelligence-cued operations that directly support source nation and arrival zone operations; and focusing activities in the United States to

emphasize the illegal drug movement threat at critical border locations.

- Direct Support to Drug Law Enforcement Agencies (DLEA) in CONUS. DoD directly supports DLEAs in CONUS through active and reserve component support managed by the United States Atlantic Command's Joint Task Force-Six at Fort Bliss, Texas; programs that provide reconnaissance support, engineer construction support, intelligence analysts, linguists, transportation, maintenance, equipment upgrade, and training; a program that provides excess DoD equipment to federal and state agencies for counterdrug activities; and the Governors' state plans for using the National Guard for counterdrug support to federal, state, and local DLEAs.

- Demand Reduction. The Department continues to pursue a very effective drug deterrence/testing program focused on active duty military members, civilian employees, National Guard, and reserve forces. In addition, DoD promotes military, civilian, and military family drug education, training, awareness programs, and the National Guard volunteer military community outreach efforts.

Countering the Spread and Use of Nuclear, Biological, and Chemical Weapons

Beyond the five declared nuclear weapons states, at least 20 other nations have acquired or are attempting to acquire NBC weapons and the means to deliver them. In fact, many of America's most likely adversaries already possess chemical or biological weapons, and some appear determined to acquire nuclear weapons. Such weapons in the hands of a hostile power threaten not only American lives and interests, but also the United States' ability to project power to key regions of the world. The United States will retain the capacity to defend against and respond decisively to the use of NBC weapons so that an adversary will not perceive any advantage from employing them.

The major objectives of DoD counterproliferation policy are to:

- Support overall U.S. government efforts to prevent the acquisition of NBC weapons and missile delivery systems.

- Support overall U.S. government efforts to roll back proliferation where it has occurred.

- Deter and prevent the effective use of NBC weapons and their delivery systems against the United States, its allies, and U.S. and allied forces.

- Adapt U.S. military forces, planning, doctrine, and training to operate effectively against the threats posed by NBC weapons and their delivery means.

To further these objectives, DoD continues to enhance its military capabilities in the following areas:

- Deterrence. Continual assessments of the strategic personality of countries with nuclear, biological, or chemical weapons to better understand their leaders' intentions and what particular combination of declaratory policy, force posture, and other political, diplomatic, and military signals can best dissuade them.

- Intelligence. Overall threat assessment and timely detection for combat operations and in support of broader policy objectives.

- Ballistic and cruise missile defense. Systems that can intercept missiles with a high degree of confidence and reliability, and prevent or limit contamination should the incoming missile be carrying a nuclear, biological, or chemical munition.

- Passive defenses. Battlefield detection, decontamination, individual and collective protection, and medical treatment and response against chemical and biological warfare agents.

- Counterforce. Capabilities to seize, disable, or destroy NBC arsenals and their delivery means prior to their use with minimal collateral effects.

- Effective power projection. Reassessment of U.S. approaches to power projection to minimize the vulnerability of U.S. forces to attacks by NBC.

- Defense against covert threats. Improved capabilities to detect and disarm NBC weapons and devices that may be brought covertly into the United States.

- Command, control, and communications. Defense information architecture that will enhance the timely flow of critical intelligence and command directions.

The United States also continues to face potential nuclear threats. Russia maintains a large and modern arsenal of strategic and nonstrategic nuclear weapons. Even if the Strategic Arms Reduction Treaty (START) II is ratified and enters into force, Russia will retain a formidable strategic nuclear arsenal of up to 3,500 deployed warheads, as well as several thousand nonstrategic nuclear weapons not subject to START II. Perhaps more threatening is the risk that the materials, equipment, and know-how needed to make nuclear weapons will leak out of the New Independent States and into potentially hostile nations.

The United States seeks Russia's full implementation of the START accords. The United States also will continue to press for the elimination of all missiles capable of launching strategic weapons in Belarus in accordance with START I and the Nuclear Non-Proliferation Treaty. The United States will continue to provide assistance under the Nunn-Lugar program for the destruction of NBC capabilities in Russia and the former Soviet states; ensure the safe and secure storage of nuclear weapons and materials; and help prevent the proliferation of NBC weapons, their components, related technology, and expertise within and beyond national borders. These counterproliferation goals require a strong relationship with Russia and all the New Independent States.

U.S. nuclear forces remain an important deterrent. In order to deter any hostile nuclear state and to convince potential aggressors that seeking a nuclear advantage would be futile, the United States will retain nuclear forces sufficient to hold at risk a broad range of assets valued by potentially hostile political and military leaders. This requirement is fully consistent with meeting America's current arms control obligations.

CONCLUSION

America's defense strategy aims first and foremost to protect the life, property, and way of life of its citizens. Its success ultimately relies on a combination of the nation's superior military capabilities, its unique position as the preferred security partner of important regional states, and its determination to influence events beyond its borders. By providing leadership and shaping the international security arena, the United States, along with its allies and friends, can promote the continued spread of peace and prosperity. Only by maintaining its military wherewithal to defend and advance its interests and underwrite its commitments can the United States retain its preeminent position in the world.

Chapter 2

U.S. FORCES

The United States' strategy of engagement and enlargement requires forces that are able, in concert with regional allies, to fight and win two major regional conflicts that occur nearly simultaneously. This requirement, established in the Bottom-Up Review, has been the most significant factor in determining the overall size and structure of U.S. conventional forces. U.S. forces must also be capable of meeting a wide range of other challenges, including sustaining credible overseas presence, remaining prepared to conduct contingency operations, and maintaining strong nuclear deterrence, as well as deterring and preventing the effective use of biological and chemical weapons. To meet these challenges effectively, U.S. forces must be positioned forward or ready to deploy rapidly to distant regions to achieve their objectives quickly and decisively.

MAJOR REGIONAL CONFLICTS

During the Cold War, U.S. defense planning focused on winning a large-scale war in Europe. With the changes in the global security environment, the United States today must plan for the more likely scenario of fighting and winning potential regional conflicts on the scale of the 1991 Gulf War or a conflict in Korea. In contrast to the Cold War, the timing and location of these regional conflicts are uncertain, and the bulk of required U.S. forces may not be in theater prior to the outbreak of conflict. Even in areas of great U.S. interest and high threat, where some equipment is prepositioned and troops are forward deployed, most U.S. forces will deploy from the United States. U.S. defense plans therefore must ensure selected forces can quickly project power from their forward deployed locations and from the United States into threatened regions to secure U.S. interests and help allies defeat hostile regional powers. Moreover, the sustainment of U.S. power projection forces — in the absence of a large, forward-stationed logistics structure — will require the development and employment of new logistics technologies.

Often in these major regional conflicts, the United States will fight as the leader of a coalition, with allies and friends providing some support and combat forces. DoD expects that regional allies will fight along with U.S. forces, and that friends and allies from beyond the crisis area will contribute forces to any major regional conflict. However, U.S. forces must be sized and structured to preserve the flexibility and the capability to act unilaterally if necessary. Detailed analysis of the force capabilities required to fight and win possible

future major regional conflicts is being conducted in support of the Quadrennial Defense Review.

OVERSEAS PRESENCE

A second broad class of military operations that determine the overall size and shape of U.S. forces is overseas presence. Although all Services contribute substantially to a U.S. overseas presence posture, overseas presence needs impose requirements for naval forces that exceed those needed for major regional conflicts alone. Therefore, programmed force levels for the Navy were developed based on overseas presence missions as well as requirements for two major regional conflicts.

The United States will continue to maintain a robust overseas presence in several forms:

- Permanently stationed forces.
- Rotationally and temporarily deployed forces.
- Combined exercises.
- Port call and other force visits.
- Security assistance activities.
- Prepositioning of military equipment and supplies.
- Foreign military interactions.
- Defense attaches.

Stationing and deploying U.S. military forces overseas in peacetime remain essential elements of the United States' National Security Strategy and National Military Strategy. The U.S. military's peacetime overseas presence is the single most visible demonstration of America's commitment to defend U.S. and allied interests in key regions throughout the world. The presence of U.S. forces helps shape the international security environment by helping deter adventurism and coercion by potentially hostile states, reassuring friends, furthering influence and access, enhancing regional stability, and underwriting the larger strategy of engagement and enlargement. It thus strengthens the U.S. role in the affairs of key regions, such as Europe, East Asia, the Middle East, and Latin America and the Caribbean.

Maintaining a sufficient level of U.S. military forces in Europe is essential to preserving U.S. influence and leadership. The reassurance that a visible and capable U.S. military presence provides both to America's traditional allies in Western Europe and to its new Partners for Peace in the East aids in the development of a stable and democratic post-Cold War Europe. This Administration will ensure that the level of U.S. military presence is sufficient to respond to plausible crises, provide tangible evidence of America's commitment to preserving regional stability, and actively participate in multinational training, to minimize the likelihood of having to deploy additional forces from the continental United States in the early stages of a regional crisis. Such a force will also anchor both NATO's deterrent capability and the Alliance's ability to respond to out-of-area contingencies.

In the East Asian-Pacific region, the United States is in an unparalleled position to be a stabilizing force in the multipolar regional balance that has followed the Cold War. Because the United States is a powerful but distant state, its forward deployed forces are viewed by regional actors as a reassuring presence. Any significant diminution of the U.S. military presence in the East Asia-Pacific, absent a corresponding reduction in potential threats there, would risk creating the perception of a regional power vacuum. This, in turn, could touch off a regional arms race, threatening vital U.S. economic, political, and security interests.

Most U.S. forces in the East Asian-Pacific region are forward-stationed in Japan and Korea. These include an Army division consisting of two brigades and a fighter wing-equivalent of United States Air Force (USAF) combat aircraft on the Korean Peninsula; an Army Theater Area Command and Special Forces battalion, a Marine Expeditionary Force, an aircraft carrier battle group, an amphibious ready group, and one and a quarter fighter wing-equivalents of USAF combat aircraft in Japan. This force visibly demonstrates the U.S. commitment to the region, deters aggression by potentially hostile states, and allows for rapid and decisive U.S. action should deterrence fail.

In the Middle East and Southwest Asia, the Administration has undertaken a strategy of dual containment of Iraq and Iran for as long as these states pose a threat to U.S. interests, other states in the region, and to their own citizens. Since Operation Desert Storm, the United States has undertaken several specific steps to enhance its military presence in the region. Some of these steps include the continuous presence of an Army heavy battalion task force in Kuwait and a Patriot air defense artillery task force in Kuwait and Saudi Arabia; prepositioning a heavy brigade set of equipment in Kuwait

and a heavy battalion task force in Qatar; prepositioning a heavy brigade set afloat on ships in the Indian and Pacific Oceans; deployment of land-based aircraft in the Gulf region for Operation Southern Watch; increased naval presence (including a carrier battle group and an amphibious ready group); and combined exercises conducted with the militaries of the Gulf Cooperation Council (GCC) countries and other coalition partners.

These measures, combined with programs such as the squadron of Maritime Prepositioning Ships located in the Indian Ocean, give U.S. forces the ability to respond quickly to crisis in the region. The close military-to-military relationships built up over many years with each of the GCC states contribute to an environment that allows host countries to more readily and effectively support U.S. crisis deployment. DoD will continue to build on this solid base of cooperation by prepositioning equipment for a second heavy brigade and a division base in Qatar (equipment to support a tank battalion was put in place in 1996), maintaining the number of land-based combat and support aircraft deployed to the region, prepositioning additional stocks of preferred munitions in-theater, stationing mine countermeasures ships in the Persian Gulf, and further enhancing its program of training and exercises with U.S. security partners in the region.

U.S. interests in Latin America and the Caribbean are extensive and varied, and a strong U.S. defense capability is essential to the region's security. For example, the United States' trade with Latin America is growing faster than trade with any other region. The United States Southern Command (USSOUTHCOM) and the United States Atlantic Command (USACOM) provide crisis reaction forces, serve as partners in cooperative regional security, and symbolize the U.S. commitment to regional security. On June 1, 1997, USSOUTHCOM will assume responsibility for the Caribbean, and its included islands, to allow one command to more effectively deal with the region. Potential missions for U.S. forces in the region include support to counterdrug operations, counterterrorism, noncombatant evacuation operations, peace operations, smaller-scale combat operations, and disaster relief. U.S. forces also continue to exercise and explore ways to encourage the free flow of information with regional friends and allies, helping to build cooperative security mechanisms and encouraging Latin American militaries to support civilian control, respect for human rights, and the rule of law.

The United States will continue to operate bases and facilities in the Republic of Panama until December 31, 1999, and is fully committed to implementing the Panama Canal Treaty. The two governments agreed to hold exploratory talks to discuss possible stationing of some U.S. forces in Panama beyond December 31, 1999, in order to promote stability and improve the coordination, cooperation, and synchronization of counterdrug activities in the region. The U.S. naval base at Guantanamo Bay, Cuba, has proven valuable in handling migrants from Haiti and Cuba.

U.S. security and economic interests in Africa are not as prominent as those in other regions, and the United States has no bases in Africa. Yet in recent years, U.S. forces have been called upon to serve in large-scale peacekeeping and humanitarian missions in Somalia and Rwanda and to evacuate U.S. citizens from Liberia and the Central African Republic. With the continuing possibility of conflicts and humanitarian disasters in Africa, it is important that the United States helps African states, particularly the new South Africa, develop more effective capabilities for conflict resolution, peacekeeping, and humanitarian relief.

CONTINGENCY OPERATIONS

The final set of operations for which DoD must shape its nonnuclear forces involves a variety of contingencies that are less demanding than major regional conflicts but still require significant combat forces and capabilities. Such operations range from smaller-scale combat operations and multilateral peace operations to counterterrorism activities and humanitarian assistance operations.

In some cases, the United States will advance its interests by providing military forces to selected allied/coalition operations, some of which may support United Nations Security Council resolutions. Further, the United States will continue to participate directly in UN peace operations when it serves U.S. interests. However, the United States will maintain the capability to act unilaterally when important U.S. interests are at stake.

Over the past decade, the United States has conducted an array of major contingency operations of the following types: peace operations, disaster relief, humanitarian assistance, noncombatant evacuation, maritime escort, counterterrorism, reprisals, deterrence of aggression, intervention to support democracy, sanctions

enforcement, no-fly zone enforcement, migrant rescue and support, search and rescue, and deployments to quell domestic civil disturbances.

In 1996, such contingency operations included crisis response in the Persian Gulf and Taiwan Straits; humanitarian relief and peace operations in the former Republic of Yugoslavia; enforcement of the no-fly zone over southern Iraq; humanitarian relief in northern Iraq; and noncombatant evacuations from Liberia and the Central African Republic.

The forces for these operations are provided largely by the same conventional and special operations forces needed for major regional conflicts and overseas presence, although some specialized training and capabilities may be required. This means that the United States will not be able to conduct sizable contingency operations at the same time it is fighting in two major regional conflicts.

OVERALL FORCE SIZE AND STRUCTURE OF CONVENTIONAL FORCES

In the 1993 Bottom-Up Review, DoD determined that the force structure shown below, which will be reached by the end of the decade, can carry out America's strategy and meet its national security requirements.

If a major regional conflict erupts, the United States will deploy a substantial number of forces to the theater to augment those already there in order to quickly defeat the aggressor. If it is prudent to do so, limited U.S. forces may remain engaged in a smaller-scale operation, such as a peacekeeping operation, while the major regional conflict is ongoing; if not, U.S. forces will be withdrawn from contingency operations in order to help constitute sufficient forces to deter and, if necessary, fight and win a second major regional conflict. If a second major regional conflict were to break out shortly after the first, U.S. forces would deploy rapidly to halt the invading force as quickly as possible. Selected high-leverage and mobile intelligence, command and control, and air capabilities, as well as amphibious forces, would be redeployed from the first major regional conflict to the second as circumstances permitted. After winning both major regional conflicts, U.S. forces would assume a more routine peacetime posture. As mentioned earlier, this force structure is not intended to support simultaneous U.S. involvement in two major regional conflicts as well as sustained active force involvement in sizable contingency operations.

Table 1
Bottom-Up Review Force Structure Plan

	Cold War (FY 1990)	FY 1998	Force Target End FY 1999
Military Personnel			
Active	2,069,000	1,431,000	1,422,000
Selected Reserve	1,128,000	892,000	889,000
Army			
Divisions (Active/National Guard)	18/10	10/8[a]	10/8[a]
Air Force			
Fighter Wings (Active/Reserve)	24/12	13/7	13/7
Bombers	364	182	184
Navy			
Aircraft Carriers (Active/Training)	15/1	11/1	11/1
Air Wings (Active/Reserve)	13/2	10/1	10/1
Attack Submarines	93	66	45-55
Total Battle Force Ships	546	346	330-346
Marine Corps			
Divisions (Active/Reserve)	3/1	3/1	3/1
Wings (Active/Reserve)	3/1	3/1	3/1

[a] Plus 15 enhanced brigades.

SIZING U.S. NUCLEAR FORCES

Early START II ratification and implementation remains a primary U.S. objective. When START II is ratified by the Russian Duma and the treaty enters into force, the United States will draw down to and maintain:

- 500 Minuteman missiles, each equipped with a single warhead.
- 14 Ohio class submarines, each carrying 24 Trident II (D-5) missiles with multiple warheads.
- 71 B-52 strategic bombers equipped with cruise missiles.
- 21 B-2 strategic bombers equipped with gravity bombs.

The Peacekeeper missile will be retired. As the President made clear during the Moscow summit in May 1994, when START II enters into force, the United States will be prepared to take the lead to discuss further reductions. While the United States is prepared to carry out the reductions under the START II timetable, at the same time, the United States must have the capability to maintain the levels prescribed under START I. After START II enters into force and during the drawdown

period, the United States will maintain that capability as a hedge in case of a reversal in these arms agreements. DoD has termed this a lead and hedge strategy — providing leadership for continuing reductions in nuclear weapons and the benefit of the savings that would be achieved thereby, while hedging against the reversal of reform in Russia.

However, given the events of the past two years, the United States must also prepare for the prospects that Russia may delay further the ratification of the START II Treaty in spite of the climate of cooperation that exists today. Until START II is ratified and enters into force, the United States strategic force structure will be based on the levels agreed in the START I Treaty, which is currently in force:

- 500 Minuteman III missiles.
- 50 Peacekeeper missiles.
- 18 Ohio-class ballistic missile submarines.
- 71 B-52 strategic bombers (current law requires the United States to maintain 94 B-52 strategic bombers through FY 1997).
- 21 B-2 strategic bombers.

Consistent with this objective, funding decisions will be made to maintain the option to retain this force. The United States will also maintain its Non-Strategic Nuclear Forces (NSNF), consisting of dual capable fighter bombers and submarine launched cruise missiles, available for worldwide deployment.

CONCLUSION

In the post-Cold War era, the United States plays the leading role in organizing coalitions of like-minded states to defend and advance common interests, to promote common values and norms, and thus, to create a world in which Americans can be secure and prosper. The force structure outlined above supports this strategy of engagement and enlargement. Together, these first-rate military forces underwrite security partnerships, help shape the international environment by their presence and activities, and deter and defeat aggression in a variety of settings.

Chapter 3

CRITICAL FORCE ENHANCEMENTS

Today's U.S. force structure is significantly smaller than the force necessary during the Cold War. The force structure outlined in Chapter 2 reflects the results of a wide range of analytical efforts undertaken by the Department of Defense that have further refined the results of the 1993 Bottom-Up Review (BUR). To date, follow-on analyses have upheld the basic tenets and findings of the BUR, while guiding DoD in making modest adjustments in plans and programs. U.S. forces will continue to be capable of carrying out the Administration's ambitious strategy of engagement and enlargement, provided that DoD implements the critical force enhancements recommended in the Bottom-Up Review. These enhancements will improve the capabilities, flexibility, and lethality of U.S. conventional forces. They are geared especially toward ensuring that U.S. forces will be able to bring a large amount of firepower to the conflict in its opening stages and quickly halt the aggression. In most cases, if U.S. forces can accomplish this critical objective promptly, it is far more likely that objectives in later phases of the conflict (including reducing the enemy's warmaking capabilities, ejecting enemy forces from captured territory, and decisively defeating them) can be achieved sooner and at less cost and risk.

These enhancements fall into three broad categories:

- Improved effectiveness of early arriving forces.
- Strategic mobility enhancements.
- Improved Army reserve component readiness.

IMPROVED EFFECTIVENESS OF EARLY ARRIVING FORCES

Several enhancements will dramatically improve the ability of U.S. forces to halt an enemy armored advance and destroy critical fixed targets in the first phase of conflict. A discussion of these enhancements follows.

Advanced Munitions

Advanced munitions provide tremendous leverage to military forces for halting an enemy in the initial stages of attack. Enhancements in this area are discussed below.

- The United States has greatly expanded the precision delivery capability of U.S. combat aircraft. Since Operation Desert Storm, the number of fighter/attack aircraft that can deliver precision-guided munitions against fixed, hardened targets has virtually doubled and will remain roughly at this level of capacity into the next century.

- At the same time, the development and procurement of the Joint Direct Attack Munition (JDAM) and the Joint Standoff Weapon (JSOW) will give the majority of U.S. strike aircraft the capability to deliver highly accurate weapons in adverse weather and at night, by relying on a combination of inertial guidance and the Global Positioning System to guide the weapons to desired impact points.

- The Air Force has also begun procurement of the CBU-97B/Sensor Fuzed Weapon (SFW), the first of the air delivered advanced antiarmor munitions. SFW provides a dispenser-delivered, wide-area, adverse-weather submunition that gives aircraft the capability to disable or destroy multiple armored vehicles in a single pass. The addition of an inertial guidance unit to the SFW dispenser (the wind corrected munitions dispenser kit) will allow these weapons to be delivered accurately from medium and high altitudes. The Navy is incorporating SFW BLU-108 submunitions into a JSOW variant that will be operational in 2000.

- The Wide Area Munition (WAM), which is still in development, will be highly effective in disabling armored vehicles and will allow large areas to be sown with smart mines that should be difficult to neutralize. Based on the same design as SFW, WAM can be deployed on either aircraft or missiles. Limited stocks of the WAM should be fielded in FY 1997.

- The Army is improving its antiarmor capabilities as well. The Longbow fire control radar system, combined with the Longbow Hellfire missile, will give the already effective Apache helicopter even greater capability by adding a fire-and-forget weapon system and improved target acquisition and tracking, particularly in conditions involving adverse weather and battlefield obscurants. The Initial Operational Capability (IOC) is expected in 1998. In addition, the Army began to field the Javelin man-portable antitank system in 1996. The Javelin combines fire-and-forget technology with top-attack or direct-fire modes to provide a significant increase in the antitank capability of infantry forces.

- The Army is also developing BAT, the Brilliant Antiarmor submunition, to be delivered by long-range Army Tactical Missile System (ATACMS) missiles. This potent, deep-strike system will become operational in FY 2001 and will be capable of effectively attacking a wide range of armored vehicles. An extended-range ATACMS carrying upgraded versions of BAT, which will have a much wider target array, including stationary or moving armored and soft targets, will be operational in FY 2004. The Army is also procuring the Sense and Destroy Armor (SADARM) submunition, which can be fired by 155mm howitzers. It is scheduled to be fielded in FY 1999.

- Planned improvements in U.S. standoff attack capabilities continue. The baseline Conventional Air-Launched Cruise Missile (CALCM) is being improved with increased accuracy, a better warhead, and reduced cost. The FY 1995 through FY 1997 budgets provide for converting 300 excess air-launched cruise missiles to CALCM, with the CALCM deliveries occurring in the period from 1996 through 1998. The accuracy and flexibility of the Tomahawk Land Attack Missile (TLAM) — a proven weapon employed most recently against Iraqi and Bosnian-Serb targets — will be increased with the development of TLAM Block IV Phase 1 (IOC expected in 2000). The Standoff Land Attack Missile (SLAM) is being improved through a remanufacture program to enhance its standoff range and penetration capability. The JSOW will enhance the survivability, standoff, and range (relative to older munitions) of selected U.S. attack platforms. Similarly, the Enhanced Fiber Optic Guided Missile (EFOG-M) antiarmor system, currently in advanced technology development, will provide a significantly improved precision antiarmor capability to forces deployed on the ground. The EFOG-M will allow engagement and destruction of targets at longer ranges with increased precision. Finally, the Air Force and the Navy are jointly sponsoring a new program, the Joint Air-to-Surface Standoff Missile (JASSM), to develop a weapon with enhanced standoff capabilities. These systems should significantly increase platform survivability.

Taken together, these advanced munitions and sensors will provide U.S. forces with more accurate firepower to help blunt a conventional enemy ground attack and destroy critical targets in the opening phase of a regional conflict.

Battlefield Surveillance

Accurate and timely information on the location and disposition of enemy forces is a prerequisite for effective military operations. Hence, current planning envisions the early deployment of reconnaissance and command and control aircraft and ground-based assets to enable U.S. forces to see the enemy and to pass information quickly through all echelons. Advances in areas ranging from satellite communication and surveillance to digitization will ensure U.S. forces have a decisive advantage in tactical intelligence and communications.

New sensors that provide adverse weather surveillance of the battlefield at significantly increased depth of view and wide-area platforms that provide continuous coverage are essential to U.S. forces' capability to bring force to bear effectively. Several such sensors and platforms are undergoing final stages of development testing and will be fielded in the next few years.

- The Joint Surveillance Target Attack Radar System (JSTARS) enables U.S. forces to detect moving vehicles deep in enemy territory and across a broad swath. It also permits forces to characterize stationary targets with its spot mode. The first operational JSTARS aircraft was delivered in FY 1996, with the full fleet of 19 aircraft reaching the field by 2005.

- Unmanned aerial vehicles (UAVs) of several types will be able to carry a variety of surveillance sensors and provide long endurance reconnaissance over the battlefield.

- The United States is also improving other airborne reconnaissance and command and control capabilities, such as the Guardrail Common Sensor, which provides real-time signals intelligence and precise target emitter location capabilities to multi-Service sensor platforms.

- Navy initiatives in Battlefield Surveillance include use of imagery from F-18 and U-2R aircraft to command and control ships, flagships, and aircraft carriers via a common high bandwidth data link which interfaces with computers/displays/processors that control the airborne sensors.

- Numerous improvements to U.S. theater command, control, and communications (C^3) capabilities are also underway. U.S. forces are now fielding a new defense information architecture that will greatly enhance the timely flow of critical intelligence information and command directions throughout the theater. This new system is the Global Command and Control System (GCCS), which provides worldwide access to a common picture of the battlefield. The Joint Tactical Information Distribution System (JTIDS) provides rapid, secure, jam-resistant communications and data for theater-wide joint force operations. In addition, the Milstar communications satellite constellation will ensure secure global communications capability. The migration towards common communications links will facilitate the fusion of real-time information that can be shared among joint components, as well as with allied and coalition forces.

Long-Range Bomber Enhancements

Heavy bombers can play unique and important roles in short-warning conflicts and bring massive firepower to bear during the opening hours and days of conflict. Programs are underway that will increase bomber survivability, sustainability, and precision weapons delivery capability. Once in place, these enhancements will enable the U.S. bomber force of B-1s, B-2s, and B-52s to attack a full range of enemy targets. When armed with the air-delivered advanced munitions previously discussed, the bomber force will be able to quickly and effectively destroy high-value targets, cut lines of communication in rear areas, degrade enemy airfields and theater missile infrastructure, and disrupt and destroy advancing enemy ground forces.

Enhanced Carrier-Based Airpower

The Navy is examining a number of innovative ways to improve the firepower aboard its aircraft carriers. First, the Navy will acquire stocks of new smart antiarmor weapons for delivery by attack aircraft. In addition, increased numbers of LANTIRN equipped, ground attack capable F-14s will be added to carrier air wings. The Navy also will fly additional F/A-18s and crew members to forward-deployed aircraft carriers responding to crises. These additional aircraft and crews would increase the striking power of the carriers during the critical early stages of a conflict.

STRATEGIC MOBILITY ENHANCEMENTS

An essential element to being able to prevail in even one major regional conflict, much less two, is strategic lift capability. U.S. lift assets are the foundation of the force's capability to project combat power around the globe. The first priority in the opening phase of a war would be to get U.S. forces to the fight in a timely manner. In many scenarios, U.S. forces would have no more than two weeks to get to the fight if they are to support an effective defense. This places a high premium on forward stationed and deployed forces, forces whose main equipment items can be prepositioned in or near a theater of potential conflict, and forces that can deploy from their home bases very rapidly and deliver effective combat power.

Lift assets are also used in nearly every humanitarian and peace operation undertaken by U.S. forces. These unique lift capabilities will continue to make U.S. participation in many multilateral operations a key to their success. DoD is making substantial enhancements to U.S. strategic mobility — most of which were first identified in the 1992 Mobility Requirements Study (MRS) and validated in the 1995 MRS Bottom-Up Review Update (BURU). These steps will better posture selected forces for early deployment to potential conflicts.

Strategic Airlift

Given current Operating Tempo, DoD has programmed sufficient funds to ensure that its military air mobility fleet (C-141s, C-5s, C-17s, KC-135s, and KC-10s) remains capable of deploying and supporting forces as required. The Department plans to continue increasing U.S. strategic airlift capability, replacing its aging C-141 fleet with C-17s. The C-17 program is executing a seven year procurement for a total of 120 aircraft by 2003 (last C-17 delivered by 2004). Twenty-nine C-17s have been delivered as of January 1997.

Strategic Sealift and Surface Transportation

DoD is also expanding and modernizing its sealift forces. In 1996, two roll-on/roll-off (RO/RO) ships were added to the Ready Reserve Force (RRF), increasing to 31 the number of vessels acquired for this fleet in recent years. Eleven large, medium-speed, roll-on/roll-off (LMSR) ships also will enter the surge sealift force in coming years. In order to meet the MRS and MRS BURU recommendation of 36 total RRF RO/ROs, five additional ships (or equivalent capacity) are required. These ships will provide surge capacity for transporting equipment and supplies to distant theaters. DoD continues to maintain a viable Joint Logistics Over The Shore (JLOTS) capability. JLOTS is the employment of a multiservice force to load and unload ships in the absence of fixed port facilities or in cases where the fixed port is damaged or inadequate.

Finally, DoD is funding various measures to improve the flow of personnel, equipment, and supplies from their locations in the United States to the ports from which they will embark. Some of these improvements include expanding rail and airheads at contingency force installations, constructing a containerized ammunition facility on the West Coast, and purchasing and prepositioning over 1,000 railcars for heavy/oversized cargoes.

Prepositioning

Prepositioning heavy combat equipment and supplies ashore and afloat can greatly reduce both the time required to deploy forces to distant regions and the number of airlift sorties devoted to moving such supplies. In October 1994, when Iraqi Republican Guard and other units moved toward Kuwait, U.S. prepositioned heavy brigade sets of equipment in Kuwait and afloat allowed U.S. forces to arrive quickly to contribute to the defense of Kuwait. Before these prepositioning efforts, only about one-third of the U.S. ground forces that deployed or were scheduled to deploy in October 1994 could have been on station within the same time frame.

Currently, three Maritime Prepositioning Ship Squadrons — 13 ships total — provide equipment and 30 days combat sustainability to support the flexible employment of three Marine Expeditionary Forces. These assets are strategically deployed in the Mediterranean Sea, Indian Ocean, and Pacific Ocean, with the ability to relocate to other regions as needed. Additionally, funding for three additional ships has been appropriated for the Maritime Prepositioning Force Enhancement (MPF(E)) Program. MPF(E) will add one ship to each squadron, providing increased combat capability, mobility, sustainment, command and control capability, as well as an expeditionary airfield, fleet hospital, and a naval construction battalion set of equipment. The Marine Corps also maintains the Norway Air Landed Marine Expeditionary Brigade as a cost-effective land-based prepositioning program that supports the protection of NATO's northern flank.

The Army has established an armored brigade set of equipment afloat in 14 ships which is available to be sent to

either Southwest Asia or Northeast Asia. These ships, stationed in the Indian and Pacific Oceans, provide material for an armor brigade and selected support units. Deliveries of LMSRs began in 1996 to replace seven of these 14 ships, which are RO/RO ships on loan from the RRF. When the Army's afloat prepositioning program is completed in FY 2001, it will consist of 16 ships. Included will be eight new LMSRs, the size of which will allow the Army to increase the amount of equipment prepositioned from 1.0 million square feet to 2.0 million square feet, as recommended in the MRS and the MRS BURU. As LMSRs are fielded to the Army program, the seven RO/ROs will be returned to the RRF for use as CONUS surge fleet assets.

The Army has also prepositioned one brigade equipment set ashore in Kuwait and is beginning to establish a second heavy brigade and a division base in Qatar (equipment to support an armor battalion task force was put in place in January 1996) and a brigade set in South Korea. Efforts continue to expand Air Force stocks of preferred munitions in Southwest Asia. Additionally, the Air Force is reworking the loads onboard its three prepositioned ammunition ships to maximize cargo space for transportation of additional ammunition needed early in a conflict. The Navy will also add a prepositioned ship with naval munitions in FY 1999.

IMPROVED ARMY RESERVE COMPONENT READINESS

The Department of Defense has undertaken several initiatives to improve the readiness and flexibility of Army National Guard (ARNG) combat units and United States Army Reserve (USAR) forces in order to make them more readily available for major regional conflicts and other operations. Toward this end, 15 ARNG brigades have been designated as enhanced brigades. Within the overall Army reserve component force structure, readiness initiatives will focus on these 15 enhanced brigades and early deploying ARNG and USAR combat support and combat service support units. In the ARNG, these 15 enhanced brigades will be resourced sufficiently with personnel and equipment to be ready to begin deploying approximately 90 days after each brigade's respective mobilization. For major regional conflicts, the ARNG enhanced brigades provide additional capability to deal with uncertainty and risk. They can increase Army combat power that can be made available by reinforcing or augmenting deployed active divisions and corps. The ARNG and USAR have implemented tiered resourcing programs to concentrate readiness initiatives on maintaining a high level of readiness in their early deploying contingency units.

CONCLUSION

These enhancements will substantially increase the capabilities of U.S. forces to conduct military operations in the post-Cold War era. To a large extent, the ability of the United States, in concert with regional allies, to fight and win two nearly simultaneous major regional conflicts in the future depends on the enhancements described above. DoD will continue to ensure that funding for these enhancements receives priority in budgetary deliberations.

Part II
Pursuing Defense Initiatives

Chapter 4

READINESS

The diverse demands of the post-Cold War world require that the United States maintain highly capable forces prepared to rapidly respond to any contingency. Achieving this goal is one of the Department's most aggressive and ambitious undertakings. It is also the most important. Maintaining the readiness and sustainability of U.S. forces is the number one priority of the Department of Defense.

AMERICA'S FORCE IS READY

The Department has kept America's military ready while adjusting to the end of the Cold War. Keeping the military fully ready during a major drawdown is an unprecedented achievement. In each previous drawdown — after the Second World War, Korea, and Vietnam — forces went hollow as resources were eliminated faster than force structure. The Department was and is determined to avoid those errors of the past. As General John Shalikashvili, Chairman of the Joint Chiefs of Staff, stated:

> "What an extraordinary success this drawdown has been. For the first time in our history, we have been able to reduce as significantly as we have reduced without taking a nose-dive in readiness . . . . While we are considerably smaller today than we were when the Cold War ended, pound for pound we are as ready today as we ever have been."

It is particularly notable that America did not stand down its forces to achieve this readiness. Indeed, American forces maintained a high operational tempo, yet kept readiness high while reducing the force.

America's military is ready for the next war, not just the last. During the Cold War, the requirements for readiness were clear — be prepared to repulse an invasion of Western Europe, and should that fail, to escalate the conflict globally. Today, America's forces face a wide array of challenges, from civil strife through conventional combat to the threat from weapons of mass destruction. Potential opponents are more diverse and better armed than before. America's forces are equally diverse in their equipment and training, ready to meet any threat by land, sea, or air.

NATIONAL SECURITY STRATEGY AND READINESS

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:

- Fighting and winning the nation's wars — the responsibility underlying all U.S. military activities and stands as the ultimate guarantor of U.S. vital national interests. This commitment is manifested in the ability of U.S. forces to decisively fight and win two nearly simultaneous major regional conflicts.

- Deterring aggression and preventing conflict — deploy and support combat forces, ranging from strategic nuclear deterrence to overseas presence missions, most importantly to convince potential adversaries that their objectives will be denied and that their aggression will be decisively defeated.

- Peacetime engagements — participate in activities to enhance regional stability, alleviate human suffering, improve coalition military capabilities, and promote democratic ideals.

Forces must meet standards in terms of the:

- Time it takes to mobilize, deploy to a theater of operations, and engage.

- Military missions these forces must execute once engaged.

- Length of time these forces should remain engaged.

- Time to disengage, refit, and redeploy to meet priority missions.

Keeping American forces ready to fight requires an appropriate force structure, modern equipment, maintenance and logistics support, and trained and motivated personnel. A deficiency in any of these elements can hurt readiness, inhibiting the deployment of forces. 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

It takes resources and time to develop and sustain ready forces. Readiness is cumulative. It takes 20 years to develop senior military leaders, more than 10 years to build modern infrastructure, five to 10 years to develop and field technologically superior equipment, and one to two years to develop a sustainment program to provide trained and ready units. A decline in material resources or adequately trained people will lengthen the amount of time it takes to rebuild readiness.

Achieving and maintaining DoD readiness goals in today's dynamic political, fiscal, and operating environments present a daily challenge to the Department. Challenges to maintaining readiness emanate primarily from six variables: personnel, equipment, education and training, logistics, leadership development, and the financial resources to support these elements. A deficit in any one will degrade readiness. The following discussion characterizes these challenges and describes how the Department is addressing these issues.

CHALLENGE: KEEPING U.S. FORCES READY

In recent years, contingency operations have posed significant challenges to keeping readiness in balance. Forces have been committed to operations in Somalia, Bosnia, Korea, Rwanda, Southwest Asia, Haiti, Cuba, Peru, Ecuador, and the United States in a wide array of missions ranging from deterrence to natural disaster relief. At the same time U.S. forces have been engaged in support of the full spectrum of national interests, the United States has sustained its readiness to counter major regional threats.

To achieve its number one resource priority, DoD has focused on the lessons learned from hollow force periods of the 1970s and early 1980s and has taken deliberate steps to prevent a recurrence. Previous incidences of force hollowness reflected a force that was, on average, less educated, not as well trained, more poorly equipped, inadequately sustained, and less strategically mobile. In contrast, today's forces are the best ever fielded. U.S. military forces are well educated, receive quality training, and employ technologically superior equipment. The quality and capability of today's forces are the payoff from implementing lessons learned in previous periods of hollowness.

Keeping Current Readiness Current

Monitoring and assessing current readiness are both critical functions of the Department and among its toughest tasks. In an unpredictable world, American forces must be able to adapt and respond to a wide spectrum of military and political circumstances.

Further, the complexity of the Department requires readiness be measured empirically. It is not possible to predict readiness far in advance; commanders must be able to monitor and assess readiness in response to real-time events. This ability to react to ongoing world events is essential for good decisions regarding the use of force.

The Department employs or has in development seven major strategies to monitor, assess, and manage current readiness:

- Use the Senior Readiness Oversight Council (SROC) to ensure that the Department's civilian and military leaders are kept apprised of readiness and able to address problems quickly.
- Develop the Readiness Baseline (RBL), a set of readiness indicators.
- Develop an automated readiness assessment system.
- Improve the quality of existing readiness data.
- Create the Joint Mission Essential Task Lists (JMETLs) as standards of unit performance.
- Develop methods to measure and balance the deployment load on military personnel.
- Create funding strategies to pay for contingency operations without degrading readiness funding.

Senior Readiness Oversight Council

The SROC provides the Department's senior leaders a collaborative forum to review significant readiness topics on a monthly basis. The SROC is chaired by the Deputy Secretary of Defense; its membership includes the Vice Chairman of the Joint Chiefs of Staff, the Service Chiefs, Under Secretaries of the military departments, and key DoD civilian leaders.

Learning From History: The Readiness Baseline

The Department is developing a comprehensive framework of readiness indicators to provide a view of current readiness in the context of historical readiness trends. These indicators will be measured against their historical trends to provide warnings of potential shortfalls. As this system matures, it will be used to assess current readiness, to synchronize readiness related budget data, and to support public discussion of the armed forces' readiness posture. The General Accounting Office, the Congressional Budget Office, and the Readiness Task Force have all noted the desirability of identifying such indicators.

Automated Readiness Assessment Systems

A wealth of readiness data exists throughout the Department. From unit status reports to commander in chief (CINC) evaluations, the military routinely collects, evaluates, and analyzes readiness data at many levels of detail. In the past, there has been no automated networking capability to extract and manipulate relevant data and provide an overarching readiness picture to senior leaders. Now, though, existing readiness related systems are being evaluated in the field and enhanced with today's technology. While this effort requires further work, some promising systems are already under development.

Improving the Quality of Existing Readiness Data

For decision makers to monitor near-term readiness of the forces and determine whether resources are allocated appropriately, readiness assessment tools must address the appropriate allocation of resources to critical assets. Currently, the Status of Resources and Training System (SORTS) is the principal means by which units around the world report their readiness to Service and joint headquarters. While each Service implements SORTS differently, the result is a complete picture of readiness, detailed down to the sub-unit level. By looking at recurring SORTS data, decision makers can determine whether sufficient assets are allocated to personnel, equipment, supplies, or training.

To enhance the ability of SORTS to provide accurate data on current readiness, the Department has undertaken a SORTS reform and enhancement process. Many parts of the SORTS system are antiquated. A recent report by the DoD Inspector General stated, "Decision makers cannot rely on SORTS data for decisions because of problems related to accuracy, timeliness,

and relevancy." The Department is currently evaluating changes to SORTS that would remedy known shortcomings and make readiness data available in a much more timely fashion. DoD is also evaluating ways to make the system more flexible, more responsive, more reliable, and easier to use. In addition to providing improved information for decision makers, upgrading the quality of data improves the Department's ability to respond accurately to public concerns about readiness.

Joint Mission Essential Task Lists as Performance Standards

The basic building block of unit readiness is the ability to perform the specific tasks and missions required in a wartime scenario. To evaluate the readiness of individual units, the Department must consider what the units need to be ready to do in a wartime environment. To measure an organization's ability to perform specific joint tasks, the CINCs have developed Joint Mission Essential Task Lists for all missions.

By the end of FY 1998, the Services will link the Component Command Mission Essential Task Lists (METLs) with the Joint Training System-approved JMETLs, and incorporate the JMETLs as the source for guiding Service unit training. Integrating JMETLs into the readiness assessment process will give decision makers standards of performance against which individual unit capability can be measured.

This project does not change the missions that the CINCs are expected to perform. Instead, it specifies the tasks in sufficient level of detail to allow staffs and units to train and fully develop the necessary level of both unit and joint readiness. This ongoing process focuses on train-like-you-fight activities and will enhance joint training and exercises. It will eventually provide a basis to measure readiness in terms of output (readiness to accomplish the specified mission) rather than today's input-oriented (readiness to perform as intended by the unit design) processes.

Measure and Balance the Deployment Load on Military Personnel

One cannot understand readiness without the ability to assess the capability of military personnel to perform. As participation in contingency operations becomes standard, units and personnel are increasingly deployed for extended periods on a recurring basis. These deployments have numerous effects on readiness. For example, because units deployed to contingency or humanitarian operations do not always use wartime skills, combat training may be degraded. Extended deployments adversely affect morale and quality of life for the deployed personnel. This can affect both mission performance and retention rates.

The Department has undertaken several initiatives to monitor and assess the effects of personnel deployments. First, under the auspices of the SROC, the Joint Staff Manpower and Personnel Directorate (J-1) conducted a study of the levels of Personnel Tempo (PERSTEMPO) and determined which units and skills were reaching levels at which readiness would be affected. Results of this study allowed the military Services to take action in their programs to offset excessive PERSTEMPO.

A second effort, the Global Military Force Policy (GMFP), establishes a protocol for worldwide use of highly tasked units. These units, such as the Airborne Warning and Control Systems, are normally few in the force structure (low density, or LD) yet are called upon to support almost all contingency operations (high demand, or HD). The aggregation of multiple CINC missions led to excessive deployments of many of these HD/LD units. The GMFP establishes deployment thresholds for these units and sets the Secretary of Defense as the approval authority for deployments in excess of the threshold. The policy allows optimal use of the units across all CINCs, while precluding overuse of selected units.

Reduce the Impact of Contingencies on Readiness Funding

The fiscal effect of unbudgeted contingency operations on O&M accounts constitutes a major challenge to readiness. The Department's approach to overcoming that hazard is described in detail below

CHALLENGE: READINESS FUNDING

The second challenge is to make sure the Department has the right resources allocated to the right purposes in support of readiness. Many assumptions on funding become inaccurate due to shifting priorities and the lengthy budget and execution cycle. Structuring the budget to ensure readiness involves a rigorous, multi-step process. For the FY 1998 budget request sent to Congress, this process began over a year ago with Secretary Perry's guidance to the Services and other defense components. The Secretary directed the Services to

provide enough funding in future programs and budgets to ensure their forces were ready to carry out missions at acceptable levels of risk. Underscoring the strength of this priority, the Secretary allowed the Services to break his guidance elsewhere if required to maintain readiness.

The results of DoD's approach to getting readiness funding right from the start were incorporated into the FY 1995 budget, which involved many changes from the previous year and corrected some unrealistic assumptions. The FY 1996 and 1997 budgets also reflected robust readiness funding. The Department's FY 1998 budget request offers further refinements in readiness, building on progress made in the previous fiscal years. For example, levels of funding for operations and maintenance — the major, but not sole, source of readiness funding — indicate DoD has maintained historic levels of readiness.

In light of the improvements made, the Department's budgets are balanced and realistic. Indeed, the funding provided in the FY 1998 budget will maintain adequate readiness levels in the Services, with one important provision — the Department must receive timely funding for unbudgeted contingency operations.

Strategies for Funding Contingency Operations

By their very nature, contingency operations are unforeseen. The Department is thus unable to program or budget for these operations. When the contingency occurs, the Department must fund the operation by reallocating other funds. The impact of ongoing contingencies on the budget is large.

The total contingency operations costs of $3.2 billion represented approximately 1.3 percent of the total $252 billion FY 1996 defense budget. Contingency costs normally occur within the operation and maintenance appropriations and must be absorbed unless they can be offset from investment appropriations (procurement and research and development) via a reprogramming action which requires prior approval by Congress before funds may be realigned. Since most of the military personnel and Operation and Maintenance (O&M) appropriations, comprising nearly 63 percent of the defense budget, are used to support day-to-day fact-of-life requirements and maintain high readiness postures, investment accounts are the most likely source of funds to be reprogrammed to support contingency operations.

Another dimension of the problem with funding contingencies is the timing of the operations; the later an operation occurs during the fiscal year, the less flexibility the Department has in reprogramming. The bottom line of the funding reality is that contingencies can kill readiness. By the fourth quarter of the fiscal year, the only places from which funds can be diverted are the readiness accounts that support training and maintenance.

Additionally, funding of contingencies from O&M budgets can delay training or maintenance schedules and result in lost opportunities. The key resource lost while waiting for supplemental funding is time. Dollars arriving late in the fiscal year cannot buy back six months of missed range training or put a delayed maintenance program back on track quickly.

The Department's challenge, then, has been to develop mechanisms to provide alternative funding sources without damaging the readiness accounts. In the past, DoD has relied on supplemental appropriations from Congress to fund contingencies. As the 1994 readiness crisis in the Army proved, this method will not prevent readiness shortfalls. Thus, in a fundamental policy change, the Department has now taken the approach of funding contingency operations on an ongoing basis from within the current program. Alternatives to provide this funding as part of the overall O&M accounts are being developed by the Department.

Assessment of Readiness Funding

The resources in the FY 1998 budget will provide adequate readiness for America's armed forces, provided that:

- Congress and the public support the size and allocation of the resources recommended by DoD.
- Congress acts in timely fashion to supplement or replace resources used by DoD in conducting and executing unbudgeted contingency missions.
- DoD is able to quickly replenish the resources consumed in support of forces engaged in unbudgeted contingency missions.

For the outyears of the program beyond FY 1998, DoD plans to focus on maintaining adequate readiness, specifically the elements of readiness critical to the execution of U.S. defense strategy. DoD has fully funded operating and personnel programs. At the same time,

there may be significant risks to readiness as DoD plans are executed. For example, some programs in the O&M appropriations may eventually need more funds. DoD must take care to ensure that reallocating funds for these purposes does not unduly divert resources away from more direct readiness needs. The Department must also maintain a balance between current readiness and required increases in procurement and modernization funding in future budgets.

FY 1998-2003 Programs and Budgets

Despite the challenges in precisely projecting U.S. readiness and sustainability needs in uncertain times, the readiness programs and budgets being submitted to Congress represent the best estimate within DoD today of the resources necessary to keep U.S. military forces ready to execute the U.S. National Security Strategy successfully.

Future programs and budgets were developed using the direction provided through prior years' planning. The principal guidance affecting readiness follows:

- Readiness and sustainability remain the highest resource priority of the Department.
- Service Chiefs are permitted to reallocate funds to ensure readiness.
- Readiness programming should reflect the first-to-fight principle. This requires components to maintain appropriate levels of manning, training, and equipment procurement, distribution, and maintenance for the most demanding deployment schedules.
- Increased use of simulations, simulators, and advanced training devices and technologies will be aggressively pursued to increase operational training effectiveness and efficiency for both active and Reserve components, reduce requirements for field training, and aid in planning and programming.

Modernization/Long-Term Capability

Technologically superior equipment facilitates combat success. Recognizing the need to maintain the technological superiority of U.S. forces, the Future Years Defense Program provides procurement funding in FY 2003 nearly 30 percent higher than requested in the FY 1997 budget. The principal opportunities for meeting the United States' long-term goals lie in four areas:

- Aggressive divestiture of infrastructure.
- Effective acquisition reform and outsourcing.
- Widespread use of modeling and simulation to enhance training.
- Creative reengineering of how the Department conducts business.

The Department of Defense must maximize its efforts in these areas and continue to make prudent investments in recapitalization if it is to ensure that tomorrow's readiness is equal to tomorrow's challenges.

CHALLENGE: STAYING ON TOP OF READINESS

In last year's report, the Department described a series of initiatives to improve the ability to assess readiness and make ongoing corrections. These actions have proven their worth in the past year.

Senior Readiness Oversight Council

At each meeting of the SROC, the Service Chiefs provide a current and forecast assessment of the readiness of their respective units. The Vice Chairman of the Joint Chiefs of Staff presents a Joint Readiness assessment, as well as an overall assessment of the readiness of the armed forces to fight and execute the National Military Strategy. The joint readiness assessment is developed through the Joint Monthly Readiness Review (JMRR). This assessment provides a tool for determining whether near-term reallocation of resources is required to maintain readiness. The Department now submits a Quarterly Readiness Report to Congress providing a synopsis of the readiness status reviewed in the SROC meetings.

Chairman's Readiness System/Joint Monthly Readiness Review

Chaired by the Vice Chairman of the Joint Chiefs of Staff, the JMRR includes the principals of the Joint Staff directorates, the Service deputy chiefs of staff for operations, and representatives from the unified commands and combat support agencies. It is designed to examine the readiness of the armed forces to carry out the National Military Strategy, for which the Chairman has overarching responsibility. His view of readiness, therefore, requires visibility into the CINCs' ability to

integrate and synchronize Service-provided forces by assessing joint readiness, as well as traditional readiness status of units provided by the Services.

Created in conjunction with the SROC, the JMRR assesses the readiness of the overall military force across geographic regions vital to national interests. Traditionally, the Department of Defense viewed readiness from a unit perspective, evaluating the readiness of individual units of the Services to carry out their designed missions. The JMRR process provides a joint perspective beyond simple aggregation of individual unit readiness, by focusing on the requirements of the unified commanders to conduct joint operations with Service provided assets. Readiness issues of the unified commands are key, and the ability of the four Services and DoD combat support agencies (CSAs) is assessed by how well they meet current and expected taskings. Joint readiness focuses on the ability of the unified CINCs plus the Combined Forces Command and the North American Aerospace Defense Command to use the forces provided from the Services and assets from the five CSAs in accomplishing theater and national objectives.

The JMRR process provides the Department an assessment of the military's current readiness to execute the full range of the National Military Strategy, including peacetime engagement, deterrence and conflict prevention, and winning the nation's wars. JMRR reports assess current and projected readiness over the next 12 months.

The JMRR is conducted on a quarterly cycle. The Full JMRR, the most extensive review, is conducted in January, April, July, and October. It assesses deficiencies in current readiness, readiness projected one year in the future, and major regional and lesser regional contingency scenarios designed to stress current force structure. Current and projected readiness assessments provide unified CINCs the opportunity to address deficiencies caused by real-world regional environments. The scenarios change quarterly to explore a full range of possible conflict combinations.

During JMRR meetings, the Services report on their ability to provide component command forces to meet CINC requirements. Those reports are broken down by major combat units and critical support capabilities. Service reports show the status of unit resources and training, which units are currently engaged in ongoing operations, and which units would engage in the warfighting scenario. In addition, each Service reports trends for the key components of unit readiness — people, equipment, and training — and reports on the readiness of joint enablers, items like mobility and intelligence assets. During the second and third months of the cycle, By-Exception JMRRs are held to highlight significant readiness changes that may have occurred since the Full JMRR. The Feedback JMRR is conducted in the third month of the cycle to review actions taken to remedy issues identified in previous JMRRs.

The review has directly enhanced the Chairman's ability to provide accurate advice to the President and Secretary of Defense on the use of force, current and projected unit and joint readiness, current force commitments, and how those commitments impact the flow of forces to warfighting commanders. Furthermore, the review's swift evolution has provided the Senior Readiness Oversight Council an essential evaluative tool for assessing both unit and joint readiness.

CINC, Service, and CSA readiness assessments provided to the council show that, overall, the readiness of military units today is holding steady where levels are already as desired, and getting better where improvements are needed. The Department can carry out the strategy for prosecuting two nearly simultaneous major regional conflicts at today's readiness levels.

Joint Requirements Oversight Council

Chaired by the Chairman of the Joint Chiefs of Staff, with functions delegated to the Vice Chairman, this council includes the Vice Chiefs of the Army, Navy, and Air Force and Assistant Commandant of the Marine Corps. It is supported by Joint Warfighting Capabilities Assessment (JWCA) teams that examine key relationships and interactions among joint warfighting capabilities and identify opportunities for improving warfighting effectiveness.

The assessments examine both the readiness of U.S. forces and their future ability to execute the defense strategy in key mission areas, such as ground maneuver, intelligence/surveillance/reconnaissance, and deep strike. Some of the JROC's activities include:

- Conducting JWCAs that integrate, in key mission areas, the collective supply of forces provided by the Services with the collective demand for them as expressed in the CINCs' warfighting plans.

- Considering the balance between programs that will keep U.S. forces ready and programs designed to recapitalize the force through modernization, so as to ensure sufficient future military capability.

- Providing, through the Chairman's Program Assessment, an evaluation of the Department's programs to ensure that they give sufficient readiness and the capability to conduct future joint operations envisioned in the National Security Strategy.

- Conducting frequent, in-depth consultations with senior Service officials to ensure that advice provided to the Secretary reflects a coherent military perspective.

Joint Readiness Assessment

The evolving emphasis on the joint task force requires CINCs to dispatch joint force packages to meet a wide variety of missions on very short notice. In preparing to employ troops on contingency operations, the CINCs have noted they lack an effective mechanism for assessing the joint readiness of the forces assigned to them. While each Service has its own system to assess readiness, there are clear differences in how each Service prepares its respective forces and assesses their suitability for deployment. However, this training does not evaluate the joint capabilities required by deployed forces in the event of emergent contingency operations. The Department is engaged in a number of efforts to define and develop systems to report and evaluate joint readiness.

Service Readiness Updates

The Deputy Under Secretary of Defense for Readiness meets regularly with Service representatives to receive in-depth readiness assessments of their forces. The briefings cover current readiness of units, highlight deficiencies, outline solutions, discuss new initiatives, and provide a forum to discuss overall Service and joint readiness issues. These proactive meetings provide further insight into tracking and assessing the current and future readiness of U.S. forces.

Measurements of Readiness

The Department's greatest challenge is to continue to maintain a high level of readiness. To meet this challenge, DoD has initiated development of mechanisms to monitor and assess current readiness, and to estimate the resources required to preserve future readiness.

Estimating Readiness Requirements Against Projected Threats

Predicting the warfighting demand for joint readiness is a critical part of evaluating readiness of forces to accomplish their future wartime missions. DoD is developing methods to estimate the readiness requirements of units as a function of the set of ongoing missions, the size and modernization of anticipated threat forces, and the joint warfighting capability required for each warfighting mission. With readiness requirements in hand, the Department can allocate resources appropriately.

TRAINING AND EDUCATING READY FORCES

The key to ensuring a trained, ready force in the future is to develop ways to train the force in more efficient and less costly ways. To that end, the Department is examining both technological improvements in the training process and outsourcing and privatization efforts projected to provide lower cost of training and education. The Department continues to build upon the Commission on Roles and Missions study that recommended more outsourcing of training and education to provide better individual training at significantly less cost. Efforts include using the private sector to accelerate the applications of advanced learning technology, and distance learning to produce more efficient and effective training.

Simulation Training

Providing realistic joint training across all phases of military operations for all types of missions remains a formidable challenge. Recognizing the need for more such training, the Office of the Secretary of Defense, the Joint Staff, and the Services are coordinating their efforts to create a coherent integrated plan for the use of modeling and simulation in support of joint and interservice training.

The Executive Council for Modeling and Simulation established a Training Council for Modeling and Simulation, chaired by the Deputy Under Secretary of Defense for Readiness and the Joint Staff Director for Operational Plans and Interoperability. The primary objective of this council is to develop and implement

joint/interservice training simulation plans that represent the needs and interests of the training community. This effort:

- Provides a central focus for coordinating simulation training plans across DoD.
- Provides high-level user requirements to guide DoD research and development efforts.
- Greatly increases the cost-effectiveness of DoD investments by eliminating unnecessary duplication while improving the Services' ability to share common resources.

A major focus of the Training Council is the Joint Simulation System (JSIMS) program. In development for a 1999 introduction, the JSIMS program represents a quantum leap over existing training technology. It will encompass the full range of missions across all phases of military operations. JSIMS will provide better simulations for joint training across the force by using efficient, composable simulations tailored to meet training needs. It will share a common architecture with other training simulations, as well as analytical and acquisition related models. Finally, it will interface with actual command, control, communications, computers, and intelligence (C^4I) functions and equipment in the field. DoD has established a joint program office for management of JSIMS and is in the process of providing staffing from each Service. A new program element has been established for the core JSIMS developments and efforts are underway to coordinate related Service activities.

The Department has made a priority of exploiting enhanced modeling and simulation through distributive technology. The Department's policy for joint readiness includes proactive application of simulation technologies in the areas of joint training, exercises, and readiness monitoring. The coordinated use of simulation and C^4I systems design will allow for the distribution of training support while reducing training costs. The DoD Modeling and Simulation Master Plan is being amended with a definitive description of the requirements, plans, and programs to support joint and interservice training. In addition, DoD is pursuing development of better modeling methods to improve U.S. capability to predict the interaction of forces and reduce the fog and friction of war. This coordinated effort will increase efficiency and interoperability, as well as improve cost efficiency, through more efficient utilization of the simulation technology.

MEDICAL READINESS

Medical readiness is the cornerstone of the Military Health Services System (MHSS). It encompasses the ability to mobilize, deploy, and sustain medical services; to maintain and project the continuum of health care resources required to provide for the health of the force; and to operate in conjunction with beneficiary health care mission. The MHSS supports the full array of military missions, including major regional contingencies, lesser contingencies, humanitarian assistance, and disaster relief.

Key to medical readiness is the experience acquired through real-world operational support missions. During the past year, the Department provided medical support to numerous peacekeeping and humanitarian operations around the world. In Operation Joint Endeavor — the largest deployment of medical forces since the Gulf War — the Department provided medical support to the operation in Bosnia. In Operation Assured Response, the Department provided medical support to noncombatant evacuation operations in Liberia. In Operation Fair Winds in Haiti, medical personnel supported humanitarian and nation-building efforts. Also, in Operation Desert Focus, the MHSS returned military dependents to the United States and consolidated U.S. forces for forward deployment in Saudi Arabia. Domestically, medical readiness was enhanced by a combination of operational missions to include medical support for natural disasters and for the 11,000 military personnel supporting the Atlanta Olympics. In addition, CINCs and Services conduct exercises, providing additional opportunity for medical personnel to hone their wartime skills in a realistic environment through employment combat equipment and systems.

The Department continues to update its Medical Readiness Strategic Plan 2001 (MRSP 2001). The MRSP helps identify readiness and resources requirements and develop medical policies and procedures. It also establishes objectives to measure medical readiness. This document, published in March 1995, provides the Department with an integrated, coordinated, and synchronized plan for achieving and sustaining medical readiness through 2001 and beyond. Its vision addresses nine functional areas: Planning; Requirements, Capabilities and Assessments; Command, Control, Communications and Computers and Information Management;

Logistics; Medical Evacuation; Manpower and Personnel; Training; Blood Programs; and Readiness Oversight. As new functional areas, objectives, and action plans are identified, they will be added to improve overall medical readiness posture. To date, four additional functional areas — Military Operations Other Than War; Nuclear, Chemical, and Biological Defense; Medical Research and Development; and Preventive Medicine — have been identified and will be incorporated into the MRSP.

CONCLUSION

DoD continuously faces new challenges to readiness as the world changes. Past experiences, America's vigorous responses to them, and the valuable lessons derived show that U.S. forces today are ready to fight — ready to get where they are needed, on time, to carry out the nation's tasks.

The challenge of measuring and maintaining readiness is a tough one. The world is unpredictable, so U.S. forces must be able to adapt and respond to a wide spectrum of military and political demands. It is not possible to develop a fully accurate long-range predictive model of readiness; DoD must be able to monitor and assess readiness in response to real-time events. Tools such as the Senior Readiness Oversight Council, the Readiness Baseline, the automated readiness assessment systems, SORTS enhancement, the Joint Mission Essential Task List performance standards, Personnel Tempo oversight, and the creation of alternative funding strategies will provide a firm foundation for the task of monitoring and assessing near term readiness. Similarly, reducing maintenance backlogs and enhancing training will provide the nation a trained, ready force at a lower cost.

For FY 1998 and beyond, the Department will maintain the readiness of its forces to carry out the National Security Strategy. The policies and programs enumerated in this chapter demonstrate the continued initiative and energy with which the Department is addressing these challenges and will set the stage for ensuring readiness for the future. Such efforts rest with the shared responsibility between Congress and the Department. With these initiatives, and particularly with timely funding for contingency operations, the United States will continue in the future to have the world's best trained, best equipped force run by the world's best men and women.

Chapter 5

QUALITY OF LIFE

The Department of Defense continues to promote military readiness by enhancing the quality of life of its service members. To maintain an effective force, DoD must attract and retain high quality men and women. In a competitive employment market, that means providing adequate compensation, decent housing, challenging and rewarding career opportunities, and a robust and effective program of community and family support.

A LONG-TERM COMMITMENT

The effectiveness of U.S. military power relies on its qualitative advantage in both hardware and personnel. Maintaining the highest caliber officer and enlisted corps in the world requires a sustained commitment to their quality of life. Recognizing this fact, President Clinton and Secretary Perry announced an ambitious Quality of Life Initiative in 1994 to improve compensation, housing, and family support for service members — and a great deal has been accomplished in these areas in the past two years. But the Department believes that the key to maintaining U.S. forces in the future is an institutionalized focus on the actions necessary to attract and retain superior personnel. The Department's overarching goal is now to establish a regular process to address current and future quality of life issues. As with a program of technical modernization, achieving a decent quality of life for service members is an ongoing process that requires sustained, long-term diligence.

In order to ensure continued attention to these issues, Secretary Perry established a Quality of Life Executive Committee, chaired by the Assistant Secretary of Defense for Force Management Policy, to review and act on these matters. Leadership by this Executive Committee is particularly important in an era of increasing joint operations. As soldiers, sailors, airmen, and marines have worked together more regularly, differences in their compensation, housing, and family support programs have become increasingly apparent. By leading from a joint perspective, Secretary Perry and the Executive Committee have been able to move these programs toward greater equality, while respecting different Service needs and philosophies. Toward this end, the Services have increased spending targets in their FY 1998-2003 programs for child care; tuition assistance; compensation; barracks improvements; and morale, welfare, and recreation (MWR) programs.

The most important component in the Department's quality of life program is an adequate level of compensation. By making the unprecedented pledge to support the full pay raise authorized by law for service members through the end of the decade, President Clinton brought an important measure of predictability to the lives of service members and potential recruits. For the other crucial aspects of quality of life, Secretary Perry committed an additional $2.7 billion to provide much needed improvements to housing, community and family support activities, and a list of high priority programs developed in close coordination with senior military leaders and a panel of outside experts. This funding has already led to increases in the Basic Allowance for Quarters, authorization for a Variable Housing Allowance floor, a new cost of living allowance for service members living in high cost areas of the United States, expanded child care, housing improvements, enhanced recreation opportunities, an expanded anti-family violence program, extended space-available travel opportunities for family members, increased nursing presence at DoD schools overseas, and the establishment of a special program to meet the needs of adolescents and their parents in military communities.

COMPENSATION AND BENEFITS

The Department has long recognized the importance of an appropriate level of compensation in sustaining a robust quality of life program. The military compensation package is made up of both pay and nonpay benefits — the components of a standard of living. Operating together, these serve to stimulate retention which, in turn, contributes to the operational readiness of U.S. forces.

Pay Raises

The Administration funded a 3.0 percent pay raise for FY 1997 and has now directed the programming of the maximum pay raise for military personnel authorized by law through FY 2002. This commitment of $10.7 billion reflects the recognition that adequacy of military pay is essential to attract and retain high quality personnel. Individuals deciding whether to join the military typically compare the pay and other benefits available in the military with those of the private sector. While the military offers many benefits, like medical care, it is very important that military pay, the most visible element of military compensation, be competitive with private sector pay. This allows recruiters to focus on the benefits and rewards of military service and continue to enlist high quality and motivated young men and women.

Similarly, retaining the best members of U.S. forces depends on giving them the ability to provide their families with a decent standard of living — and pay is the most important factor in determining living standards. DoD's commitment to the maximum pay raise sends a very positive message to uniformed personnel that their country truly values their service and recognizes the unique hardships, obligations, and dangers of military service.

Improved Quarters Allowance

Over two-thirds of military families reside in civilian communities. These families receive housing allowances, which were intended by Congress to cover 85 percent of their housing costs. In 1996, housing allowances covered approximately 80 percent of service members' total housing expenses. For 1997, the Department funded a 3.0 percent increase in housing allowances and Congress added an additional 1.6 percent. This will lower out-of-pocket housing costs by covering about 81 percent of a service member's total costs, the highest percentage since before 1987. The Department will consider pursuing similar raises in housing allowance through the end of the century in an effort to obtain the 85 percent coverage intended by Congress.

Continental United States Cost of Living Allowance

At present, 30,000 military families are assigned to areas in the continental United States (CONUS) in which payments for goods and services exceed 108 percent of the national average (effective January 1, 1997). These costs are in addition to housing expenses, which are partially compensated through housing allowances. Assignments to areas such as Long Island, New York, or Los Angeles, California, place an undue burden on military families. The CONUS cost of living allowance assists military families residing in these high cost areas. During 1996, the allowance increased the average monthly pay in high cost areas by $44, and in some extreme cases as much as $429.

Military Retired Pay

Military retirement pay is a critical element of the overall military compensation package. Service members

want to know that the retirement benefits they were promised when they joined the military will be there for them when the time comes. The Administration believes it is imperative that the United States keeps faith with men and women in uniform. Changes to the retired pay system that affect members currently serving amount to broken promises, with potentially serious negative effects on retention of quality people and the morale of the forces. The Department strongly supports cost of living adjustments to military retired pay, thus maintaining the commitment to provide a measure of income security for those who complete military service careers.

Commissaries

Military members and their families consistently rate the commissary benefit as one of their most important nonpay compensation benefits. The commissary provides its patrons with more than a 25 percent average savings on their purchases compared to what they would pay in commercial grocery stores. This savings, which can range from a few hundred dollars to over $1,500 a year, helps offset a large portion of the economic stress military families experience. The commissary benefit and the savings it offers make a difference to military families. For those military members living outside the United States, the commissary provides the American products they are accustomed to while they are far from home. As of October 1996, there were 309 commissaries worldwide — 209 in the United States and 100 overseas. The Defense Commissary Agency (DeCA) operates the worldwide commissary system for DoD, utilizing commercial business practices within the framework of a government agency. In recognition of its past and ongoing initiatives to reduce costs and improve efficiency, DeCA is the first Department of Defense agency to become a Performance Based Organization under Vice President Gore's effort designed to improve government service while reducing taxpayer costs. The National Performance Review awarded DeCA the prestigious Hammer Award during 1996 for its common sense approach to reinventing government.

Off-duty, Voluntary Education

The Department's off-duty, voluntary education programs constitute one of the largest continuing education programs in the world. Each year, service members enroll in about a half million post-secondary courses leading to associate, bachelors, masters, and doctorate degrees. Colleges and universities deliver classroom instruction through an extensive network to hundreds of military installations and deployed sites around the world.

In recent years, the desire for educational improvement and opportunities has increased. Service members are more likely than ever to seek to advance their education, recognizing that higher levels of learning increase their chances for promotion and better prepare them for managing the sophisticated systems used in today's military.

To enhance voluntary education programs, the Department has included increases in both the Navy and Air Force budgets for FY 1998. This includes just over $8 million for the Navy and just over $13 million for the Air Force. The Department appreciates congressional help in increasing funds available to the Air Force and Marine Corps for voluntary education in FY 1997.

PERSONNEL TEMPO

A review of personnel tempo (PERSTEMPO) and turbulence begun by the Quality of Life (QoL) Task Force was continued by a special working group. Two basic characteristics of higher operating tempo (OPTEMPO) impact were noted:

- Impacts appear to be limited to specific skill groups and units, not to the Services as a whole.

- The greatest impact of increased PERSTEMPO has been experienced by the Army and the Air Force. Sea Services have historically employed a higher OPTEMPO and continue to operate in their required deployment pattern.

Services, commanders, and leaders are sensitive to the time service members spend away from their families and are taking a number of actions to help reduce adverse impacts. The Office of the Assistant Secretary of Defense for Reserve Affairs developed a FY 1995-1997 pilot program to use Reserve component forces during peacetime to reduce the active component operating tempo. Although there remains concern over the long-term impact of high personnel tempo, only localized areas of adverse impact have been noted and these are being addressed by the Services and the Joint Staff.

HOUSING

Secretary of Defense Perry recognized the importance of housing as a key element in the quality of life of service members and their families. Dr. Perry said that there is an iron logic linking quality of life; recruiting and retention; and high mission readiness. While the United States military has reduced in size, the hazards U.S. service personnel face remain daunting. Retaining motivated, educated, and trained forces is critical to meeting future U.S. national security missions. For these reasons, improving the quality of housing for uniformed personnel is linked to combat effectiveness.

Legislative Authorities Update

The recent enactment of legislative authorities proposed by the Administration will allow the Department to attract private capital to help solve DoD housing problems much more quickly. The new authorities can be used individually or in combination, and will allow the Department to attract private capital and leverage appropriated dollars by at least three to one. These housing improvement authorities tools will permit loan and rental guarantees, leasing, conveyance or lease of land and facilities, direct investments, differential lease payments, and direct loans. As military construction projects are converted to privatization projects financed using the new authorities, the Department expects to use the savings to fund additional projects. These legislative authorities and projects are further described in the Business Affairs, International Programs, and Installations chapter.

Family Housing

Currently, one-third of military families live in military housing. About 200,000 of these government quarters require major renovation or replacement, at a cost of $20 billion. With the current level of military construction funding, it will take the Department 30 years to address the $20 billion problem. Neither the cost nor the time line of current housing construction and modernization meet the challenge DoD faces. To combat this problem, the Department will couple the recently enacted legislative authorities with current family housing funds. The FY 1997 Defense budget included $3.1 billion for operating and maintaining 359,000 family housing units, and $1 billion for construction and improving family housing. For FY 1998, the Department has requested $3 billion to operate and maintain family housing units and $700 million for constructing and improving family housing. These funds are used for renovation or replacement of housing, depending on which is more economical. Revitalizing family housing often involves actually reducing a base's total housing inventory while improving its quality. While the Department has a robust program to improve on-base housing for service families, it continues to rely first on the local housing market, where about two-thirds of military families live. Families pay on average about 19 percent out-of-pocket to obtain adequate housing. As part of DoD's quality of life initiative, $20 million was added to the Department's FY 1997 budget request to continue funding joint public/private ventures in FY 1997; Congress appropriated $25 million for this purpose.

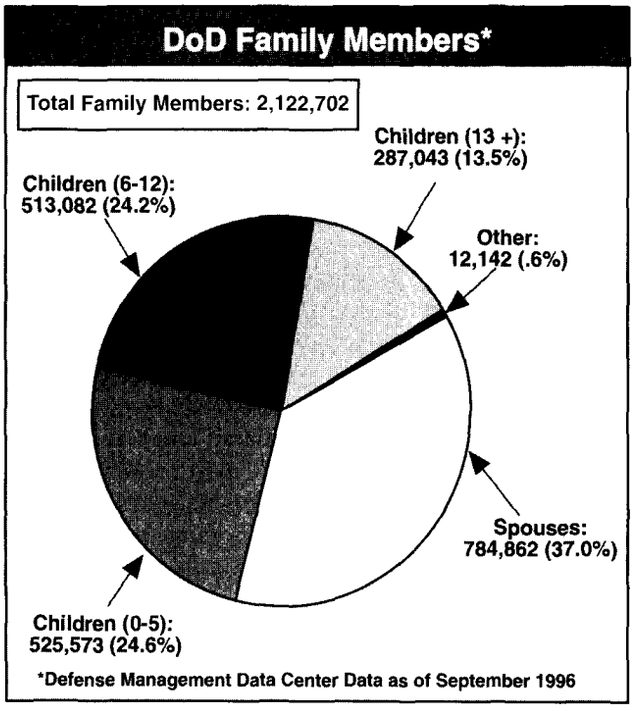
Bachelor Housing

Presently, approximately 400,000 bachelor members live in on-base barracks. About 62 percent of these barracks require improvement or replacement at the military construction cost of $9 billion. At the current military construction funding level, this $9 billion problem will be solved in about 16 years. As with family housing, the Department could not afford a business as usual approach to modernize bachelor housing. Replacement or renovation of barracks is the largest single functional category within the military construction budget request and the repair and maintenance portion of the operation and maintenance request. This reflects Secretary Perry's five-year commitment which started in FY 1996 to improving the quality of life of single military members. Additional barracks funding by Congress for FY 1996 increased both military construction (by $251 million) and repair and maintenance (by $322 million). The FY 1997 Quality of Life initiative added $201 million for barracks revitalization. Even after this Barracks Improvement Program is completed — in 2013 — the Navy will still have more than 30,000 enlisted personnel living in shipboard conditions while in homeport.

COMMUNITY AND FAMILY SUPPORT

Institutionalization of the quality of life improvements is a major goal for the Department of Defense. To that end, the Department is placing emphasis on ensuring that it is providing the right services, in the most effective manner, and at the right time. DoD fielded goals and measures for 24 community and family support programs in 1996. These objectives and measures establish targets for which the individual Services strive

to achieve comparability and institutional improvement. As the result of the evolving emphasis on the joint task force, soldiers, sailors, airmen, and marines are working and living side by side in contingency operations. This places a new perspective on providing an equitable quality of life for all service members and for their families.



To promote comparability issues, the Department has included necessary increases in Service budgets in the areas of Child Development Services, Military Education, and Category A Morale, Welfare, and Recreation. Increases are detailed under program descriptions below.

Child Development Program

Today, over 65 percent of military spouses are in the labor force, an increase of 11 percent over the last seven years. DoD standard child care programs and common dependent education curriculum in the Department of Defense Education Activity schools provide unique stability and continuity for military family members. Military families need 299,000 spaces for children from birth through age 12. The Department is meeting about 54 percent of the need for care in military child development programs with 162,500 spaces at 300 locations. These include spaces in 9,810 family child care homes and 831 child development centers and school-age care located in youth facilities, schools, and other community support facilities. DoD's short-term goal is to meet 65 percent of the need — a goal the Department is projected to reach in FY 1997. Much of the growth has been in school-age spaces. The Department's ultimate goal is to meet 80 percent of the need. To support movement toward the 80 percent goal, the Department has increased the Navy budget for FY 1998 for direct support by almost $17 million and the Air Force budget by about $10 million.

To examine the potential for most cost-effective child care, the Navy and the Defense Logistics Agency are serving as the DoD executive agents for outsourcing tests for child care. They are conducting two evaluation tests. The Navy is to contract with civilian accredited centers in five locations (San Diego, California; Norfolk, Virginia; Jacksonville, Florida; Seattle, Washington; and Honolulu, Hawaii) to buy down the cost of spaces for military families in these locations. The Defense Logistics Agency will test the outsourcing of the management of a defense-owned child care facility in Columbus, Ohio. The Navy is also testing the feasibility of a contract for the management of the child care program, child development centers, and family child care in the San Diego area.

Model Communities (Youth Initiative)

The Department's model community projects are paying great dividends in innovation for youth programs that address youth gangs, idleness, and productivity. Each participating installation submitted proposals which defined local needs, described a plan to meet those needs, and indicated how they will manage their solutions. The 20 winning installations selected from 134 submissions will serve as test projects for new ideas and as models for military bases around the world. Proposals were submitted from all four Services and represented installations around the world. The winners received up to $200,000 per year for a three-year period. The Model Community projects are fully implemented. A technical assistance seminar was held in September 1996 to train Model Community Coordinators in the techniques of outcome and performance results measurements. These measurements will be used to evaluate the effectiveness of the Model Community projects. After-school study programs and youth operated businesses are examples of programs working well. The Department has distributed a book containing information on these programs to help installations with youth problems.

Family Centers

Department of Defense family centers are the hub for a wide range of educational and preventive human services. Family centers provide core services geared to developing skills to help service members and their families be more self-reliant and adjust to the challenges of military life, while at the same time providing a safety net of programs and services to assist them when they need help. There are currently 291 family centers DoD-wide.

Since the Gulf War, the Services have substantially strengthened their family support infrastructures. As a result, the families of deployed service members coped extremely well during deployment to Bosnia.

The Department recently initiated a Family Center Intranet Web site. The site provides the capability for instant communication among centers. This will be particularly helpful during contingency operations, but it also will improve support of members and their families in daily military life. Centers will share resources, have conferencing capability, and provide immediate reports and assessments to the chain of command. A second Web site, due to be operational this year, will open a new era in service delivery to members and families. Under the umbrella of the Military Assistance Program (MAP), this site will provide a panorama of information in areas such as relocation, financial management, transition, parenting, employment assistance, child and youth services, and many other areas of concern. This interactive site will be used as a tool to augment the reach of MAP services to military members, DoD civilians, and families.

Family support staffs are leading the way in total force collaboration. The recently initiated Joint Service Family Support Training promotes active and Reserve component family support regional cooperation. Recent deployments and man-made and natural disasters pointed to the need for a joint Service family support infrastructure. Directors now have the information and tools to provide assistance to all service members and their families and are prepared to respond jointly in the event of a mobilization or crisis.

Since the military mission often requires service members to be separated from their families, the family support staff has stepped up efforts to keep separated service members connected with their spouses and children. The Department's efforts led to the National Performance Review identifying DoD as one of the top five executive agencies in promoting the role of fathers in families.

Relocation Assistance Programs

Relocation is a major life event, whether embarked upon by military members or civilians. Of 813,000 military moves in FY 1996, over 30 percent were in the very young first-term category. Over 121,000 of first-term members have families, many of whom make uninformed relocation decisions that cost them financially and emotionally. In addition, moves to foreign countries increase stress. The effects of relocating have strong mission implications; research shows that family adaptation or fit with military life can positively or negatively affect job performance, morale, and desire to stay in the military. Program services focus on preventing and assisting with relocation problems by providing information, education, planning assistance, crisis intervention and settling-in assistance. As an example, in FY 1997 the Department will relocate Headquarters, United States Southern Command, one of the five regional combatant commands, from the Republic of Panama to Miami, Florida. A comprehensive set of informational and assistance programs promulgated both by DoD and the Miami community are planned to help member families successfully make the transition.

The Department recently concluded a reengineering study of the Relocation Assistance Program that suggests several improvement opportunities. Models include a substantial increase in the use of technology, population targeting for direct service, and the testing of a one-stop move management model. The Department will be initiating tests of these models during this fiscal year. DoD developed the Standard Installation Topic Exchange Service (SITES) containing information on military installations worldwide. The new SITES Version 2.0 includes pictures, maps, and housing floor plans and is now available to families in family centers and on the Internet.

Transition Support and Services

Transition assistance is one of the Department's valued tools for the career force. How service members fare in the civilian job market after their time in military service can place a strong positive backdrop to military service. That word spreads to new potential recruits. Over 300,000 service members and their families return to civilian life each year. Operation Transition's goal is to prepare service members and their families to make a successful transition. Transition Assistance Programs

save the Department as much as $150 million per year in unemployment insurance costs.

The facts and figures for Transition Assistance speak for themselves. Each Service, in conjunction with DoD, the Departments of Labor (DoL) and Veterans Affairs (VA), and state employment service agencies, has initiated innovative transition programs with good results. During FY 1996, service members made 841,369 visits to transition offices for preseparation counseling and employment assistance. In FY 1995, DoL and VA provided 3,200 employment assistance workshops at 204 military installations.

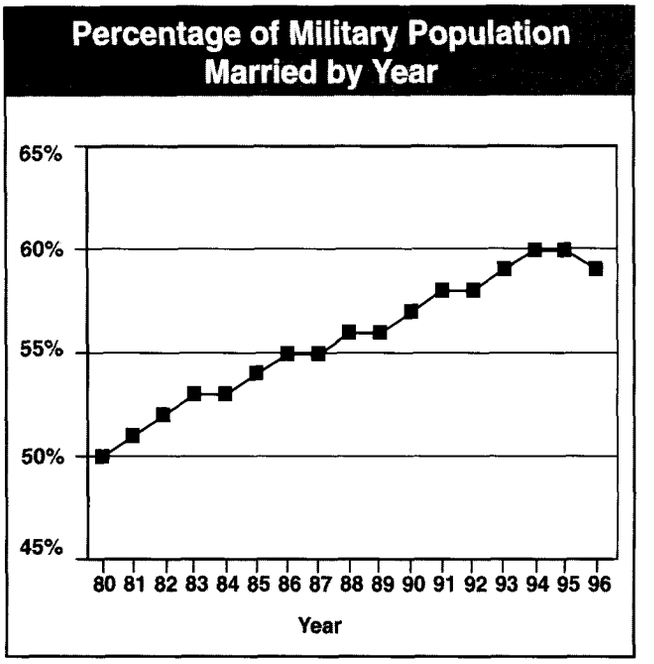
Automated systems are a vital part of DoD transition programs and are being used more and more by civilian employers. The Defense Outplacement Referral System (DORS) is a resume data base and referral system linking private sector employers to departing service members and spouses. The number of employers in DORS went from 13,431 in FY 1995 to 16,358 in FY 1996, an increase of 22 percent. Employer requests for resumes went from 26,578 in FY 1995 to 34,798 in FY 1996, a 31 percent increase. There were 1,197,426 resumes forwarded to employers in FY 1996, while 881,448 were sent during FY 1995, a 36 percent increase. The Transition Bulletin Board (TBB) allows employers to list job openings that are electronically transmitted to military installations. In FY 1996, 35,720 job opportunities were listed. The public and community service registry, established in June 1994 to encourage departing service members to enter public or community service, had 125 organizations registered at the end of FY 1994. By the end of FY 1996, 1,948 organizations had registered, an increase of 39 percent over FY 1995. Both DORS and TBB are now on the Internet. DoD has also offered the use of DORS and TBB to other civilian federal agencies.

Spouse Employment

The Quality of Life Task Force emphasized the need to focus on employment opportunities for military spouses, particularly since federal employment opportunities for spouses have diminished with downsizing. This is particularly true for military families stationed overseas.

In January 1996, DoD conducted a review of military spouse preference policies. Resulting recommendations to improve military spouse preference include:

- Allow military spouses overseas to exercise spouse preference for vacancies in Nonappropriated Fund and Appropriated Fund systems.
- Standardize leave without pay in all Services for one year until downsizing is complete.
- Change current policy so that spouses can take temporary employment and not lose their spouse preference.



To stimulate development and implementation of innovative, collaborative spouse employment initiatives, DoD has committed $180,000 for three years to military communities whose proposals can serve as exportable projects to assist DoD spouses in obtaining non-federal employment. The Department will also conduct a survey of spouses of members in pay grade E-5 and below to develop effective strategies to assist junior spouses with employment. Finally, the Department is exploring a pilot project with the Small Business Administration and local community organizations that would establish a resource on the installation for spouses and other DoD personnel seeking information on how to establish portable entrepreneurial careers.

Financial Management

The Quality of Life Committee recommended that DoD review financial management training offered to service and family members, focus on the needs of young

service members, and initiate improvements where needed. The need for a strong, preventive financial management policy for DoD service members is evident. Financial management is a learned skill. Many young adults graduate from high school and even college without having learned basic financial management skills. At the same time, credit is much easier to obtain now than 20 years ago and is being marketed to a much younger audience. DoD has formed a task force of Service program managers, Joint Staff personnel, senior enlisted advisers from each Service, the Service Aid Societies, the Army and Air Force Exchange Service, and Navy Exchange Command to develop a strong financial and educational tool for younger members. The Department has committed funds to develop interactive video training on personal financial management.

Family Advocacy Program

The Department appreciates congressional support for spouse and child abuse programs. The Department's Family Advocacy Program is strengthening its efforts to prevent child and spouse abuse. Approximately 40 percent of family advocacy funds are now used for prevention programs. In 1996, each of the Services intensified efforts to prevent spouse abuse by focusing attention on stressors of the military life style (separation due to deployment, financial management, and so on) and implementing innovative programs such as peer mentoring for young enlisted service members. Child abuse prevention programs include public awareness campaigns and New Parent Support. New Parent Support Programs are designed to prevent child abuse by providing parents with education and support around the time their first baby is born and includes prenatal and postnatal home visiting services. New Parent Support Programs also have the potential to reduce spouse abuse, since such abuse frequently occurs during pregnancy and immediately after the birth of a child. Funds from Congress in FY 1996 maintained 114 New Parent Support teams worldwide.

Morale, Welfare, and Recreation

The Department of Defense provides Morale, Welfare and Recreation programs to support the readiness of the force and the retention of valued service members. The Department's vision is to provide MWR programs, services, and activities that are comparable across Services and installations, and that contribute to readiness and the development of strong, self-reliant, and resilient service members, civilians, and families.

In the last year, MWR equipment and personnel have deployed on contingency missions, providing physical fitness, unit and individual recreation, and stress relief during these operations. The Defense Logistics Agency has worked hand in hand with MWR on a bulk donations program for the service members deployed to Bosnia and Hungary. This program, which enables private citizens to ship donated bulk comfort items through the Defense Logistics Agency supply channels, has provided donations of personal care items, food, and entertainment valued at $1.9 million to the troops since February 1996. The Exchanges also provide important support for deployed troops and work alongside the MWR team for total quality of life combat support. In addition, MWR provides quality, wholesome services for military members and their families in military communities. Programs such as fitness centers, libraries, sports and athletic programs, youth centers, clubs, bowling facilities, and a wide variety of other recreational and social activities comprise an essential military community infrastructure. Programs are designed to give service members and families opportunities for physical and mental development and recreation similar to those available in comparable civilian communities.

The Department published new MWR policy in 1996 which, for the first time, included funding goals for critical mission sustaining and basic community MWR programs. These programs, known as Category A and B MWR programs, are authorized substantial appropriated fund support. Beginning in FY 1996, the Department of Defense provided funds through the Quality of Life initiative designed to achieve a certain baseline of appropriated fund support per service member. To continue to promote equity among Services and improve MWR, the Department has included the following increases for direct support in 1998 MWR Category A budgets: Army — just over $10 million; Navy — about $30.5 million; and Air Force — about $5.3 million. These are targeted at key, high usage programs such as physical fitness centers and libraries. The Department is continuing to improve the funding for high usage programs and has developed the first Department of Defense Strategic Plan for MWR. This plan charts a common direction for management of MWR programs across the Services.

The Quality of Life Task Force identified fitness as a priority program. The task force cited the need to upgrade physical plant and improve the management of fitness centers. Surveys of service members continue to

indicate a strong desire for quality fitness facilities, equipment, and programs. The Department is conducting a thorough review of physical fitness facilities, including equipment, hours of operation, and location to ensure they are of high quality and readily available to junior enlisted personnel. Progress has already been made in this area; funding has been provided to improve fitness facilities on ships, to renovate facilities, and to purchase updated equipment.

The MWR program is changing. DoD is engaged in a congressionally directed demonstration project to test the feasibility and benefits of establishing a unified budget for MWR, which will allow appropriated funds to be expended using the procedures which pertain to nonappropriated funds. To improve business operations and maximize the use of available resources, the Department is developing an initiative to systematically use private sector expertise and capital to construct facilities and provide services traditionally offered by the MWR activities. Through goals and measures which chart a common programmatic and financial course and through initiatives designed to meet the needs of today's force, the Department is continuing to advance quality MWR programs.

Military Exchanges

The military exchange system is an important element of the military nonpay compensation package and a critical aspect of quality of life. The Army and Air Force operate a combined exchange system, while the Navy and Marine Corps each operate their own exchanges. Today's exchanges, modern, state-of-the art retailers, are an integral part of the military community at U.S. installations all over the world. Exchanges not only benefit military patrons by providing the goods and services they need and want, they have also contributed to quality of life by distributing over $2 billion to MWR programs over the past 10 years.

The Department of Defense is continually looking for ways to sustain and enhance the exchange benefit by making operations more efficient and effective. Consistent with this and guidance from Congress, a task force was established to examine how to achieve an integrated exchange system. The task force is looking at streamlining the operation and management of the exchange systems. This initiative seeks opportunities to standardize systems and programs and reduces costs and overhead. The Department of Defense has received input from industry experts and exchange commanders in this effort. The consulting firm, SRA, has analyzed the exchange systems and has recommended that DoD move forward with an integrated system.

Chaplain Services

Chaplain services exist first and foremost to provide religious ministry and ensure the constitutionally mandated free exercise of religion within the military. They are a mission essential key to readiness, linking service members, their families, and support services throughout the Department. Military chaplains provide for the religious and spiritual needs of deployed service members worldwide; they extend pastoral care to family members who remain at home; and they offer professional assistance, including confidentiality, to all. Chaplains serve as liaisons with family centers, family advocacy, and other military relief programs. They also work with outside organizations such as the American Red Cross and drug and alcohol rehabilitation centers. The specialized ministries of military chaplains are integral to the readiness, health, and well-being of U.S. military personnel and their families. Another critical duty of the chaplain is advising the commander on unit morale; with their access to units and confidentiality, chaplains became an important conduit of data on morale. Chaplains also advise on ethics and religion.

Armed Forces Professional Entertainment Office

This small but robust program provided quality, live U.S. entertainment to over 278,000 members of the armed forces overseas during FY 1996. Priority for entertainment goes to remote and isolated locations, including deployed ships. This entertainment proved critical to service members deployed to Bosnia and to their families remaining on installations outside CONUS. Service members deployed in contingency operations often live in harsh environments. Entertainment programs provide a little taste of America and a needed respite. During FY 1996, Armed Forces Professional Entertainment Office (AFPEO) fielded 90 non-celebrity groups and 34 DoD/USO celebrity tours. These 124 groups provided 2,258 performances to a total audience of 278,400. Support from the entertainment community has been tremendous, with some of the biggest names volunteering to entertain service members. Additional money was provided and shows reprogrammed to ensure support was provided for those deployed in Operation Joint Endeavor. Commanders, service members, and military families give these efforts high marks. This small, low budget item pays tremendous dividends in morale.

DEPARTMENT OF DEFENSE EDUCATION ACTIVITY

The Department of Defense Education Activity (DoDEA) supports the educational needs of children of American military personnel throughout the world. The Department's goal is to provide an educational program that exceeds the best U.S. public school system, and one that will prepare students to compete in a global economy. The Department of Defense Dependents Schools (DoDDS) provide schooling for students in foreign countries. The Department of Defense Domestic Dependent Elementary and Secondary Schools (DDESS) provide schooling for students on military installations in selected areas in CONUS and in Puerto Rico. For school year 1996-1997, DoDDS will operate 167 schools in 14 foreign countries and serve more than 82,000 students. DDESS will serve about 33,000 students on 16 military installations in CONUS and in Puerto Rico.

DoDEA supports the National Education Goals and is transforming DoDEA schools into a model of the 21st century school. DoDEA is in an excellent position to create a model 21st century school and to do so as a cost-effective way to meet the Defense Department's quality of life commitments to the men and women in uniform and their families. This transformation requires investing in modern computers, connecting schools to the information superhighway, providing teachers with technology skills, and developing effective educational software in all subject areas. DoDEA is launching the development of a comprehensive set of educational software for kindergarten through grade 12. DoDEA will integrate use of this software into its classrooms and demonstrate the impact on student achievement. Additionally, civilian and military leaders have become actively involved in programs that support partnering initiatives with local schools, both on the installation and in the local community. Examples of programs and ideas implemented that support a family friendly work environment are adopt-a-school; Drug Abuse Resistance Education (D.A.R.E.); mentoring; tutoring in math, science, and reading; judging science and essay contests; assisting in field day activities; and coaching various sports.

DoD Dependents Schools Overseas

The DoD schools were established in October 1946 to serve the children of U.S. military personnel serving in occupied Germany and Japan. In 1996, as part of the year-long celebration of DoDDS 50th anniversary, DoDEA held an essay contest open to all children enrolled in DoDEA schools. Students wrote on the theme, Living in a Global Village. Winners were chosen at each of four instructional levels. The four winners and their parents traveled to Washington, D.C., to meet First Lady Hillary Rodham Clinton and take a VIP tour of the White House. Winning essays were published in an anthology in October 1996. A second commemorative activity was a program at Fort McNair attended by numerous dignitaries and dozens of DoDDS alumni.

DoDDS movement into its second half-century is supported by DoDEA's Strategic Plan. The DoDEA Community Strategic Plan details long-range educational and organizational goals. Through the Strategic Plan, DoDEA is committed to changes in the teaching and learning process; raising the standard of learning to ensure excellence; creating greater autonomy at the local level to devise methods and strategies to meet educational standards; greater accountability in reaching the goals established for the year 2000; and an organizational structure to cope with a more challenging educational environment and provide greater community input in the organization's decisions.

Enhancements to DoDDS core educational program include: distance education; elementary level foreign language immersion; Reading Recovery, a program to help at-risk first grade students learn to read; and Advancement Via Individual Determination, a college preparatory program for students who came from backgrounds most underrepresented in four-year colleges and universities. DoDDS also serves all preschool children with disabilities (between the ages of three and five) in accordance with the provision of the Individuals with Disabilities Education Act.

DoDEA has one of the highest participation rates in the Scholastic Assessment Test in the United States. DoDEA students continued to perform well on the test, with a combined verbal and mathematics score well above the national average.

The drawdown in Europe produced a number of small schools with enrollments of fewer than 100 students. DoDDS reviewed operations to identify inefficiencies and potential cost savings. In October 1994, DoDDS studied the costs associated with schools with enrollments of 100 or fewer students. As a result, 10 of the schools have been closed; their students were consolidated into other nearby DoDDS schools or International Schools.

Finally, in support of the children and youth of service members in Bosnia, the overseas schools serving communities in which many members were deployed established assistance groups of certified counselors, school psychologists, and social workers to counsel children and help them cope with being far away from home and having one or more family members deployed.

DoD Domestic Dependent Elementary and Secondary Schools

The DDESS schools provide education to approximately 33,000 eligible dependents residing on 16 military installations in CONUS and in Puerto Rico. The schools have locally elected school boards that participate in the development and oversight of policies, procedures, and programs. Priority has been placed on the goals of the DoDEA Strategic Plan, with special emphasis given to the full implementation of preschool and early childhood development programs, computer technology, and parental participation. Other resources range from advanced placement courses to special instructional models and strategies designed to help students learn. DDESS has oversight responsibility and fiscal support of eight special contractual arrangements with local educational agencies in five states and Guam, serving an additional 6,000 students.

CONCLUSION

The Department is working to institutionalize quality of life improvements. One of the greatest testimonies in the commitment of the Services to quality of life can be found in the continued funding of these important programs. Each Service has programmed increases in funding for quality of life and is working hard to shorten the time it takes to bring family housing and barracks inventory up to standard. A long-term commitment is required to institutionalize the momentum achieved. Compensation and quality of life of service members and families must remain a top priority for a nation grateful for their commitment and sacrifices.

Chapter 6

COUNTER-PROLIFERATION AND TREATY ACTIVITIES

In December 1993, pursuant to Presidential Directive, Secretary of Defense Aspin launched the Department's Counterproliferation Initiative. This initiative was undertaken in light of the growing threats to U.S. security and national interests posed by the proliferation of nuclear, biological, and chemical (NBC) weapons, often referred to as weapons of mass destruction, and their means of delivery. In many of the world's regions where the United States is likely to deploy forces — including Northeast Asia and the Middle East — potential adversaries possess or are pursuing the development or acquisition of NBC weapons. The Gulf War experience showed the implications of NBC proliferation for defense planning. DoD must take seriously the potential NBC dimension of future conflicts. U.S. forces must be properly trained and equipped for all potential missions, including those in which opponents might threaten or use NBC weapons. The Defense Counterproliferation Initiative is designed to meet these challenges.

The primary goal of U.S. counterproliferation policy is to prevent NBC proliferation from occurring. The Department's activities contribute in many ways to achieving this goal. Military preparations for operations in an NBC environment make clear that threats or use of NBC weapons will not deter the United States from applying military power in defense of its national interests. Effective capabilities to counter NBC weapon systems devalue their potential political and military benefits for would-be proliferant. In addition, capabilities developed for the battlefield to deal with NBC proliferation — especially intelligence, surveillance, and reconnaissance means — can be brought to bear in support of international regimes, export controls, and other international monitoring efforts to prevent the spread of NBC weapons and related technologies.

STRENGTHENING INTERNATIONAL NONPROLIFERATION NORMS

International norms and treaties that make the acquisition, development, threat, or use of NBC weapons and their delivery means more difficult form the bedrock of U.S. counterproliferation policy. DoD actively participates in U.S. efforts that support adherence to and verification of such international regimes, and DoD experts participate fully in negotiations aimed at limiting the spread of NBC weapons and related technologies. Effective and verifiable regimes help build a barrier against proliferation and strengthen international security.

The following treaties and conventions are key elements of the United States' strategy to prevent NBC proliferation.

Nuclear Non-Proliferation Treaty

The 1968 Treaty on the Non-Proliferation of Nuclear Weapons (NPT) prohibits the spread of nuclear weapons and weapons technology beyond the five declared nuclear-weapons states, encourages the dissemination of nuclear technology for peaceful purposes, and establishes a verification mechanism through the International Atomic Energy Agency to ensure that nuclear material is not being used for nuclear weapons or other nuclear explosives. The NPT, during its initial 25 year term in force (1970-1995), was successful in creating an international norm against nuclear weapons proliferation and limiting the spread of nuclear weapons to a very small number of new threshold nuclear weapons states.

The NPT was extended indefinitely and without condition in 1995, and was enhanced by a strengthened review process and a series of pronouncements called Principles and Objectives for Nuclear Non-Proliferation and Disarmament. The Principles include, among others, calls for the universality of the NPT, a Comprehensive Test Ban Treaty (CTBT), a convention banning the production of fissile materials for nuclear weapons, transparency in export controls, enhanced safeguards, and other related arms control measures. DoD has programs aimed at improving the verification of the NPT and participates actively in advancing various Principles and Objectives with the purpose of enhancing U.S. national security.

Comprehensive Test Ban Treaty

The United States achieved its goal of completing a multilateral CTBT and opening it for signature before September 30, 1996. The treaty, negotiated in the Conference on Disarmament in Geneva, was transmitted to the United Nations, where it was approved with the overwhelming support of the world community of nations. President Clinton signed the treaty on behalf of the United States on September 24, 1996, the day it was opened for signature at the United Nations.

Once the CTBT enters into force, the Treaty will prohibit all nuclear explosions, consequently constraining the development and qualitative improvement of nuclear weapons, as well as ending the development of advanced new types of nuclear weapons. The CTBT will thus contribute to the prevention of nuclear proliferation and the process of nuclear disarmament, and enhance international peace and security. Nuclear weapons will still play a role in U.S. security however. As a result, the President stated that the maintenance of a safe and reliable nuclear weapon stockpile is a supreme national interest of the United States. The United States will carry out a Stockpile Stewardship Program and an annual review and reporting procedure to help ensure the safety and reliability of its nuclear weapons. DoD has the lead role in developing the Treaty's international monitoring system and will play a key role in implementing the CTBT and in ensuring a high level of confidence in the U.S. nuclear stockpile.

Chemical Weapons Convention

The Chemical Weapons Convention (CWC) treaty will form a cornerstone in international law, not only for countering the proliferation of chemical weapons but also for banning their existence entirely. Under Article I of the CWC, state parties to the treaty agree never under any circumstances to develop, produce, or otherwise acquire, stockpile or retain chemical weapons or transfer, directly or indirectly, chemical weapons to anyone; to use chemical weapons; to engage in any military preparations to use chemical weapons; and to assist, encourage, or induce, in any way, anyone to engage in any activity prohibited to a state party under the Convention. In addition, each state party pledges to destroy chemical weapons and chemical weapons production facilities.

Opened for signature on January 13, 1993, the CWC had 161 signatories as of March 1, 1997. It will enter into force on April 29, 1997, 180 days following the deposit of the 65th instrument of ratification with the United Nations. The Administration has submitted the CWC to the Senate for ratification, and ratification before entry into force is one of President Clinton's highest priorities. On September 12, 1996, the Senate postponed voting on the CWC until a later date.

The CWC Preparatory Commission (PrepCom) has been meeting since February 1993 to complete the details necessary to have the Organization for the Prohibition of Chemical Weapons (OPCW) fully operational at entry into force. DoD continues to participate actively in the PrepCom, providing experts on key implementation matters such as inspection procedures, data management, and inspector training. Under existing congressional mandate, DoD is destroying all of its unitary chemical weapons, which constitute the vast

majority of the United States' CW stockpile. When the CWC enters into force, the United States has committed to declare and destroy the binary weapons in its stockpile, as well as remaining nonstockpile items (former production facilities, unfilled munitions, and munitions recovered from burial sites) covered by the Convention. In 1991, President Bush announced that the United States would formally forswear the use of chemical weapons for any reason, including retaliation, against any state, effective upon entry into force of the CWC. Accordingly, it is very much in the U.S. security interest to ban chemical weapons worldwide and to cause countries to eliminate their CW stocks.

Biological Weapons Convention

The President has directed that the United States promote new measures to provide increased transparency of potential biological weapons-related activities and facilities in an effort to help deter violations of and enhance compliance with the 1972 Biological Weapons Convention (BWC). DoD participates in the U.S. delegation to the BWC Ad Hoc Group, mandated by the September 1994 Special Conference, and plays an important role in U.S. efforts to develop compliance measures for consideration by the Group. The United States strongly supports the development of a legally-binding protocol continuing measures to strengthen the BWC.

IMPROVING TECHNOLOGY SECURITY AND EXPORT CONTROLS

Technology security and export controls are an important element of the renewed emphasis on strengthening the preventive defense pillar of U.S. defense strategy. DoD is an active participant in the development and implementation of the U.S. government's overall technology security and export control policies.

In particular, DoD's technology security efforts are focused on two areas: ensuring that export controls are designed and implemented to prevent the proliferation of NBC weapons and their means of delivery, and preserving U.S. military technological advantages by controlling conventional arms and sensitive dual-use goods, services, and technologies.

It is U.S. policy to prohibit and curtail the proliferation of NBC weapons and their means of delivery in part through effective export controls on the goods, services, and technologies that can assist potential proliferants. DoD supports this policy by actively promoting an effective export control regulatory system both here at home and among U.S. friends and allies. In particular, DoD brings to bear its substantial technical expertise to strengthen multilateral nonproliferation regimes and the U.S. export control system.

At the same time, DoD's technology security policy recognizes that the export of conventional weapons and associated dual-use goods and technologies are not always inherently threatening or destabilizing. Many such transfers contribute to U.S. preventive defense strategy by supporting the legitimate defense requirements of allies and friends and by improving interoperability with U.S. forces for potential coalition warfare. Such exports can also contribute to a strong and responsive U.S. defense industrial base. Nevertheless, there are circumstances when such transfers of conventional arms and associated dual-use goods and technologies can be destabilizing in a regional military context. In these circumstances, DoD's participation in both the development of general arms transfer policies and the review of specific transfers in license applications referred by the Departments of State and Commerce are important elements in ensuring that these transfers are responsible and support U.S. regional defense and foreign policy objectives.

During the past year, there have been several important developments in export controls that advance the U.S. government's and DoD's technology security objectives. First, the President signed an Executive Order that provides reviewing agencies, including DoD, the opportunity to examine all dual-use export license applications submitted to the Department of Commerce. As a result, DoD now reviews all such applications that could affect national security, proliferation, and regional stability. The review is accomplished within the rigorous time constraints imposed by the Executive Order to ensure that U.S. exporters are not burdened with unnecessary delay.

The President made a decision that clarifies from which agency — State or Commerce — exporters must obtain licenses for exports of commercial aircraft engine hot section technologies and commercial communications satellites. For those items under Commerce control, enhanced control procedures will be instituted under Commerce's licensing system and will provide for rigorous national security and foreign policy controls to all destinations and end-users of these items worldwide. DoD will review all license applications for these items.

It is important to emphasize that this decision does not decontrol any of these items.

Another important development was the establishment of the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies in July 1996, a new international export control regime. (Wassenaar is the town outside the Hague where negotiations took place leading to the regime's establishment.) Export controls are the most effective if they are undertaken on a multilateral basis in cooperation with relevant governments. The Wassenaar Arrangement involves the United States and 32 other governments. It contributes to DoD's preventive defense strategy by promoting greater transparency and increased responsibility with regard to transfers of conventional arms and dual-use commodities, and restraining exports to those countries judged to pose the greatest threat to international peace and stability (for example, the rogue states of Iran, Iraq, Libya, and North Korea). Participants have agreed to control all items through two international lists — one for arms and one for dual-use commodities — on a worldwide basis. These lists were implemented in November 1996. With its emphasis on conventional arms and dual-use goods and technologies, the Wassenaar Arrangement is designed to complement — not duplicate — other multilateral export control regimes such as the Missile Technology Control Regime, the Nuclear Suppliers Group, and the Australia Group.

INTEGRATING THE COUNTER-PROLIFERATION MISSION WITHIN DOD

While preventing NBC proliferation from occurring in the first place remains the primary goal of U.S. counterproliferation policy, the United States recognizes that a country determined to obtain NBC weapons and their means of delivery and willing to violate global nonproliferation norms can in fact succeed despite the strongest prevention efforts. Because experience has shown that countries armed with NBC weapons can and will use these weapons to challenge U.S. security interests, U.S. armed forces must be fully prepared to counter the military threats posed by NBC proliferation. For these reasons, senior Department officials continue to take an active role in guiding implementation of the Defense Counterproliferation Initiative. As a result, the Department made substantial progress toward fully integrating the counterproliferation mission into its military planning, acquisition, intelligence, and international cooperation activities. These efforts have built upon the formal policy guidance issued by Secretary of Defense Perry in May 1994, follow-on guidance contained in internal planning and programming documents, and a DoD Directive on Counterproliferation issued in July 1996 that delineates specific responsibilities, formalizes relationships among DoD organizations, and establishes common terms of reference. These documents reflect the Department's role in the entire spectrum of U.S. government activities related to NBC proliferation — from supporting diplomatic efforts to prevent or contain proliferation to protecting the United States and its friends and allies, and their military forces, from NBC attacks.

Counterproliferation Council

To ensure that these broad policy objectives are met and that the implementation of the Counterproliferation (CP) Initiative is integrated and focused, in April 1996, Secretary Perry established the DoD Counterproliferation Council. The CP Council, chaired by the Deputy Secretary of Defense and composed of senior civilian and military officials, monitors departmental progress in developing the strategy, doctrine, and force planning necessary to execute effectively counterproliferation objectives. It also monitors DoD-wide efforts at training, exercising, and equipping U.S. forces for the counterproliferation mission. The CP Council met several times during 1996, focusing on the potential impact of NBC proliferation on the Department's requirement to fight two nearly simultaneous major regional conflicts, as well as joint and Service doctrine, exercising and training for integrated operations in an NBC environment. In this connection, the Council identified the importance of understanding the likely NBC employment concepts and plans of proliferants, and took steps to ensure that focused intelligence assessments in these areas inform the development of regional military plans, as well as doctrine and exercising policies.

Responsibilities for Counterproliferation Missions

One of the most important activities toward fully integrating counterproliferation into the functions of the Department has been the implementation of the Chairman of the Joint Chiefs of Staff (CJCS) May 1995 Counterproliferation Missions and Functions Study. The study concluded that each commander in chief (CINC) should be responsible for executing U.S. counterproliferation policy within his respective area of

responsibility, and that implementation would be executed directly through each CINC's standard deliberate force planning process. Based on this study, Secretary Perry approved a Counterproliferation Charter prepared by the CJCS supplementing top-level policy guidance and providing a military focus for implementing the counterproliferation initiative. By issuing a Concept Plan, the CJCS subsequently provided guidance to the CINCs for developing their own concept plans for the counterproliferation mission, further defining national level counterproliferation policy in terms of operational objectives and tasks that will assist the CINCs in developing their own area-specific plans.

Needed Capabilities for Counterproliferation: Counterproliferation Program Review Committee

The interdepartmental Counterproliferation Program Review Committee (CPRC) is composed of the Secretary of Defense (Chairman), the Secretary of Energy (Vice-Chair), the Chairman of the Joint Chiefs of Staff, and the Director of Central Intelligence. Congress chartered the CPRC to review counterproliferation-related research, development, and acquisition programs of the represented Departments and recommend programmatic and management initiatives to address shortfalls in existing and programmed capabilities to counter NBC proliferation threats. The CPRC's most recent findings and recommendations are detailed in its annual report to Congress, Report on Activities and Programs for Countering Proliferation, issued in May 1996.

The CPRC identified 15 counterproliferation Areas for Capability Enhancements (ACEs) in its May 1995 report to Congress and reaffirmed them in its 1996 report. The views of the CINCs, expressed through the Joint Warfighting Capabilities Assessment (JWCA) process, were an important contribution to the work of the CPRC, and they were fully factored into CPRC assessments of needed counterproliferation capabilities. As such, they will be modified periodically to reflect changes in the international security environment. The ACEs characterize those areas where progress is needed to both enhance the warfighting capabilities of the CINCs and the overall ability to promote national strategies to counter the growing proliferation threat. The counterproliferation ACEs, in priority order, are:

- Detection, identification, and characterization of biological weapons (BW) and chemical weapons (CW) agents.
- Cruise missile defense.
- Theater ballistic missile defense.
- Detection, characterization, and defeat of underground NBC facilities.
- Collection, analysis, and dissemination of actionable intelligence to the warfighter.
- Robust passive defense to enable continued operations on the NBC battlefield.
- BW vaccine research, development, test, and evaluation (RDT&E) and production to ensure availability.
- Target planning for NBC targets.
- BW/CW agent defeat.
- Detection and tracking of NBC and NBC-related shipments.
- Prompt mobile target detection and defeat.
- Support for Special Operations Forces.
- Defend against paramilitary, covert delivery, and terrorist NBC threats.
- Support export control activities of the U.S. government.
- Support inspection and monitoring activities of verifiable arms control agreements and regimes.

These ACEs also provide a foundation for building the Department's Counterproliferation Support Program and Chemical and Biological Defense Program and will serve as a basis for assessing future programmatic progress in meeting counterproliferation mission needs.

The strategic planning process for DoD's Science and Technology (S&T) program was also enhanced with the issuance of the Joint Warfighting S&T Plan in May 1996. Biological and chemical warfare agent detection

and counterproliferation are two of the 12 Joint Warfighting Capability Objectives identified in the plan. Joint Warfighting Capability Objectives will receive funding priority in future DoD budgets.

CP Support Program and Chemical and Biological Defense Program

Recognizing the increasing maturity of the DoD Counterproliferation Initiative and the progress made over the last several years in substantially improving U.S. counterproliferation capabilities, the Deputy Secretary directed in January 1996 that the Department take stock of its efforts to date and review all DoD counterproliferation-related programs to assess programmatic alternatives and priorities, policy impacts, and management alternatives. The goal of this assessment was to define a restructured and optimized acquisition program that will meet the CINCs' counterproliferation needs. The analytic assessment concluded that funding for a number of high payoff efforts should be accelerated and increased, including those aimed at detection of biological weapons and NBC warning. As a result, funding for counterproliferation programs during FY 1998-03 will increase substantially.

Over 100 DoD programs strongly support national efforts to counter NBC proliferation threats. At the core of this effort is the CP Support Program, which focuses on redressing the most critical shortfalls in deployed capabilities by leveraging and accelerating ongoing and high payoff research and development projects, and the Chemical and Biological Defense Program, which oversees and coordinates all DoD efforts to acquire NBC passive defense capabilities. Ballistic Missile Defense Organization (BMDO) and Service programs involving theater and national missile defense also form an integral element of the counterproliferation effort. The sections below describe recent progress to accelerate research, development, and deployment of improved counterproliferation capabilities in five functional areas. They also describe key changes resulting from the Department's internal review of all DoD counterproliferation-related programs.

PREVENTION

The CP Support Program Office, in partnership with the Navy, successfully deployed the Navy's Specific Emitter Identification prototype system to improve capabilities to identify and track ships suspected of transporting NBC and NBC-related materials. Deployment began in 1995; a total of 32 units will be deployed by the end of FY 1997. The program will transition to the Navy in FY 1998. The CP Support Program also supported a joint DoD/Federal Bureau of Investigation (FBI) effort to assess the threat of organized crime activities in the former Soviet Union involving the trafficking of NBC weapons and related materials and to apply DoD and FBI technologies, operational capabilities, and training programs to train law enforcement officials in the Baltics, Eastern Europe, and the former Soviet Union. A joint report to Congress defining efforts planned under this program was submitted in 1996.

PASSIVE DEFENSE

The DoD NBC Defense Program fulfills joint passive defense requirements to permit U.S. forces to survive and fight in a NBC-contaminated environment. The CP Support Program enhances the NBC Defense Program by providing leveraging funds to accelerate fielding or development of critical programs, including remote biological agent detection systems. Over the past year, the Services have worked together to improve the joint orientation of NBC defense requirements, and the community is now better prepared to address shortcomings that still exist in the U.S. NBC defense posture. The established research, development, and acquisition program will resolve many shortcomings by executing current procurement plans and adapting available technologies. However, funding constraints will delay modernization and could effect training realism. Based on experiences in Operation Desert Storm, DoD identified the following shortfalls and issues related to NBC defenses:

- Biological defenses should be emphasized more fully in DoD programs.
- Inadequacies exist in CW/BW detectors, vaccines, and protective equipment.
- To ensure effective contamination avoidance on future battlefields, additional reconnaissance systems and standoff detection are required.
- Continued modernization of individual and collective protection, medical support, detection, identification, warning, and decontamination systems is required to ensure force survivability and mission accomplishment under chemical and biological warfare battlefield conditions.

Since the end of the Gulf War, significant and measurable progress has been made in addressing each of these

issues. The accomplishments and plans are detailed in the DoD NBC Warfare Defense Annual Report to Congress. Specific examples of new and improved systems that have been fielded include new protective masks, advanced chemical and biological protective garments, standoff laser chemical detectors, and first-ever capabilities for point biological agent detection and standoff aerosol/particulate detection. Additionally, there has been significant progress in research and development initiatives, particularly in the development of miniature, pocket-sized chemical agent detectors and digitally automated warning and reporting networks.

An integrated system-of-systems approach that incorporates detection systems, force protection, medical programs, and decontamination will provide the most effective means to ensure that U.S. forces will be ready to fight at the time and place of their choosing. Continued modernization of NBC defenses is necessary to counter an evolving threat. Robust defenses will also help deter NBC threats by reducing or eliminating the perceived utility and effectiveness of NBC weapons.

ACTIVE DEFENSE

Theater missile defense (TMD) is an essential element of DoD's approach to countering risks posed by NBC weapons delivered by cruise and ballistic missiles. Active defenses play an important role in protecting U.S., allied, and coalition forces, civilians supporting military operations, and noncombatants. By intercepting and destroying NBC-armed missiles and aircraft at effective distance and altitude, active defenses substantially enhance the ability of friendly forces to conduct successful military operations. The U.S. theater missile defense program is managed and funded by the Services, the Defense Advanced Research Projects Agency, and BMDO. The program calls for near-term improvements to existing systems, development of a new core set of TMD capabilities, and exploration of Advanced Concept Technology Demonstrations (ACTDs) and other risk reduction activities to complement the core programs. Efforts are aimed at gaining a better understanding of the atmospheric dispersion of chemical and biological agents, along with methods for neutralizing them upon intercept.

COUNTERFORCE

The CP Support Program funds projects to enhance U.S. military capabilities to identify, characterize, and neutralize NBC weapons, related facilities, and supporting infrastructure elements while minimizing and predicting the consequences of resulting collateral effects. The Counterproliferation ACTD — the core of the NBC counterforce effort — allows the operational community to evaluate and influence the development of NBC counterforce capabilities, while expediting emerging capabilities into concepts of operations. Key accomplishments include:

- Completion of static detonation and live weapon drops on a simulated BW storage facility to demonstrate the capabilities of NBC target planning tools and collateral effects prediction.
- Fielding of target planning tools to the United States European Command for use in Bosnia as part of Operation Joint Endeavor.
- Accurate atmospheric transport prediction of hazard plumes and successful completion of field demonstration of integrated hazard prediction tools in support of collateral effects assessment.
- Initiation of system design and penetration studies and initial sled testing of an advanced earth penetrating weapon.
- Demonstration of the ability of unattended ground sensors to locate and identify key components within a simulated NBC facility.

COVERT/TERRORIST NBC THREATS

The CP Support Program is coordinating its technology prototype development activities with the Technical Support Working Group, which develops joint interagency counterterrorism requirements, and with the Special Operations Command and joint Service explosive ordnance disposal (EOD) units to ensure relevance and responsiveness in meeting user needs. An effort is also underway to address critical shortfalls in adapting biological and chemical warfare defense technologies to meet the unique requirements of the special operations environment. Projects underway include development of NBC perimeter monitoring sensors, a vented suppressive shield to contain biological and chemical weapons effects, a Quick Mask for responsive protection against biological and chemical agents, a joint U.S.-Canadian EOD suit for biological and chemical threats, a nonintrusive chemical agent detection system, and a special chemical and biological agent sample extraction and rapid identification system.

Doctrine, Training, and Exercising for the Counterproliferation Mission

The Department's effort to counter proliferation threats is not limited to identifying needed military hardware. An equally important part of the job is to adapt joint doctrine, planning, training, and exercise policies in light of the operational implications of the threat or use of NBC weapons. The Department's April 1996 report to Congress on Nuclear/Biological/Chemical Warfare Defense stressed that joint NBC defense doctrine needs to continue to evolve and include joint tactics, techniques, and procedures. The United States Army Chemical School's joint doctrine cell is assisting in the development of updated Joint doctrine with the guidance of the Joint Staff. In addition, the regional commands, as part of their task to develop concept plans for operations in an NBC environment, are assessing more fully how regional proliferation risks may affect doctrine, operational concepts, and methods. A more thorough understanding of how routine military tasks may be affected by the presence of NBC weapons and associated delivery vehicles will, in turn, help DoD better define hardware requirements and the proper emphasis to be placed on various capabilities, including theater missile defenses, passive defenses; counterforce; and command, control, communications, and intelligence (C^3I).

The Department also continues to make extensive use of wargames and related activities to build a common understanding about warfighting issues associated with NBC proliferation. Senior civilian, Joint Staff, and Service officials participated in a series of seminars involving scenarios where a proliferant had used NBC weapons against U.S. forces in a regional setting. Participants' discussion about the potential political and operational impacts resulting from such uses reinforced the importance of maintaining a mix of capabilities in the face of proliferation risks and thinking about how NBC proliferation may affect the way the United States fights. In this connection, the Center for Counterproliferation Research at the National Defense University is continuing its assessment of potential employment doctrine of NBC-armed adversaries and how U.S. operational concepts and military operations could be adapted to improve the U.S. ability to prevail in an NBC environment.

Intelligence Support for Counterproliferation

The U.S. Intelligence Community, with a leading role played by the Defense Intelligence Agency, continues to improve its ability to provide DoD leaders the detailed information necessary to support efforts to discourage NBC acquisition, to deter the threat or use of NBC weapons by a proliferant, and to protect against potential NBC attacks on the United States, U.S. forces, and U.S. friends or allies. A high priority is being placed on assessing the intentions, programs, operational practices, and supporting infrastructure of countries of concern (Iran, Iraq, Libya, Syria, and North Korea), as well as countries who are also of concern as suppliers (China and North Korea). This underwrites DoD prevention efforts and provides a basis for military force structure development. Greater attention is also being given to operational intelligence (such as the location and characterization of NBC facilities, target vulnerability, early warning tracking data) and its timely dissemination, both of which are critical for planning defenses and responses to NBC threats.

Public Education

In April 1996, DoD released an unclassified document, *Proliferation: Threat and Response* (PTR), providing detailed information to the public about the threats to U.S. security and regional interests posed by the proliferation of NBC weapons and their delivery systems. PTR also described the steps being taken by the Department to respond to the NBC proliferation phenomenon. It laid the foundation for informed public policy debate about the political and military efforts needed to counter growing proliferation risks. Public interest in the document was overwhelming, including at U.S. universities and overseas. A second printing was ordered and the report is being used as a text in many of DoD's professional military education courses.

COOPERATING WITH INTERNATIONAL PARTNERS IN ADDRESSING SHARED RISKS

The Department is continuing to work with America's long-standing allies in Europe and elsewhere to develop common approaches on counterproliferation. Notably, the Department played the leading role in moving counterproliferation to the top of NATO's agenda.

The NATO Senior Defense Group on Proliferation (DGP), co-chaired by the United States and a European ally (currently Italy), was established in 1994 to determine the range of alliance and national capabilities needed in light of proliferation risks and to recommend improvements for NATO's defense posture to counter emerging threats from NBC weapons and their delivery

means. NATO's counterproliferation initiative is an integral part of the Alliance's adaptation to the post-Cold War strategic environment, in which the proliferation of NBC weapons can pose a direct threat to alliance security. As part of NATO's strategic reorientation toward greater security responsibilities beyond Europe, the DGP has recommended ways of improving the protection of allied forces deployed in new roles and missions, including operations beyond NATO's periphery where the military dangers posed by NBC proliferation are greatest. The DGP has recommended steps to ensure NATO develops needed defenses against biological weapons threats, which are of particular concern. In June 1996, the DGP presented its recommendations to NATO defense and foreign ministers. It stressed the importance of developing a core, integrative set of capabilities that will provide a basis for continuing capability enhancements and force improvements as proliferation risks evolve. This core set of capabilities includes:

- Strategic and operational intelligence, including early warning data.
- Automated and deployable command, control, and communications.
- Continuous, wide-area ground surveillance.
- Standoff and point BW/CW detection, identification, and warning.
- Extended air defenses, including theater ballistic missile (TBM) defense for deployed forces.
- NBC individual protective equipment for ground forces.

In many of these areas, NATO already has, or is on the way to developing, the requisite capabilities. DGP findings are intended to give impetus and added rationale for fielding such capabilities, as well as to demonstrate how supplementing this nucleus of capabilities with other means — including layered defenses against TBM attack, special munitions for NBC agent defeat and hardened NBC targets, computer modeling and simulation, and medical countermeasures — would strengthen the alliance's overall ability to discourage NBC proliferation, deter the threat of use of NBC weapons, and protect against NBC attacks.

In June 1996 — for the first time in 12 years — NATO's defense ministers launched an accelerated out-of-cycle force planning process for counterproliferation, through which allies are making resource commitments to develop and field needed capabilities. This extraordinary effort demonstrates how counterproliferation has become a top priority for NATO in the post-Cold War era.

NATO's counterproliferation initiative has also provided the context for discussions with Partnership for Peace countries, including Russia and Ukraine, on security challenges of mutual concern. Through these consultations, NATO is working to ensure interoperability and coalition effectiveness in future operations that include Partner countries.

Countries outside of NATO have also recognized the growing security risks posed by proliferation. DoD has bilateral or collective defense arrangements with many nations and conducts combined operations with their militaries. Many countries have also participated in — and will likely do so in the future — international coalition operations in which the presence of NBC weapons has been a factor. For these reasons, DoD has held discussions with long-time friends and allies to forge common approaches for improving military capabilities in the face of NBC risks. The Technical Cooperation Program with Australia, Canada, New Zealand, and the United Kingdom pursues defense research collaboration to facilitate cooperation in research and development in several technology areas, including chemical defense. In addition, the Tri-Partite Memorandum of Understanding with Canada and the United Kingdom seeks to enhance cooperation in the RDT&E of chemical and biological defense programs.

These international activities demonstrate that the United States is not alone in its concerns for the defense dimension of proliferation. The Department remains committed to building international partnerships with allies and friends whose security and national interests are threatened by NBC proliferation.

TREATY ACTIVITIES — THREAT REDUCTION THROUGH ARMS CONTROL

The United States is a party to a number of agreements with states of the former Soviet Union or the former Warsaw Pact relating to the control of nuclear and conventional weapons and their delivery systems. While most of these treaties have their origins in the Cold War, they remain important by providing legally binding mechanisms for reducing (and in some cases eliminating) categories of arms, as well as enhancing

confidence and international stability. The Department of Defense plays a key role in the development of U.S. arms control policy, the formulation of proposed new arms control measures, and the resulting negotiation and implementation of arms control agreements. The Department is also responsible for ensuring U.S. compliance with its arms control obligations. A unique DoD element, the On-Site Inspection Agency (OSIA), performs inspection, escort, and monitoring functions associated with verification of arms control treaties and agreements.

START I

The Strategic Arms Reduction Treaty (START I), that was signed in 1991 and entered into force in December 1994, is the first treaty actually to reduce the number of the superpowers' deployed strategic offensive arms. START requires the parties to reduce the number of accountable strategic warheads by over 40 percent and to reduce the number of strategic nuclear delivery vehicles (for example, missile launchers and heavy bombers) by roughly one-third from pre-START I levels. Reductions are divided into three phases, with the treaty's final limits to be achieved by December 2001.

START I was originally concluded between the United States and the Soviet Union; Russia, Belarus, Kazakstan, and Ukraine formally became parties with the United States to START I through the Lisbon Protocol, an agreement concluded after the breakup of the Soviet Union. In documents associated with the signing of the Lisbon Protocol in May 1992, Belarus, Kazakstan, and Ukraine agreed to eliminate all strategic offensive arms from their territories within the seven year START I reduction period and to accede to the Nuclear Non-Proliferation Treaty, as nonnuclear weapon states.

The Lisbon Protocol, in conjunction with the Russian-United States-Ukrainian Trilateral Statement, also provided the basis for the removal of all nuclear weapons from Kazakstan in 1995, from Ukraine in May 1996, and from Belarus by the end of 1996. As of November 1996, over 3,400 strategic warheads have been transferred to Russia from Belarus, Kazakstan, and Ukraine.

START I Limits — Table 2

	Phase I Limits (December 5, 1997)	Phase II Limits (December 5, 1999)	Final Limits (December 5, 2001)
Strategic Delivery Vehicles	2,100	1,900	1,600
Total Accountable Warheads	9,150	7,950	6,000
Ballistic Missile Warheads	8,050	6,750	4,900
Heavy ICBM Warheads	*	*	1,540
Mobile ICBM Warheads	*	*	1,100

* Not applicable.

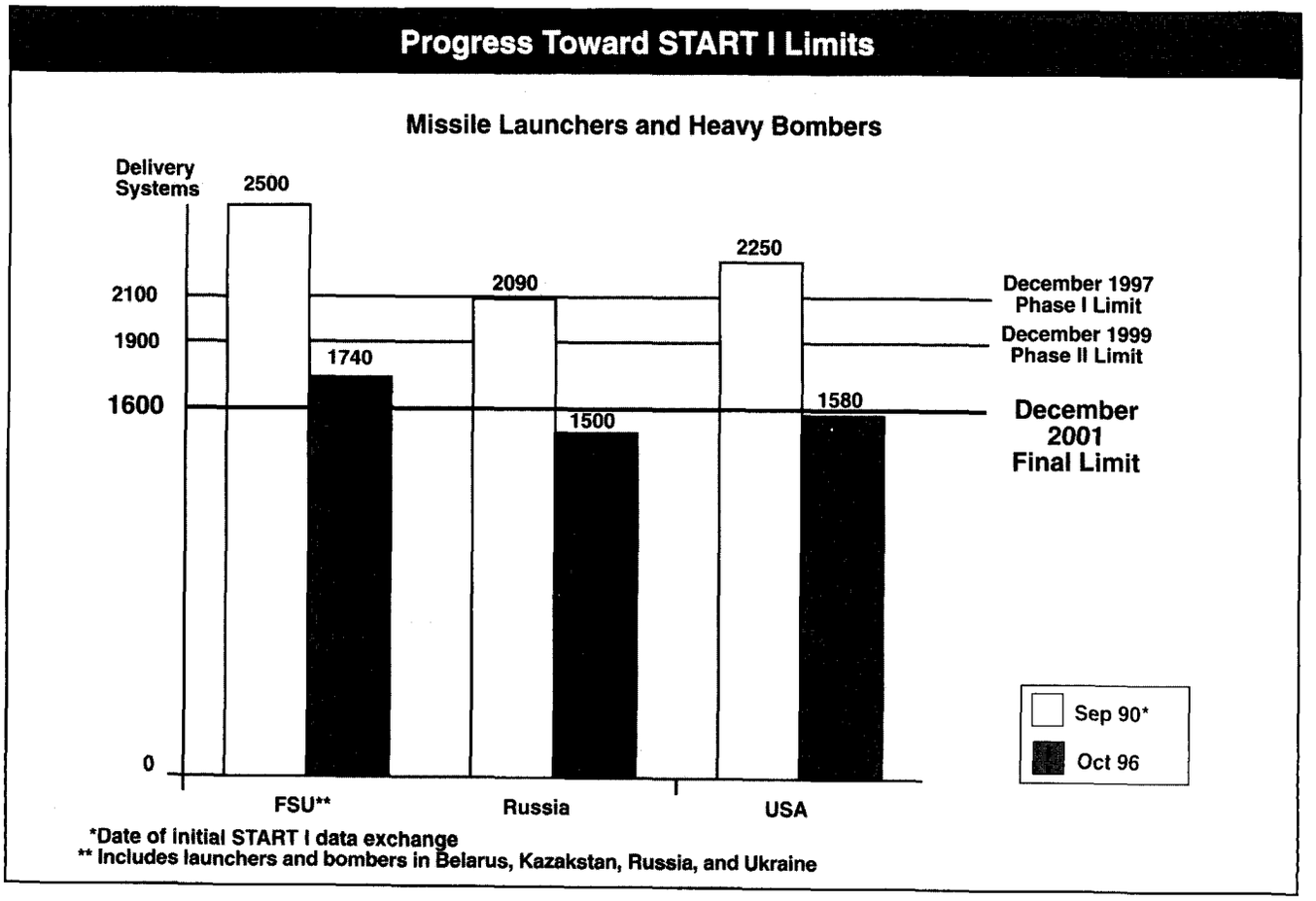
The sides began reductions of older systems well ahead of entry into force of the Treaty and continued their activities related to the elimination of ballistic missile launchers and heavy bombers throughout 1996. By October 1996, over 850 missile launchers and bombers had been removed from START accountability in Belarus, Kazakstan, Ukraine, and Russia. As a result of these eliminations, the former Soviet states are already well below the second intermediate ceiling on deployed missile launchers and bombers, ahead of the required schedule. The United States is helping the four former Soviet states to carry out their treaty obligations under the Cooperative Threat Reduction Program. The United States, for its part, has removed warheads and missiles from most of the missile launchers to be eliminated under START I and has retired and moved to a central elimination facility all heavy bombers earmarked for dismantlement under the Treaty. The United States has also eliminated 800 strategic missile launchers and heavy bombers and has completed almost 70 percent of the warhead reductions required to meet the START I limit on total accountable warheads. As a result of these activities, the United States has already met the final START I limit on missile launchers and heavy bombers five years early.

The entry into force of START I ushered in a verification regime of unprecedented complexity and intrusiveness. In addition to verification by national technical means, data notifications, missile flight test telemetry exchanges, and other cooperative measures, the Treaty provides for 12 types of on-site inspections and exhibitions, as well as continuous on-site monitoring activities at specified facilities. During 1996, the Treaty parties continued to conduct on-site inspections at current and former strategic installations in the United States and

former Soviet Union. The United States hosted over 25 such on-site inspections at DoD facilities. DoD representatives also participate in meetings of the START Joint Compliance and Inspection Commission (JCIC). The JCIC, convened periodically in Geneva, provides a forum for the five START parties to discuss issues relating to compliance with START obligations and to agree on practical measures to improve the Treaty's viability and effectiveness.

START II

The START I Treaty set the stage for a subsequent agreement between Russia and the United States further reducing strategic offensive arms, known as START II. START II, signed by President Bush and President Yeltsin in January 1993, makes unprecedented reductions in U.S. and Russian nuclear forces and codifies rough strategic equivalence at much lower levels. START II will reduce deployed strategic nuclear forces by about two-thirds from pre-START I levels. In addition, the Treaty will eliminate all multiple warhead (multiple, independently-targeted reentry vehicle (MIRVed)) intercontinental ballistic missiles (ICBMs) and, for the first time, will place limits specifically on submarine-launched ballistic missile (SLBM) warheads. START II also eliminates the discount provisions from START I warhead counting rules. Instead, bombers will be attributed with the number of weapons for which they are actually equipped. START II ensures the drawdown of nuclear forces will occur in a favorable direction — away from large, vulnerable, first-strike missiles such as the Russian SS-18 and towards weapons better suited for a retaliatory role. Such a force will enhance stability by eliminating the pressure to use MIRVed ICBMs quickly in a crisis, lest they be destroyed in an attack.



START II's reductions are to be completed by January 1, 2003. The United States has offered to help Russia implement its START II reductions by providing assistance through the Cooperative Threat Reduction Program.

With the Senate's vote to ratify START II, the United States now awaits action by the Russian legislature to approve the treaty. DoD has worked closely with other agencies in encouraging members of the Russian State Duma and Federation Council to vote in favor of START II ratification. Consistent with an agreement that President Clinton and President Yeltsin reached during the September 1994 Summit, successful ratification and entry into force of START II will provide the United States and Russia the opportunity to negotiate further reductions in their nuclear weapons.

Pursuant to legislation that prohibits DoD from retiring strategic forces below START I levels until START II enters into force, however, the Department has concluded a review of the cost to keep forces at START I levels, and it is budgeting to do so.

Table 3
START II Limits

	START I Final Limits (December 5, 2001)	START II Final Limits (January 1, 2003)
Total Strategic Warheads	6,000 accountable	3,000-3,500 actual
Ballistic Missile Warheads	4,900	*
MIRVed ICBM Warheads	*	0
SLBM Warheads	*	1,700-1,750
Heavy ICBM Warheads	1,540	0
Mobile ICBM Warheads	1,100	START I applies

* Not applicable.

Intermediate- and Shorter-Range Nuclear Forces

The Treaty on Elimination of Intermediate-Range and Shorter-Range Missiles, Intermediate- and Shorter-Range Nuclear Forces (INF) Treaty, signed by the United States and the Soviet Union in 1987, entered into force in 1988. It required the elimination of ground-launched ballistic and cruise missiles with ranges between 500 and 5,500 kilometers. All such declared missiles were eliminated by mid-1991. The INF Treaty is of unlimited duration, prohibiting production and possession of missiles subject to its terms. Its inspection regime, consisting of short-notice inspections at former INF facilities and continuous portal monitoring of certain missile production facilities, remains in force. DoD personnel are key participants in these inspection and monitoring activities and take part in the INF Special Verification Commission, at which the United States, Russia, Belarus, Kazakstan, and Ukraine meet to discuss and resolve Treaty implementation and compliance issues.

Anti-Ballistic Missile Treaty

The Anti-Ballistic Missile (ABM) Treaty, signed in May 1972 by the United States and the Soviet Union, limits anti-ballistic missile systems (for example, systems which counter strategic ballistic missiles). The Treaty has contributed to the creation of more favorable conditions for further negotiations on limiting strategic offensive arms. The breakup of the USSR created the need to determine the status of ABM Treaty-related facilities now located in several New Independent States and to determine which state/states should succeed the USSR as Parties to the ABM Treaty. Together with those states that so far have demonstrated an interest in becoming parties to the ABM Treaty (Belarus, Kazakstan, Russia, and Ukraine), the United States has been negotiating an agreement that would establish the process and conditions under which Soviet successor states may do so. The United States expects these four states to elect to become Treaty parties; it remains to be seen whether any others will.

With the proliferation of theater ballistic missiles among third world nations, the United States plans to develop and deploy highly capable TMD systems. Although the ABM Treaty does not address TMD systems per se, it does require that non-ABM missiles, launchers, and radars not be given capability to counter strategic ballistic missiles and not be tested in an ABM mode. The Administration believes that clarification of the distinction between ABM systems, which are limited by the ABM Treaty, and non-ABM systems, which are not so limited, is necessary. The United States is seeking that clarification within the framework of the Standing Consultative Commission.

U.S. TMD programs are going forward without ABM Treaty constraints on the capabilities necessary to meet

TMD requirements. All U.S. TMD programs that have matured to the point where it is possible to assess compliance have been determined to comply with the ABM Treaty.

Conventional Armed Forces in Europe Treaty

The Treaty on Conventional Forces in Europe (CFE), signed in November 1990, formally entered into force in November 1992. The treaty required the destruction of thousands of tanks, artillery pieces, armored combat vehicles, attack helicopters, and combat aircraft. The reductions were initially designed to achieve parity between NATO and the former Warsaw Pact. Although the groups of nations are no longer aligned as the Treaty envisioned, CFE still provides the cornerstone for the future security environment in Europe.

Over 2,000 inspection teams from virtually all 30 states have inspected units, formations, and destruction facilities of other participants routinely and as intended by the Treaty, verifying information concerning those units which have been provided annually by each nation. The Department of Defense continues to play a very active role in the verification and compliance activities associated with the CFE Treaty.

The Treaty has completed the 40 month reduction period, during which over 58,000 pieces of equipment were destroyed. The Treaty is now in the Residual Period, which lasts indefinitely. A CFE Treaty Review Conference, which reviewed Treaty operation and implementation for the first five years, was conducted in May 1996. One result of this conference was to begin the process of adapting the Treaty to bring it in line with evolving security structures in Europe, with negotiations beginning in early 1997. In addition, at the Review Conference the 30 CFE parties approved an agreement to realign the flank region of the CFE map, along with new constraints, additional information, and inspections for that area. Parts of the flank agreement are provisionally applied until mid-May 1997, by which time all parties will have confirmed their final approval of the document, including the United States.

In 1996, the On-Site Inspection Agency participated in over 52 inspections under the Treaty in states of the former Warsaw Pact and escorted foreign teams during 11 inspections of U.S. forces in Europe.

Open Skies Treaty

The Open Skies Treaty, signed March 24, 1992, in Helsinki, establishes a regime of unarmed aerial observation flights over the entire territory of its 27 signatories. The United States ratified the Open Skies Treaty in December 1993. The Treaty is designed to enhance mutual understanding and confidence by giving all participants, regardless of size, a direct role in observing military or other activities of concern to them through the collection of photographic and other specified data. Ongoing technical issues regarding Treaty implementation are being worked by the Open Skies Consultative Commission in Vienna. DoD continues preparations for treaty implementation. U.S. Open Skies aircraft, operated by the United States Air Force and staffed by OSIA, participated in 12 trial flights in 1995. During 1996, numerous aircraft flight tests and data collection flights led to the roll-out of the first fully operational capable aircraft. A successful practice U.S. certification event was conducted at Wright-Patterson Air Force Base, Ohio, with 45 participants from 18 signatory countries. Eight trial flights occurred, of which five joint trial flights were conducted in other countries. Treaty entry into force is awaiting ratification by Russia, Ukraine, and Belarus.

The On-Site Inspection Agency

The On-Site Inspection Agency is a joint-Service defense agency whose charter has been continuously expanded to assist in strengthening arms control and nonproliferation norms. Since January 1988, OSIA has been tasked by Presidential directives with ensuring U.S. readiness for and implementation of inspection, escort, and monitoring activities related to verification provisions of several conventional and strategic arms control treaties and agreements.

Because of its extensive operational expertise and experience, OSIA has been tasked to execute other missions that require its unique resident skills and organization, for example, the audit and examination provisions of agreements concluded under the Nunn-Lugar Cooperative Threat Reduction Program. OSIA also serves as Executive Agent for DoD support to the United Nations Special Commission on Iraq that fulfills Security Council Resolutions 687 and 715 and as the DoD Executive Agent for the Defense Treaty Inspection Readiness Program (DTIRP), a security and countermeasures program under the auspices of the Office of the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence. As Executive

Agent for DTIRP, OSIA works closely with its peers in U.S. industrial facilities and at military installations targeted for on-site inspections. Agency technicians, trained in arms control security awareness techniques, develop site-specific procedures that help ensure foreign inspection team access does not result in the loss of proprietary or sensitive information. Another mission assigned to OSIA involves its direct support (to include training, inspections, and technical advice) to the on-site arms control and Confidence and Security Building Measures (CSBMs) inspections conducted pursuant to the Dayton Agreement.

To better support implementation of arms control agreements and in-county activities under the Cooperative Threat Reduction Program, OSIA has established four Arms Control Implementation Units to serve as forward posts for arms control and defense-related functions and provide vital liaison functions with U.S. embassies in Moscow, Kiev, Minsk, and Almaty.

CONCLUSION

By means of the Counterproliferation Initiative and active involvement in the implementation and verification of arms control treaties and agreements, DoD is focused squarely on the challenge of reducing the dangers from weapons of mass destruction and improving international stability and security, while maintaining capabilities to respond to any threat. The Department's aggressive leadership in counterproliferation and threat reduction, manifest through numerous concrete programs and activities, has yielded substantial results and will continue to be vital in achieving national objectives in this area.

Chapter 7

COOPERATIVE THREAT REDUCTION

With the demise of the Soviet Union and the end of the Cold War, the level of nuclear threat confronting the United States was reduced significantly. Yet, when the Soviet Union disintegrated, an estimated 26,800 strategic and tactical nuclear warheads remained in Russia and approximately 3,200 were spread through Belarus, Kazakstan, and Ukraine. Internal conditions heightened the belief that the former Soviet republics would not be able to provide for safe disposition and security of these nuclear weapons or other weapons of mass destruction (WMD).

Possible consequences posed by this situation were clear: diversion or unauthorized use of weapons, diversion of fissile materials, and possible participation of Soviet weapons scientists in proliferation efforts in other countries. Despite other positive changes occurring in the nuclear inheritor states, these weapons continued to pose a threat to U.S. national security.

Taking advantage of a historic opportunity, Congress initiated the Cooperative Threat Reduction (CTR) program in November 1991, to reduce the threat to the United States from these weapons of mass destruction. Often referred to as the Nunn-Lugar program, this congressional effort provided the Department authority and funding for the CTR program. Through the CTR program, DoD provides assistance to the eligible states of the former Soviet Union to promote denuclearization and demilitarization and to reduce the threat of WMD proliferation.

A DYNAMIC PROGRAM

Since FY 1992, legislation has provided the Secretary of Defense a total of $1.9 billion in obligation authority. Of this amount, $368 million has been lost due to congressional reductions and expiration of funds. Actual authority, considering the withdrawn or expired funding, as of September 1996, is $1.5 billion in CTR assistance in the form of signed agreements and other support to Russia, Ukraine, Belarus, and Kazakstan.

A CTR Program Office within the Office of the Secretary of Defense plans future assistance activities supporting CTR goals, works with representatives in recipient nations to identify specific needs, and oversees the contracts awarded almost entirely to American firms to implement assistance projects. Since the CTR program provides goods and services — rather than cash — expenditures are directly related to demilitarization, denuclearization, dismantlement, and proliferation prevention efforts.

The CTR experience in Ukraine illustrates both the challenges of implementing assistance programs and the benefits of cooperation. While Ukraine pledged in the 1992 Lisbon Protocol to become a nonnuclear weapons state, the actual process of withdrawing warheads to Russia was not agreed upon until the United States concluded the Trilateral Agreement with Russia and Ukraine. Critical to the success of these negotiations was the United States' promise of CTR assistance. The agreements to begin the CTR program were not concluded until December 1993 — two years after discussions began.

CTR PROGRAM OBJECTIVES

The CTR program objectives below were established by Congress and provide guidance for U.S. implementation:

- Assist the former Soviet states to destroy nuclear, chemical, and other weapons of mass destruction.
- Transport, store, disable, and safeguard weapons in connection with their destruction.
- Establish verifiable safeguards against the proliferation of such weapons.
- Prevent diversion of weapons-related scientific expertise.
- Facilitate demilitarization of defense industries and conversion of military capabilities and technologies to civilian activities.
- Expand defense and military contacts between the United States and the nuclear successor states.

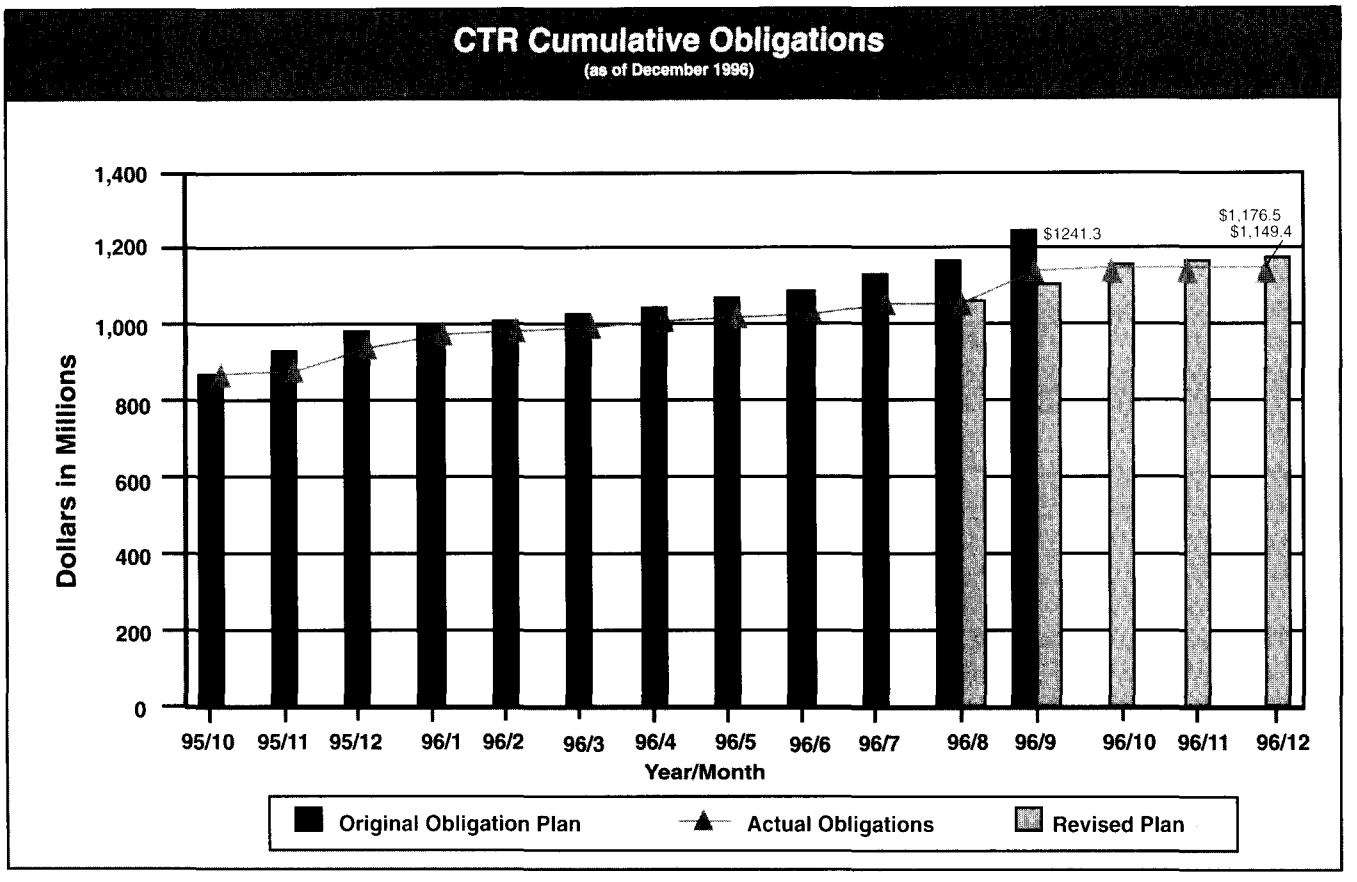
These objectives and the corresponding CTR program activities are inextricably linked. Meeting the objective of safeguarding nuclear weapons in Russia, for instance, will also help prevent proliferation, a growing concern in light of instances of nuclear smuggling.

CTR program activities generally fall into four categories. First, destruction and dismantlement activities accelerate the destruction and dismantlement of weapons of mass destruction, their launchers, and their infrastructure in the four eligible nuclear successor states. Destruction and dismantlement activities provide actual equipment, training, and services required to implement dismantlement decisions as leverage to encourage these countries to dismantle.

Second, through chain of custody and nonproliferation activities, the CTR program decreases the proliferation dangers from the nuclear warheads and fissile materials that remain in the nuclear successor states and represent a potential threat to the United States. During the difficult period of transition in these states, the continued security and custody of nuclear weapons and fissile materials are vitally important to both the United States and the nuclear successor states.

Third, CTR supports demilitarization/defense conversion efforts that decrease the long-term threat by reducing the capacity and economic pressures in the nuclear inheritor states to continue to produce weapons of mass destruction. The defense conversion industrial partnership projects in CTR are an effort to reduce the potential of a future nuclear threat at its source. In addition, the CTR-supported International Science and Technology Center (ISTC) in Russia, through which proposals from Kazakstan and Belarus are channeled, and the Science and Technology Center in Ukraine, examine and allocate funding to projects that engage weapons scientists in the nuclear successor states in nonweapons-related work. The transformations created through the defense conversion industrial partnership arrangements and the ISTCs aim to prevent proliferation by reducing the availability of weapons of mass destruction for foreign sale or diversion, and the incentives for relying on such sales for income.

Finally, the CTR program supports other programs like the expansion of defense and military contacts with the nuclear successor states. When the Soviet Union dissolved, the new republics retained significant military forces. The United States, through defense and military contacts, has assisted the development of democratic and civilian control of military departments and the restructuring and downsizing of defense capabilities to better reflect these new nations' needs. For example, the CTR program sponsors regular exchanges on defense strategy and attempts to instill transparency of budgets and programs. These exchanges educate the foreign military staffs on the role and functions of the military in western society. These countries will remain important players in world events and the United States benefits greatly from the close contacts among these militaries and their U.S. defense counterparts. These contacts are part of U.S. efforts across the board to expand the domain in which U.S. security interests coincide, rather than conflict, with those of the nuclear successor states.



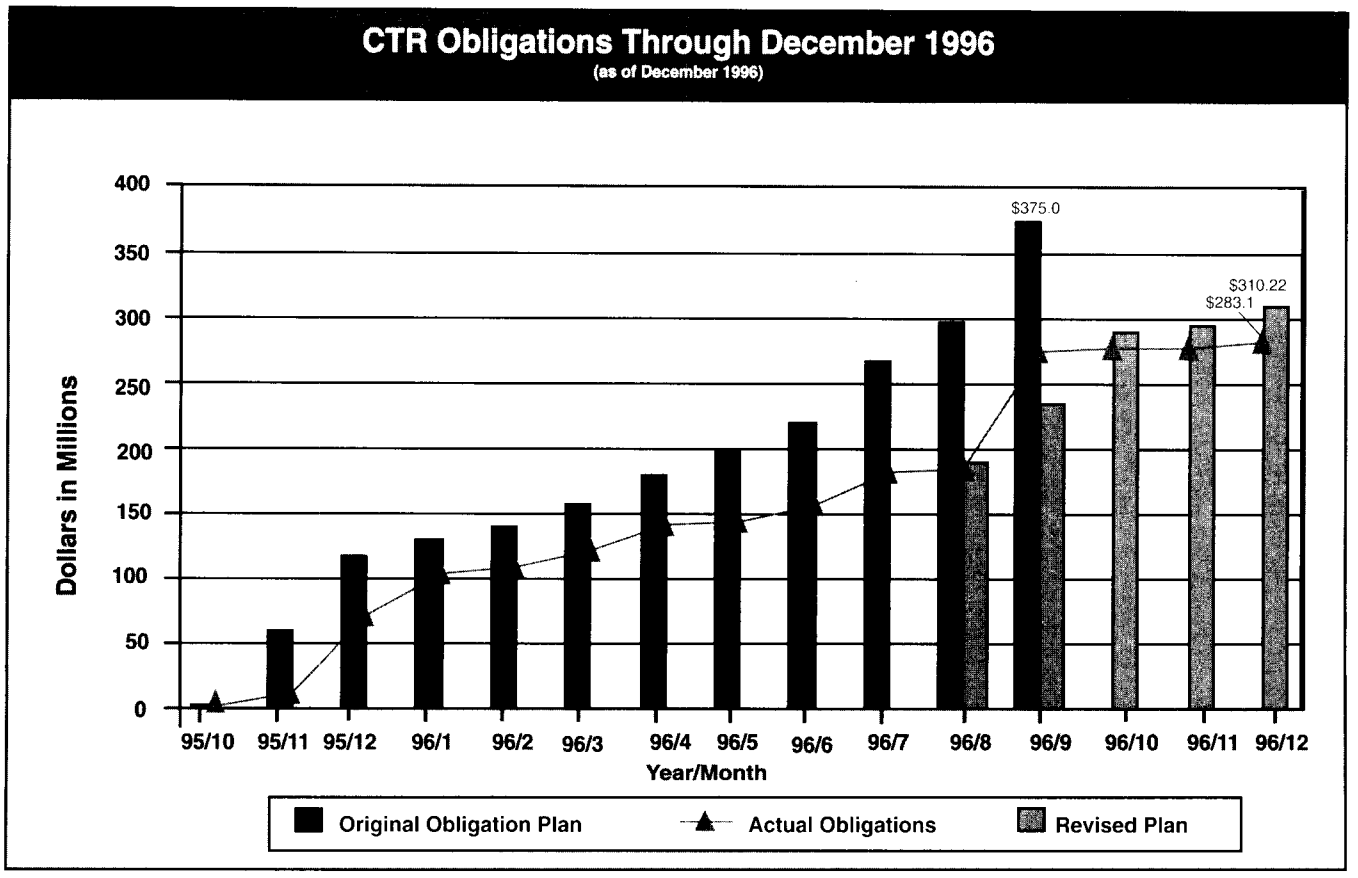
PROGRESS IN CTR IMPLEMENTATION

To meet CTR program objectives, assistance is provided to Belarus, Kazakstan, Russia, and Ukraine pursuant to umbrella agreements that establish a legal framework for CTR assistance activities. Each of these four umbrella agreements provides a system of rights, exemptions, and protections for U.S. assistance personnel and for CTR activities and designates executive agents to implement CTR assistance programs for each government. For the United States, DoD is the designated executive agent. Each of the four umbrella agreements authorizes the conclusion, by the executive agents, of implementing agreements that are subject to and governed by the terms of the umbrella agreement and provide more detailed terms for specific assistance projects.

As of September 1996, 34 such implementing agreements have been concluded by the Department of Defense — 12 with ministries of the Russian Federation, eight with ministries of Ukraine, and seven with ministries of the Republics of Kazakstan and Belarus. In addition, four separate memoranda of understanding between the Department of Defense and counterpart defense ministries address defense and military-to-military relations.

Execution of the implementing agreements has accelerated over the past three years. By the end of FY 1994, DoD obligated $434 million. By the end of FY 1995, obligations had almost doubled, with total obligations of over $866 million. By the end of FY 1996, DoD obligated approximately $1.1 billion. More importantly, the total assistance committed under contracts and other support with DoD and for which implementation is actually underway is now almost $1.2 billion, of which $765 million has been disbursed.

The CTR process from negotiation, to project formulation, to requirements definition, to final execution involves many steps in the respective state-to-state relationships, as well as within the U.S. government. Congress directed that American contractors be used for CTR support to the extent feasible, and agreements with recipient governments make U.S. contracting laws applicable to CTR activities.



Accordingly, DoD contracting for CTR goods and services is based on Federal Acquisition Regulations. In the final analysis, CTR benefits the U.S. economy by providing additional jobs for American workers and expanded markets for U.S. corporations. The United States is not the only country providing assistance to the nuclear successor states for dismantlement and is closely coordinating its assistance efforts with its allies through NATO and G-7 forums, eliminating needless duplication.

To ensure assistance provided under CTR is used as intended, CTR agreements include provisions for the United States to conduct audits and examinations (A&E) of the assistance provided. The United States has conducted 25 A&Es in the nuclear successor states (Russia (9), Ukraine (7), Belarus (6), Kazakstan (3)). At least one A&E is projected for every month through the year 2001. It is important to note that CTR A&Es are not arms control inspections, but formal checks to ensure goods and services provided through the Nunn-Lugar program are used for the intended, agreed-upon purpose.

REDUCING THE THREAT

CTR activities contributed significantly to the reduction of the threat over the past four years. The U.S. offers of assistance under the program were instrumental in convincing Belarus, Kazakstan, Russia, and Ukraine they could shoulder the economic, political, and technical burdens of weapons dismantlement and demilitarization. Since the dissolution of the USSR, the CTR program has assisted the four states possessing portions of the Soviet nuclear arsenal with the elimination (or, in the case of Russia, reduction) of WMD; proliferation prevention efforts; and the dismantlement and transformation of WMD-associated infrastructure.

Through the provision of equipment and technical expertise, the CTR program supported Belarus in becoming a nonnuclear weapons state in November 1996 in accordance with START I and the Nuclear Non-Proliferation Treaty (NPT). Ukraine became a nonnuclear weapons state in June 1996. The CTR program also facilitated Kazakstan becoming nuclear-free in the spring of 1995. Since the inception of the CTR program,

the following positive developments in the nuclear successor states have occurred:

- Withdrawal of all strategic warheads — about 3,400 — to Russia from Kazakstan, Belarus, and Ukraine. Most of these warheads are expected to be dismantled in Russia.
- Ukrainian decision to denuclearize and accede to the NPT as a nonnuclear weapons state.
- Early deactivation of all Ukrainian SS-24 intercontinental ballistic missiles (ICBMs).
- Purchase and transfer of 600 kilograms of weapon-usable uranium from Kazakstan to the United States.
- Completed removal of SS-18 missiles from Kazakstan.
- Safe and secure withdrawal of 81 SS-25 mobile ICBMs and launchers from Belarus to Russia.
- START Treaty communication links in place.
- Design and construction ongoing of a fissile material storage facility to safely and securely store fissile materials from dismantled weapons in DoD-provided containers.

Future CTR assistance is planned to help Russia meet its START II obligations in weapons reductions. CTR is assisting Russia in meeting and accelerating its START Treaty obligations and in complying with the Chemical Weapons Convention once the latter enters into force. CTR assistance has also expedited Russia's compliance with START levels, by contributing to the following developments:

- Removal of over 1,200 strategic warheads from deployed systems.
- Elimination of 128 submarine-launched ballistic missiles launchers (including eight ballistic submarines).
- Elimination of 150 ICBMs and their silos.
- Elimination of approximately 35 strategic bombers.

CTR assistance also has procured a U.S. prime contractor to assist the Russian Federation in planning its chemical weapons destruction program.

To enhance the safety, security, and control of fissile material and nuclear weapons in Russia, CTR assistance provided the following:

- Installed security and safety enhancements to Russian nuclear weapons transport railcars.
- Supported design and construction of a fissile material storage facility.
- Provided storage facility construction equipment and containers for storing and transporting fissile materials from dismantled nuclear weapons.
- Provided U.S. integrating contractor for design and construction support assistance at the storage facility.
- Established a DoD team at Mayak to supervise construction of and manage DoD-provided support assistance for the storage facility.
- Delivered armored blankets for enhanced security of nuclear weapons during transport.
- Initiated assistance for enhancing the security of nuclear weapons storage sites.
- Initiated procurement and training on DoD-provided computers to assist Russia in improving its control and accounting of nuclear weapons.
- Provided nuclear emergency response equipment and training.
- Initiated procurement of supercontainers to transport safely and securely Russian nuclear weapons to dismantlement facilities.

U.S. assistance helps give Russian authorities the confidence to proceed with warhead consolidation and eventual dismantlement. Thus, CTR not only helps to alleviate physical bottlenecks, but also provides an incentive for improvements in security.

CTR also contributed to additional proliferation prevention efforts. Over 17,000 former Soviet weapon scientists and engineers once engaged in WMD research are now involved in civilian research projects through the International Science and Technology Center in Moscow and the Science and Technology Center Ukraine, thus reducing the threat of the possible transfer of WMD expertise to nonnuclear capable states.

Conditions of instability, uncertainty, and strife still exist within the nuclear successor states. The CTR program is responding to these challenges with a program plan designed to continue and accelerate WMD threat reduction through FY 2001. CTR materially and observably reduced threats to the United States and provides the means for continuing to do so in the future.

AN INTEGRATED APPROACH

These successes come not as the result of isolated donations of equipment, but are a product of the close interaction between representatives of the United States and the recipient nations. This integrated approach highlights the importance of all elements of the program to the goals it seeks to achieve.

In an effort to speed the specific action that eliminated much of the direct threat to the United States — removing warheads from missiles — the United States offered to accelerate delivery of materials useful for early deactivation. The fruits of this effort were dramatically visible when Secretary Perry joined the Russian and Ukrainian defense ministers in January 1996 in Pervomaysk, Ukraine, to jointly destroy a silo, which was accomplished under a CTR contract. In July 1996, these three defense ministers met once again in Pervomaysk to commemorate Ukraine, once the third-largest nuclear power in the world, becoming a nuclear weapons-free nation. Sunflowers were planted on what was previously a missile field to symbolize this new era. In October 1996, Secretary Perry traveled with Senators Nunn, Lugar, and Lieberman to Severodvinsk, Russia, to witness the dismantlement of a Russian missile submarine. These are vivid examples of the effectiveness of CTR in helping to neutralize a nuclear system which until very recently had posed a direct threat to the security of the United States.

Tangible initial successes proved to be the foundation upon which further CTR assistance for the dismantlement and destruction of SS-19 ICBMs is built. CTR assistance was directed to remove potential choke points in the long and difficult process of dismantling the SS-19 systems located on Ukrainian territory. Some examples of the program's successes in this regard include:

- Construction of the SS-19 ICBM storage yard.
- Construction of the SS-19 dismantlement facility.
- Procurement of storage tanks for liquid rocket fuel.
- Purchase of equipment needed for silo dismantlement.

The CTR program also sponsored a continuous series of defense and military contacts which went far to assure Ukraine that the United States (and the West) had an interest in Ukraine's stability and success beyond eliminating nuclear weapons from its soil. The United States has provided expertise and support in helping Ukraine develop a national armed force that reflects its sovereign needs, through visits to U.S. training centers and other activities.

This integrated approach addresses the full scope of the challenge facing these nations in completing their arms control agreements and preventing further nuclear dangers from threatening themselves or others.

FUTURE PRIORITIES

In spite of the progress made by the CTR program, a great deal of work still needs to be done. The program will continue to provide Russia, Belarus, Kazakstan, and Ukraine with destruction and dismantlement assistance directed toward accelerating strategic offensive arms elimination. CTR assistance will be used to support ongoing deactivation and dismantlement of strategic nuclear systems — missiles and launchers, heavy bombers, and missile carrying submarines — according to START I and the January 1994 United States-Russian-Ukrainian Trilateral Agreement. It will also support and accelerate elimination of Russian strategic delivery systems under START II.

The CTR program will also continue to provide assistance to enhance the safety and security of nuclear weapons and fissile materials with emphasis on strengthening the entire chain of custody from eliminating and dismantling the weapons, to advancing the design and construction of a fissile material storage facility in Russia, and to monitoring the storage of the plutonium resulting from dismantlement. Plans call for CTR to provide additional assistance to the Russian Ministry of Defense to strengthen weapons security by enhancing physical security at storage sites, and to advance control and accounting by building upon existing Russian national material control and accounting

and physical protection policies and practices. Specifically, future CTR assistance will assist Russia in developing programs and national resources to ensure the effective regulatory oversight of nuclear weapons and fissile material control and accounting and physical protection policies.

Another key CTR project involves assisting Russia to destroy the 40,000 metric tons of declared chemical weapons agents inherited from the Soviet Union. Without substantial technical and monetary assistance from the United States and other countries, Russia will have difficulty complying with the Chemical Weapons Convention destruction schedules. Through the CTR program, the United States is considering substantial assistance in the design and construction of a prototype chemical munitions destruction facility capable of destroying 500 metric tons per year of nerve-agent-filled artillery munitions.

CONCLUSION

The CTR program represents a small investment when compared to the overall size of the DoD budget. This modest investment, $1.5 billion since FY 1992, has been responsible for many accomplishments. Continuing the CTR program will allow the United States to pursue not only the objectives specific to this program, but also overarching objectives and interests bearing on U.S. national security and global nuclear stability. This will be made possible by a program whose FY 1997 budget of $328 million represented less than two-tenths of one percent of the entire DoD budget. This is a program of preventive defense, a modest investment with a big payoff for U.S. security. By maintaining this program of defense by other means, the United States will continue to enhance its national security now and in the future.

Chapter 8

TECHNOLOGY FOR 21ST CENTURY WARFARE

Events of the past decade have demonstrated that U.S. forces must be prepared both to confront a wide range of potential opponents and to execute diverse missions ranging from combat operations to peacekeeping and disaster relief. In the future, U.S. military forces will be challenged to adapt to new and even more diverse military missions.

Two major trends will influence how the Department of Defense will conduct successful military operations in the 21st century. The first is the tremendous explosion in new technologies. Capabilities available today were not well understood just several years ago. Depending on their economic growth and credit worthiness, potential opponents will be able to buy significant capabilities from a global market containing a vast array of these modern and emerging technologies. These technologies include advanced air, sea, and land weapon systems; space-based systems, dual-use technologies that can be used to support production of weapons of mass destruction; and sophisticated communications and information management systems. The second is the challenge of resources. The need to contain the growth of future defense budgets, the downsizing of the Services, and expanding missions require that the Department shape its forces to meet the challenges of a changing world within resource constraints.

REVOLUTION IN MILITARY AFFAIRS

The challenges the Department faces today and will encounter in the future must be addressed within the context of confronting a wide range of military missions and opponents with access to the most modern weapons. To respond effectively to present and future military challenges and remain within the constraints of the military budget, the Department is examining the process of military innovation from an historical context. The objective of this examination is to understand how innovative adaptation of new technologies fostered new operational and organizational changes, resulting in dramatic improvements in the warfighting capability of U.S. forces. This initiative is the foundation of the emerging Revolution in Military Affairs (RMA). In studying historical examples, the Department is seeking to understand whether recently fielded and emerging technologies, in combination with organizational and operational changes, will produce dramatic improvements to better prepare U.S. forces to face the future.

From the historical perspective, an RMA occurs when the incorporation of new technologies into military systems combines with innovative operational concepts and organizational adaptations to fundamentally alter the conduct of military operations. In discussing the RMA, it is important to understand that the process of change is not necessarily rapid. Past revolutions have often unfolded over a period of decades. More often than not, the change is considered revolutionary rather than evolutionary because new technologies, when combined with new methods of warfare, have proved far more powerful than the old and dramatically altered scope and application of military power. Twentieth century examples of RMAs include strategic bombing, the blitzkrieg, carrier aviation, amphibious warfare, and strategic nuclear weapons. Some maintain the introduction of stealth technology represents the commencement of a new RMA.

Through a process of study, discussion, and wargaming, two ideas have emerged that suggest how emerging technology and concepts may alter future warfare and military operations. The first major concept is that long-range precision strike weapons, coupled with very effective sensors and command and control systems, will become a dominant factor in future warfare. Technology enhancements including the development of stealth technologies and a comprehensive intelligence, surveillance, and reconnaissance complex are key enablers of this concept. Rather than closing with an opponent, the preferable operational mode may be to destroy him at a distance. To date, the concept has been elaborated mostly in connection with a continental air-land theater. During 1995 and 1996, this concept has expanded to include the application of long-range precision strikes in power projection, war at sea, and space operations.

The second concept embodied in the RMA is emergence of what is often called Information Operations. Information technologies have dramatically improved the ability to gather, process, and disseminate information, in near-real time, to support military operations. The RMA envisions that protection of the effective and continuous operation of one's own information systems, and being able to degrade, destroy, or disrupt the function of the opponents, will become an operational priority.

Information Age Technologies will provide warfighters with a breadth and depth of information unparalleled in military history. Using this information to enhance the command and control of precision strike weapons will provide U.S. forces with capabilities which have never before been available.

ARTICULATING THE VISION

All Services are seeking to articulate a vision of the future that identifies their critical missions, the necessary technologies, and the organizational structures within which they will operate. In attempting to build upon both the lessons learned and the concepts of the RMA, the Chairman of the Joint Chiefs of Staff has prepared Joint Vision 2010, a conceptual template that provides a common direction to assist the Services in developing their unique capabilities within a joint framework. Joint Vision 2010 builds upon the enduring foundation of high quality people and innovative leadership. The traditional concepts of maneuver, strike, protection, and logistics will be leveraged with technological advances and information superiority. These leveraged concepts are:

- Dominant Maneuver. The multidimensional application of information engagement and mobility capabilities to position and employ widely dispersed joint air, land, sea, and space forces to accomplish the assigned operational tasks.

- Precision Engagement. The capability that enables U.S. forces to locate the objective or target, provide responsive command and control, generate the desired effect, assess the level of success, and retain the flexibility to reengage with precision when required.

- Full Dimension Protection. By controlling the battlespace, U.S. forces can maintain freedom of action during deployment, maneuver, and engagement, while providing multilayered defenses for U.S. forces and facilities at all levels.

- Focused Logistics. The fusion of information, logistics, and transportation technologies to provide rapid crisis response, to track and shift assets even while enroute, and to deliver tailored logistics packages and sustainment directly at the strategic, operational, and tactical levels.

SCIENCE AND TECHNOLOGY STRATEGIC PLANNING

A critical component of preparing for the 21st century is identification of science and technology (S&T)

programs that might contribute to an RMA, and which can be used to support the concepts of the Chairman's Joint Vision 2010 and the visions of the Services. Key to the success of the Department's S&T program are the insights into new and emerging technology ideas from both the commercial world and the Department of Defense, the opportunities and trends in technological developments, and the ability to respond to breakthrough developments.

The Department's S&T program, detailed in Chapter 16, builds upon the guidance of the President's National Security S&T Strategy, the Defense S&T Strategy, and the needs identified by the military departments, Joint Staff, combatant commanders, and the Joint Requirements Oversight Council. The guidance, priorities, and principles of the Department's S&T programs are set out in a series of documents. Used to influence planning and identify choices necessary within established fiscal constraints, these documents are the Defense S&T Strategy and the three S&T strategic plans: the Joint Warfighting S&T Plan, the Defense Technology Area Plan, and the Basic Research Plan. The detailed S&T plans of the military departments and defense agencies are complementary extensions of these DoD S&T strategic plans. These plans provide investment guidance to support the key RMA concepts and develop technologies supporting implementation of the Chairman's Joint Vision 2010 and those of the Services. At the same time, they recognize that S&T efforts are inherently unpredictable and that plans will evolve as new opportunities arise, emerging technologies are better understood, and military needs change.

IMPLEMENTING INNOVATION

To explore the concepts of the Revolution in Military Affairs, implement key tenets of the Chairman's Joint Vision 2010, and provide a flexible, responsive means of adapting new or emerging technologies to new military challenges, the Department has developed an approach to foster innovation. Advanced Concept Technology Demonstrations (ACTDs) are a major initiative of this Administration. As a component of the acquisition reform process, ACTDs specifically address the need to insert technology rapidly into the military forces. ACTDs are designed to accelerate the transition of maturing technologies that demonstrate a potential to rapidly provide improved military capabilities or technological solutions to specific operational challenges. ACTDs draw technologists and military operational commanders into closer working relationships. The objective of this relationship is to allow operators to more fully assess the potential and prospective applications of new technologies at a much earlier point in the acquisition process. The ACTD approach permits the technological community to have a better understanding of both the present and future military needs.

ACTDs are focused by the military user and the user's critical warfighting needs. The ACTD objective is to permit the user to gain a more thorough understanding of a new technology and its potential to support military operations. In doing so, it is anticipated the user will be able to develop and refine the doctrine, tactics and organization, and concepts of operation to fully exploit the new technologies. The ACTD also will allow the user, based upon experience in the field, to comment on capabilities and make suggestions for improvements or modifications to the equipment under evaluation. The ACTD approach permits these changes to be made during the relatively informal and low cost demonstration phase of a system's life cycle. The user's input derived from an ACTD will provide the basis for a more knowledgeable statement of requirements with which to enter the formal acquisition process. This means entering the acquisition process with the full input and coordination of the operational commander. ACTDs provide the operator with an opportunity to work with the developer and evaluate the technology, leading to more informed acquisition decisions. ACTDs also provide the commander with enough equipment to provide a militarily significant capability at the end of the demonstration and to support the systems for an additional two years in the field.

There are several key criteria against which ACTD candidates are evaluated:

- User Needs. ACTDs focus on addressing critical military needs. To evaluate proposed solutions to meet these needs, intense user involvement is required. ACTDs place mature technologies in the hands of the user and then conduct realistic and extensive military exercises or actual operations to provide the user an opportunity to evaluate utility and gain experience with the capability. For example, the Medium Altitude Endurance Unmanned Aerial Vehicle (UAV) ACTD deployed the Predator UAV to support military operations in the former Republic of Yugoslavia in both 1995 and 1996. The process provides the users with a basis for evaluating and refining their operational requirements, for developing a corresponding concept of operations, and ultimately for developing a sound understanding of the

military utility of the proposed solution, before a formal acquisition decision is made.

- Exploit Mature Technologies. ACTDs are based on mature or nearly mature technologies. By limiting consideration to mature or maturing technologies, the ACTD avoids the time and risks associated with technology development, concentrating instead on the integration and demonstration activities. This approach permits early user demonstration on a greatly reduced schedule at low cost. As an example, the Battlefield Awareness and Data Dissemination ACTD relies heavily upon emerging commercial technologies like direct broadcast satellite systems.

- Potential Effectiveness. The potential or projected effectiveness must be sufficient to warrant consideration as the ACTD must meet a military need which other currently fielded or planned capabilities do not suitably address. To ensure that ACTDs are properly focused, a coordination process between the Deputy Under Secretary of Defense (Advanced Technology) and the Joint Requirements Oversight Council reviews all candidate ACTDs. ACTDs have been identified as a key implementation tool for the Chairman's Joint Vision 2010. Those already in progress have been used to address both long- and near-term military issues. For instance, the Cruise Missile Defense (Phase I) or Mountain Top ACTD addresses sensor and sensor fusion technologies necessary to detect and combat a potential cruise missile threat. On a near-term scale, the Counter-Sniper ACTD, initiated in June 1996, within four months evaluated a series of technological options to counter the potential sniper threat to U.S. forces participating in Operation Joint Endeavor in Bosnia.

ACTD MILESTONES

During 1996, the ACTD process achieved many significant accomplishments. In addition to continuing to refine the process, including both the identification and selection of future ACTDs and potential transition options upon the conclusion of an ACTD, the Department continued to execute the 10 ACTDs initiated in FY 1995 and the 12 initiated in FY 1996. As the ACTD process matures, attention is being given to ensure smooth transitions into the acquisition process. Five ACTDs were completed in FY 1996.

- The Low Life Cycle Cost, Medium Lift Helicopter ACTD was executed from August to October 1995. Its objective was to evaluate the potential of a leased commercial helicopter with a civilian crew and maintenance to operate aboard Military Sealift Command (MSC) ships. As a result of the demonstration, the Navy and MSC concluded that leasing helicopters may be a viable alternative to using Navy helicopters for vertical replenishment aboard MSC vessels. The Navy is conducting a follow-on demonstration.

- The Kinetic Energy Boost Phase Intercept (BPI) ACTD which evaluated the affordability, operational utility, and mission effectiveness of BPI engagements of tactical ballistic missiles, was terminated after completion of Phase I. The ACTD demonstrated that the fighter-based Kinetic Energy BPI concept, while technically feasible, was operationally unaffordable.

- The Cruise Missile Defense ACTD Phase I demonstration was completed in January 1996 with four intercepts of simulated land attack cruise missiles by ship-launched air defense missiles directed by a surrogate radar located on a mountain top simulating an airborne sensor. A Phase II Cruise Missile Defense ACTD is being considered as an FY 1997 candidate.

- The Medium Altitude Endurance UAV, Predator has successfully deployed to Bosnia on two occasions. This ACTD was completed in July 1996 as originally planned. Based on an assessment of military utility by the ACTD operational sponsor, United States Atlantic Command, and prioritization by the Joint Requirements Oversight Council, the Predator has transitioned from an ACTD to the Air Force as an operational system. Procurement for additional systems began in FY 1997.

- The Counter-Sniper ACTD was initiated in May 1996, upon request of the Commander in Chief, U.S. European Command, to provide counter-sniper capabilities in support of Operation Joint Endeavor if deemed appropriate. It was a four month effort to evaluate a series of advanced technology counter-sniper systems designed to locate a sniper fired weapon. The effort was successfully completed in September 1996 with the operational users providing assessments and retaining those

systems which were assessed as providing enhanced capabilities.

Advanced Concept Technology Demonstrations are discussed in depth in the Department's FY 1996 ACTD Master Plan, which includes detailed discussions of both the ACTD process and individual demonstrations. As the ACTD process continues to mature, a key objective is to ensure ACTDs serve as both a means to focus evaluation of elements of the future vision of warfare and as a way to assess the technologies to current or emerging military needs.

CONCLUSION

The need for U.S. military forces to adapt to new and more diverse military missions is matched by the requirement to meet these challenges within the constraints of available resources. The concurrent explosion in new technologies offers opportunities to innovatively assess new ways of addressing these issues. Within the general concept of the Revolution in Military Affairs is the opportunity to address application of new technologies to affect the nature and scope of future military operations.

Chapter 9

RESPONDING TO TERRORISM

The number and lethality of international terrorist incidents directed against U.S. interests increased last year. The Riyadh and Al Khobar bombings in Saudi Arabia resulted in the largest number of U.S. fatalities at the hands of international terrorists since the December 1988 downing of Pan Am 103 over Lockerbie, Scotland. Terrorist violence represents a serious threat to U.S. personnel, facilities, and interests around the world.

Terrorism remains a complex phenomenon spawned by a mix of factors and motivations. Loosely organized groups of radical Islamics, such as those that carried out the bombing of the World Trade Center, pose a growing challenge. Established entrenched ethnic, nationalist, and religiously motivated terrorist movements continue to operate and have been joined by groups that espouse new causes and ideologies. Despite the collapse of the Soviet Union and international communism, leftist ideologically-based terrorists continue to operate. State sponsors of terrorism, particularly Iran, pose a significant continuing threat. Other state sponsors such as Syria, Libya, Iraq, and Sudan, although more cautious, provide safe haven and other forms of support to a variety of terrorist movements.

The world is in a period of transition and flux as it moves from the relative stability of the bipolar model to a new political order which has yet to be defined. The disintegration of the Soviet Union and the collapse of the East European communist regimes produced a power vacuum that has enabled nationalist, ethnic, and religious forces long thought dormant to reassert themselves and contribute to the volatility of the post-Cold War era. Violent militant Islamic elements, often with the help of state sponsors, now operate worldwide and have a demonstrated global reach.

Local and regional conflicts, famine, economic disparity, mass movements of refugees, brutal and corrupt regimes, and the increasing porosity of national borders contribute to instability — fueling a frustration and desperation that increasingly finds expression in acts of terrorism. Ready access to information and information technologies, coupled with the ability to communicate globally via the Internet, fax, and other media, provides terrorists new tools for targeting, fundraising, propaganda dissemination, and operational communication. Just as the established political order is in a state of fundamental flux and transition, so is terrorism and the challenge it presents to the United States, its friends, and its allies.

TERRORISM: A PHENOMENON IN TRANSITION

The terrorist threat has changed markedly in recent years, due primarily to five factors: the disintegration of the Soviet Union; changing terrorist motivations; the proliferation of technologies of mass destruction; increased access to information and information technologies; and the accelerated centralization of vital components of the national infrastructure, which has increased their vulnerability to terrorist attack. DoD expects that the majority of terrorism directed against U.S. targets will be tied to ethnic and religious conflicts. It will be primarily urban in nature, often occurring in capital cities. Terrorism for the foreseeable future will remain a weapon of choice for governments, groups, and other parties to conflict.

Traditionally, terrorist movements that affected U.S. security interests were politically motivated, and even the most brutal groups usually refrained from mass casualty operations for fear of alienating their political constituencies and potential recruits. Today, religiously motivated terrorism is increasingly ascendant. Religious zealots, when members of a terrorist group or cult, usually exhibit few such constraints and actively seek to maximize carnage. An additional threat comes from religious cults that view the coming millennium in apocalyptic terms and seek through violence to hasten Armageddon. DoD anticipates that as the year 2000 approaches, such movements will become increasingly prevalent, prominent, and lethal.

The proliferation of weapons of mass destruction and the availability of individuals schooled in their design and construction represent another development that impacts fundamentally on the nature of terrorism. The fragmentation of the former Soviet Union and the lack of adequate controls on biological, chemical, and nuclear technologies have resulted in a flood of buyers eager to purchase lethal material from an expanding black market or from rogue states. Added to this volatile mix are scientists and technicians prepared to sell their skills to the highest bidder.

An emerging and significant threat is represented by improvised biological, chemical, and nuclear devices that exploit technologies that once were the sole preserve of world and regional powers. The potential to decimate large population centers and wreak havoc on an unprecedented scale has devolved from nation states to groups and even individuals. The possibility of a biological Unabomber and all that implies is a fast approaching reality. Proliferation enables those who were traditionally at the margins to play a major role on the world stage. Improvised weapons of mass destruction will likely prove to be the great equalizers of tomorrow, providing the means for the disaffected and deranged to directly impact on the core interests of world powers.

FUTURE TERRORISM

Religious zealotry creates the will to carry out mass casualty terrorist attacks; proliferation provides the means. It is this nexus of will and means that has forever changed the face of terrorism. Traditional forms of terrorism like car bombs, assassinations, suicide bombers, and aircraft downings will undoubtedly continue, but their impact will diminish as the public becomes increasingly inured to such operations. In a world of competing headlines, terrorists will find it necessary to escalate the carnage in order to maintain their ability to intimidate and terrorize. As a result, increased experimentation with improvised biological, chemical, and nuclear devices may be expected as a means to rivet public attention and thereby advance the terrorist agenda.

Paradoxically, progress has made key elements of the national infrastructure increasingly vulnerable. These elements include telecommunications, energy distribution, banking and securities, transportation, military/defense, water supply, emergency services, and public health.

As countries modernize, they become increasingly dependent on sophisticated technologies, with computers both running and linking vital, once disparate systems into a national infrastructure. Because of its complexity and interdependence, infrastructure presents unique targeting opportunities to a technologically sophisticated adversary. Complex national infrastructures are vulnerable because they all have critical nodes or choke points that, if properly attacked, will result in significant disruption or destruction. The attack may be computer generated or rely on more conventional assaults employing truck bombs, dynamite, or cable cutting to unleash a chain of events in which a service grid, pipeline, or air traffic control system collapses in a cascading effect.

Major power failures that black out large parts of the country, systemic problems with the air traffic control system, and breaks in highly vulnerable gas and oil pipeline systems are covered in detail by the press, discussed

on radio talk shows, and dissected and analyzed on the Internet. Terrorists, as part of the attentive public, are increasingly aware that the national infrastructure represents a high value and vulnerable target.

Technological advances may have the unintended consequence of increasing system vulnerabilities. For example, fiber optic cables enable phone companies to use a single line to carry tens of thousands of conversations that not many years ago would have required thousands of separate copper cables. The results have been greater efficiency, better service, and lower costs; however, there is a downside. Progress has heightened infrastructure efficiency, but the resultant reduction in redundancy has produced vulnerabilities that make U.S. infrastructure an increasingly attractive terrorist target. International banking and finance, transportation, the electric grid, the gas pipeline system, computer links and services, and more than 90 percent of all DoD communications are dependent on the telephone system. Major disruptions in service can be caused by an errant backhoe operator or an enterprising terrorist.

COMBATING TERRORISM: THE DOD RESPONSE

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 from terrorist acts.

In response to the recent tragedies in Saudi Arabia, the Joint Staff established a Deputy Directorate for Combating Terrorism under the Director of Operations, Joint Staff. The Directorate is charged with the mission of supporting the Chairman and the Joint Chiefs of Staff in meeting the nation's security challenges as they relate to combating terrorism now and into the next century.

DoD also has been a leader in recognizing the vulnerability of the national infrastructure. To obtain a better understanding of the nature and extent of the problem, the Under Secretary of Defense for Policy on March 9, 1995, established the Infrastructure Policy Directorate. Its primary responsibilities relate to infrastructure warfare and information assurance. The Directorate has briefed senior government and cabinet officials and is conducting an in-depth examination of key infrastructure elements to determine how they interrelate and how best to protect them from attack. A series of working groups have been established to ensure continuity of effort.

To meet the challenge, the Deputy Secretary of Defense in August 1996 established the Critical Infrastructure Protection Working Group (CIPWG) to support actions directed in Executive Order 13010, Critical Infrastructure Protection, which was signed by the President on July 15, 1996. The CIPWG addresses issues related to threats and vulnerabilities of the defense infrastructure and information systems, develops recommendations for assurance technologies and procedures, and examines roles for DoD in infrastructure protection and assurance.

Antiterrorism

In recognition of the changing nature of the terrorist threat, DoD on August 27, 1996, established the Antiterrorism Coordinating Committee (ATCC). The committee meets monthly, as well as on an as needed basis. Its purpose is to identify issues that affect force protection, exchange ideas and information, and develop policy recommendations. It also serves a valuable function by providing a synergism that enhances the effectiveness of DoD's antiterrorism planning. The Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict and the Joint Staff Director for Operations co-chair the ATCC Senior Steering Group. Meetings are attended by representatives from the Services; the Joint Staff; the Office of the Assistant Secretary of Defense for Command, Control, Communications and Intelligence; the Defense Security Assistance Agency; the Defense Intelligence Agency (DIA); and other DoD elements as required.

To further the exchange of knowledge and experience, for the past seven years DoD has sponsored the Annual Worldwide Antiterrorism Conference. These conferences not only draw on the expertise of the U.S. antiterrorism community but on an international array of security, intelligence, and law enforcement specialists who offer new insights, perspectives, and recommendations for action. Each conference focuses on a particular theme and specific force protection issues. The 1996 theme was changing the terrorism mindset. Conference participants explored ways to make antiterrorism increasingly proactive rather than primarily defensive

and reactive. They devoted considerable effort to the critical examination of terrorist attacks and the lessons learned. A conference report forwarded to Secretary Perry contains detailed recommendations for consideration and implementation.

To better prepare for the terrorist threats of the future and how they might impact on U.S. security interests, DoD in 1994 prepared a major study entitled, Terror-2000: The Future Face of Terrorism. The aim was to forecast the nature of the future terrorist threat, projecting significantly beyond the traditional one year timeframe. The study drew on the expertise and experience of American and foreign terrorism experts in an effort to anticipate changes in terrorist targeting, tactics, strategies, and capabilities. Many of the core predictions have come to pass and others appear increasingly likely. Central to the study were recommendations on how best to meet the future terrorist threat.

In response to the November 1995 bombing in Riyadh, Saudi Arabia, Secretary Perry established the Antiterrorism Task Force. The task force was directed to develop a plan of action to eliminate complacency and significantly enhance the security of DoD and DoD-associated facilities and personnel worldwide. The task force forwarded 22 major initiatives and recommendations to Secretary Perry, who approved an implementation plan on July 15, 1996. The more recent Downing Report, which examined the June 1996 bombing of Khobar Towers, produced a second set of recommendations. These have fundamentally changed the way DoD does business with regard to antiterrorism.

As a result of these two tragedies, a number of initiatives have been implemented. On September 16, 1996, Secretary Perry issued a revised Directive 2000.12, entitled DoD Combating Terrorism Program. This directive mandated Department-wide combating terrorism standards. In recognition that intelligence is the first line of defense, steps are being taken to improve its collection and use, and to get the intelligence product into the hands of the local commanders. DIA is engaged in an aggressive long-term collection and analytic effort designed to provide the type of information that can aid local commanders detect, deter, and prevent terrorist attack. Close working relationships between DIA and other members of the national intelligence community are being made even stronger, and intelligence exchanges with U.S. friends and allies have been increased.other members of the national intelligence community are being made even stronger, and intelligence exchanges with U.S. friends and allies have been increased.

To better protect the public and U.S. military forces from the consequences of a chemical or biological terrorist attack, the Commandant of the Marine Corps established a Chemical/Biological Incident Response Force (CBIRF). Formed in April 1996, the CBIRF is uniquely qualified to perform consequence management in an environment contaminated by chemical or biological agents.

In addition to DoD's accelerated focus on combating terrorism activities, steps are being taken to improve overall force protection. These include giving local commanders operational control over force protection; strengthening cooperation with host nations; raising funding levels of force protection programs, particularly in the area of antiterrorism; making the Chairman of the Joint Chiefs of Staff the focal point for force protection activities, including initiatives to standardize antiterrorism and force protection training for deploying forces; and realigning certain force protection responsibilities from the Department of State to the Department of Defense. In addition, antiterrorism will be made a special interest item for inspectors general throughout the Department, and the Defense Federal Acquisitions Regulations will be changed to ensure antiterrorism readiness of DoD contractors.

Counterterrorism

Counterterrorism refers to DoD's offensive combating terrorism capabilities. These capabilities provide means to deter, defeat, and respond vigorously to all terrorist attacks against U.S. interests, wherever they may occur. Resources allocated to these sensitive activities have been significantly increased, and efforts are underway to maximize readiness so that U.S. counterterrorism forces are trained and equipped to meet any challenge posed by 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 war against terrorism will be a protracted conflict. It is war in which there are no front lines and in which terrorism's practitioners have intentionally blurred the distinction between combatants and noncombatants. Terrorism differs from traditional combat because it specifically targets the innocent and, as a result, is particularly repugnant. Because each terrorist group and the challenge it represents are unique, DoD must work with the interagency counterterrorism community to develop a flexible response that is a mix of political, economic, military, and psycho-social capabilities, tailored to meet a broad range of challenges and threats.

Terrorism is more than the bomb and the gun. It is a struggle that ultimately is fought in the political arena and, as such, is also a war of ideas and ideologies. Combating terrorism requires patience, courage, imagination, and restraint. Perspective is essential. Overreaction and bombast play into terrorist hands. Good intelligence, a professional security force, and a measured response are necessary. Most important for any democracy in its struggle against terrorism is a public that is informed and engaged, and understands the nature of the threat, its potential cost, and why the fight against terrorism is its fight too. It is how well the United States meets this challenge that will determine the winners, the losers, and the price paid by each.

Part III
Enhancing Defense Management

Chapter 10

PERSONNEL

The Department has been extremely successful in accomplishing its two overarching drawdown goals — to maintain a high state of readiness and to treat people fairly. Readiness has been maintained; a balanced force is in place; and DoD has accessed the numbers of new recruits required to maintain the needed mix of experience, grade, and skills.

The carefully executed and highly successful post-Cold War drawdown of U.S. forces is near its conclusion. The success with which significant reductions in military personnel were made can be attributed to the Department's strategy to maintain a close linkage between force structure and personnel management programs. For example, a rapid achievement of the force structure outlined in the Bottom-Up Review required significant congressional cooperation and support for temporary separation incentive programs, early retirement authorizations, transitional assistance, and relief from statutory constraints. These programs have allowed orderly downsizing with due consideration of the human dynamics involved in such a massive undertaking. Minimizing involuntary separations was central to the Department's plans, and the vast majority of the reductions have been accomplished through voluntary measures, a tremendous accomplishment in the context of an all-volunteer force. The result is a right-sized force providing challenging career opportunities and one that is sustainable well into the next century.

RECRUITING HIGH QUALITY PEOPLE

Sustained and effective recruiting is essential to maintain a force with the right distribution of skills and balance of experience that supports readiness. Each Service must enlist and appoint enough people each year to sustain the force and ensure seasoned and capable leaders for the future. DoD annually must recruit about 200,000 youth for the active duty armed forces, along with approximately 150,000 for the Selected Reserve. FY 1997 recruiting requirements will be more than 20 percent higher than the numbers needed in FY 1995.

Recruits with a high school diploma are especially valued. Years of empirical research show that those with a high school diploma are more likely to complete their initial three years of service. About 80 percent of recruits who receive a high school diploma will complete their first three years; yet only about 50 percent of those who failed to complete high school will do that.

Those holding an alternative credential, such as a General Equivalency Diploma (GED) certificate, fall between those extremes. Over the past five years, more than 95 percent of all active duty recruits held a high school diploma, compared to the 75 percent of American youth ages 18 to 23.

Aptitude is also important. All recruits take a written enlistment test, called the ASVAB (Armed Services Vocational Aptitude Battery). One component of that test is the Armed Forces Qualification Test, or AFQT, which measures math and verbal skills. Those who score at or above the 50th percentile on the AFQT are in Categories I-IIIA. DoD values these higher-aptitude recruits because their training and job performance are superior to those in the lower (below the 50th percentile) categories. There is a strong correlation between AFQT scores and on-the-job performance, as measured by hands-on performance tests (speed and accuracy of performing job-related tasks) across the range of occupations. Over 70 percent of recent recruits scored above the 50th percentile of the nationally representative samples of 18-23 year olds.

Higher levels of recruit quality serve to reduce attrition while increasing individual performance. In 1993, the Department established benchmarks to sustain recruit quality. The chart below illustrates the recent success against those standards (90 percent high school diploma graduates; 60 percent top-half aptitude).

Challenges in a Changing Recruiting Environment

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 enlist in the next few years. Research has shown that the expressed intentions of young men and women are strong predictors of enlistment behavior.

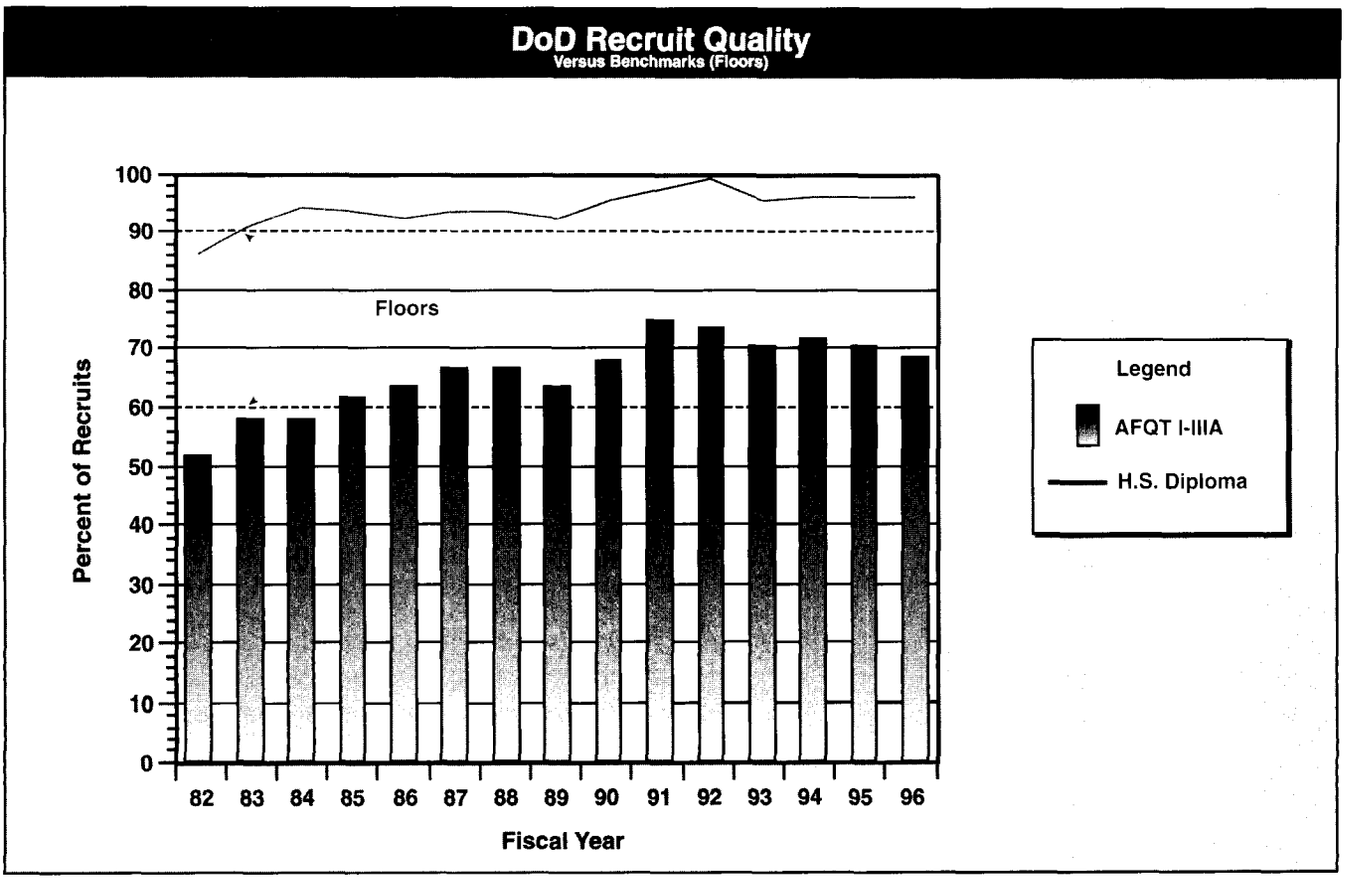


Table 4

Quality and Numbers of Enlisted Accessions — Active (Numbers in Thousands)

	FY 1996 Quality Indices		Accessions[a] (in thousands)			
Component/ Service	Percent High School Diploma Graduates	Percent Above Average Aptitude AFQT I-IIIA	FY 1996 Objectives	FY 1996 Actual	FY 1997 Planned[b]	FY 1998 Planned[b]
Army	95	67	73.4	73.4	89.7	84.0
Navy	95	66	48.2	48.2	56.7	53.8
Marine Corps	96	65	33.5	33.5	35.3	36.4
Air Force	99	83	30.9	30.9	30.2	30.4
TOTAL	96	69	186.0	186	211.9	204.6

[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 1998 Budget Estimate Submission.

Results from the 1996 YATS show enlistment propensity for both young men and women basically unchanged from 1995. One notable exception is that the interest of women in the NaAvy is significantly higher than last year. FY 1995 was the bottom of the drawdown for recruiting. Today, recruiting objectives are going back up without corresponding levels of resources. Between FYs 1995 and 1997, recruiting missions rose 20 percent while resources, including money for advertising, remained relatively flat, except in the Army where there was a drop in the expenditure-per-recruit. Thus, these YATS results (considerably lower than during the pre-drawdown years) are not surprising and suggest that recruiting will continue to be challenging.

Over the past several years, enlistment propensity has declined (see Appendix G) as the Services experienced serious cuts in recruiting resources. In 1994, 1995, and 1996, recruitment advertising was increased, and the 1995 and 1996 YATS results indicate that the decline propensity may have stabilized. Continued investment in recruiting and advertising resources is required, however, to assure that the pool of young men and women interested in the military will be available to meet Service personnel requirements in the future.

Recruiting for the Selected Reserve

With the increased reliance on the Reserve components, continued manning by quality prior service and non-prior service recruits remains a priority. During recent years, the Department has experienced considerable success in recruiting for the reserve forces. Since 1991, the number of new recruits into the Reserve components with high school diplomas has increased 8 percent. New recruits in the upper half of the Armed Forces Qualification Test categories have increased 7 percent. There are, however, current and future dynamics that will make it increasingly difficult to maintain robust reserve force strength levels in the coming years. The perceptions caused by downsizing, reduced budgets, and inactivating local units all continue to give the public the impression that the Reserves are no longer hiring, or that the Reserves are not a viable employment opportunity. Additionally, the approaching completion of the drawdown of the active forces will mean fewer service members entering the prior service pool for Selected Reserve membership, thus increasing the need for non-prior service recruiting. To meet this challenge, increased advertising budgets and more recruiters are needed, especially after the Reserve component downsizing abates and accession missions increase.

The Assistant Secretary of Defense for Reserve Affairs convened a Reserve component recruiting and retention task force to analyze the current state of supporting programs and to explore new and innovative ways to meet the mission. Prime among the topics this task force will explore is the utilization of the Selected Reserve Incentive Program, a series of bonuses for enlistment and reenlistment. The task force also will focus on intensifying retention efforts to reduce unprogrammed losses in the selected reserve that occur prior to reenlistment windows.

Table 5

Quality and Numbers of Enlisted Accessions — Selected Reserve (Numbers in Thousands)

	FY 1995 Quality Indices Non-Prior Service		Total Accessions Non-Prior and Prior Service (in thousands)			
Component/ Service	Percent High School Diploma Graduates	Percent Above Average Aptitude AFQT I-IIIA	FY 1996 Objective[a]	FY 1996 Actual[a]	FY 1997 Planned[b]	FY 1998 Planned[b]
Army National Guard	82	56	61.8	60.4	59.3	62.3
Army Reserve	95	74	50.2	46.2	47.9	44.2
Naval Reserve	100	82	16.8	16.8	18.0	16.9
Marine Corps Reserve	98	78	10.4	10.7	11.2	10.8
Air National Guard	93	73	11.0	10.0	10.0	9.6
Air Force Reserve	94	77	6.1	6.5	9.9	8.6
TOTAL	90	66	156.3	150.6	156.3	152.4

[a] Based on Service Component Recruiting Production Reports.
[b] FY 1998 Budget Estimate Submission.

Table 6

Recruiting Challenges and Responses

Health Care	In August 1994, the Department addressed the issue of TRICARE Prime for members and their families in areas outside normal areas of coverage. In May 1996, a demonstration site was established to test the concept. The test results are being evaluated to determine the feasibility to expand TRICARE Prime to cover all individuals outside normal areas of coverage.
Housing	Many recruiters and other individuals assigned to local communities — particularly those stationed in high cost areas — are inadequately reimbursed for housing cost; therefore, the Department has introduced legislation to reform the military housing allowance that will help adequately reimburse recruiters and others in high cost areas.
Child Care	The Department is reviewing the possibility to expand and use child care space in other government programs. This includes negotiating with the General Services Administration to obtain space for military members at about 100 government-owned or leased locations nationwide.
Pay	In April 1996, Special Duty Assignment Pay for recruiters was increased from $275 to $375 per month.

National Service and Recruiting Programs

The Department explored the impact of National Service on military recruiting; DoD believes both programs are appropriately sized and structured. The Department concluded that the two programs can coexist successfully because the National Service program is smaller and the value of its benefits is lower in comparison with enlistment benefits offered by the military.

TREATING PEOPLE FAIRLY

Pay and Allowances

In order to attract, motivate, and retain quality people, the armed forces must provide a standard of living for its members that can compete with the private sector. If it does not, the Services cannot continue to recruit and retain high quality people in this nation's all-volunteer force. The Administration requested and Congress approved a 3.0 percent pay raise for FY 1997, and the Administration has pledged support for maximum pay raises authorized by law for military personnel through the end of the decade.

Additionally, the Department of Defense implemented a number of new compensation initiatives this year, the most significant being Variable Housing Allowance rate protection. Now, no service member's housing allowance can go down if their housing costs do not go down. Programs were also implemented to provide Basic Allowance for Quarters (BAQ) to single E-6s on sea duty, continuous sea pay for crew members assigned to tenders, family separation allowance for geographic bachelors, Dislocation Allowance for members relocating due to Base Realignment and Closure (BRAC), and automatic Service Member's Group Life Insurance (SGLI) coverage of $200,000. The Department is also committed to lower out-of-pocket housing costs now being experienced by those in uniform. The FY 1997 4.6 percent BAQ increase further reduce members' out-of-pocket costs.

The Department pursues its military compensation initiatives through a unified legislative and budgeting process. The following departmental legislative initiatives that were enacted as part of the FY 1997 National Defense Authorization Act.

- Basic Allowance for Quarters for E-5 without Dependents on Sea Duty authorizes quarters allowances for single petty officers assigned to sea duty. This allows these members to establish and maintain permanent residences ashore.

- Round-trip travel for picking-up a privately-owned vehicle is allowed for members when they must transport their privately-owned vehicles to and from a port when moving between the United States and overseas.

- Privately-owned vehicle storage will permit members to store their vehicles, at government expense, when a permanent change of station to a location overseas precludes entry of their vehicle or requirement of substantial modification.

- Variable Housing Allowance Floor for High Housing Cost Areas that will ensure all members receive at least a minimum adequate level of allowance for housing costs. Locality floors would be determined by independent Housing and Urban Development Fair Market Rent data and the member will receive the higher of the normal (member survey) VHA or this new VHA locality floor.

- Dislocation Allowance Increase from two months basic allowance for quarters to two-and-one-half months. This will better compensate members for a variety of nonreimbursable costs incurred in connection with the move of dependents during a permanent change of station.

These improvements directly and measurably assist members of the armed forces and their families. Moreover, these investments constitute a sound means of preserving high levels of personnel readiness.

Promotions

The Services have worked hard to provide reasonably consistent promotion opportunities in order to meet requirements, ensure a balanced personnel force structure, and provide a meaningful opportunity for all service members. There is a common misconception that promotions have been frozen because of the drawdown, but that is simply not the case. Promotions have remained generally steady during the drawdown. Last year, the Services promoted 110,554 soldiers, sailors, airmen, and marines into the top five enlisted pay grades (E-5 to E-9). Overall, average time in service at promotion has accelerated by about six months since 1995. Officer promotion opportunity also has held steady, generally remaining within 5 percent of the levels before the drawdown began. For the future, the Department expects some acceleration of the career-timing of promotions, with the overall promotion-selection rate remaining steady.

Force Stability

As the Services complete their downsizing, the focus shifts to the task of stabilizing the force. Any drawdown of the size that has been achieved, even one carefully and successfully managed, will cause turbulence. It is an inevitable by-product of change. Therefore, DoD is now taking steps to return a sense of stability to the armed forces.

Compensation, housing, and family support, the central points of the initiative, are keys to creating the sense of stability. Less quantifiable factors also contribute to a stable environment for service members. These include visible and challenging career opportunities, healthy military communities, reasonable expectations for the future, and the availability of a military career for those who perform well.

Finally, personnel tempo (PERSTEMPO), the amount of time service members spend away from their home base, is an important component of force stability. PERSTEMPO has increased somewhat as DoD has reduced forces stationed overseas since the end of the Cold War; this is particularly true for the Army and Air Force. The Navy and Marine Corps, though more accustomed to routine deployments, have also seen some increase in PERSTEMPO. If this rate were to become too high, it could have a negative effect on the stability of the force. While there are certain specific units and military specialties which have been used repeatedly, DoD believes the current PERSTEMPO of the force as a whole is sustainable. Overall morale, retention, and readiness remain high. This is due, in part, to the fact that service members have always derived a sense of purpose and satisfaction from the opportunity to perform the functions for which they joined the military. However, there are some indications that high PERSTEMPO in certain units has a negative impact on the quality of life of members. For the small number of units and military occupations subjected to a high deployment rate, DoD has taken steps to alleviate that strain, including increased use of the Reserve component.

Equal Opportunity

Equal opportunity is a military necessity. Discrimination, sexual harassment, and disparate treatment jeopardize combat readiness by threatening unit cohesion, good order, and discipline. The Department of Defense has maintained an aggressive program to ensure that all military and civilian personnel are treated fairly. The Department's policies and programs in this area address all impermissible discrimination and harassment, whether based on race, sex, national origin, age, disability, or religion. The impetus for the Department's current efforts is contained in a March 1994 Secretary of Defense policy memorandum on equal opportunity.

Several measures described in the March 1994 memorandum have been accomplished and steady progress has been made toward others. Those measures which have been implemented include the establishment of the Office of the Deputy Assistant Secretary of Defense for Equal Opportunity, restructuring the Department's senior advisory council on equal opportunity, and conducting special equal opportunity training for senior civilian and military leaders. Progress continues on measures to study the flow of minority and female officers from recruitment through the senior officer ranks and to improve the representation of women, minorities, and people with disabilities among the Department's civilian managers.

When soldiers were accused of the racially-motivated murders of two African-American citizens in December 1995 in North Carolina, there were widespread concerns about extremist group activities within the military. The Department's response was swift and encompassing. Revised departmental guidance on military participation in extremist group activities clarified prior policy, established procedures for reporting information on hate crimes, and required that DoD policy be included in Service training programs. Secretary Perry restated the Department's policy prohibiting racial intolerance and discrimination in any form in the strongest terms, while the Secretary of the Army directed the Army to root out any extremist activity. The Secretaries of the Navy and Air Force undertook similar aggressive actions.

A Department-wide survey, taken in conjunction with the DoD's Task Force on Discrimination and Sexual Harassment, indicated that sexual harassment in the active military is declining. The survey was taken at the same time as DoD was pursuing initiatives to prevent sexual harassment. These initiatives include sexual harassment prevention training, understanding the definition of sexual harassment, and knowing the process for reporting sexual harassment. While any level of sexual harassment is unacceptable, the survey responses indicate that these initiatives have been effective.

In Adarand Constructors, Inc. vs. Pena, the Supreme Court held that federal affirmative action programs that use racial and ethnic criteria as a basis for decision making are subject to strict scrutiny. Subsequently, the President directed that a review be conducted of the federal government's affirmative action programs. Chapter Seven of the *Affirmative Action Review: Report to the President,* July 19, 1995, rated military affirmative action efforts as successful, although it concluded that more remains to be done. In response to recommendations contained in the report, DoD has established a continuing dialogue with other federal agencies on the services and training programs at the Defense Equal Opportunity Management Institute, Patrick Air Force Base, Florida, and how these and similar programs may benefit other agencies.

IMPROVING FORCE MANAGEMENT

Improving Compensation

The law requires the President to conduct a complete review of the principles and concepts of the compensation system for members of the uniformed services every four years. President Clinton signed a charter for the Eighth Quadrennial Review of Military Compensation (QRMC) in January 1995. Previous QRMCs focused on elements of the existing compensation system and how to improve its effectiveness; the Eighth QRMC is focusing on how to employ the military human resource management system strategically. The charter requires the Eighth QRMC to look well into the future and to develop a military compensation system that will attract, retain, and motivate the diverse work force of the 21st century. The QRMC is:

- Conducting a comprehensive review of current compensation and human resource management theory/practice.
- Evaluating the evolving characteristics of the military and the environment impacting it; setting forth a framework for military compensation in the 21st century.
- Identifying new and emerging approaches to compensation and assessing their implications for the military.
- Designing components of a future compensation system; suggesting how the human resource management system can be employed strategically to accomplish organizational objectives; proposing implementation strategy.
- Establishing DoD as a leader in attracting, retaining, and motivating the diverse work force of the 21st century.

STATUS OF WOMEN IN THE MILITARY

Defense Advisory Committee on Women in the Services

The Defense Advisory Committee on Women in the Services (DACOWITS) is a civilian federal advisory committee composed of prominent citizens from across the nation, representing industry, education, and civic affairs. Establishment of the Committee in 1951 was a major milestone for military women. DACOWITS serves to promote public acceptance of military service as a career field for women and to advise the Secretary of Defense on policies relating to the utilization of women. DACOWITS has been particularly effective in improving opportunities and benefits for military women. In 1996, the DACOWITS Executive Committee was invited to visit Jordan for the purpose of a military and cultural exchange. The visit opened a continuing dialogue between U.S. military women and women in the Jordanian Armed Forces. The Executive Committee traveled to Jordan as part of the annual overseas installation trip, which also included visits to U.S. bases located in Italy, the United Kingdom, Hungary, and Germany. The overseas trip was an effective means to assess and obtain feedback on quality of life, forces development and utilization, and equality issues. The committee conducted meetings with approximately 1,500 service women and men and provided their feedback in their report to the Secretary of Defense. During this year, a conference was held in the Washington, D.C., area that resulted in the following recommendations being forwarded to the Secretary of Defense:

- That the Secretary of the Navy open to women all classes of ships and vessels and their associated billets that remain closed because of cost considerations, even though they are legally open after repeal of the Combat Exclusion Law.
- That the Secretary of Defense operate Reserve Officer Training Corps (ROTC) Programs only at institutions of higher learning (post-secondary) that do not discriminate in student admissions on the basis of gender.
- That the Deputy Assistant Secretary of Defense for Personnel Support, Families, and Education identify Reserve component child care needs for the purpose of exploring the opening of existing child care centers on weekends at locations where Reserve components conduct unit training.

New Roles for Service Women

During the past three years, the Department made great progress in allowing women to compete for assignment to nontraditional jobs previously closed to them. For example, women now are serving as pilots and flight

crew members on combat aircraft. They also serve in all positions on combatant vessels; in fact, for the first time in history, women performed as crew members aboard the combatant ships that fired cruise missiles on Iraq. Women also have been assigned to Army and Marine Corps ground units, with the exception of those units below brigade level having a primary mission of direct combat engagement.

Additionally, the proportion of women serving in the military continues to increase at a positive rate. DoD is attracting more and more qualified women and is utilizing them in a wider variety of roles. Leadership positions available to women increased. In 1996, DoD witnessed significant firsts as Lieutenant General Carol Mutter, United States Marine Corps, and Vice Admiral Patricia Tracey, United States Navy, advanced to their current three-star ranks.

In summary, the promotion of women, as well as the opportunities for their service, have increased since 1989. Today, women are being assigned to some 260,000 additional positions, with more than 80 percent of military jobs now open to both genders. More than 90 percent of the career fields in the armed forces now are being filled by the best-qualified and available person — man or woman. In turn, this provides the type of assignment flexibility that helps to improve unit manning, thus personnel readiness, within a smaller force.

HEALTH CARE

Changing world politics, revised national security objectives, rapid changes in technology, and advances in the practice of medicine present new challenges to military medicine. Preparations within the Military Health Services System (MHSS) to meet both its operational and peacetime mission require innovative thinking, careful contingency planning, and quick adaptation to change.

The MHSS is positioned to be the benchmark health care delivery system of the 21st century. It is committed to joint medical readiness capabilities to prepare the Department to successfully respond to a rapidly changing continuum of military operations; top quality and cost-effective health care benefits for members of the armed services and their families, retirees, and others entitled to DoD health care; and integrating technologies to enable the best possible and most cost-beneficial clinical and management outcomes.

The Department's health care mission is complex and serves a large number of personnel. There are 8.2 million beneficiaries eligible to receive health care from MHSS. Direct care is delivered worldwide in 115 hospitals and numerous clinics. The bulk of civilian care is purchased through managed care support contracts implemented under the TRICARE Program. Substantial resources are required to accomplish the DoD medical mission. The FY 1997 budget is $15.7 billion or 6.2 percent of the entire defense program.

Health Care Initiatives

TRICARE

In the direct care system, the Department provides a comprehensive range of acute-care services, from primary to tertiary care, and nearly two-thirds of all care delivered to DoD beneficiaries is provided by the direct care system. Family members of active duty personnel, as well as retirees and their family members who are under age 65, may seek care under CHAMPUS when the direct care system cannot provide the needed health care. TRICARE, the Department's comprehensive managed care initiative, is being implemented worldwide to improve the Military Health Services System delivery of care. It more effectively integrates military and civilian health care resources, establishes uniform benefits, and introduces managed care improvements to the system.

For each of the 12 designated regions of the United States, the senior military officer, or lead agent, is responsible for coordinating the delivery of all health care for those who live in the region. The lead agent does this in conjunction with a TRICARE managed care support contractor to improve health care delivery and offer beneficiaries better health care value. Managed care support contractors establish civilian provider networks, offer wellness information, assist military families with medical care referrals, process health care claims, and offer other assistance. These contracts are being awarded incrementally with five of seven contracts, covering 3.3 million beneficiaries, currently under award. Offeror proposals for the remaining two contracts, covering an additional 1.7 million beneficiaries, are under evaluation and the Department expects to award them in calendar year 1997 with health care delivery beginning by the end of the calendar year. In Europe

and the Pacific, a modified version of TRICARE began October 1, 1996, with reengineering of the direct care system to support the TRICARE Prime benefit for active duty families stationed overseas. Alaska will begin offering TRICARE benefits in 1997. TRICARE Latin America is currently under development.

TRICARE offers three options for CHAMPUS-eligible beneficiaries: TRICARE Prime, TRICARE Extra, and TRICARE Standard. TRICARE Prime, the civilian health maintenance option, provides for enrollment and the selection of a primary care manager (PCM) who either provides or arranges for the family's health care. It also offers enhanced preventive health care benefits and reduced cost-sharing for civilian care when referred by the PCM. All active duty military personnel are eligible and are considered automatically enrolled in TRICARE Prime, with most care delivered in Military Treatment Facilities. TRICARE Extra is the preferred provider option for beneficiaries who desire greater freedom of choice in their health care. This option provides a reduced cost sharing percentage for beneficiaries who use the civilian network of providers developed by the TRICARE contractor. TRICARE Standard is essentially the same as the basic CHAMPUS Program.

Federal regulations governing TRICARE and the Uniform HMO benefit for TRICARE Prime enrollees were published in 1996, and the Department is working toward implementing recent legislation to further improve TRICARE by providing greater protections for TRICARE Prime beneficiaries. Key among these are establishing direct care priority for Prime enrollees, eliminating the potential for a Prime enrollee to be balance-billed by a nonnetwork provider when the enrollee is referred by the PCM, and eliminating the requirement that enrollees must obtain a nonavailability statement in addition to following the referral procedures under Prime. In addition, DoD plans to implement enrollment portability and split enrollment in 1997. This enhancement will allow Prime enrollees to transfer their enrollment to a new region during a permanent move and will offer split enrollment where members of the same family can enroll in different regions without having to pay more than the annual family enrollment fee.

MEDICARE SUBVENTION

In September 1996, the Department of Health and Human Services (DHHS), the Health Care Financing Administration (HCFA), and the Department of Defense agreed to conduct a demonstration under which the Medicare Program would treat DoD and the MHSS similarly to a Medicare risk HMO for dual-eligible Medicare/DoD beneficiaries. Under the agreement, HCFA would pay for dual-eligibles enrolled in the DoD managed care program after DoD met its level of effort, measured in terms of health care expenditures for the dual-eligible population. The goal of this demonstration was to implement, through a joint effort by DHHS and DoD, a cost-effective alternative for delivering accessible and quality care to dual-eligible beneficiaries while ensuring that the demonstration did not increase the total federal cost for either agency. The agreement required the enactment of federal authorizing legislation before the demonstration could be implemented. However, the 104th Congress did not pass the necessary legislation before adjourning in October 1996. The agencies plan to submit new authorizing legislation in early 1997.

DoD is also examining its other policy options for allowing Medicare-eligible beneficiaries to participate in TRICARE. One option under consideration, the TRICARE Senior Project, is a pretest of elements of the military managed care program described in the DoD/DHHS Agreement without reimbursement from HCFA. Because the project would not require Medicare reimbursement to DoD, no authorizing legislation would be required. HCFA assistance project has been requested. This project would allow DoD to test on its own a cost-effective alternative for delivering accessible and quality care to dual-eligible beneficiaries. The project would be scheduled to begin in mid-1997 and continue for three years.

OVERSEAS FAMILY MEMBER DENTAL CARE

The Department has initiated an aggressive program to improve and standardize access to dental care for family members living outside the United States. The Overseas Family Member Dental Program is a comprehensive, integrated plan tailored to each location and is an integral part of the regional health services plan currently being developed. A sizable increase in dental resources has already been provided and is resulting in improved dental care access for families. Phased implementation began in Europe and is now being extended to the Pacific and remote site locations worldwide. This initiative is already considered one of the single greatest quality of life improvements for family members overseas.

RESERVE DENTAL CARE

Over the past year, the Department developed plans to enhance the dental readiness of reserve personnel. Recently enacted legislation authorizes a Department sponsored dental insurance plan for the selected reserve to begin in FY 1997. The plan will ensure inexpensive access to selected dental care. The Department has also introduced standards for frequency of dental examinations for reserve members and oral health standards for deployment that are consistent with those for the active duty component.

RETIREE DENTAL CARE

As a result of the military drawdown, retirees and their families have had increasing difficulty obtaining space available dental care at military facilities. To ensure availability of dental services, recently enacted legislation authorizes a retiree paid dental insurance plan under sponsorship of the Department that will enable retirees and their dependents to obtain low cost comprehensive dental care.

MEDICAL CARE FOR BENEFICIARIES IN BRAC AREAS

The approved BRAC lists (1988, 1991, 1993, and 1995) will result in the closure of 31 military hospitals and an additional number of health clinics in the continental United States. With strong congressional support for the Department to do more for beneficiary populations affected by base closures, the Department has enhanced its planning and programs to specifically address their needs. DoD eligible beneficiaries remaining in areas affected by BRAC actions will be provided with alternative health care delivery options after their local military treatment facility closes. The Department's actions to lessen the medical impact include transition health care planning, managed care initiatives, retail and mail order pharmacy programs, and meetings with beneficiaries at affected BRAC sites.

GULF WAR VETERANS' HEALTH ISSUES

The Department is strongly committed to responding to the health concerns of Gulf War veterans. In examining adverse health consequences that may have resulted from service in the Persian Gulf, DoD efforts have concentrated in the areas of clinical care, research, and investigation.

Since June 1994, the Department has provided in-depth medical evaluations to DoD beneficiaries who are experiencing illnesses through the Comprehensive Clinical Evaluation Program (CCEP). Spouses and children of Gulf War veterans participate in the CCEP if they are eligible for DoD health care. As of November 26, 1996, there were 36,327 participants in the program, of whom 27,975 had requested an examination and 23,562 had finished the evaluation process. In April 1996, the Department released a comprehensive report on the results of examinations of over 18,000 participants. The results of the CCEP indicate that participants have a variety of symptoms and diagnoses spanning multiple organ systems. Based on the clinical experience to date, there appears to be no clinical evidence for a previously unknown, serious illness or syndrome among over 18,000 veterans participating in the CCEP. The Department's findings are consistent with a review of the CCEP conducted by the Institute of Medicine, National Academy of Sciences which was released in January 1996. In September 1996, the data set for the CCEP was made available to qualified scientific researchers interested in conducting further analysis.

In addition to providing comprehensive clinical care to Gulf War veterans, the Department has initiated an aggressive research program. Although the types of conditions identified among CCEP participants appear similar to those seen in the general population, formal research studies involving appropriate comparison populations are needed to determine the degree to which certain kinds of symptoms and diagnoses may or may not be common among Gulf War veterans. DoD medical research efforts are ongoing in a variety of areas including reproductive health, leishmaniasis, health effects of exposure to depleted uranium, pyridostigmine bromide, and possible chronic health effects resulting from subclinical exposure to chemical weapons. As part of the President's commitment to better understand the illnesses reported by Gulf War veterans, the Departments of Defense and Veterans Affairs (VA) announced the award of $7.3 million for 12 research studies to government, nongovernment, and academic institutions on possible causes and treatment of Gulf War veterans' illnesses.

Last year, the Deputy Secretary of Defense established the Persian Gulf War Veterans Illnesses Investigation Team (PGIT) to look for possible causes of illnesses in veterans by evaluating the vast amount of documents from the war, and by investigating specific incidents and theories presented by veterans and others. A toll-free telephone line, 1-800-796-9699, was established to

allow veterans to provide information on incidents they feel may have affected their health. To date, over 1,100 incidents have been reported, and new information continues to be evaluated. The PGIT is composed of personnel with backgrounds in medicine, scientific research, military operations, military investigation, and military intelligence. The PGIT has been involved in the process of accumulating and declassifying health-related documents. The PGIT continues to work closely with the Services, the Intelligence Community, and other government and nongovernment agencies to gain a clearer understanding of factors surrounding the incidents and theories involving the health of Gulf War veterans. To date, the PGIT has not identified a causal relationship between any post war illnesses of Gulf War veterans and the incidents and theories under investigation. However, the need for continuing investigation and research is a Departmental priority. The PGIT has now become a part of a department-wide effort overseen by the Special Assistant to the Deputy Secretary for Gulf War illnesses.

The Department will continue to collaborate with other federal agencies and conduct comprehensive, cross-departmental programs to provide care to veterans and assess health consequences of service in the Gulf War. The Department has cooperated fully with the Presidential Advisory Committee on Gulf War Veterans' Illnesses, which has been reviewing and providing recommendations on the full range of government activities relating to veterans' illnesses. The committee released an interim report in February 1996. In response to the Interim Report, DoD, VA, and DHHS developed a coordinated plan of action submitted by the Persian Gulf Veterans Coordinating Board that responds to the Advisory Committee's interim recommendations.

PREVENTIVE HEALTH CARE

The Department is conducting a program to improve breast cancer services for beneficiaries, utilizing funds allocated in the National Defense Authorization Act for FY 1996. The goals of the Breast Cancer Prevention, Education, and Diagnosis Program are to provide training for primary health care providers in early detection, to minimize breast cancer risk, and to optimize health care availability while emphasizing access and follow-through. TRICARE regions are providing education and counseling programs on breast self-examination, developing novel education and training programs for primary care providers, examining ethical considerations and decision making in genetic testing, and seeking better psychosocial support programs for patients and family members diagnosed with breast cancer. The TRICARE Prime Program features a number of preventive health care benefits, including recently enacted legislation adding colon and prostate cancer screening.

TELEMEDICINE

Telemedicine combines highly technical communications and emerging medical technologies to deliver health care that is time and distance independent. Reducing space and time in the delivery of health care is an obvious benefit for military medicine as the continuum of military operations expands and U.S. forces engage in missions worldwide. Telemedicine benefits military medicine and will also benefit health care providers because they will be able to work more closely so distance and time will not be factors. Rapid advances in communications and related technologies continue to expand the usefulness of telemedicine. Within the MHSS, many telemedicine initiatives have moved from the conceptual stage to operational prototypes.

The Department deployed telemedicine capabilities in support of U.S. forces in Operation Joint Endeavor under the PrimeTime III Project. This project not only provides day-to-day telemedicine support to health care providers and military patients but serves to validate the operational concepts for such capabilities. Today's provisional telemedicine links between deployed U.S. forces (for example, in Bosnia, Hungary, and aboard ship) and military hospitals in the United States support diagnostic consultation, long-distance medical mentoring, and delivery of care. The PrimeTime III Project will serve as the basis for integrating telemedicine within the theater of operations. Medical areas of concentration include trauma care, radiology, dentistry, pathology, surgery, dermatology, psychiatry, speech therapy, obstetrics and gynecology, pediatrics, infectious disease surveillance, and support of epidemiological field investigations.

These efforts are built upon prior work done under the Pacific Medical Network Program and AKAMAI Program in the United States Pacific Command. Through that program, communications technologies, computer software, and MHSS information technology components were prototyped. These components not only have applicability to deployed forces but ultimately will change the way that the Department provides support through information management and technology systems worldwide. These technologies are expected to become much more widely applied in military and

civilian health care delivery, medical training and education, and medical research. Through these and other technologies, DoD expects not only to make significant improvements in the delivery of peacetime health care, but also to project expert medical care forward on the battlefield to save casualties who would have been among those killed in action in previous wars.

JOINT EFFORTS WITH THE DEPARTMENT OF VETERANS AFFAIRS

Under the auspices of Reinventing Government-Phase II, Vice President Gore tasked the VA and DoD, with the assistance of the Office of Management and Budget, to assess the potential for achieving additional improvements between the two federal health care systems and to report recommended strategies. The Vice President asked that a joint study be initiated to reduce the cost of providing government services and to increase the level of beneficiary satisfaction with those services. The report was forwarded to the Vice President in May 1996. Opportunities that DoD and the VA will continue to explore will include:

- Joint ventures, including shared services and use of DoD and VA facilities.
- Combined purchasing power to reduce costs and improve services.
- Improvement in education and training programs, including Graduate Medical Education.
- Appropriate agreements enabling the provision of medical care to DoD beneficiaries by VA medical centers under the TRICARE managed care support contracts.
- Coordination of the development of specialized care for specific types of conflict-related injuries (for example, spinal cord injury, blindness, amputation, and traumatic brain injury).
- Development of arrangements whereby DoD beneficiaries can receive appropriate specialized care (for example, head trauma and rehabilitative care) from VA medical centers.
- Incorporation of improved clinical guidelines using resources of DoD, VA, and other private and public sector agencies.
- Continued close cooperation on post-deployment research, epidemiology, and clinical care; strategy developmentforanticipatingfuture-post-deployment issues.
- Opportunities to share the assessments of emerging and established technologies and to standardize the methodologies used between the DoD and VA.
- Development of joint and coordinated efforts in developing telemedicine as a means to improve readiness and patient care.

THE CIVILIAN WORK FORCE

Recruiting and Hiring

The Department has maintained a well-trained and diverse civilian work force, while the significant reduction in the size of that force continues. Since October 1989, DoD has reduced civilian employment by approximately 304,000 positions and plans to cut an additional 84,000 jobs by September 2001, when the planned personnel downsizing will be complete. The result will be an efficient work force shaped to meet the challenge of supporting the National Defense Strategy.

Despite the overall reductions, the Department will hire about 20,000 new employees each year. Through an innovative agreement with the Office of Personnel Management (OPM), DoD may now conduct its own examining, buy services from OPM, or use a combination of the two approaches to rate and rank applicants for vacancies and to make competitive service appointments. By delegating this authority to the installations and regional civilian personnel offices, DoD has enhanced the hiring process by speeding up an applicant's entry on duty and empowering personnel offices to meet the recruiting and hiring challenges brought about by evolving mission requirements.

Effective Use of the Civilian Work Force

The drawdown of military forces has required an increased reliance on Defense Department civilian and private contractor support during military operations. Civilians are an integral part of the Total Force and are vital to the sustainment and flexibility of U.S. forces. Department civilians now perform or oversee many support tasks formerly done by military personnel, such

as intelligence, communications, translation services, and morale and welfare operations. As various weapons systems have become more sophisticated, civilians have become more critical to their maintenance. The inclusion of civilian assets during deliberate planning significantly enhances force readiness and sustainment by ensuring more rapid, efficient, and effective use of U.S. military forces.

Civilian Downsizing and Transition Assistance

The Department uses innovative personnel programs and incentives to provide a soft landing to employees who are displaced. As a result, less than 10 percent of civilian strength reductions have come about through involuntary separations. Since buyouts were first approved in 1993, DoD has offered over 91,000 incentives. In that same time, the Department has reabsorbed over 30,000 employees through the Department's Priority Placement Program. Through operations of the Defense Outplacement Referral System, over 1,500 employees have gone to other federal employers and many more have been hired by private and other public employers.

DoD has added the Non-Federal Hiring Incentive, which Congress authorized in the FY 1995 National Defense Authorization Act, at all closing bases. This incentive encourages private and public employers to hire DoD workers facing separation by providing payments of up to $10,000 per worker for retraining and relocation. It has been used at Mare Island Naval Shipyard, Vallejo, California; Philadelphia Naval Shipyard, Philadelphia, Pennsylvania; and Naval Aviation Depot, Alameda, California.

The FY 1996 National Defense Authorization Act also allows DoD activities and installations to manage the impact of downsizing by encouraging employees to volunteer to be separated in lieu of another employee who is slated to be separated by reduction-in-force procedures.

Family-Friendly Workplace Initiatives

To help ensure innovative and proactive support of the President's Family-Friendly Workplace Initiative, the Deputy Secretary of Defense urged the heads of the military departments and the defense agencies to personally support and encourage the use of flexible work arrangements like alternative work schedules and telecommuting. It is estimated that over 40 percent of the DoD work force is now using some type of alternative work schedule.

The Department has been an important participant in the development of a program of telecommuting for federal employees. In support of the National Telecommuting Initiative, the Department is conducting a telecommuting pilot project to encourage greater use of telecommuting and to determine how telecommuting can be most effectively employed. Under the pilot, a central fund has been established to underwrite the expenses associated with using General Services Administration (GSA) telecommuting centers. Over 200 DoD employees are now using the GSA telecommuting centers. Because of DoD's leading role in the telecommuting area, the Department has been invited to become a founding sponsor of Telecommute America, a public/private effort to promote utilization of telecommuting nationwide.

Civilian Training, Education, and Development

While the Department continues the downsizing of the civilian work force, attention is turning to the need to build up the competencies and capabilities of the remaining and incoming force. New employment initiatives are emerging that include more systematic civilian force planning, more deliberate training and education, and more organizational and functional mobility.

To improve civilian leadership, the Department is establishing a systematic program of training, education, development, rotation, and selection within and across the DoD components called the Defense Leadership Management Program. This program will prepare, certify, and continuously educate and challenge a highly capable, diverse, mobile cadre of career senior civilian managers and executives. It provides a framework for the alignment of current and future leadership programs. The program will use many of the approaches that have proved effective in the military. Organizational and occupational mobility shall be a condition of selection and geographic mobility will be strongly encouraged.

Defense Partnership Council

Chartered in June 1994, the Defense Partnership Council (DPC) is composed of senior management officials and key leaders from the Office of the Secretary of

Defense, defense agencies, the military departments, and major union officials who represent approximately 1,700 bargaining units located throughout the world. The DPC has taken important steps in the process of transforming labor-management relations from the traditional adversarial mode to a cooperative model based on partnership and mutual respect. The Office of the Assistant Secretary of Defense for Force Management Policy is conducting an extensive labor-management cooperation training and facilitation program. This program encompasses interventions in labor-management relations, including partnership facilitation and training, labor-management skills training and education, facilitation of negotiations, consultative assistance, co-mediation, and the application of Alternative Dispute Resolution. This latter program has been helpful in approximately four dozen interventions, with many more planned for the future. In FY 1996, 4,500 personnel specialists and labor-management officials were trained in Alternative Dispute Resolution.

Civilian Personnel Regionalization and Systems Modernization

The Department has made great strides in its efforts to regionalize civilian personnel services and develop a modern information system. DoD's goal is to improve service while reducing costs. The Department began this effort with a ratio of personnel specialists to employees serviced of 1:61. By the end of FY 1996, the ratio was approaching 1:68. This ratio will continue to improve after the modern system is deployed and regionalization of personnel services is complete. The reductions in personnel specialists that will be achieved when DoD reaches this goal will meet or exceed the Department's National Performance Review streamlining targets.

With input from the military departments and defense agencies, the Department developed a regional service delivery model based on a number of successful prototypes implemented since 1986. Regionalization capitalizes on economies of scale by consolidating DoD's civilian personnel operations into 23 regional service centers and approximately 350 customer support units. Administrative processing operations and program management activities are being moved into regional service centers, while operations requiring face-to-face customer interaction will remain at customer support units. Through the end of FY 1996, the military departments and defense agencies have established 12 regional service centers and approximately 20 percent of their customer support units. With planned program and funding support for regionalization and modernization, an additional 11 regional service centers will be established by the end of FY 1998.

The Department is continuing to modernize its civilian personnel data system with deployment expected to begin during FY 1998. DoD is using a commercial off-the-shelf human resources information system as the basis for its modern data system. Managers will have access to an easy-to-use data system through graphical user interfaces which will improve speed and accuracy of personnel information. This approach reduces development time and resources and implements private sector best practices wherever possible.

Consolidated Advisory Services to the Field

Establishment of Field Advisory Services (FAS) in 1994 eliminated two or three human resources management layers between base-level human resources offices and the policy offices at the headquarters. FAS is the principal source of advice and guidance to all defense organizations worldwide on civilian human resources management issues and questions in the areas of employee benefits, entitlements, compensation, travel, classification, and labor relations. FAS provides service to 12,500 human resources specialists in over 350 full-service offices who, in turn, provide service to more than 800,000 DoD employees.

FAS, the first organization of its kind in DoD, constantly strives for higher quality and faster customer service. FAS continues to provide answers to 86 percent of the inquiries within one work day and 94 percent within three work days.

Chapter 11

FINANCIAL MANAGEMENT REFORM

During the last three years, improvement of the Department's financial management (FM) has been a top priority. Early on, DoD leaders concluded that the Department's FM deficiencies were more fundamental and entrenched than previously recognized. The remedy has been the most comprehensive reform of FM systems and practices in DoD history. Progress has been substantial, but more work still lies ahead.

The Department's FM 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, meets statutory requirements, maximizes efficiency, minimizes fraud, and provides superior customer service.

PROBLEMS AND CAUSES

Since its formation in 1947, the Department of Defense has had a decentralized mode of operations. A benefit of that has been high effectiveness and initiative within the Services and the other organizational components of the Department. Until recent reforms, however, a drawback has been that these DoD components managed their own budget, finance, and accounting systems. As a result, they developed their own processes and business practices, geared to their particular mission and with little need to achieve compatibility with other DoD operations. As defense missions became more complicated and DoD organizations were required to interact more with each other, systems incompatibility and lack of standardization took a toll. Rather than redesigning its organization or standardizing its multitude of systems, the Department developed increasingly complex business practices to link its systems.

Such complexity left DoD financial systems prone to error or to demands that could not be met with the systems, personnel, or time available. No matter how good the people operating the systems, problems were inevitable. Moreover, there was an inherent inefficiency in having scores of incompatible organizations performing virtually identical functions. For example, there was only one pay schedule for military people and one for DoD civilians, yet the Department maintained dozens of different pay systems. This chapter highlights reforms to solve these and other DoD financial management problems.

REFORM INITIATIVES AND CONSOLIDATIONS

Defense Finance and Accounting Service and the Consolidation of Financial Management Operations

Since its activation in January 1991, 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 9,800,000 payments to DoD personnel; 830,000 commercial invoices; 730,000 travel vouchers/settlements; 550,000 savings bond issuances; and 200,000 transportation bills of lading. Total monthly disbursements average $25 billion. Through its various initiatives, DFAS has made savings in operating costs that will total $1 billion by the end of FY 1997.

There are two types of DoD FM systems. Finance systems process payments to DoD personnel, private contractors, and the like. Accounting systems record, accumulate, report, and analyze financial activity, including revenues and other receipts. Before DFAS was established, the Department had 291 of these finance and accounting systems.

Until consolidation began, the Department's many financial systems operated from about 330 field activities or sites. By November 1998, DFAS will have reduced these to five DFAS Centers and no more than 21 operating locations. As of January 1997, 70 percent of the consolidation is complete. This site reduction, along with the consolidation of finance systems, will carry many benefits. It will eliminate redundancy and unnecessary management layers, facilitate standardization, improve and speed up operations and service to customers, increase productivity, facilitate expanded use of innovative technology, and enhance the FM support of DoD decision makers.

In addition to revamping internal systems and practices, the Department is reaching beyond its organizational confines to find the best way of doing business. For example, DFAS has initiated DoD versus private sector cost comparisons in the functional areas of logistics and administrative support of its facilities and vendor pay in support of the Defense Commissary Agency. The objective is to determine how best to provide the most cost-effective financial services. For some functions, that may mean contracting out to the private sector. For example, in two business areas, printing/publications and base support for the Navy, the Department plans to enhance operations using commercial accounting systems.

Consolidation of Finance Systems

As reform is carried out, existing finance and accounting operations must continue to operate. People must be paid and accounts kept current. Because of these and other considerations, the consolidation of financial systems is being carried out in stages. The first step is to designate certain existing systems as migratory systems, into which all similar systems can be consolidated without serious difficulty. In preparing these designated systems for their expanded role, the Department adapts the best features of existing systems, corrects reasonably correctable deficiencies, improves processing and reporting capabilities as much as possible, and seeks cost savings.

The next step is to develop optimum follow-on systems, drawing on lessons from the migratory systems and taking full advantage of the latest technology. The transition to these optimum systems then proceeds at a pace determined by the resources and technologies available to facilitate transition and other circumstances.

The consolidation of DoD finance systems is nearly complete. By the end of FY 1997, the number of DoD finance systems will be reduced to 38 from the 1991 baseline of 94. The resulting annual savings will be $98 million. The long-term goal is to cut the number of DoD finance systems to only eight.

Consolidation of DoD's finance systems consists of the following:

- As of September 30, 1996, 622,000 civilian payroll accounts have been transferred to the Defense Civilian Pay System (DCPS). This represents an elimination of 17 legacy systems and the closing of 324 decentralized payroll offices. By mid-1998, DCPS will be fully implemented with all employees paid on one system from just four locations. This has been the largest and most complicated payroll conversion in history.

- In 1991, all military members were paid on one of 22 separate military pay systems. Today there are only three military pay systems and 78 percent of military members are being paid by the Defense Joint Military Pay System (DJMS) and the Marine

Corps Total Force System (MCTFS). By the end of FY 1999, DJMS will be fully implemented and all service members will be paid by either DJMS or MCTFS, eliminating 20 pay systems and the payroll processing function at 62 locations.

- The Defense Transportation Payment System (DTRS) successfully launched a completely paperless processing capability for freight transportation bills using Electronic Commerce/Electronic Data Interchange (EC/EDI) American National Standards Institute approved standards. This system is now used by a small fraction of total invoices but growth has been steady. In the first quarter of FY 1997, system functionality will expand to process personal property bills. DTRS standardization and consolidation of all DoD transportation payments at a single location will be completed during the fourth quarter of FY 1997.

- The Defense Retiree and Annuitant System was fully implemented in FY 1995 and now manages over two million accounts. When DFAS was created, retirees and annuitants were being paid through eight systems handling fewer than 2,500 retired pay accounts per employee. DoD now has one system, handling 3,400 accounts per employee.

- The Defense Debt Management System became operational in 1993. It standardizes the collection of debts from military and civilian personnel not on DFAS active payroll systems, as well as delinquent contractor payments. It replaced five distinct systems operated by DoD components.

- All DoD contract payments currently are made from an effective system called the Mechanization of Contract Administration System (MOCAS). However, vendor payments are made from nine different systems. Projects are underway to develop a single standard procurement payment system to replace these nine systems, as well as MOCAS. The goal is a system that will utilize advanced technology and a standard data warehouse that would be shared with the acquisition and procurement communities. Similarly, a standard disbursement system will be selected and improved to replace the current seven systems.

Consolidation of Accounting Systems

The Department is continuing its consolidation from 103 general fund and other departmental accounting systems in use in 1991 to 63 systems to the end of FY 1997 and ultimately to no more than nine systems. Simultaneously, DoD is improving these systems to make them compliant with generally accepted accounting principles and auditable information as required by the Chief Financial Officers Act of 1990. The target DoD accounting systems will be capable of providing accurate, timely, and auditable information. The Department is also working to improve significantly the link between accounting systems and the nonfinancial systems that handle logistics, procurement, and contracting. For the DoD Working Capital Funds (formerly the components of the Defense Business Operations Fund or DBOF), the target is to reduce from the 94 systems that existed in 1991 to 57 systems at the end of FY 1997 and ultimately to no more than 15 systems. As an added benefit, the consolidation of finance and accounting systems will reduce DoD costs for fixing its year 2000 software problem, a challenge now vexing nearly all computer users in both the private and public sectors.

STRENGTHENING INTERNAL CONTROLS

Eliminating Problem Disbursements

Problem disbursements in DoD financial operations occur when an expenditure has not been reconciled with official accounting records. Such occurrences are the result of a decades-old practice that allowed payments to be made after validation of the receipt of the related goods and services, but before ensuring there was a clear path back to the appropriate accounting entry. This practice is being phased out as quickly as possible, and DoD has been working hard to resolve problem disbursements that have accumulated because of it.

DoD has made substantial progress in reducing the two basic types of problem disbursements:

- Disbursements that have not been matched to an obligation (unmatched disbursements).

- Disbursements that exceed the obligations to which they have been matched (negative unliquidated obligations).

In June 1993, when DFAS began intense efforts to solve this situation, the Department had a total of $34.3 billion

in problem disbursements. By December 1996, the problem disbursements had been reduced to $8.6 billion using the same scoring methodology.

In addition, DoD has an extensive Business Process Reengineering effort underway to improve its disbursement process so as to minimize in-transit disbursements.

While DoD's problem disbursements have been a serious issue needing remedy, there is no basis for concluding that the expenditures involved were wasted. Each expenditure was made only after a Department official confirmed receipt of the subject goods or services and ensured that the payment was made in accordance with a valid contract. The Department has extensive procedures to safeguard that process. The failure was not having these valid and proper disbursements reconciled with accounting records in a timely manner.

To prevent future problems with disbursements, the Department is working toward requiring that every disbursement be prevalidated, that is, be matched to an obligation before payment is made. Since July 1996 for contracts centrally administered by the Defense Contract Management Command, the prevalidation threshold has been lowered to $4 million for payments by DFAS's Columbus Center. Prevalidation at the other DFAS centers is tied to a $1 million threshold, but many payments below that level are prevalidated as well. In addition, at the DFAS Columbus Center, all payments are now prevalidated to zero for new, centrally administered contracts awarded after September 1996. This total prevalidation excludes calls and orders against contracts awarded prior to October 1996.

In addition, the Department has multiple initiatives in process to further eliminate problem disbursements, specifically:

- Gradually lower the prevalidation threshold to zero for all payments.
- Provide disbursement voucher information to the DoD Internet for access and recording by accounting stations.
- Pilot testing the matching of payments and accounting data using a data warehouse.

During the next year, the Department expects these initiatives to allow a steady reduction in the thresholds on existing contracts, with the ultimate goal of prevalidating all disbursements.

Overpayments to DoD contractors constitute another area receiving intense management attention. Table 7 shows DoD's dramatic reductions to the scope of the problem. While contractor overpayments must not and will not be tolerated, it is important to put them in proper perspective. DFAS's Columbus Center processes contractor payments totaling $90 billion annually, or about $35 million in disbursements per hour. Of this total, contractor overpayments amount to about 0.3 of 1 percent. In other words, DoD is about 99.7 percent accurate. Major initiatives are well underway to further improve this area by the end of FY 1997.

Table 7
Contract Overpayments (Dollars in Millions)

1993	1994	1995	1996
$592	$293	$244	$184

Funds Distribution and Internal Controls

Funds within the Department traditionally have been distributed and controlled in various ways, using either manual or automated systems, or a mixture of the two. This situation has made department-wide control of funds very difficult. To improve control, the Department has begun to utilize the Program Budget Accounting System (PBAS) to standardize the distribution of funds. PBAS, previously used only in the Army, is now used for the defense agencies, and similar improvements are being made in other systems for the remaining Services.

The Department has taken bold action to ensure the accuracy and timeliness of its financial transactions and to prevent Antideficiency Act violations. There is a new requirement for more frequent and complete reviews of commitments and obligations of funds. The Department has undertaken major efforts to ensure compliance with the Federal Managers Financial Integrity Act, and DoD components have strengthened their internal financial controls. There also is increased emphasis on training to foster strong FM and to prevent problems like antideficiency violations.

A major problem preventing the Department from certifying its financial statements has been a lack of

accurate accounting for capital assets, including real property. To solve this, DoD leaders developed the Defense Property Accountability System to support and enable proper accountability of all capital assets at DoD installations. With all DoD property controlled in a single system, the Department can eliminate the need for the 150 property systems previously in existence.

Reforming the Contractor Payment Process

For the past 30 years, all cost vouchers for goods and services purchased on government contracts had to be submitted to government contracting officers or the Defense Contract Audit Agency (DCAA) for approval before being sent to a government payment office. The interim approval process substantially delayed payments and required extensive effort by DCAA, government contracting officers, and contractors themselves. The process involved more than 100 different DCAA field audit offices and 4,000 contractors and approval of 350,000 vouchers annually.

DCAA has now implemented a program that allows direct submission of cost vouchers to DFAS by contractors who maintain adequate policies and procedures for the preparation of such vouchers. DCAA continues to provide oversight by periodic review of contractors' preparation of vouchers and by examining a sampling of paid vouchers.

About 80 percent of government contractors are expected to be eligible eventually for the direct submission program. This will result in a significant savings of auditor time, without putting accountability at risk. The program also facilitates the transmission of contractor voucher payments using Electronic Data Interchange, another source of savings and efficiency.

Computer Security and Fraud Detection

In June 1994, the Department established Operation Mongoose to detect fraud and reduce the vulnerability of its computer networks to intrusion. For example, to identify potentially fraudulent payments to individuals or contractors, data matches can be made from multiple sources — most notably from the civilian, military, retired and annuitant, vendor, and transportation pay systems. While Operation Mongoose is designed to detect potential cases of fraud or abuse in the tens of millions of financial transactions undertaken every year, it also has a more important agenda — to reduce financial system vulnerabilities to intrusions, identify potential weaknesses in internal controls, and make it harder for would-be culprits to abuse payment systems.

Last year, Operation Mongoose was the catalyst for a government-wide conference that focused on using computers to detect and prevent fraud against a wide variety of government programs. Efforts are now underway to develop vehicles for advancing this crucial work.

REENGINEERING BUSINESS PRACTICES

A critical aspect of the Department's financial management reform is the reengineering of its business practices, which are the procedures by which management and administrative systems function. The goal is to make DoD business practices simpler, more efficient, and less prone to error. Reengineering is being achieved by the revision of existing policies and procedures and the increased standardization, consolidation, and compatibility of existing systems.

DFAS is achieving a significant reengineering of the associated financial operations business practices. Its streamlining of systems and locations is central to DoD efforts to facilitate standardization, improve accountability, reduce data incompatibility, and improve customer service.

Improving Exchange of Financial Information

DFAS is using a number of reengineering technology initiatives to promote the paperless exchange of financial information:

- Electronic Funds Transfer (EFT) is reducing the cost of disbursements. Over 91 percent of DoD civilian employees and military members paid by DFAS have their pay directly deposited into their accounts. The Direct Deposit participation rate for travel payments has increased from 17 to 48 percent. In 1996, 57 percent of the DFAS major contract payments were by EFT. This accounted for 81 percent ($54 billion) of total contract dollars disbursed. This percentage is expected to increase with DoD implementation of the Debt Collection Improvement Act of 1996.

- The use of EDI or computer-to-computer exchange of business transaction information in accounting

and vendor pay systems is streamlining DoD business processes and reducing data errors and transaction costs. DFAS, working with the business community, received approximately 800,000 EDI vendor invoices in FY 1996. This initiative will be further expanded in the next year.

- The use of EDI to process DoD transportation freight payments is increasing. The percentage of government bills of lading issued by the DoD transportation community using EDI grew from 10 percent in FY 1995 to 65 percent in FY 1996. Currently, 20 percent of the Department's freight invoices are now received by EDI from private industry. When the requester, shipper, carrier, DFAS, and General Services Administration use EDI, costly manual audits are eliminated.

- The DFAS Major Contract Payment System received 10 percent of progress payments and commercial invoices in FY 1996 and will reach a 40 percent volume level for all such transactions in FY 1997. DFAS is currently working to receive and process contracts, contract modifications, and receiving reports into the finance and accounting systems via EDI transactions. DFAS is sending EDI remittance information directly to vendors.

- Electronic Document Management (EDM) is designed to provide users with on-line access to financial documents and information, advance the application of new methods and technologies, ensure the consistent implementation of business practices, improve the delivery of customer service, and reduce operating costs. EDM involves the collective application of three technologies, imaging, electronic foldering, and workflow. The current focus of the EDM program at the DFAS Centers and Operating Locations is on bill paying. EDM is currently being tested and installed at the DFAS Columbus Center and the Omaha Operating Location, with deployment to all DFAS operating locations in the near future.

- Electronic Document Access is a major element within EDM which uses the Internet and World Wide Web technology as a means of sharing documents across the Department. DFAS has partnered with the Navy acquisition community, the Defense Information Systems Agency, and the Defense Printing Service to develop an intranet application that provides DoD-wide on-line access to contracts and other documents stored at remote locations. The primary advantage of the EDM approach is to produce enterprise-wide solutions to document production and storage without requiring wholesale change to business practices.

- The civilian pay functional area has been reengineered to permit the capture of data at its source. Time and attendance data is recorded by timekeepers located at the employing activities via on-line system entry or by off-line entry into PC based systems. Customer service representatives located at employing activities perform on-line system updates to employee specific data such as home address; Savings Bond data; federal, state, and local tax data; and savings allotments. Entitlement data such as salary, health, and life insurance and Thrift Savings data are received directly from the personnel system via an automated system to system interface.

To improve DoD business practices, DFAS's information systems experts are reengineering software development, thus making improvements in requirements management, project planning and oversight, software configuration, and quality assurance.

Garnishment Operations

DFAS is continuing the reengineering of all 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. Each month, DFAS now processes over 12,000 garnishment orders at a consolidated single location. Previously, it was done at five different locations. Over the next three years, DFAS will implement further improvements. Most notably, DFAS will integrate EDI, imaging, and artificial intelligence into garnishment operations to increase efficiency and cut costs.

Government-Wide Purchase Card Expansion

Another important example of DoD reengineering involves the government-wide purchase card, known as the International Merchant Purchase Authorization Card. Since starting in 1989, the Department's participation in the purchase card program has grown now to include over 72,000 cardholders making purchases totaling nearly $2 billion annually. Although this purchasing constitutes about half of the U.S. government

total, DoD leaders believe that use of the purchase card can and should be expanded.

The purchase card streamlines purchase approvals, generates less financial documentation, reduces costs, and speeds up vendor payments. The purchase card enables the Department to use bulk commitments and obligations in accounting for purchases, use summary accounting for groups of purchases instead of detailed lines of accounting for each transaction, and use an accelerated invoice reconciliation process with the purchase card issuer. Finally, its use supports the goals of the National Performance Review and benefits both the government and its vendors.

DFAS processes about 10 million commercial invoices per year, over three-quarters of which are within the $2,500 (micro-purchases) threshold for the purchase card. To get more of these made with the purchase card, two parallel process action teams were formed. The teams made 57 recommendations to improve DoD business practices and increase dramatically the number of cardholders and card purchases.

Many of the initiatives will not only improve business practices, but also ensure savings for DoD. For example, practices such as using an accelerated invoice reconciliation process will enable DFAS to make faster payments, virtually eliminating interest payments due to the Prompt Payment Act. Summary accounting for groups of purchases will reduce the costs, the amount of time, and the size of the workforce needed to process individual items. Customers will also benefit from rebates and lower rates as a result of electronic payments.

Travel Reengineering

Another important reengineering effort is simplifying the process for temporary duty travel by DoD civilian and military personnel. In 1995, the Deputy Secretary of Defense directed sweeping changes in its travel processing based on the recommendations of a DoD-wide task force. In order to implement these recommendations, the first action was to establish a Reengineering Travel Transition Office to formulate policies and procedures for temporary duty travel. In September 1995, a Program Management Office was constituted to design and acquire a new Defense Travel System. The vision of this new system is to develop a seamless, paperless system that meets the needs of travelers, supervisors, and process owners; reduces costs; supports mission requirements; and provides superior customer service. The Department will rely on the private sector for most travel-related services — except for the obligation and approval of funds, final accounting, and random audit.

Features of the reengineered TDY system include:

- Simple policies and entitlements focused on mission requirements and respectful of the integrity of travelers and commanders.
- A single trip document to serve as travel order, voucher, and itinerary record.
- Maximum use of government travel credit cards to eliminate cash advances.
- Exclusive use of commercial travel offices for all travel arrangements and cost estimates.
- Simplified accounting to enable supervisors to track travel budgets.
- Random and exception-based audits instead of 100 percent audits.

In June 1995, the Department established 27 pilot sites representing the Joint Staff, the Services, and seven defense agencies to test the concept of operations for the new Defense Travel System. Some 50,000 DoD personnel are participating in the tests. Initial results from the pilot sites suggest that processing costs for travel could be cut in half with reform.

Standardization of Data

The standardization of financial management data throughout the Department is crucial to reform. It facilitates the consolidation of financial systems, enables the sharing of data and greater compatibility between financial and nonfinancial systems, and supports the reengineering of business practices. Until recent consolidation efforts began, DoD finance and accounting systems managed 100,000 data elements. Detailed data modeling has indicated that DoD financial operations eventually could be conducted with fewer than 800 carefully designed standard data elements. As of June 1995, the Department has adopted 540 standard data elements; additional elements are likely to be added in the future.

Also supporting reform is an ambitious effort to standardize and share acquisition data. This will greatly improve the interactions between DoD procurement systems and the financial systems that process and account for payments of procurements.

To foster standardization beyond data elements, the Department is consolidating financial policy and procedures into a single 15-volume DoD Financial Management Regulation. Now nearly complete, this effort replaces a myriad of existing regulations and clarifies and expands upon many FM policies and procedures. All volumes are currently available in hard copy format. Six of these volumes are available on CD-ROM and electronically on the DFAS-Cleveland Bulletin Board. All future updates will be distributed on the Internet on the DoD Comptroller's home page. Any hard copy or CD-ROM needed will be obtained on demand from the Defense Printing Service.

Management Incentives

A fundamental aim of DoD reform is to use financial controls more effectively in supporting desirable management incentives. For example, a key goal of the DBOF initiative has been to guide management decisions toward genuine cost consciousness by prescribing that all relevant data be included in the costs affecting those decisions. To encourage greater cost effectiveness, the Department is devising ways to track budget expenditures relative to their associated outcomes, as required by the Chief Financial Officers Act and the Government Performance and Results Act.

CONCLUSION

Financial management in the Department of Defense is a work in progress. There have been notable successes, but progress is slow in some areas. It is impossible to reverse decades-old problems overnight, and some reforms will require several years of transition, experimentation, reengineering, and modernization.

In moving ahead, DoD financial management reform must accommodate two unavoidable constraints. First, the Department cannot stop its financial operations while it fixes outdated business practices and flawed systems. Every day, the Department must manage payrolls, process payments, and produce financial reports. These daily operating requirements impose a strong practical test on all plans for changing systems and business practices.

A second constraint is that lasting reform demands consensus and collaboration. Few solutions rest exclusively within the jurisdiction of the financial management community. Reform of DoD financial management invariably entails changes in the business practices of other defense organizations and functional groups — like the personnel, acquisition, or logistics communities. This demands an unusual degree of consensus building and collaboration. This slows the pace of change, but there are no viable shortcuts. Pressing ahead without consensus and collaboration will not produce lasting reform.

DoD's leadership is committed to making financial management reform a hallmark of its stewardship. Progress to date has been substantial, and the Department is determined to complete this historically significant challenge.

Chapter 12

ACQUISITION REFORM

The Department of Defense has long recognized the need to find ways to streamline its acquisition system and reduce the cost of the acquisition process both to DoD directly, by reducing DoD's administrative costs, and indirectly, by reducing the costs of DoD's supplier base and thus the amount of money DoD pays for supplies and services received. Complicating DoD's desire to streamline the acquisition system and reduce costs is DoD's obligation to ensure the integrity of the system, both in terms of the system's treatment of the supplier base and in terms of the way in which the taxpayer's dollars are spent.

For many years, DoD suggested to Congress that congressionally imposed government unique requirements, terms, and conditions made it impossible for DoD to make any significant headway in streamlining the acquisition system and processes. Congress responded to this suggestion in the National Defense Authorization Act of 1990, by directing that DoD organize a panel of representatives from government, industry, and academia to study the laws impacting acquisitions and make recommendations about those statutes. The panel finished its work, identifying over 600 statutes that applied to acquisition within the Department. The panel reviewed almost 600 laws pertaining to acquisition and procurement, almost 300 of which were recommended for repeal or amendment. DoD submitted the panel's report to Congress in January 1993. This report forms a large part of DoD's foundation for reforming the acquisition process.

During 1993, the Vice President reviewed the way the government operates and made recommendations for improvement. His report is now known as the National Performance Review (NPR). One chapter of the NPR deals with problems in the way the government's acquisition system responds to its internal customers. The report found that DoD acquisition is a rules laden system which stifles, rather than encourages, risk management.

Based on the recommendations of the panel and the NPR, DoD developed a vision for reforming DoD's acquisition system. The vision was shared with Congress in February 1994 and was entitled Acquisition Reform — Mandate for Change. In that document, the Secretary of Defense identified the need to move DoD from its web of laws and regulations to guiding principles. The vision also identified the need to reengineer the entire system, one process or step at a time, to ensure that DoD would become the smartest,

most efficient, most responsive buyer of best value goods and services that meet the warfighters' needs, relying upon a globally competitive national industrial base to satisfy DoD's requirements.

In the execution of this vision, DoD formed teams of people from throughout the Department, civilian agencies and, where permitted, industry to identify problems, recommend solutions, and develop implementation plans. For the first time, DoD worked hand-in-hand with its industry counterparts to satisfy mutual interests.

ACQUISITION REFORM LEGISLATION

DoD will continue to work hard with the Administration and Congress to ensure that it can take full advantage of the improvements already made. DoD seeks additional legislative changes that will allow it to fully benefit from the work done by both the panel and the NPR. DoD also seeks legislation that allows the Department to maintain its commitment to the small business community and helps that community become an integral part of a globally competitive national industrial base.

Many of the important recommendations made by the NPR were codified in the Federal Acquisition Streamlining Act of 1994 (FASA). A number of significant pieces of legislation further advance the changes made by the FASA. The first among these is the Clinger-Cohen Act of 1996 (the Act, formerly known as the Federal Acquisition Reform Act of 1996 (FARA) and the Information Technology Management Reform Act of 1996 (ITMRA)), signed into law in February 1996. The Act provides a number of significant opportunities for DoD to further streamline and reduce nonvalue added steps in the acquisition process. Among the most significant changes authorized by the Act is a test of the use of simplified acquisition procedures (SAPs) for commercial items between the simplified acquisition threshold (SAT) of $100,000 and $5 million. This should allow DoD to reduce its administrative costs, and the overhead costs for DoD's vendor base, for purchases of relatively low risk items. This change should also give the Department greater access to the commercial marketplace by eliminating government unique requirements previously cited by industry as a barrier to doing business with DoD. The Act also provides the authority for contracting activities to use SAPs for all requirements between $50,000 and the SAT while the government works to fully implement Electronic Commerce/ Electronic Data Interchange (EC/EDI).

The Act also provides substantial relief from cumbersome processes that add little value, but significant cost, to the acquisition of information technologies. The passage of the Act allows DoD to focus on the appropriate use and management of information technology resources. It should also reduce the amount of time an information technology acquisition takes by reducing the number and frequency of protests, while moving the Department in the direction of the use of sound acquisition strategies.

The final piece of significant legislation was the FY 1996 Defense Authorization Act, in which Congress provided DoD authority to align the preparation of independent cost estimates with the level of milestone decision authority.

ACQUISITION REFORM IMPLEMENTATION

5000 Series Rewrite

The new policy and procedures resulting from DoD's initiative to rewrite the DoD 5000 series represent dramatic change in almost every major aspect of the way DoD traditionally does business. The major accomplishments of the new policy and procedures include:

- Implementing Landmark Legislation. The new documents fully implement FASA.

- Implementing the Recommendations of the Roles and Missions Commission. The new policies also implement the recommendations of the 1995 Commission on Roles and Missions of the Armed Forces. For example, the new documents now state a clear preference for contractor-provided logistics support and direct the collocation and consolidation of joint programs at the lead component's program office.

- Minimizing Mandatory Direction. The new policies explicitly recognize that tailored management approaches are a key element in successful program execution. To facilitate this approach, the new documents set forth only a minimal set of mandatory directions and encourage program managers to tailor acquisition strategies.

- Policy Integration. The new policies consolidate and integrate acquisition policy and procedures for both weapon systems and automated information systems (AISs). This integration provides common guidance for system development and oversight where possible, conforms to congressional direction for major AIS oversight, and applies software management and acquisition principles to software-intensive weapon systems.

- Decentralizing Policy Execution. While the new documents articulate a few guiding principles for all acquisition across the Department, mandatory procedures are set forth only for major programs. In this way, the acquisition executives of the military departments and defense agencies are empowered to manage programs under their purview as they see fit.

- Institutionalization of New Ways of Doing Business. The new policies institutionalize Integrated Product Teams (IPTs) as a means of bringing representatives of all functional disciplines together as a team to build successful programs, identify and resolve issues, and make sound and timely recommendations to facilitate decision making.

- Regulatory Streamlining. The new documents represent a significant reduction in regulatory volume. The previous version of the policy documents was over 1,000 pages; the new version is only 160 pages. This reduction helps DoD implement Executive Order 12861 to reduce the volume of internal management regulations.

- Streamlining Paperwork. The policy documents mandate standard formats for only a handful of reports and cancel a 300-plus page manual that established mandatory formats for numerous acquisition reports and fostered a one-size-fits-all approach to documentation.

- Simplifying the Acquisition Decision Process. The new policy eliminates the former Milestone IV decision point and states a preference for the Defense Acquisition Board to hold only one formal production review (either at the low rate or full rate point). The other production review will be delegated to the lead Service or agency.

- Encouraging Innovation. The new policy encourages acquisition professionals to innovate through a variety of practices and techniques, including such nontraditional approaches as advanced concept technology demonstrations and rapid prototyping.

DEFENSE ACQUISITION PILOT PROGRAMS

The FY 1995 Defense Authorization Act authorized the Secretary of Defense to designate five programs to participate in the Defense Acquisition Pilot Program. The five programs are Joint Direct Attack Munitions, Fire Support Combined Arms Tactical Trainer, Joint Primary Aircraft Training System (JPATS), Commercial Derivative Engine-F-117 Engine, and Non-Developmental Airlift Aircraft. The pilot programs were afforded statutory relief under provisions of the FASA. In addition, the Under Secretary of Defense for Acquisition and Technology (USD(A&T)) designated certain medical, subsistence, and clothing items of the Defense Personnel Support Center and the C-130J program as regulatory relief-only pilot programs. All seven of the aforementioned programs were granted regulatory relief by the USD(A&T). These pilot programs are realizing substantial progress in demonstrating that, through the use of commercial products and commercial practices, military items can be acquired with improved development and delivery schedules, and at reduced contract costs and substantial gains in in-house efficiencies.

DEPARTMENT OF DEFENSE DUAL USE APPLICATIONS PROGRAM

The Department is seeking ways to decrease the cost of new systems by incorporating technologies used by the commercial sector. This is accomplished, in part, through the Dual Use Applications Program (DUAP). DUAP is structured to build on previous experiences with dual-use technology development programs (e.g., experience from the Technology Reinvestment Project) and allows the Services to develop and utilize technologies, processes, and products available to the commercial sector for military benefit. Inserting dual-use technologies during system development will result in increased affordability and performance for military applications; inserting commercial products and processes to upgrade existing military systems will lead to decreased support costs.

COMMERCIAL ADVOCATES FORUM

The Deputy Under Secretary of Defense (Acquisition Reform) established a new electronic Commercial Advocates Forum to accelerate implementation of the new DoD responsibilities to advocate the acquisition of commercial items and commercial practices use, while challenging and eliminating remaining barriers. The forum was launched as an active on-line community on Acquisition Reform Acceleration Day, May 31, 1996, (at URL http://www.acq.osd.mil/ar/cadv.htm) to facilitate communication with and among procuring activity commercial advocates.

ACQUISITION REFORM TRAINING

The education and training of the workforce are absolutely essential to effectively institutionalize DoD's major priority of accomplishing acquisition reform initiatives. Acquisition reform education and training are a major priority. In each of the required acquisition reform training plans, DoD encouraged the use of multidisciplinary teams to develop and present training to the workforce. DoD seeks to get the right message to the right people at the right time using the most effective method. A draft plan was developed to institutionalize this process within DoD.

Throughout 1996, the Department conducted and sponsored activities and events to educate and train the acquisition community's workforce. There were 11 satellite broadcasts covering FASA implementation, the SAT and Federal Acquisition Computer Network (FACNET), the Single Process Initiative (SPI), the Overarching and Working-level IPT Process, and EC/EDI. These broadcasts informed and educated the acquisition community on the new reforms. The satellite broadcasts included educational videos and an opportunity for workers in the field to ask questions, on the air, of a panel of experts in the various reform areas. Field response to these programs has been very positive.

The hallmark education event for 1996 was the Department's Acquisition Reform Day on May 31, 1996. This was an unprecedented event where the Department's entire acquisition community ceased normal operations and focused on discussing the institutionalization of acquisition reform initiatives. Commanders and managers at all levels took time out from their busy schedules to educate their personnel on pertinent acquisition reform changes and conduct open discussions of those changes. The purpose was to inform, discuss, and provide the Department leadership with feedback regarding what is working, not working, and needs improvement. The Acquisition Reform Day feedback also identified areas of concern and recommendations for further improvements of the acquisition processes. That data has been fully analyzed and acted upon. Acquisition reform must be a continuous improvement process — if the Department is to achieve and maintain its goal of being a world-class provider of goods and services.

DEFENSE ACQUISITION DESKBOOK

The Defense Acquisition Deskbook is an automated reference tool that provides acquisition information for all functional disciplines and all Services and DoD agencies. It is designed to provide easy access to the most current acquisition information and provides value in four ways. First, it provides a powerful impetus to reviewing regulatory guidance to determine what is mandatory and what is discretionary by providing a place for the identification of alternative practices and for capturing lessons learned. Thus, an empowered workforce can use its judgment on how to meet the objectives established in the guiding principles. Providing an information source that separates mandatory information from discretionary information leads to a streamlined regulatory regime.

Second, it ties together the acquisition community at all levels. The Deskbook includes guiding principles covering all acquisition disciplines and alternative practices used by all components, at all levels, and from all disciplines. Further, the Deskbook displays this information to every user in the Department. The expected result is a reduction in duplicative policies and an increase in the use of practices that reduce acquisition time and cost.

Third, it provides a direct, timely, and unfiltered link between DoD leaders and the front-line practitioner. In the regulatory based system where regulatory guidance was passed from the top to the bottom, each layer added interpretation and additional guidance. Thus, the practitioner did not know the real intent, the possible variations inherent in implementation, and the limitations on the guidance as it was initially promulgated. Allowing the practitioner to see the guidance as it was originally written, and allowing the practitioner to ask questions or provide comments through the Deskbook's bulletin board, ensures that the intent of the policy initiator is received by the policy implementer. Just as important, the policy implementer can inform the policy initiator of any unintended consequences.

Finally, the Deskbook is more than just a source of information that can be accessed quickly. It is a key to the most important part of acquisition reform — cultural change. One of the barriers to changing acquisition process is the difficulty in getting the message out as it is intended. By being an impetus for a reexamination of the current regulations, by allowing insight across the acquisition community, and by providing direct, unfiltered information to the entire workforce at the same time, the Deskbook creates cultural change. It does this by giving each member of the acquisition workforce the knowledge to do his or her job better and the freedom to ask questions and challenge assumptions.

SINGLE PROCESS INITIATIVE

In 1994, the Secretary issued a policy memorandum that fundamentally changed the way in which the Department described its requirements. The Secretary directed that performance specifications be used in all acquisitions unless approval was obtained to use a military specification or standard. This requires DoD to describe its requirements in terms of the performance desired and permits industry to offer DoD marketplace solutions that satisfy DoD's requirements. It also permits rapid access to technologies and reduces DoD's costs by allowing the Department to share overhead costs with industry's commercial customers. While this was a significant shift in the Department's behavior, it provided no relief for the tens of thousands contracts DoD previously awarded, which by virtue of their including numerous military-unique and component-unique specifications and standards require the use of multiple processes for essentially the same activity in the same contractor facility.

The Secretary issued guidance in December 1995 known as the Single Process Initiative that allows DoD to start eliminating multiple processes within contractor facilities. The Secretary directed DoD to accept the submission of contractor proposal/concept papers to reduce the contractor's multiple, government-directed business or manufacturing processes at a given site to a single process, where possible. Not only do the DoD contractors benefit from adoption of these process-oriented proposals, but DoD clearly benefits as well. By eliminating duplicative processes, the contractor also eliminates duplicative overhead and becomes more competitive in the global marketplace. As competitiveness increases, DoD realizes two advantages. First, application of the SPI technique contributes to establishment of a reliable source of supply or service to the government that can more readily survive periodic budgetary anomalies. Second, it helps DoD gain access to better and more advanced technologies in which the contractor has the opportunity and incentive to invest, maintain, and improve its global market share. The SPI program also ensures that the mutual benefits associated with this streamlining effort are not offset by administrative expense, by causing applicable government contracts to be modified via block change procedures.

GOVERNMENT PURCHASE CARD

DoD established a process action team (PAT) to look at ways the government purchase card can be promoted within the Department for micro-purchases, interdepartmental transfers, and as a payment vehicle for purchases over $2,500. At the same time, the Comptroller established a similar team to look at accounting and finance impediments to greater use of the purchase card. The teams were guided by a number of goals which included removing impediments to the use of the purchase card; streamlining funding and accounting for card purchases and payments; providing appropriate flexibility for use; and ensuring internal controls protect the government from fraud, waste, and abuse. The teams developed a simplified process for purchase card use with the thrust toward placing the card in the hands of the end-user organizations where it can be efficiently used to fulfill requirements, in keeping with a specific NPR recommendation.

ELECTRONIC COMMERCE/ ELECTRONIC DATA INTERCHANGE

In October 1993, the President issued a memorandum entitled Streamlining Procurement through Electronic Commerce. From July to September 1993, a DoD PAT developed an implementation plan to maximize the use of electronic commerce in contracting. The Deputy Secretary of Defense approved the 19 PAT recommendations on December 20, 1993. The report also formed the foundation for the federal government's process action team recommendation to implement Electronic Commerce in Contracting.

The Department has also worked closely with the Office of Federal Procurement Policy and other agencies to help implement the President's October 1993 memorandum. The Department is participating in a new effort under the aegis of the President's Management Council

with a subgroup called Electronic Process Initiatives Committee (EPIC), to help focus top level management attention on electronic commerce. The EPIC is designed to address the many rapid changes occurring in the electronic environment, to ensure business process reengineering is central to modernization of government operations, and to improve customer access and services.

While the Department has run into a number of problems establishing an effective infrastructure to permit electronic commerce, over 80,000 FACNET compliant transactions are occurring each month. In November/ December 1996, the Defense Information Systems Agency implemented a much more robust infrastructure that will provide 100 percent accountability, 99.5 percent throughput, and an average speed of service of 58 transactions per minute under a traffic load of 50,000 transactions per day. This capability will allow both larger dollar value and more complex contracts to participate in the EC/EDI process.

Use of electronic commerce for procurement was broadened beyond the scope of the initial PAT recommendations to include orders placed electronically against catalogs and indefinite delivery/indefinite quantity contracts, electronic payment, transactions compliant with FACNET requirements, and Web-based contracting actions. Improvements in DoD's infrastructure, as well as improvements in the use of various procurement methods will continue to be made within the Department.

One area with significant government-wide effect is the Department's plan for a Centralized Contractor Registration (CCR) data base — a minimum data set of information on federal government partners. Defense is analyzing whether the central repository can be utilized to fulfill needs of other agencies, such as the Small Business Administration and Treasury, as well as providing one single place where all contractor related data, including items such as certifications and representations could reside. The goal of CCR is to minimize the administrative burden of data collection for both industry and government agencies, irrespective of whether a contractor is capable of conducting business electronically. In October 1996, the CCR reached a milestone, with the addition of the capability for contractors to register through a direct dial up modem or via the DoD EC Program Office World Wide Web as well as through the 27 DoD certified Value Added Networks. Approximately 5,000 vendors are currently registered in the CCR with a goal of registering another 250,000 by September 30, 1997.

SMALL BUSINESS ISSUES

The Department is committed to the full participation of small business in a globally competitive national industrial base. Small businesses provide the Department with a substantial resource in the form of access to high technologies and technological breakthroughs that consistently comes from the innovative and vibrant small business community. The decision by the Supreme Court in Adarand vs. Pena forced DoD to reevaluate the manner in which the federal government ensures opportunities for small disadvantaged business. The Department is working with the Administration and the Justice Department to explore new ways of ensuring the continued participation of small disadvantaged businesses in DoD's vendor base.

The results of these initiatives and others will provide meaningful participation by small business, small disadvantaged business, and women-owned small business in a globally competitive national industrial base. These small business initiatives will continue to provide DoD access to leading edge technologies and reliable, customer oriented, quality driven small business vendors.

STATUTORY REPORT

Section 5001(b) of FASA included an annual reporting requirement to Congress relating to the achievement, on average, of 90 percent of cost, performance, and schedule goals for major and nonmajor programs. It also requires DoD to decrease by 50 percent or more, the average period for converting emerging technology into operational capability.

As of September 30, 1996, all but two of 81 Major Defense Acquisition Programs (MDAPs) are meeting more than 90 percent of the aggregate number of cost, schedule, and performance goals for that program. The two exceptions are All Source Analysis System and Chemical Demilitarization programs, both of which are being reviewed for restructuring. Of the 490 nonmajor programs that have been reviewed by the Services, all but 16 programs have met the 90 percent criteria. These programs have been either rebaselined or are being reviewed by appropriate milestone decision authorities.

At the law's enactment date, October 13, 1994, the average period for converting emerging technology into operational capability for major programs was 115 months by comparing program start dates initial operating capability dates for all current major programs. As of September 30, 1995, this average period declined to 113 months. As of September 30, 1996, the average period increased back up to 115 months. This increase of two months since last year was largely due to schedule extensions of six specific programs (Comanche, Combat Service Support Control System, National Air Space Traffic, Patriot Advance Capability-3, JPATS, and Theater High Altitude Area Defense). These schedule extensions were deemed appropriate based upon funding availability and technical progress.

The average period for 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 acquisition reform process. Since 1992, 31 MDAPs have been initiated as new starts or modification/upgrade programs. The average period for converting emerging technology into operational capability of these programs is 88 months. These more recent programs are able to fully employ regulatory reform, such as specification streamlining, procurement reform, and integrated product teams to reduce cycle time. The Services have reviewed 490 nonmajor programs and found the average period to be 67 months, about 24 percent shorter than that of the MDAPs.

CONCLUSION

DoD has not finished reengineering the acquisition system, but it has come to the end of the beginning. The Department is in the process of evaluating changes already made and looking at areas where inroads have barely been made. These areas include logistics, financial management, test and evaluation, and requirements processes. There are more cost reductions to be realized, efficiencies to be achieved, and better technology to be acquired and provided to the warfighter.

Chapter 13

BUSINESS AFFAIRS, INTERNATIONAL PROGRAMS, AND INSTALLATIONS

Throughout the United States, private firms have sought to reinvent how they conduct business — in order to produce higher quality products, serve customers better, and reduce costs. At the same time, the government as a whole has sought to streamline and reengineer its operations to increase efficiency, most notably through Vice President Gore's National Performance Review. The Department of Defense is also committed to these objectives. DoD has worked to become a smarter customer — pushing for efficiency and value from suppliers, and better access to commercial and international suppliers — while working to ensure that essential defense industrial capabilities are protected. DoD also worked hard to make sure it better manages the resources and installations under its stewardship. Private sector tools like outsourcing, privatization, and competition are important instruments in DoD's efforts to do more, and do better, with less.

BUSINESS AFFAIRS: BEING A SMARTER CUSTOMER

The shift of military mission over the past decade has had a dramatic impact on those industries that produce military-unique items. In the 1990s, declining force structure requirements translated into a need for smaller purchases of weapons. The resulting decline in procurement created a series of challenges for the Department.

Specifications and Standards Reform

As DoD becomes a relatively smaller customer, the Department can no longer afford to rely solely or primarily on defense-unique industrial capabilities. One of the Department's principal objectives is to open the defense market to commercial companies and technology — not only prime, but subtier suppliers as well. One of the best examples of how DoD is accomplishing this goal is Military Specification (MilSpec) Reform.

Through MilSpec Reform, the Department of Defense is trying to achieve the proper mix of technical documentation to guide the Department and industry in the design, production, and acquisition of weapon systems and items of support. The goals of this reform are to save money, remove impediments to getting state-of-the-art technology rapidly into weapon systems, and facilitate the diversification into commercial markets of firms that have traditionally produced goods primarily for defense.

The Department has reviewed over 30,000 military specifications and standards with the intent of either eliminating them or replacing them with performance or commercial type documents. Since MilSpec Reform efforts began in June 1994, 4,230 military specifications and standards have been canceled; 375 performance specifications have replaced detail specifications; and 1,737 additional nongovernment standards have been adopted.

The Department is currently working with industry to determine which existing nongovernment standards can be used as replacements for military specifications or standards. Where adequate nongovernment standards do not exist, DoD is actively participating with industry to develop suitable documents. Examples of these efforts include the Equal Partner Implementation Committee, comprised of private sector standards developers and federal agencies which seek to foster greater use of nongovernment standards in federal agencies; and the Partnership in Reliability, Maintainability, and Supportability Standards, an information sharing consortium for professional societies, industrial associations, and government agencies interested in the development and maintenance of nationally recognized world-class standards.

Responding to Industry Rightsizing and Preserving Essential Capabilities

DoD is also working to create a climate in which industry can take the necessary steps to operate efficiently and effectively. At the same time, the Department needs to ensure that adequate competition is retained and essential capabilities are not lost.

REVIEW OF MERGERS AND ACQUISITIONS

The reduction in the Department's procurement budget since FY 1985 has spurred a dramatic increase in the number of mergers and acquisitions in the defense industry. Such transitions permit companies to reduce overhead, eliminate excess capacity, diversify product lines, and thereby cut costs. Over the past several years, the Department has become more active in reviewing the effects of these mergers and acquisitions on the Department's programs.

These DoD reviews address four questions: First, will the merger result in a loss of necessary competition. Second, are there vertical integration issues or significant buyer/seller relationships between the two firms. Third, does the merger present potential organizational conflicts of interest, where one of the companies provides the Department management or advisory services concerning products produced by the other firm or its competitors. Fourth, what costs or savings could accrue to the Department as a result of the acquisition.

In FY 1996, the Department reviewed approximately 14 transactions. The Deputy Under Secretary of Defense for Industrial Affairs and Installations, working closely with the Office of the General Counsel, is the official within DoD primarily responsible for review of mergers and acquisitions in the defense industry. After a detailed review, the Department relays any concerns to the appropriate federal antitrust authority. In the past four years, none of the proposed mergers involving defense firms have been rejected or withdrawn completely. However, in a number of instances, modifications were made to meet the concerns of the Department or antitrust agencies.

While the Department takes great care to monitor the impact of mergers and acquisitions, it has generally been supportive of defense industry consolidation because it provides significant long-term cost savings to the Department as a major customer.

The Department only pays its fair share of restructuring costs resulting from a merger or acquisition after the Under Secretary of Defense for Acquisition and Technology certifies that the overall savings to DoD and to the U.S. taxpayers exceed the expense. Nearly one-third of allowable restructuring costs are related to worker benefits. DoD pays its share of amounts spent for severance pay, relocation assistance, retraining, and retention of medical benefits. DoD does not and will not pay for any portion of the purchase price or cost of making the acquisition, for bonuses tied to the merger or acquisition, or for executive severance packages. Restructuring costs have been certified for three major business combinations since July 1993, and costs have been allowed for one other combination where a certification was not required by law. For these four transactions, the DoD projected share of the restructuring costs was $325 million versus a projected Department savings of $1.448 billion over five years.

PRESERVING ESSENTIAL CAPABILITIES

Industry restructuring and consolidation lead to increased efficiencies and reduced defense product costs. However, these changes also could have important consequences

for the Department's ability to meet its future requirements. Therefore, the Department must, and has, developed the policies and procedures necessary to make appropriate judgments about industrial issues and to integrate those judgments into its regular budget and acquisition processes.

On April 25, 1996, DoD published Directive 5000.60, Defense Industrial Capabilities Assessments, and accompanying Handbook 5000.60-H, Assessing Defense Industrial Capabilities. These documents collectively describe the policies, procedures, and circumstances under which DoD will take special action to preserve an industrial capability. The documents require the analysis to verify that the product or service is required to meet current or future military missions, or readiness or sustainment requirements; that the industrial capabilities are essential to making the product or service; that unique capabilities are truly endangered; and that the recommended solutions are the most cost- and mission-effective. No action may be taken nor an investment made to preserve an industrial capability unless it is the most cost- and time-effective alternative to meeting national security requirements.

DOMESTIC SOURCE RESTRICTIONS

Both Congress and the Department have established restrictions on the use of foreign products in defense systems. The restrictions were designed to preserve a domestic mobilization base — to maintain the industrial capability required to rapidly produce the defense materiel needed to support its wartime needs. For the foreseeable future, this threat has changed. Today, DoD bases its wartime planning needs on a requirement to fight two nearly simultaneous major regional conflicts.

Absent widespread mobilization requirements, in an increasingly global commercial market, and consistent with national security requirements, DoD should take full advantage of the benefits offered by access to the best global suppliers. Additionally, DoD wants to promote consistency and fairness in dealing with its allies, while ensuring sufficient U.S. industrial and technological capabilities are maintained to support defense needs.

In 1996, the Department examined foreign product restrictions contained in the Defense Federal Acquisition Regulation Supplement (DFARS) that were imposed by DoD policy decision. For each restriction, the Department carefully determined if there were national security reasons or supplier reliability, cost, and quality reasons for retaining the restriction.

DoD decided not to retain DFARS subpart 225.7013, which requires that all new major defense systems use domestic sources for Polyacrylonitrile (PAN) carbon fiber requirements. DoD also decided not to retain both DFARS subpart 225.7020, which requires that all new major defense systems use domestic sources for coal and petroleum pitch carbon fibers, and those parts of DFARS subpart 225.71, which imposed restrictions for various ferrous forgings, precision components for mechanical time devices, high purity silicon, and high carbon ferrochrome.

In three cases contained in DFARS subpart 225.71, involving specific ferrous forgings used by the Navy, the Department decided not to rescind administratively imposed domestic source restrictions. DoD plans to indefinitely retain the restrictions for periscope tube forgings and ring forgings for bull gears, and defer for one year final consideration of similar restrictions for ship propulsion shaft forgings. A final decision on foreign product restrictions for ship propulsion shaft forgings is being delayed.

Assuring Affordable Access to Leading Edge Technologies

The Department has long had a major role in fostering technological innovation. The Department had funded virtually all of the early research and development (R&D) in computers and networking, setting the stage for a computer industry that today forms the backbone of U.S. military and economic strength. In the aircraft industry, military R&D led to fundamental advances in airframe design and jet propulsion, including the first U.S. jet engine.

Advanced technology products and much of this nation's technological momentum are increasingly based on developments made by commercial enterprises, both in the United States and abroad. The rapid growth of the commercial industrial sector, driven by a commercial market, has in many areas reduced the once primary role of defense spending as the driving force for technological innovation.

The cycle time of commercial technological innovation is the time it takes commercial firms to develop and market improved products. For many products, this innovation cycle time is about three to four years, and even faster in computers, communications, and

electronics. The Department's historical cycle time is 15 years. In the future, the lives of soldiers, sailors, marines, and airmen will depend on how rapidly DoD can get systems that use the best technology. In a global market, where everyone, including potential adversaries, has increased access to the fast-moving commercial technology base, an important military advantage goes to those nations that have the best cycle time to incorporate and field appropriate technologies. The Department has a number of important initiatives to facilitate the incorporation of commercial technology.

To leverage commercial technological advances and reduce innovation cycle times, DoD initiated a dual-use technology strategy as described in *Dual Use Technology: A Defense Strategy for Affordable, Leading-Edge Technology.* A key element of the strategy is to insert leading edge commercial technologies into military systems.

Although the benefits to be gained from using commercial technologies have been recognized for some time, it often seemed less expensive and quicker to stay with a military technology than to take the time and program funding needed to test and qualify a replacement commercial technology.

To overcome this hurdle, DoD recently initiated a Commercial Technology Insertion Program (CTIP). The purpose of the program is to identify commercial technologies having the potential to improve the performance, reduce the life-cycle costs, or shorten the cycle time of military systems. For example, DoD plans to use the CTIP to support an open architecture approach to software upgrades on the AV-8B Harrier. Open architecture emphasizes the use of commercial practices, products, and interface standards to provide quick access to commercially available technology. Once technologies are identified, CTIP helps defray the costs of testing, qualification, and/or redesign needed to ensure the technology will work. Each military department submitted proposals which are currently being selected, and projects will be initiated during the fiscal year. Complementing the CTIP is Title III of the Defense Production Act, which ensures DoD has a viable production base for important dual use technologies. These authorities were used to enhance military capabilities and establish production capacity in several key technology areas.

FLAT PANEL DISPLAYS

Flat panel displays (FPDs) are thin, flat electronic devices used to display text, graphics, and images. The displays have dramatically increased in performance and capability during the past decade and are quickly replacing heavier cathode ray tube displays in avionics, laptop computers, monitors, and televisions. The new displays are only a few millimeters deep, weigh less than a pound, are completely portable, and are rugged enough for use in aircraft cockpits. These improved features make them vital to the military. The Title III program is being used to install U.S.-produced cockpit displays in the Army's Apache helicopter. The display's smaller volume translates into a better line of sight for the pilots and projected improvements in reliability should result in lower maintenance expense for the entire Apache system. Before Title III funds were made available, program managers planned to install the older cathode ray tube displays in the Apache cockpit. This project is also expected to help domestic suppliers compete in the global market. The Apache alone constitutes a demand of more than 3,200 active matrix liquid crystal displays, plus a potential for 500-1,000 Foreign Military Sales aircraft. In addition to the Apache, the Title III program is being used to install FPDs in other systems like the C-141 Starlifter, F-18 Hornet, and AV-8B Harrier. The military demand for FPDs stimulated by the Title III program will enable U.S. companies to become viable producers able to meet demand by both military and commercial customers.

GALLIUM ARSENIDE WAFERS

Gallium arsenide (GaAs) wafers is an enabling technology for radar, smart weapons, electronic warfare, and communications. The United States did not have an adequate domestic supplier base capable of supporting military requirements. To correct this situation, Title III funding was used to establish the necessary GaAs production capability. Since the inception of the Title III project, demand for GaAs wafers has grown, supported in part by the availability of wafers from Title III contractors. Buoyed by increasing demand from the military seeking sophisticated electronic warfare components and from commercial users to enhance their communications and computing capabilities, the market has been expanding 15 to 25 percent annually.

DISCONTINUOUS REINFORCED ALUMINUM

Discontinuous reinforced aluminum (DRA) is an advanced composite of aluminum alloy and silicon

carbide particulate. This material is significantly stiffer, stronger, lighter weight, more wear-resistant to abrasives, and more dimensionally stable than aluminum alloys and many other composites. The Title III objectives are to expand production capacity for DRA, demonstrate the capability to produce high quality material with consistent properties in production amounts at an affordable cost, and to insert DRA performance advantages into military equipment. The Title III material is targeted for applications on the F-16 and C-130. The contractor successfully completed scale-up for production, qualified material against the product specification, and drove the price down significantly. DRA has been selected for use in the F-16 ventral fin to overcome unacceptable material failure in the current material. As a result, the mean time between failure has been raised from 1,000 to 6,000 hours. Another application is the ammunition rack on the AC-130 gunship. DRA allowed for the design of a more durable rack while reducing the weight from 2,100 to 1,300 pounds. With regard to commercial applications, a turbine engine manufacturer expects to save millions of dollars using DRA for exit guide vanes.

SILICON ON SAPPHIRE WAFERS

The Title III program was used to establish an annual domestic production capacity of more than 50,000 high quality four-inch silicon on insulator/silicon on sapphire (SoS) wafers. SoS wafers provide a radiation-hardened substrate on which integrated circuits and electronic devices are built. Many military electronic systems, especially satellites, must withstand extended exposure to radiation (whether natural or from nuclear weapons detonated in space). The wafers now produced have radiation hardness increased by a factor of 10. A purchase commitment by the government using Title III authority motivated the contractor to share the costs and risks of establishing a domestic SoS wafer production capability. Meanwhile, sales of the wafers to other users expanded the manufacturer's market and made the wafers more affordable. The success of this program gives DoD a domestic source of affordable, world-class SoS wafers. Process improvements enabled the manufacturer to penetrate international markets and establish a commercial business base that ensures a reliable source for the U.S. military.

Promoting Small Business Programs

Small business is a key element to the economic security of the United States and an important source of the industrial capabilities supporting defense needs. Small businesses bring critical innovation to the defense marketplace. Additionally, small business is an engine that provides for job creation and ensures that a greater number of citizens receive benefits from defense procurement dollars.

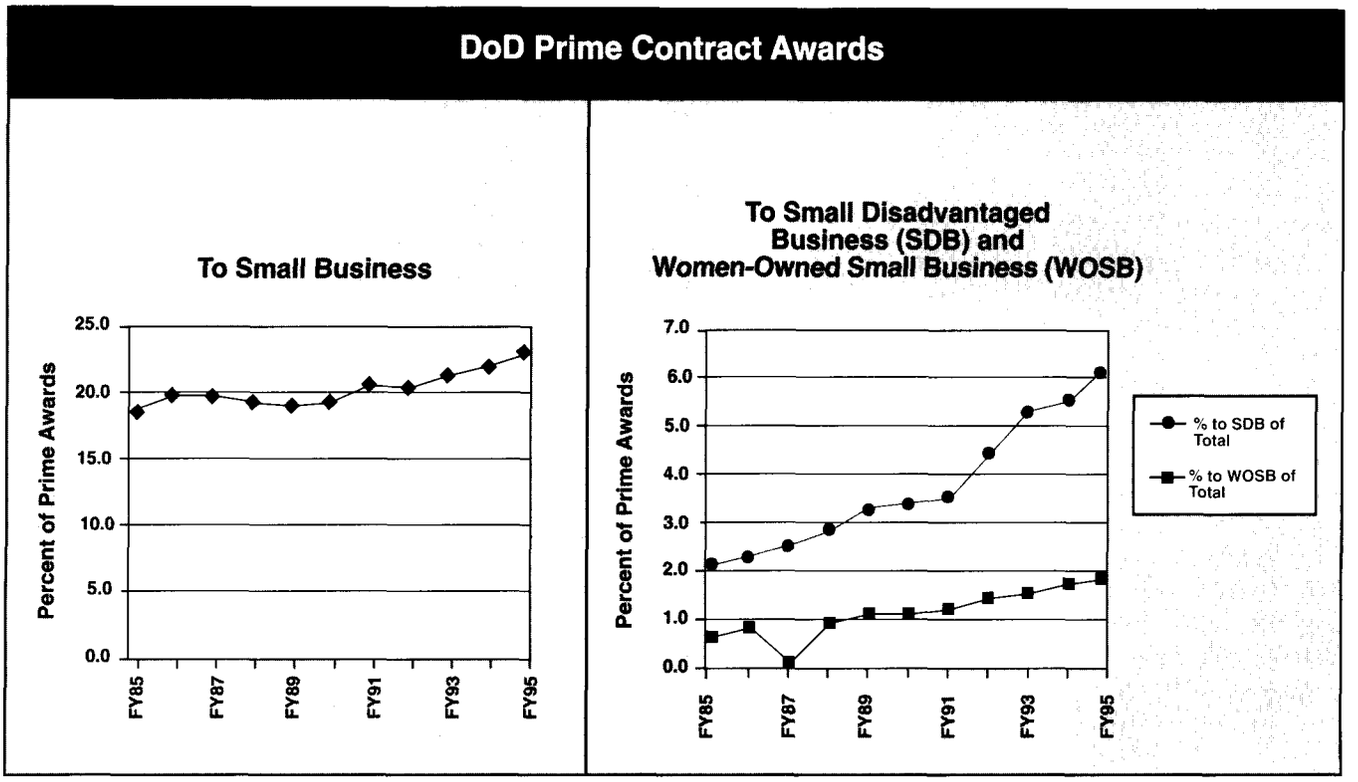
In FY 1995, the DoD completed its most successful year in the history of the small business program, exceeding all FY 1995 small business program goals. In FY 1995, DoD awarded a total of $110 billion to U.S. business concerns, of which $25.3 billion was awarded to small business. This outstanding performance represents a small business achievement rate of 23.0 percent, which has been unequaled in the last 29 years.

In that same year, DoD awarded $6.9 billion in prime contract awards to small disadvantaged business (SDB) concerns. This unprecedented success represents 6.2 percent of total DoD expenditures, and significantly improves its previous high SDB percentage of 5.5 achieved in FY 1994. In dollar terms, the $6.9 billion accomplishment during FY 1995 surpasses the previous high of $6.2 billion in FY 1994 by $700 million. This accomplishment equates to a 12.2 percent increase in real dollars over FY 1994.

In the women-owned small business (WOSB) program, the Department awarded $2 billion in prime contracts during FY 1995. This represents the highest dollar amount and percentage achieved since the inception of the WOSB program in FY 1979. To put this achievement into a historical perspective, awards to WOSB concerns have increased at an annual 8.3 percent rate since the inception of the WOSB program in FY 1979.

In the area of subcontracting, DoD prime contractors awarded to small businesses $19.2 billion, or 42.5 percent against a goal of 38.0 percent. DoD prime contractors' success represents the highest small business subcontracting performance, in percentage terms, since FY 1979.

DoD major prime contractors reported unparalleled success in the SDB subcontracting program. These prime contractors reported $2.6 billion or 5.8 percent in subcontract awards to SDB firms during FY 1995, out of a total subcontracting award base of $45 billion.



This 5.8 percent accomplishment significantly improves on the previous SDB subcontracting record performance of 5.0 percent in FY 1994. In dollar terms, DoD's prime contractors have increased their subcontract awards to SDBs by $350 million over their previous high of $2.25 billion in FY 1994.

In the WOSB subcontracting program arena, DoD major prime contractors awarded $1.2 billion or 2.7 percent in FY 1995. This success surpassed their previous WOSB subcontracting record of $1.0 billion or 2.3 percent in FY 1994.

DoD's small business, SDB, and WOSB program achievements are even more impressive because they come at a time when the Department's total prime and subcontract dollars are decreasing. This success is even more significant when one considers the types of products and services DoD buys for which there are no small business providers. For example, tanks, submarines, and fighter aircraft are systems that only large business can provide.

SMALL BUSINESS INNOVATION RESEARCH PROGRAM

In FY 1996, the DoD Small Business Innovation Research (SBIR) program funded $430 million in early-stage R&D projects at small technology companies — projects that serve a DoD need and have the potential for commercialization in military and/or private sector markets. A May 1996 DoD review of the program found that SBIR research quality has kept pace with the program's expansion since 1992. Previous, independent studies of the SBIR program by the General Accounting Office (GAO), National Academy of Sciences, and others have consistently given the program high marks for research quality and commercialization.

DoD has a number of examples of SBIR-developed technologies that have significantly strengthened U.S. economic and military capabilities. A recent example is the SBIR-developed SaviTag — a miniature radio transceiver with an embedded microcomputer — that automatically tracks the location and contents of cargo containers used for transport. The SaviTag has become a central element in DoD's Total Asset Visibility effort and is used on almost all shipments into Bosnia.

In FY 1996, the DoD Small Business Technology Transfer (STTR) program funded $30 million in cooperative R&D projects, each between a small technology company and a research institution (for example, university, federal laboratory, or nonprofit research institution). Early evidence suggests that the DoD STTR awards complement those made solely to small businesses under DoD's SBIR program by harnessing technologies that can be best developed jointly by the company-institution team. DoD believes that the STTR awards serve an important function.

MENTOR/PROTEGE PROGRAM

The DoD Mentor-Protege Program continues to play an important role in the development of technical capabilities in small disadvantaged business concerns and qualified organizations employing the severely disabled. Through the efforts of a large business mentor, these concerns are provided the business and technical assistance necessary to compete more effectively in the complex DoD marketplace.

As of the end of FY 1996, over 160 large business firms have participated in the program as mentors, receiving either reimbursement for their efforts or credit toward their small disadvantaged business subcontracting goals. Over 275 protege firms benefited from their participation under this program. Several protege firms have substantially increased their prime and/or subcontracting awards as a result of the technical assistance they received under this program.

The Department sought and received (with the passage of the FY 1997 DoD Authorization Act) an extension of the period for acceptance of new agreements to September 30, 1998, and an extension of the period for incurring costs which are eligible for reimbursement to September 30, 1999.

LEVERAGING U.S. STRENGTHS THROUGH INTERNATIONAL COOPERATION

In military operations, 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 are compatible with allied systems. International cooperative efforts offer a real chance to enhance interoperability, further access and influence, stretch declining defense budgets, and preserve defense industrial capabilities.

New Ways of Doing Business with Governments

The Department has renewed its efforts at international cooperative development. Such cooperation can range from simple subcontracting relationships to licensing and royalty arrangements, joint ventures, and bilateral and multilateral cooperative programs. Some of the more notable success stories in international industrial cooperation include the F-16 Falcon, AV-8 Harrier, T-45 training aircraft, CFM-56 engine, the continuing cooperative efforts under the NATO Airborne Warning and Control System (AWACS) program, the Multifunctional Information Distribution System (MIDS), and Theater Missile Defense. The Department is now working with allies in Europe and Asia to explore and implement new possibilities, including Medium Extended Air Defense System, Joint Strike Fighter, and NATO Alliance Ground Surveillance System. The international cooperative R&D program has led to sharing of military technology among allies, as well as to development of joint equipment to improve coalition interoperability. Such items include advanced aircraft, combat vehicle command and control, communications systems interoperability, and ship defense.

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 tactical systems. DoD has worked to ensure that 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 has also taken steps to improve the effectiveness and efficiency of international cooperation. An International Armaments Cooperation Handbook has been developed to provide a compendium of current policy, key processes, and points of contact for use by persons working cooperation issues in the Department. In addition, by streamlining the international cooperative agreement review process, the average processing time for such reviews has been reduced from 130 days to 30 days. DoD has several additional efforts underway to improve international cooperation.

International Cooperative Opportunity Groups

The Department is examining the potential for international collaboration on upcoming major system acquisitions. As part of this effort, the Armaments Cooperation Steering Committee (ACSC), the senior armaments cooperation policy and oversight body within the Department, is implementing a disciplined process for identifying new opportunities for international armaments cooperation. The first ACSC initiative deals with the formation of International Cooperative Opportunity Groups (ICOGs) to identify and recommend specific new opportunities for armaments cooperation earlier in the acquisition process.

ICOGs were established in the following areas: major systems (in their early phases), science and technology programs, and Advanced Concept Technology Demonstrations (ACTDs). These ICOGs have 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 an international program.

Defense Cooperation in Armaments

In performing their Defense Cooperation in Armaments (DCA) mission, the overseas Offices of Defense Cooperation (ODCs) provide a direct linkage to the ministries of defense in host countries and to the commander in chief (CINC) staffs in both the European and Pacific Commands. The ODCs are attuned to the requirements of the CINCs and the realities of the defense industrial base in their areas of responsibility. Currently, the DCA personnel assigned worldwide are split between the European and Pacific theaters. With these personnel, DoD has a valuable resource in furthering armaments cooperation. In light of the changing national security landscape, both in government and industry, the steering committee's second major thrust is to evaluate how to more effectively use DCA resources and better align DoD personnel to take advantage of emerging opportunities.

Defense Science Board Task Force on International Arms Cooperation

The Defense Science Board developed a future model for armaments cooperation and defense trade. The Defense Science Board Task Force on International Armaments Cooperation specifically addressed a model for 21st century armaments cooperation that preserves effective competition; methods for preserving effective two-way access to critical military technologies; methods to assure maximum leveraging of the commercial industrial base; and approaches for maximizing the involvement of the CINCs in international cooperative efforts.

Defense Export Loan Guarantee Program

The Defense Export Loan Guarantee Program is a new DoD effort that provides a mechanism for promoting armaments cooperation and defense trade — one that DoD recently implemented to comply the provisions of the FY 1996 Defense Authorization Act. Many other nations have export assistance programs that support the defense sector, but in the United States, the Export-Import Bank is prohibited by law, with limited exceptions, from financing defense articles and services.

This new DoD program provides U.S. defense industry with access to government loan guarantees for defense exports. DoD has authority to issue up to $15 billion of loan guarantees. Eligible countries include NATO and major non-NATO allies, noncommunist Asia Pacific Economic Cooperation nations, and central European emerging democracies. This DoD program is intended to mirror similar programs of the United States Export-Import Bank and is supported totally by fees collected from users. The program is available to support foreign military sales or commercial defense exports through the Arms Export Control Act process.

OUTSOURCING, PRIVATIZATION, AND COMPETITION

To ensure that DoD is able to meet its goal of maintaining readiness, improving quality of life, and increasing funding for modernization, DoD is carefully examining its internal operations and support activities to determine where it can lower costs and improve performance. One key way to achieve these objectives is by drawing on the tools of outsourcing, privatization, and competition.

The Private Sector Experience

In the past decade, fundamental changes have affected the U.S. economy. Increasing globalization and high rates of innovation created a much more competitive environment for U.S. industry. In response, U.S. businesses reengineered their internal processes, invested in state-of-the-art technology, and concentrated on their core competencies. They turned to networking and joint ventures to expand these capabilities. They streamlined their operations to improve their efficiency and enhanced their focus on what they do best. And they turned to outsourcing contracting with other firms to provide the capabilities they need but which are not part of their core capabilities. Outsourcing directly contributed to the ability of many U.S. firms to reestablish their leading positions in the world economy.

Entire new industries — and companies — have grown to meet this demand for specialized services across a range of functions: aircraft and ship maintenance, inventory management, accounting and finance, internal audit, data center operations, software maintenance, computer network support, applications development, telecommunications, transportation services, facility management, and benefits administration. In 1996, these outsourced service industries generated an estimated $100 billion in sales.

Why Outsourcing is Important to DoD

DoD must also introduce greater competition into its noncore activities to lower costs and improve the quality of service to the warfighters. Outsourcing will allow the Department to focus on its core missions and improve service quality and responsiveness. Savings from outsourcing and competition also can enhance force capability and increase funding for DoD's modernization program.

CORE TENETS

The opportunities are significant. DoD believes that it can save billions of dollars a year through outsourcing and competition, and the Department is taking the actions necessary to make this happen. As the Department investigates opportunities, it is taking a judicious approach guided by the following three principles:

- First, the Department will not consider outsourcing activities that constitute DoD's core capabilities; that is, activities that DoD military leaders consider to be essential to being prepared to carry out the Department's warfighting mission.

- Second, a competitive commercial market must exist for the activity. Competition is the best way to ensure DoD benefits — it drives organizations to improve quality, reduce costs, and better focus on their customer's needs over time.

- Third, outsourcing the activity must result in best value for the government and therefore the U.S. taxpayer. Many activities can be performed best by the government entities currently doing the job — because of expertise or technological edge, or for other reasons. In these cases, the Department will retain these capabilities.

PAST EXPERIENCE

DoD has already accrued significant benefits through outsourcing. Between 1978 and 1994, the Department conducted over 2,000 competitions under OMB Circular A-76. These competitions have reduced annual operating costs of their programs by an average of 31 percent, yielding $1.5 billion in annual savings. Government activities win about half of these competitions.

Service Quality and Responsiveness

Creating Incentives. To create appropriate incentives, in early 1996 the Deputy Secretary of Defense signed an important memorandum directing that Services would keep the savings generated by their own outsourcing efforts and that these funds should be used to strengthen modernization.

Actions Underway. DoD has pursued a multipronged strategy to identify opportunities — examining activities from base operations to material management and from housing to depot maintenance.

Material Management. The Department has made tremendous progress in material management through its prime vendor and direct vendor delivery programs. By allowing private producers to distribute directly to DoD customers, the Defense Logistics Agency has reduced inventories, warehousing, and transportation costs. In the case of pharmaceuticals, costs have fallen by over 25 percent and delivery time has fallen by 75 percent — so that goods now reach customers in 24 hours. This is not just doing a job more cheaply — it is

doing the job better — and DoD is now extending this program to other commodities.

Disposal. In 1996, DoD began reengineering disposal operations — an effort expected to cut costs by at least 10 percent and increase revenues by 50 percent and significantly reduce the need for new capital investment.

Distribution Depots. In 1997, DoD plans to conduct pilot programs to privatize the distribution depots at Sacramento, California, and San Antonio, Texas. In order to take advantage of recent state-of-the-art improvements in distribution technology, DoD will encourage contractors at both sites to reengineer business processes at the distribution depot; the Department will then evaluate the experience and results for potential expansion to other sites.

Inventory Control Points. DoD has recently completed the business case analyses for the Armed Services' Inventory Control Points — those activities responsible for management of inventoried spare parts, including cataloging, procurement, distribution, and disposal. These analyses will enable the Department to identify those specific functions where outsourcing could lead to cost savings and improved inventory response times, while still ensuring readiness and program management support.

Base Commercial Activities. The Department is currently conducting cost comparison studies encompassing about 150 functions at many different locations. Base operating support services range from food and custodial activities, to maintenance and repair functions, among many others. Over the next two years, DoD plans to dramatically expand the number of functions and locations being studied in search of opportunities to lower costs and improve performance.

Depot Maintenance. The Department's depot maintenance philosophy focuses on maintaining core capabilities in organic facilities. The core concept ensures that critical warfighting capabilities remain under the direct control of warfighters. In the area of depot maintenance, core capabilities ensure a ready and controlled source of technical competence to meet the Joint Chiefs of Staff's contingency scenarios. On the other hand, subjecting noncore depot maintenance to the forces of competition will lower costs and improve readiness. Current law requires that at least 60 percent of all depot maintenance be done by government employees. Because the Services are approaching the 60 percent threshold, DoD will need added flexibility to pursue this avenue as a means of reducing costs.

Education and Training. High technology systems demand highly trained personnel in both operating and supporting roles, placing a premium on widespread and cost-effective training. Technology has also changed teaching and training methodologies. Certain individual training programs can be conducted through the use of telecommunications at remote locations — a process termed distance learning. Increasing the use of these learning technologies can reduce the need for more expensive classroom training at centralized locations. The Department is evaluating how these new technologies affect training requirements and how private sector providers can help DoD in this area.

The Department is committed to fairness in public/private competitions — both private sector and government bidders for a project should compete on a level playing field. The Department will not rush to seek the private sector over government providers, but will focus on getting the best value for the tax payers dollar, regardless of who provides the service. In early FY 1997, DoD will issue a new DoD policy to improve the process of public-private competitions in the area of depot maintenance.

INSTALLATIONS: MANAGING FACILITIES BETTER

The Department is committed to improving the management of its installations. DoD needs to realize cost savings at installations just as with other support functions. At the same time, the Department must take into account the critical role installations play in quality of life, morale, and readiness.

The quality of the installations where DoD military personnel, civilian employees, and their families live and work is a key part of retention. The Department is using better management and financial tools to leverage limited resources, improve the quality of support, and lower costs.

The scope of this function is significant. The Department controls the world's largest dedicated infrastructure — a physical plant worth $500 billion covering 40,000 square miles, roughly the size of the state of Virginia — which includes not only operational and training facilities but also housing for more than 300,000 families and about 450,000 single enlisted service members.

Revitalizing Military Housing

Quality military housing is central to morale, retention, and therefore readiness. Improving military housing in the United States and abroad is a major priority for the Defense Department. Success is predicated on using sound private sector methods to accomplish the improvements, wherever possible, and increased funding, where needed.

MILITARY HOUSING REVITALIZATION: ATTRACTING PRIVATE CAPITAL

The Department's military housing is old, in need of extensive repair, and below contemporary standards. DoD has estimated it would require 30 years, and perhaps as much as $20 billion, to revitalize its family housing and another $9 billion to revitalize and improve the standard of housing for single service members. Attracting private capital to help speed this revitalization is imperative.

The Department requested new legislative authorities from Congress to accomplish this public-private partnership — which was enacted in the National Defense Authorization Act for FY 1996. These authorities enable DoD to provide direct loans and guarantees, leasing, investments, rental guarantees, differential lease payments, and conveyance or lease of properties and facilities. With these tools, the Department will be able to leverage military construction (MilCon) significantly and thereby speed revitalization. To prepare for this innovation, the Department established a joint Housing Revitalization Support Office (HRSO) representing all Services. The HRSO serves as a catalyst for DoD housing construction and rehabilitation efforts and uses consultant assistance to develop best practices and to prototype real estate deals.

DoD has already had success working with this new authority. For example, the Department awarded a $9.5 million limited partnership project at Naval Air Station Corpus Christi, Texas, for 404 units of junior enlisted personnel family housing. This action compares to the FY 1995 MilCon project proposed for Corpus Christi which will build 100 units at a cost of $11.8 million. Currently, negotiations are underway for a $6 million partnership project at Naval Station Everett, Washington, to construct 185 units for junior enlisted personnel. The Everett FY 1997 Milcon project would have yielded only 100 units at a cost of $15 million.

Four other revitalization projects are currently under development and 14 additional military sites are being evaluated for future projects. DoD expects to steadily increase the number of sites using these new authorities and consequently the number of units being revitalized using private capital.

OVERSEAS HOUSING

While housing privatization within the United States is successful, the Department recognized its limits, particularly at overseas locations. Overseas housing has a variety of unique requirements which can be addressed by other solutions. The Department is vigorously pursuing alternatives to ensure that the quality of housing improves at locations around the world.

BACHELOR HOUSING — NEW BARRACKS CONSTRUCTION CRITERIA

The quality of life of unaccompanied service members is a key aspect of military readiness. In November 1995, the Department established the 1+1 standard for new barracks construction to improve barracks housing. This standard addresses privacy, the number one housing concern of single junior enlisted personnel, by including two individual living/sleeping rooms with closets in each module, along with a shared bath and a service/kitchenette area. Where mission and conditions allow, a module will house two junior or one senior enlisted member. The Services are working toward this standard and have accelerated funding to address a quicker elimination of the Department's existing barracks with community bathrooms.

Developing Smart Facilities Investment and Utilization Strategies

As the Department considers changes in future military strategy and forces, it must operate, utilize, and invest in its facilities smarter and better. The Department has chartered a base support study as part of the upcoming Quadrennial Defense Review whose goal is to implement an installations reinvestment strategy that can pay for itself, while ensuring that the quality of existing bases is adequate to meet the requirements of the force.

An example of a project which furthers this goal is the Navy's Military Acquisition Process Improvement Team, which has shaved a year off its military construction cycle and promises to do more. Other innovations DoD will pursue include designing facilities to be more adaptable to changing requirements over time.

Regional Planning and Interservice Support

Regional planning and interservice support between the military departments, defense agencies, and other federal agencies are becoming increasingly important. As major military bases are closed, new efficient sources of support must be found for defense activities at remaining bases, and new methods must be sought for reducing the cost of base support services. Joint Interservice Regional Support Groups have been established in geographical regions with multiple defense activities to identify and facilitate realignment of support missions to the most efficient and effective sources in each region, regardless of which DoD or federal agency currently provides the support.

Energy and Water Conservation

Energy conservation can play a significant role in reducing DoD's expenditures. The Department is the largest centrally managed energy consumer in the United States. DoD's installations consume over 70 percent of the energy used to heat, light, cool, and operate federal government facilities. This costs the Department nearly $3.0 billion a year. The primary long-term goals of the Department's energy conservation program are to reduce installation energy use by 30 percent over 20 years, from 1985 to 2005, and to improve industrial energy efficiency by 20 percent over 15 years, from 1990 to 2005. The Department also is required to identify and accomplish, by 2005, every energy and water conservation measure that will pay back costs in 10 years or less.

Since 1985, the Department of Defense has improved the energy-efficiency of its facilities by over 13 percent. This improvement reduced DoD's utility bills last year nearly $400 million annually. Most experts believe the Department can do even better, but it will take investment. The Department will need to invest $3.0 billion over the next seven years in order to achieve the additional $1.6 billion in annual savings.

Test and Evaluation Infrastructure

Driven by the increasing complexity and performance of weapon systems, and the expanding size of the battle space, Test and Evaluation (T&E) facilities have become highly instrumented, with intense and complex modeling and simulation. Currently, DoD's T&E infrastructure has a replacement cost of about $25 billion. The land managed by T&E installations and centers that are devoted to T&E activities encompasses about 11 million acres, which is over 50 percent of the total DoD land area in the continental United States. In total, the T&E establishment performs several thousand T&E test projects each year for DoD, for other federal agencies, and in some cases for U.S. allies and commercial users.

DoD is conducting a Vision 21 study in response to direction in Section 277 of the 1996 Defense Authorization Act, which will be a detailed review of T&E needs for the next 20 years and will result in the development of a plan to reach that goal. The study will examine acquisition program performance envelopes, capabilities, workload, capacity, and other measures to meet the needs of the warfighter both now and in the future, despite a changing threat environment and reduced budgets. The plan is based on three pillars: reduction, restructuring, and revitalization. Its focus is upon a requirement based infrastructure needed to support the development and T&E of current and future weapons systems.

Return of Overseas Facilities

Although domestic base closures have been more high profile, the overseas facilities drawdown has been significant as well. Since January 1990, the Department has approved the return or realignment of 961 overseas sites, representing a 58 percent reduction in the U.S. military facilities overseas. DoD will now concentrate on the remaining enduring facilities; their contribution to readiness, operational capability, and quality of life; and their need for facility modernization. These remaining overseas bases support forward deployed forces protecting vital national security interests.

The Department is aggressively pursuing negotiations for compensation from host nations for U.S.-funded improvements at the returned sites. The potential for any compensation varies with each host nation based on applicable agreements. Most of the compensation will be derived from the facilities returned in Europe. As of October 1996, the United States received $136 million in monetary compensation. In addition, European host nations agreed to provide approximately $265 million in construction to satisfy requirements for remaining DoD forces. Ongoing negotiations with several countries should result in additional compensation.

Base Closure and Community Reuse

Within the United States, closing facilities that are surplus to national defense is essential to reducing unnecessary defense expenses. Base closings benefit the bottom line and therefore the taxpayer. However, it is also important to assist the communities that surround closing bases. For that reason, carefully planned reuse strategies are an important part of the base closure process.

REALIZING SAVINGS FROM DOMESTIC BASE CLOSURES

The Base Realignment and Closure (BRAC) process has been the major tool for reducing the domestic base structure. Three principles have guided the Department's BRAC program: improving military effectiveness; saving money by reducing overhead; and achieving these goals through a fair and objective selection process. The 1988 Defense Secretary's Commission on Base Realignment and Closure approved 16 major domestic closures. The independent 1991, 1993, and 1995 Defense Base Closure and Realignment Commissions are responsible for another 81 major domestic base closures. These four rounds of domestic closures and realignments reduced DoD's base structure in the 50 states and territories by 21 percent.

Table 8

BRAC Costs and Savings ($ Billions)

	BRAC 1988	BRAC 1991	BRAC 1993	BRAC 1995
6-Year Implementation Costs	1.8	3.5	5.9	5.9
Environmental Costs	1.0	1.9	1.7	2.7
6-Year Savings	2.4	6.5	7.5	6.1
Annual Savings	.7	1.5	2.0	1.4

Source: FY 1998/1999 Biennial BRAC Budget Submission

Once all of the recommendations have been implemented, the Department will realize annual recurring savings of approximately $5.6 billion — $57.8 billion over the next 20 years in net present value. Table 8 depicts the costs and savings associated with the BRAC program.

Rapid implementation of the approved closure recommendations is important to enable base reuse — speeding the economic recovery of affected communities and realizing the expected savings to DoD and the taxpayers.

REINVENTING THE BASE REUSE PROCESS

The Department continues to make base reuse a high priority and has taken large strides to improve the way former military bases are converted to civilian use. In 1993, President Clinton launched a plan to support faster redevelopment at base closure communities. The National Defense Authorization Act for FY 1994 and the Base Closure Community Redevelopment and Homeless Assistance Act of 1994 substantially improved base closure laws and gave the Department legal authority to implement the President's proposals.

The Department's Community Guide to Base Reuse provides information intended for local officials, Local Redevelopment Authorities (LRAs), and the general public, including practical advice on organizing an LRA and developing and implementing a redevelopment plan.

Faster Base Reuse Process. The new reuse regulations and manual streamlined the federal screening process and created a faster reuse planning and property disposal process. DoD and federal screening are now accomplished concurrently, which enables the community to complete its reuse plan more quickly. Faster reuse planning leads to faster property transfers, which benefit the Department, as well as communities. Also, the Department can now offer prospective interim-use tenants long-enough lease terms to warrant relocation to the base.

Integrated Decision Making for Community Redevelopment. As part of the Department's improvements to the decision making process, local communities are integrated into the federal government's decisions. During the DoD and federal screening process, all interested parties are encouraged to contact and work with the LRA to have their needs considered as part of the comprehensive local planning process. The Department also placed a new emphasis on personal property disposal in accordance with community reuse plans. Accordingly, all decisions on the movement of personal property are made in consultation with the local authority. The Base Closure Community Redevelopment and Homeless Assistance Act of 1994 created a new process for addressing the needs of the homeless at base closure sites where local communities work along with homeless assistance providers to decide how best to address homeless needs. This change shifts control and responsibility from Washington and the federal government to local communities.

Demonstrated Results. Already, the redevelopment of closed bases has created over 30,000 new jobs and over

700 tenant businesses. For bases closed more than one year, nearly 60 percent of the lost civilian jobs have already been replaced. England Air Force Base, Louisiana, and Chanute Air Force Base, Illinois, have become the engines of their communities' economic growth by creating over 3,000 jobs on base less than two years after closure. The former Fort Devens, Massachusetts, has created more than 2,500 new jobs since closure. On the site of the former Sacramento Army Depot, California, Packard Bell is producing computers — and was doing so even before the final property transfer was completed. The company already employs 5,000 people at this site.

CONCLUSION

The Department will continue to improve its use of proven, best-in-the-class business practices to reduce costs and free funds for modernization. Internally, DoD has consolidated functions and organizations to achieve efficiency and effectiveness. The Department has found opportunities to improve overall support operations at a lower cost by greater reliance on outsourcing, privatization, and competition. Through these initiatives, the Department intends to properly size its infrastructure, support readiness and quality of life, and manage its installations costs. Externally, DoD will work with industry to eliminate unused capacity and lower overhead costs, while ensuring that industrial capabilities are sufficient to meet DoD's needs. DoD will continue improving its relationships with allies through increased cooperation and interoperability. These efforts will not only save money, they will help build the kind of organization DoD wants to be — an organization that thrives on competition, seizes the opportunities created by innovation, and responds rapidly to warfighter needs.

Chapter 14

ENVIRONMENTAL SECURITY

A strong environment, safety, and occupational health (environmental security) program is an integral component of a strong defense. The Department of Defense has an environmental security program that protects U.S. troops and their families, manages training and living areas carefully, acts as a good citizen and neighbor, and sets a good example to other militaries around the world. DoD works to prevent pollution; restore contaminated properties; conserve natural and cultural resources; comply with environmental, health, and safety laws and regulations; and develop new technologies to improve environmental protection and restoration.

ENVIRONMENTAL SECURITY IN THE POST-COLD WAR WORLD

The new post-Cold War security environment requires a significant evolution in the DoD strategy for managing conflict, and it requires new and innovative defense programs and management philosophies to implement the strategy. DoD's Environmental Security program has incorporated these concerns into its future program emphasis. To support the National Security Strategy, DoD's Environmental Security program has identified three thrust areas: integrating environmental security considerations into the defense acquisition process; strengthening partnerships with states, tribal nations, and citizens; and selectively engaging other militaries in environmental cooperation.

Integrating Environmental Security Considerations Into the Acquisition Process

The first thrust area is integrating environmental security considerations into the acquisition process. One of the two overarching goals for the defense acquisition and technology program is reducing weapon system life-cycle costs. The cornerstone for achieving these goals is acquisition reform, which will enable the Department to reduce those life-cycle costs driven by environmental requirements while also improving environmental performance.

By emphasizing pollution prevention in the design and development of new and existing weapon systems, the environmental impacts and costs of operations can be reduced, while supporting key modernization goals. Decisions made in weapon system design and in the development of maintenance procedures can impact the environment 20 to 30 years in the future. Integrating pollution prevention into weapon system design and

development is an effective method for minimizing future environmental, safety, and health problems and for lowering operational costs. DoD is integrating environmental considerations into weapon systems management by including environmental, safety, and health costs in each system's life-cycle cost estimate; identifying and assessing environmental, safety, and health risks and impact; and reducing or eliminating the risks and impact, such as hazardous materials, where feasible.

Partnerships With States, Tribal Nations, and Citizens

DoD's Environmental Security program is forging new partnerships with states, tribal nations, and citizens to ensure DoD is operating efficient installations and providing effective military training. Such partnerships are essential as power to determine environmental outcomes increasingly shifts from the federal government to state and local authorities. Many states and local governments are adopting innovative environmental management approaches, such as favoring pollution prevention over end-of-pipe compliance, permitting multimedia rather than single media contaminants, and concentrating on integrated facility/system approaches rather than individual processes. Public participation is integral to environmental management at the local level. DoD hopes improving its relationships with states, tribal nations, and citizens will streamline regulatory procedures and requirements and improve environmental performance at lower cost.

Environmental Security Cooperation With Other Militaries

The strategy of Preventive Defense is built on the premise that defense establishments have an important role to play in building democracy, trust, and understanding. Defense environmental cooperation can support this essential component of the United States' national strategy. Indeed, Secretary Perry stated, "Our defense environmental programs are becoming another important tool in which to engage the militaries of new democracies. In doing so, we can make a small contribution to a better global environment; and have a positive influence on their approach to defense and the way they manage resources." Today, DoD engages in defense environmental cooperation with Russia, Poland, Hungary, the Czech Republic, Australia, Sweden, and many NATO nations. DoD has also integrated defense environmental cooperation into its regional strategies for Europe, Asia-Pacific, and the Western Hemisphere.

Beyond cooperation with other militaries, it is becoming increasingly clear that environmental degradation and scarcity of resources play a key role in the causes of conflict and instability in the post-Cold War world. That is why, for the first time, the National Security Strategy recognizes that problems such as environmental degradation and natural resource depletion pose threats to U.S. prosperity and security. Thus, DoD now works with other agencies of the U.S. government to improve understanding of these potential causes of conflict and instability and to create mechanisms to provide adequate warning of future crises.

THE ENVIRONMENTAL SECURITY PROGRAM

Defense environmental protection is good management. As any good business manager knows, if you pollute today, you pay tomorrow. Like every large industrial organization in America, DoD has an environmental, safety, and health program to protect its people; preserve its access to resources; comply with the law; and be a good corporate citizen. DoD is building a foundation of cooperation and trust with the public and environmental, safety, and health regulators. The major elements of the Environmental Security mission — pollution prevention, environmental technology, compliance, conservation, cleanup, pest management, explosives safety, and safety and occupational health — are discussed below.

Pollution Prevention

Pollution prevention is at the core of DoD's environmental protection efforts. Pollution prevention reduces or eliminates environmental contamination and degradation through materials management. These efforts reduce the volume and toxicity of substances released or needing disposal at their source, thus reducing the hazards to public health and the environment. Pollution prevention is also a good business approach. Only by reducing or eliminating hazardous materials and those processes that generate hazardous by-products can DoD begin to lower overall compliance and cleanup costs.

WEAPONS SYSTEMS

Eighty percent of DoD's hazardous materials generation can be tied to weapons systems production, maintenance, and disposal. The ultimate goal is to eliminate or

reduce the use of hazardous materials within the system acquisition process for both new and existing systems.

In addition to incorporating pollution prevention into system design, DoD is reviewing military specifications and standards to ensure that these do not unnecessarily require the use of hazardous materials in production or operation of weapon systems. In a related initiative, DoD worked with the private sector to develop a commercial standard that provides a systematic process for managing hazardous materials over the approximate 30-year life cycle of a weapon system.

It is equally important that DoD integrate pollution prevention into existing weapon systems, while ensuring operational readiness of these systems is maintained. For example, the Air Force improved the capability of the B-52 fleet by substituting an environmentally-friendly and maintenance-free nickel cadmium battery system. The batteries improved the uptime and will avoid $70 million in expenses over 20 years.

ENVIRONMENTAL INVESTMENT

Significant opportunities exist for innovative regulatory approaches in the pollution prevention area. Environmental Investment (ENVVEST) is a common-sense, cost-effective pilot project initiated in 1996 with the Environmental Protection Agency (EPA), as part of the President's efforts to reinvent environmental management. ENVVEST provides flexibility to a military installation and the local regulators, with stakeholder involvement, to develop specific projects to protect human health and achieve greater overall environmental performance, within the installation's original budget. In the short term, the Department hopes to improve environmental performance at the same cost. In the long term, DoD's goal is to reduce environmental liabilities and cost through pollution prevention. In launching ENVVEST, President Clinton stated, "This project marks the end of one-size-fits-all government regulations. We know what works for one community and company doesn't necessarily work for others." DoD chose Vandenberg Air Force Base (AFB), California, to be the prototype test installation.

In July 1996, representatives of Vandenberg AFB, DoD, EPA, and the Santa Barbara Air Quality Control District agreed to fund pollution prevention projects to cut air pollution by 10 tons over a four-year period. The local regulatory authority agreed that reducing pollution is preferable to preparing the paperwork required by Title V of the Clean Air Act. Money otherwise spent on preparing permit applications at Vandenberg is now going to projects to upgrade boilers, some of which are 20 to 30 years old. Ultimately, Vandenberg's air emissions will be so low they will not need a Title V permit. The money will then be invested in efforts to reduce emissions, not merely document them. Through ENVVEST, DoD hopes to trade paperwork for performance.

Environmental Technology

Environmental technology affects all aspects of defense environmental security by creating a greater ability to prevent pollution at the source; achieve compliance at less cost; conserve DoD's resources to protect access to land, air, and water; and create faster, less-expensive, and more effective cleanup tools. The Department uses research and development (R&D) funds to develop new technologies in pollution prevention, compliance, conservation, and cleanup to improve the performance of these programs. This is done through the Environmental Security Technology Certification Program (ESTCP), the Strategic Environmental Research and Development Program, and the Service component's R&D efforts. Service-unique environmental problems are addressed through the Services' individual programs.

DoD conducts demonstration and validation of environmental technologies through ESTCP to ensure DoD investments in laboratory research result in technologies that can be successfully fielded and used. Unless DoD successfully transitions innovative environmental technologies, it will never reap the benefit. ESTCP helps in these efforts by systematically identifying user needs, demonstrating and validating new technologies, promoting regulatory and user acceptance, and recommending direct implementation at DoD facilities.

In 1995, ESTCP initiated 26 multiyear technology demonstrations, which included recovering aircraft maintenance and pollutant emissions, biotreating explosives in groundwater, developing advanced sensor technologies for detecting environmental contaminants, and meeting other high priority DoD-unique environmental problems. In 1996, DoD transitioned five technologies successfully demonstrated by ESTCP to DoD users and initiated nine new demonstrations.

Innovative environmental technologies typically yield a large return on the investment made. DoD's return on investment from new remediation technologies,

advanced environmental sensors, innovative disposal techniques for DoD waste, and pollution prevention technologies for the DoD industrial base is typically greater than 10 to 1. For example, DoD faces a large and expansive requirement to cleanup berms at closed small arms ranges, which are contaminated with lead. New soil treatment technologies demonstrated at Fort Polk, Louisiana, are expected to reduce the cost of treating contaminated soil by approximately two-thirds, yielding cost avoidance of $250,000 to $500,000 for even small contaminated berms. Projected cost savings across DoD are over $100 million, a return on investment of over 30 to 1. New monitoring and site characterization technologies are also lowering DoD's environmental costs. A new sensor for detecting TNT in groundwater has reduced the cost from hundreds of dollars to only $10 per sample. The Site Characterization and Analysis Penetrometer System (SCAPS) for detecting petroleum products in the sub-surface has now been approved by many state regulators, opening up a rapid and cost-effective approach for characterizing DoD's contaminated sites. Currently, approximately 25 percent of a site's cleanup costs are devoted to site investigation and monitoring. These new technologies can reduce the cost by 30 percent to 50 percent yielding continued savings of millions of dollars every year.

Compliance

Compliance with environmental, safety, and health laws and regulations is an inherent responsibility of each DoD installation and is fundamental to the performance of each installation's mission. Every base must conduct essential activities to operate each day. For example, on a daily basis, installations:

- Provide heat and electricity to maintenance shops, administrative buildings, and housing units. These utility plants emit air pollutants that must be controlled and treated in accordance with the Clean Air Act.
- Paint and remove paint from equipment, such as aircraft, tanks, and ships for corrosion control, chemical agent resistance, and camouflage. These operations create hazardous waste, which must be managed in accordance with the Resource Conservation and Recovery Act, and hazardous air pollutants, which must be captured and treated in accordance with the Clean Air Act. The common method of treatment transfers the hazardous constituent to water, creating industrial wastewater.
- Store and dispense fuel to aircraft, tanks, and ships. These tanks require air permits under the Clean Air Act and must meet standards set by the Resource Conservation and Recovery Act to prevent future leaks and contamination.
- Provide medical care. The incineration of medical waste creates many hazardous pollutants which require Clean Air Act controls and permits.
- Conduct plating operations as part of repair and maintenance of equipment. These plating operations require the use of highly toxic metals and create hazardous waste, hazardous air pollutants, and industrial wastewater.
- Provide safe drinking water to the people who live and work on DoD installations. The Safe Drinking Water Act provides the minimum standards for water sent to homes and office buildings and protects the sources of drinking water.
- Treat wastewater generated by industrial shops and domestic sources. The Clean Water Act sets standards to ensure these wastewaters do not contaminate sources of drinking water and generally protect water quality.

The compliance budget is divided into two basic types of activities — recurring, day-to-day requirements to maintain compliance with existing environmental regulations and nonrecurring, one-time projects to correct an existing problem, implement a new requirement, or meet a requirement in the near future.

Recurring activities include all environmental activities supporting an installation's mission. These include storing, record keeping, manifesting, transporting, and disposing of hazardous waste; sampling, monitoring, and testing air, drinking water, wastewater, soils, and vegetation; responding to spills; maintaining over 10,000 environmental permits, including record keeping and reporting; and maintaining pollution control equipment.

Nonrecurring activities include individual projects and activities needed when an installation is either out of compliance with an existing regulation or to initially comply with a new regulation to meet a compliance deadline. These include upgrading or replacing wastewater treatment plants, repairing deteriorated sewer lines, removing or replacing underground storage tanks, and preparing Clean Air Act Title V permit applications.

In the past, compliance with environmental regulations typically focused on end-of-pipe controls — collection,

treatment, and disposal of hazardous air and water pollutants and hazardous waste. This strategy resulted in the treatment and disposal of the same pollutants and wastes each year. Increasing hazardous waste and pollutant treatment and disposal costs, threats to human health and the environment, and fines and penalties for noncompliance led DoD and industry to reevaluate these old strategies and move to eliminate the source wherever practical. Therefore, the success of DoD's compliance program is closely tied to the pollution prevention program. Reducing or eliminating pollutants and wastes eliminate a host of regulatory requirements, such as permitting, monitoring, testing, reporting, and record keeping.

UNIFORM NATIONAL DISCHARGE STANDARDS

In 1996, the President signed a Clean Water Act amendment authorizing the Department of Defense and EPA to establish uniform national discharge standards for DoD vessels. In partnership with EPA, the Coast Guard, and interested states, DoD is identifying and establishing standards for those discharges in need of regulation. These standards will be the first ever comprehensive standards for vessel pollution control and will encompass both advanced technology to process waste streams and innovative management practices to prevent pollution.

Conservation

The Department of Defense requires access to large expanses of land, air, and water to conduct military training exercises and test equipment, essential components of mission readiness. Conservation includes the sound management of DoD natural and cultural resources to sustain the military mission and protect access to land, air, and water. DoD controls more than 25 million acres of land, an area about the size of Virginia. Now more than ever, continued use of and access to these lands is required for today's powerful and sophisticated weapons systems which need large areas for training and testing.

LAND MANAGEMENT PROGRAMS

The Army's Integrated Training Area Management and the Marines' Long-Term Ecological Trend Management Program are outstanding examples of DoD's leadership in protecting training resources through planning and conservation. These programs integrate military training, testing, and other mission requirements with the condition of the land and its ability to support mission requirements. This approach helps trainers determine land-carrying capacity and frequency of training used. The benefits include increased training realism, reduced costs for environmental compliance and restoration, and a continued high level of military readiness and land stewardship. With these programs at their disposal, installation commanders are assured their training mission is not hindered.

DOD'S ISLANDS OF NATURE

Due to the existence of buffer zones for noise, ordnance protection, and limited access policies due to security considerations, DoD's land management practices have created areas of rich biological diversity. DoD lands and waters are home to over 200 threatened and endangered species and almost 400 other species considered to be candidates for listing, as well as over 100,000 archeological sites. The Department is moving toward an ecosystem approach to conservation by providing the military greater flexibility in managing its lands and enhancing environmental protection. This approach promotes adaptive management, the use of benchmarks and best available science and sustainable use. At Arnold AFB, Tennessee, site of the development and testing of aerospace systems, rare species of birds, reptiles, and plants continue to grow and thrive — a perfect example of how performing the military mission and protecting natural resources are not mutually exclusive endeavors. Arnold AFB uses the principles of ecosystem management to ensure the views of all potentially affected stakeholders are incorporated into long-term planning. For its outstanding natural resources conservation program, Arnold AFB won the Nature Conservancy's President's 1995 Conservation Achievement Award. Successful management in this fashion demonstrates that both military readiness and environmental stewardship can be maintained.

Cleanup

Environmental restoration refers to the cleanup of hazardous wastes from past practices at active and former military installations. The goal of the cleanup program is to protect the environment while reducing risks to U.S. troops, their families, and local communities from pollutants due to past practices. In the past, the Department, like private industrial companies and other federal agencies, often disposed of hazardous materials in ways that are unacceptable today. Some of the sites are now contaminated with chemicals previously thought to

be harmless. Although the use and disposal of these chemicals were legal at the time, disposal practices were environmentally detrimental.

The Department has continued a major initiative that began in 1995 — ranking all sites according to their relative risk to human health and the environment. The Department updated the guidance document outlining the relative risk site evaluation process and added guidance to explain how to close sites when cleanup is complete. At the beginning of 1996, DoD had cleaned up over 10,000 of the 22,000 identified sites. Actions are underway at another 10,300 sites.

STATE AND COMMUNITY INVOLVEMENT

DoD continues to improve its relationships with regulatory agencies and other stakeholders. Partnerships based on mutual trust and cooperation are vital to the success of the environmental restoration program. An important component of the cleanup program is the Department of Defense/State Memorandum of Agreement (DSMOA) and its associated cooperative agreements. The DSMOA, established in 1990 under the Superfund Amendments and Reauthorization Act, enhances state and territorial involvement in the cleanup of DoD installations. Through the DSMOA Program, DoD reimburses the states for services when they participate in expediting the cleanup of military installations. Since the implementation of DSMOA, this program has assisted installations across the country in avoiding costs, expediting cleanups, and improving community relations. For example, the state of Alaska has participated in the DSMOA program since 1990 and according to the Alaska Department of Environmental Conservation, participation in the program has enabled both parties to avoid litigation, reduce complicated and time-consuming paperwork, and save money.

DoD remains committed to involving communities surrounding its installations in environmental restoration decisions that may affect human health and the environment. Restoration Advisory Boards (RABs) are a significant component of DoD's community involvement activities. RABs promote cooperation between the federal government and regulators by providing a forum through which members of affected communities can provide input to an installation's ongoing environmental restoration activities. By the end of FY 1996, over 200 RABs had been formed at both operational and closing installations. RABs are operating in 45 states, Puerto Rico, Guam, and the Marianas Islands and represent all Services.

During FY 1996, DoD focused on ways to provide technical assistance to RABs within the guidance established by Congress in the FY 1996 Authorization Bill. DoD is also looking at ways to create RABs with communities that are proximate to Formerly Used Defense Sites. RABs help in reviewing and evaluating documents and in recommending priorities among sites or projects. By sharing information with their communities, RAB members help instill public confidence in DoD cleanup activities.

Pest Management

The DoD Pest Management Program supports readiness by preventing the negative impact of insects and pests on the Department's national security mission. Diseases like malaria and dengue, transmitted by insect vectors worldwide, historically reduced the health and sustainability of deployed U.S. forces. Pests can also have an economic impact, significantly damaging operational materiel and significantly reducing the maximum service life of installation structures and buildings. The Armed Forces Pest Management Board develops DoD policy for pest management and coordinates the pest management functions within the Department and other federal and state agencies. DoD pest management activities include:

- Providing disease prevention for troops deployed to Bosnia through medical information on disease threats, surveillance and control activities for insects and ticks, and use of the DoD repellent system. DoD gives the same support to military units deployed to other areas of the world where insect-borne diseases are present.

- Expanding activities to prevent and control the spread of nonnative invasive species. The Department increased detection and control activities at military ports and installations on Guam to prevent the spread of brown tree snakes in the Pacific region. The program is highly successful in intercepting and controlling this snake which is a serious ecological threat to the Northern Marianas and Hawaii. Through the Federal Interagency Committee for the Management of Noxious and Invasive Weeds, the Department joined other federal agencies to develop a national strategy for the management of nonnative weeds. DoD is

promoting partnerships with federal, state, and private agencies to manage noxious weeds on DoD installations.

- Continuing emphasis on the use of integrated pest management to reduce the risks of using pesticides. Newly issued policy reiterated the Department's Comprehensive Pollution Prevention Strategy to use nonchemical, environmentally compatible methods for pest management. The goal is to reduce pesticide use by 50 percent by the end of FY 2000. DoD joined EPA as a partner in its Pesticide Stewardship Program to demonstrate innovative pest management methods.

Explosives Safety

The Department of Defense Explosives Safety Board (DDESB), established by statute (10 U.S.C. 172), advises the Secretary of Defense and the Service Secretaries on all safety aspects of ammunition and explosives operations. The Board accomplishes this mission by promulgating explosives safety standards and by checking for compliance through explosives safety surveys of DoD facilities that use ammunition and explosives. The Board's efforts focus on enhancing readiness by ensuring survivability of personnel and military resources wherever DoD ammunition and explosives are manufactured, stored, maintained, shipped, demilitarized, or used. Specifically, this year the DDESB has:

- Conducted explosives safety surveys of over 250 DoD facilities worldwide.

- Worked closely with the Services, EPA, state regulatory agencies, tribal nations, and nongovernmental offices in developing appropriate safety standards for storage, transportation, clearance of unexploded ordnance (UXO), and disposal of munitions no longer required for military operations.

- Conducted a testing program formulated to enhance explosives safety in partnership with other federal agencies, allied governments, and industry.

- Ensured public safety for future use of all facilities identified for lease, transfer, or disposal by the Base Realignment and Closure Commission through review and approval of UXO clearance plans. Also, reviewed all similar plans for all Formerly Used Defense Sites requiring UXO clearance operations and worked with EPA, states, tribal nations, and nongovernmental agencies on UXO clearance.

- Conducted the largest international symposium on explosives safety with over 700 participants from 21 attending nations.

- Sponsored a major international forum (450 participants from 14 nations) specifically addressing the problems associated with cleanup of unexploded ordnance.

Safety and Occupational Health

The Safety and Occupational Health program focuses on protecting the defense warfighting assets — people, weapon systems, facilities, and equipment — from fire, safety, and health risks. This involves making military weapon systems, installations, and housing safer; curbing workplace injury and illness; and making force protection an inherent part of doing business. These efforts are essential to maintaining combat readiness. Over the past year, the Department has:

- Continued to reduce accidental fatalities of military members, currently at three fatalities per 10,000 members.

- Continued to reduce aircraft accidents, currently at 1.5 major accidents per 100,000 flying hours.

- Incorporated safety and technology into aircraft systems to reduce accidents.

- Lowered the rate of fatalities, injuries, and illnesses in Operation Joint Endeavor (Bosnia) both by sending preventive medicine teams and safety specialists to the theater and by training deploying forces on preventive measures.

A GLOBAL VIEW

DoD has environmental responsibilities and activities around the world. Military-to-military environmental security relationships can be very effective in enhancing the overall relationship between the United States and other nations, while at the same time contributing to overall environmental quality of life. For many years, DoD has been using good environmental practices in its operations throughout the world. DoD has drafted the worldwide Overseas Environmental Baseline Guidance

Document as the basic guideline for overseas environmental performance, while specific practices are worked out with the host countries. Additionally, in countries where the United States has bases, DoD has prepared Final Governing Standards to serve as the basis for all environmental programs in that country. DoD's global Environmental Security efforts are aligned with the unified command areas of responsibility (AOR). Comprehensive AOR environmental strategic plans are under development for the United States European Command, United States Pacific Command (USPACOM), and United States Southern Command (USSOUTHCOM). This overseas environmental program, coupled with over 25 years of extensive environmental experience in the United States, allows DoD to employ environmental security as an effective tool in military-to-military relationships and to support the preventive defense strategy.

Based on experience within DoD, it is clear that militaries can do much to avoid having a negative impact on the environment. Furthermore, experience in cooperation with the militaries of NATO since 1980 and with the nations of Central and Eastern Europe since the end of the Cold War demonstrates that some militaries are interested in adopting a positive approach to environmental protection. Such efforts contribute directly to improving the quality of life and quality of the environment in these countries and regions and, in turn, assist in maintaining national and regional stability. Some examples of cooperation with other countries include:

- In July 1996, the Secretaryies of Defense, the Secretary of and Energy, and the Administrator of EPA signed a memorandum of understanding on international environmental cooperation. Implementation is currently underway with pilot efforts in the Arctic and the Baltic Sea areas. This is one of many DoD international environmental efforts conducted in close cooperation with the State Department and other U.S. government agencies.

- In September 1996, the Secretary of Defense signed a unique declaration with the Defense Ministers of Norway and Russia on Arctic Military Environmental Cooperation (AMEC) in which the three nations' forces will work together to ensure that their military activities do not harm the Arctic environment. Under AMEC, Russia, Norway, and the United States are undertaking projects on safe handling and storage of radioactive materials, the proper disposal of contaminated materials, and the exchange of information on risk assessments and cleanup technologies and methods.

- Since 1980, DoD has participated in a number of NATO environmental efforts. Currently, DoD either chairs, co-chairs, or is a major participant in 10 NATO environmental multiyear studies.

- DoD and the Swedish military recently published *Environmental Guidelines for the Military Sector,* a handbook to be used by militaries throughout the world to assist them in establishing or enhancing their environmental programs. Representatives of DoD were also on the team that negotiated a draft NATO environmental agreement with Russia.

- DoD engages in bilateral environmental cooperation with Germany, Norway, Sweden, Russia, Poland, the Czech Republic, and Hungary. Discussions for bilateral cooperation are underway with Finland, Turkey, and Spain.

- Within the last year, DoD Environmental Security activities have been extended to the USPACOM AOR. DoD participates in an active Environmental Trilateral with Australia and Canada. In September 1996, this trilateral, in conjunction with the Commander in Chief, USPACOM, sponsored the first Asia-Pacific Defense Environmental Conference attended by military and civilian officials from over 30 nations and representatives of the environmental and engineering industries of the three sponsoring nations. Planning is underway for additional meetings on a regional basis to address specific issues of common interest.

- In 1997, DoD, in conjunction with the Commander in Chief, USSOUTHCOM, will gather in Miami with the militaries and environmental agencies of the Western Hemisphere nations — South, Central, and North America — for the first regional conference on environmental security cooperation.

CONCLUSION

DoD's Environmental Security strategy is to support DoD's overall national security goals into the 21st century by integrating environmental security considerations into the defense acquisition process; forging partnerships with states, tribal nations, and citizens; and selectively engaging in defense environmental cooperation. These efforts will provide a more ready force and a safer environment for future generations.

Chapter 15

LOGISTICS

MEETING THE LOGISTICS MANAGEMENT CHALLENGE

In this continuing era of downsizing, privatizing, and restructuring, the Department's aggressive initiatives to reduce infrastructure costs while optimizing logistics support are beginning to bear fruit. The 1996 version of the Defense Logistics Strategic Plan outlines the goals and objectives that the Department is pursuing to meet this challenge.

REDUCING LIFE-CYCLE COSTS OF WEAPON SYSTEMS

The Department's challenge of not just maintaining, but improving levels of support required by U.S. combat units, is intensified by the critical need to generate the funds necessary to accomplish much needed modernization. Consequently, the Department is pursuing a wide variety of initiatives to reduce weapons systems life-cycle cost. One of those is a new program being established to use technology to reduce the cost of ownership for in-service weapon systems and equipment. The Office of the Deputy Under Secretary of Defense for Logistics is currently developing an implementation plan for that program. Other initiatives include:

- Application of reliability-centered maintenance to develop and manage preventive maintenance programs.
- Application of maintenance engineering discipline to all phases of the weapon system life-cycle.
- Enhancement of efficiency and effectiveness through the use of artificial intelligence and expert systems.
- Use of productivity-enhancing measures to maximize support while minimizing costs.
- Coordination of contractor maintenance support to deployed forces.
- Introduce contemporary business practices to realize greater efficiencies.
- Conversion of workshops to a modular arrangement so they can be used as building blocks to permit consolidation of repair resources at one location when appropriate.

- Implementation of pollution prevention and hazardous material reductions to achieve savings in materials handling, personal protective equipment, and hazardous waste disposal.

DoD has supported acquisition reform through both the rewrite of the DoD 5000 series acquisition regulations and the Defense Standardization Improvement Council's action to eliminate or reduce government dependency on the use of military specifications and military standards. DoD logisticians have been especially involved in rewriting relevant military standards in the packaging policy area to clearly indicate the preference for commercial type packaging for many items DoD purchases. The new packaging policy standard practice will require military level packaging only for items in extreme cases, such as long-term storage or unprotected outdoor environments. The new marking standard practice will focus only on what information DoD needs to clearly identify distribution of materiel during operations, and not on details of how to provide the marking and labeling. Gone are the specific requirements for unique marking for subsistence, ammunition, and medical materiel. Both documents were briefed to the Defense Standardization Offices in December 1996. They will undergo final government and industry coordination and will be published by April 1997.

STREAMLINING LOGISTICS INFRASTRUCTURE

Reducing the cost and size of the logistics organizations is a major strategic goal of the Department. With the reduction in force structure and peacetime logistics workload, the Department has implemented policies, procedures, and methods which minimize the structural overhead of logistics.

Secondary items of inventory and the space required to store them are major elements in the logistics structure. The Department has exceeded its reduction goals in these areas. From FY 1989 to FY 1995, the last year for which data is presently available, the Department reduced its secondary inventory 35 percent, from $107 billion to $69.6 billion in constant 1995 dollars. Further reductions will leave an inventory of approximately $55 billion by 2001 in constant 1995 dollars. Disposal actions, handled by the Defense Reutilization and Marketing Service (DRMS), increased from $8.4 billion in FY 1989 to $26.4 billion in FY 1995. DRMS managed this workload increase while reducing processing sites by 9 percent and limiting workforce growth to 4 percent.

From September 1992 to September 1996, the Department reduced occupied storage space 44 percent, from 631 to 353 million cubic feet. Storage capacity declined 32 percent, from 788 to 532 million cubic feet, and storage locations decreased from 57 to 34 during the same period. The Base Realignment and Closure Report 95 will further decrease the total number of storage sites to 19 by the end of FY 2001.

The Department continues to implement successful business practices from industry and expand best processes from within DoD. To obtain the substantial reductions in administrative costs and response times available through the government-wide purchase card, nonessential technical screening requirements were removed for purchase card buys up to $2,500. The Defense Logistics Agency (DLA) expanded its commercial distribution programs for medical and subsistence items and initiated a program to obtain quantity discounts for purchases of vehicle parts made using the government-wide purchase card.

REDUCING LOGISTICS RESPONSE TIMES

To achieve the quality support needed to support smaller, more agile forces with less infrastructure, the Department is continuing an initiative to reduce logistics response times. Logistics response time measurement is a customer-oriented technique used to document actual delivery times to military customers for materiel requisitioned through the DoD logistics systems. By reducing response times, the Department aims to maintain the current high readiness rates for less cost, increase customer confidence in the DoD logistics systems, and reduce the need to carry inventory, particularly at the customer level.

Because it is difficult to manage what is not measured, an important part of the initiative is directed towards increasing the accuracy and timeliness of response time measurements and reports. Significant progress has been made in identifying data collection and reporting weaknesses, and corrective actions are in process. New standard response time measurement segments have been defined, and system changes are underway to expand data collection. Outdated reports were earmarked for elimination and more useful ones are being developed with a goal of increasing data integrity. The Services submitted retail stock fill data that was utilized

to make a preliminary assessment of the impact of the requisitions that are satisfied from local stocks on overall response times. DLA expanded the Logistics Information Processing System capabilities of the Defense Automated Addressing System Center to report on the performance of all segments of the logistics pipeline for items managed/requisitioned by all DoD components.

Each of the Services and DLA have established individual programs and organizations to accelerate response times within their control. A DoD-wide Logistics Response Time Executive Level Steering Group and Process Action Team are coordinating efforts and addressing systemic issues. An evaluation of the Department's uniform materiel movement and issue priority system led to an initiative to rectify inequities in the assignment of materiel distribution priorities among the components. A draft revision to this system has been developed and is being coordinated among DoD components. This change will establish and implement faster distribution time standards to provide better service to military customers, similar to private sector companies.

Studies to improve both intermediate and depot repair cycles have led to new initiatives to reduce repair cycle times and costs by revising repair cycle metrics, improving repair cycle performance measurements, and increasing the responsiveness of repair actions to customer requirements. A simulation model was developed to provide a management tool for making better decisions on when it makes economic sense to spend more to accelerate distribution times in order to reduce inventory investment costs. Response time goals have been updated to reflect expectations for further improvement.

TOTAL ASSET VISIBILITY

Total Asset Visibility (TAV) is the ability to gather information from DoD systems on the identification, quantity, condition, location, movement, and status of materiel, units, personnel, equipment, and supplies anywhere in the logistics system at any time, and to apply that information to improve logistics processes. DoD has expanded TAV to include all classes of supply, units, personnel, and medical patients. TAV provides an essential management tool to customers, item managers, weapon system managers, and commanders in chief (CINCs) to move and redirect materiel, to redistribute items, to view forces flowing into theaters, and to optimize overseas stock positioning.

Further, TAV is a key ingredient of the Chairman of the Joint Chiefs of Staff focused logistics concept for the future. Developing a capability to provide the CINC/Joint Task Force (JTF) commander visibility over incoming, in place, and outgoing materiel, supplies, and personnel is critical to the United States' ability to fight and win. The Joint TAV Implementation Plan provides the broad architecture for this capability. The benefits for U.S. warfighters are clear and include common in-transit visibility technology, one complete picture of the provider-to-user pipeline, lower in-theater inventories of spares, smaller logistics footprint, and equal or better mission capable rates. The United States is committed to both battlefield distribution as the foundation for providing effective support to the warfighting CINCs with TAV as an enabling technology.

A Joint Total Asset Visibility (JTAV) charter assigned specific responsibilities for implementing JTAV to the Army as DoD's executive agent. A JTAV Implementation Plan defines the actions and milestones to achieve the desired capabilities.

DoD has long recognized that wholesale visibility and redistribution of retail assets has a force multiplier effect in the defense supply system. When the wholesale inventory control point (ICP) has visibility of retail assets, excesses in one Service are immediately visible and can be purchased back for reuse. Additionally, when wholesale assets are in short supply, the wholesaler can buy back retail assets across Services to fill high priority requirements that otherwise would have been backordered. This improves readiness with no additional cost by reducing logistics response time for high priority requisitions. Critical to this process is an interservice agreement to release retail assets for other Service high priority requirements. Intercomponent business rules have been established, and the Department is reaping the benefits of DLA's visibility and redistribution of Service-owned retail consumable assets. This year the Department will expand this visibility and redistribution capability to repairable assets.

Service ICPs will have visibility of other service retail assets, and business rules are already in place for releasing retail assets for other Service high priority requirements. The rate limiting step will be the release of software systems to comply with TAV requirements and business rules. The plan is to have all Services operational by July 1997. The Advanced Traceability

and Control (ATAC and ATAC PLUS) systems are being utilized to track reparables from the point of breakdown until delivery to the depot. Commercial Asset Visibility (CAV) was named as the migration system for controlling assets in repair for commercially repaired depot level reparables. CAV II has been implemented at 185 Navy contractor sites and nine Army contractor sites. The JTF Logistics Management Information System was successfully demonstrated during the Operation Joint Warrior Interoperability Demonstration 95.

Intransit Visibility (ITV) is a critical piece in the JTAV challenge. Efforts to attain ITV are proceeding on schedule, with the Defense Intransit Visibility Integration Plan already developed and approved. The United States Transportation Command (USTRANSCOM)-developed Global Transportation Network (GTN) is the centerpiece of DoD's ITV efforts. The GTN development contract has been awarded, and the initial design and joint program reviews have been conducted. GTN Initial Operational Capability (IOC) is scheduled for early 1997; however, a portion of this capability is being fielded early to support Operation Joint Endeavor redeployment.

The Army is DoD's Executive Agent for Automatic Identification Technology (AIT). A dual standard was established for two-dimensional bar codes for logistics labeling and electronic commerce application. As a preliminary step to establishing the DoD radio frequency (RF) standard, a draft request for proposal was sent to vendors to initiate an RF device procurement. In cooperation with the American National Standards Institute (ANSI), the JTAV Office is also developing a standard for RF tags and readers. They have developed an interim JTAV RF tag format, and USTRANSCOM has agreed to use ANSI RF interrogators at selected sites. Additionally, RF technology is being employed for shipments to Bosnia. DLA has incorporated the Automated Manifest System laser optical card functionality into the distribution standard system to enhance ITV and has begun field implementation at several sites.

Joint Personnel Asset Visibility (JPAV), the personnel module of JTAV, is being operationally tested in Europe in support of Operation Joint Endeavor. This system provides the JTF commander and the CINC with visibility of all personnel assigned to a particular contingency. This provides the commander with not only the numbers of forces deployed, but the specific attributes associated with the force, for example, language skills, occupational skills, and such. Concurrently, a noncombatant evacuation (NEO) tracking systems, a subset of JPAV, is being demonstrated in Korea as a proof of concept prototype. This system provides the JTF commander with a means to account for and track noncombatants throughout the duration of a NEO operation. The JPAV medical initiative for patient tracking is prototyping an interface with the USTRANSCOM Regulating and Command and Control Evacuation System (TRAC2ES). These three systems provide visibility over where U.S. forces and other individuals are located.

PRIVATIZATION AND OUTSOURCING

Last year, the Department launched efforts to identify opportunities for improving support processes and reducing the logistics infrastructure by outsourcing and privatizing selected logistics functions. This effort is part of a comprehensive logistics reengineering effort intended to meld the best capabilities of DoD and industry into an efficient and responsive support structure with the flexibility to meet worldwide logistics requirements well into the 21st century. Outsourcing and privatization are not being pursued as special initiatives, but as integral elements of a comprehensive strategy to introduce greater competition into logistics business areas to eliminate inefficient duplications between DoD and industry, create unrivaled support structures, and generate savings for the Services to fund modernization and other priorities.

During FY 1996, the Services and DLA examined materiel management outsourcing opportunities in detail. Outside consultants performed comprehensive business case analyses to evaluate opportunities for improving processes and reducing costs of operations through outsourcing and reengineering strategies. DLA has started implementing the recommendations of these studies in the areas of the DRMS, distribution depots, and cataloging and will continue to expand its successful private sector-based practices of direct vendor delivery, prime vendor, and other commercial practices. DLA awarded a Virtual Prime Vendor (VPV) contract in October 1996 to provide all parts and logistics support to selected depot maintenance lines. Under VPV, the contractor is responsible for total logistics support to the selected facility to include wholesale item management, forecasting, and direct delivery of materiel to the customer when and where needed. The Services have completed materiel management outsourcing analyses and are in the process of evaluating candidate proposals to ensure

they are economically and operationally sound before beginning implementation.

The Assistant Deputy Under Secretary of Defense (Transportation Policy) and USTRANSCOM established a comprehensive action plan to reengineer the Department's transportation processes. They established and published a portion of this greater effort, a transportation acquisition policy, to streamline and achieve consistency, efficiency, and flexibility in transportation contracting processes. Further, two pilot programs have been initiated to test new procurement and operational concepts to reengineer and outsource the DoD personal property shipment and storage program. In both cases, DoD will rely heavily on commercial practices and capabilities to accomplish critical transportation missions.

Although use of contractor support for depot maintenance activities will be strongly pursued to the extent allowed by law, the integrity of the DoD depot maintenance core capability will be maintained to meet essential wartime surge demands, promote competition, and sustain institutional expertise.

DOD DEPOT MAINTENANCE CORE POLICY

Depot maintenance core is the capability maintained within organic defense depots to meet readiness and sustainability requirements. Core capability exists to minimize operational risks and to guarantee required readiness. Core depot maintenance capabilities will comprise a ready and controlled source of required technical competence. Depot maintenance for the designated weapons systems will be the primary workloads assigned to DoD depots to support core depot maintenance capabilities.

Once minimum depot maintenance core capability is established, remaining workloads will be accomplished so that DoD obtains best value. This necessarily involves consideration of not only commercial sources of repair but also economic use of organic capacity (for example, efficient peacetime use of those capabilities established to support core capability requirements). It may also involve having organic depots compete with private sector firms. In addition to considering cost, achieving best value requires the Department to take into account factors such as past performance, reduced cycle times, reduced pipeline costs, alternative replacement of parts, and other practices focused on providing a more effective end result.

DoD is promoting the reengineering of business practices in conjunction with future consolidations, transfers, and competitions of depot maintenance workloads.

- Regional Maintenance Centers (Navy). The concept focuses on properly sizing the shore maintenance infrastructure to support a smaller naval force while maintaining the Fleet in a high state of readiness.

- Lean Logistics Program (Air Force). The objective is to maximize operational capability by using high velocity transportation and just-in-time stockage principles to shorten cycle times, reduce inventories and costs, and shrink the mobility footprint, providing flexibility to manage mission and logistics uncertainties.

- Integrated Sustainment Maintenance Program (Army). The program regionalizes the repair of components to achieve efficiencies and cost savings.

- Precision Logistics Program (Marine Corps). The program is a change in culture and a pursuit of smart business practices in regards to speed and accuracy of information, speed and fluidity of distribution, and reduction in support cycle times.

LOGISTICS BUSINESS SYSTEMS

Current DoD strategic planning places emphasis on rapidly deployable, tailored joint forces. New logistics business processes require cross-functional information sharing. Much of the needed information is not shared between government and industry information systems. The logistics community and the warfighters must be linked to share needs, requirements, and capabilities.

This Seamless Logistics System is a group of systems composed of mission and support applications, supported by shared data and electronic commerce standards, and linked by the National Information Infrastructure and the Defense Information Infrastructure. The defining characteristic of this new logistics system is the transition from delivery of logistics support through massive, rigid support structures to delivering logistics support through lean inventories and agile infrastructure. Rather than relying on the staging of massive amounts of materiel at fixed echelons of

support, this new system relies on agility and knowledge to acquire and move materiel to the end user within a user-specified or accepted period of time.

The Seamless Logistics System will reach back from the battlefield to not only DoD facilities, but also to the private sector as well. As new weapon systems are delivered, their data will be delivered in place by Contractor Integrated Technical Information Systems and made available to the operating and logistics forces through the National Information Infrastructure. Other initiatives such as DLA's Direct Vendor Delivery program will move responsibility for a significant portion of materiel management support back to the private sector. The success of these programs, designed to interweave the private sector into the overarching logistics infrastructure, is highly dependent on a robust integration with private sector processes and systems. By sharing data across the public and private sectors, supply chain management can be used to drive down cost, improve quality, and increase performance.

The primary mechanism to enable the new logistics information sharing environment is the concept of a common/standard operating environment (COE/SOE) that provides a reusable set of common software services via standard Application Program Interfaces (APIs). By building modular applications that use a common software infrastructure accessed through a stable set of APIs, as well as a standard integration approach, developers should be able to plug and play their applications into a centrally maintained infrastructure. The use of the standard APIs allows mission applications to be quickly integrated and updated relatively independent of each other. The concept allows developers to concentrate their efforts on building mission area applications rather than building duplicative system service infrastructure software.

The initial construction of the COE is being accomplished with the deployment of both hardware elements and basic standard operating and other support software. Initial application software components of the COE are those elements of the materiel management, depot maintenance, Joint Computer Aided Acquisition and Logistics Support (JCALS), Joint Engineering Document Management Information and Control System (JEDMICS), and other development processes identified by the Services and DLA as being necessary to the new business orientation of the logistics support process. For example, 23 transportation systems have been approved for consolidation and integration. The funding which would have sustained the older, less capable systems is now being used to develop the systems required to accomplish strategic force projection. One of the most critical transportation systems is the Transportation Coordinator Automated Information for Movements System II (TC AIMS II), a joint Service system under development by the designated lead agent, the Army. TC AIMS II will provide critical transportation deployment and redeployment data for planning and execution purposes, feed ITV visibility data, and integrate unit and base level transportation processes. The current Service and agency legacy processes, which are still needed, are being made compatible for operation within the COE in conjunction with these new application processes.

CONTINUOUS ACQUISITION AND LIFE-CYCLE SUPPORT

Continuous Acquisition and Life-Cycle Support (CALS) is a core strategy to share integrated digital product data through a set of standards to achieve efficiencies in business and operational areas. Implementation of the core strategy will enable the realization of integrated enterprises and virtual enterprises between DoD and industry. The CALS strategy is being implemented throughout DoD and industry, as well as being embraced internationally in Europe and the Pacific Rim countries. Many diverse organizations are using the CALS strategy and related technologies to improve business performance. These range from governmental organizations to large defense contractors to numerous small and medium-sized enterprises. Building on the successful implementation of the CALS strategy in the Army's Combat Mobility System, other weapon system programs like the C-130 and the F-15 are under near-term consideration for CALS implementation. The DoD CALS-sponsored Integrated Data Environment (IDE) Benefit Assessment Tool is nearing completion and will allow the measurement of actual costs and benefits of IDE implementations.

The CALS Thrust Team effort has focused on exploiting improved business processes that take advantage of the efficiencies to be gained through the use of digital data. Multiservice functional products such as the Interactive Electronic Technical Manuals for truck vehicles used by the Army and Marine Corps are one example. There are also DoD/industry demonstrations of reengineered processes such as the joint Contractor Integrated Technical Information Systems project between McDonnell Douglas Aerospace and the Navy/Air Force. This

project provides reengineering to the business processes for locating/modifying contractor-held technical data, interfacing government and contractor systems, and reviewing and approving data products/deliverables.

CALS International Activities

The trilateral forum, led by the Under Secretary of Defense (Acquisition and Technology), identified and initiated a program for electronic classroom development and sharing for the LM-2500 engine, used in the Aegis cruiser and other ships by Canada, the United States, and Australia. There is also a shared development project for C-130J drawings between Canada and the United States. The United States has digitized some C-130J drawings, and Canada has developed a digital index for those drawings. The project incorporates the best of what both countries have already invested in to avoid duplication of work.

The CALS office is demonstrating the use of the United Nations' Rules for Electronic Data Interchange for Administration, Commerce, and Trade (UN/EDIFACT) in support of Electronic Data Interchange (EDI), an internationally accepted standards set in the areas of transportation, procurement, and fuels management. Each activity which promotes the implementation and acceptance of the CALS strategy in the international arena helps to achieve international standardization digital profiles worldwide.

CALS Process Change/Acquisition Reform Initiatives

In addition to promoting and facilitating the use of digital technologies in DoD's business processes, the DoD CALS office has aggressively pursued process change initiatives in the Configuration Management (CM), Technical Data Management, and the Engineering Drawing and Technical Data Package programs. Significant advances have been made in adopting performance requirements and commercial processes in these areas.

A joint industry/government effort completed development of an interim commercial standard for CM, ultimately issued in August 1995. Work is continuing with industry to transition this standard into an ANSI standard. In addition, the CALS office has been leading a multiyear effort with industry and the Services to generate an interface standard that will allow industry to use any data base tool to maintain its CM information and still be able to provide the needed information to populate DoD CM databases. DoD is preparing a handbook that emphasizes process assessment, rather than product inspection, and integrated product development, in keeping with the acquisition reform/performance-based environment. DoD mandatory requirements for specification content have been converted to guidelines for specification content, which allow industry to use its own compatible specification preparation practices.

The Department is in the process of overhauling its technical data acquisition procedures and guidance to more fully implement acquisition reform and support the application of digital data technologies to all related DoD business processes. Between 1995 and 1996, the Department reduced the paperwork burden placed on defense contractors for deliverable data products by 39 percent, from 127 million to 77 million burden hours. The Department anticipates further reductions in 1997 through additional requirements consolidation, application of electronic technologies, and business process reform.

A multiyear effort to promote the development of industry standards on engineering drawing practices is nearing completion. These industry standards allow DoD to identify and document those drawing practices that are unique and necessary to DoD business functions and processes. This allows DoD to concentrate on reducing the number of these processes even further. DoD has issued new policies to promote and expedite the acquisition and use of digital data through electronic delivery and on-line access.

Virtual Enterprise

As a result of major changes taking place in industry, the Department has embarked on a research effort that will focus on the virtual enterprise as it applies to depot maintenance operations and management. Primary examples of change are a marked increase in outsourcing, reduction in the number of suppliers, increased reliance on noncontractual coordinating mechanisms such as bilateral access to proprietary data, managers working full-time in another firm's plant, and long-term exchange of guest engineers. These and similar trends describe the commercial virtual enterprise. It is not at all clear, however, how far the commercial virtual enterprise examples can be extended to depot maintenance or other related functions. There is high interest in virtual management approaches for joint DoD operations,

especially for functions like single or integrated managers for depot maintenance. What is needed is a pragmatic, operational characterization that can guide both the long-term vision and an informed implementation policy. The research effort will determine an appropriate role for virtual enterprise management approaches in depot maintenance and could lead to a future demonstration.

REENGINEERING TRANSPORTATION

In May 1995, the Deputy Secretary of Defense approved the establishment of a task force to reengineer the Department's transportation process. A critical first step was the approval of the following Transportation Vision for the 21st century: a world-class, globally capable, intermodal transportation system that is responsive, efficient, fully integrated, and in partnership with industry — ensuring readiness, sustainability, and quality of life.

The task force approved three major transportation processes to be reengineered: transportation acquisition, transportation financial process, and transportation infrastructure. They established integrated product process teams (IPPTs) to address major initiatives within each process. The IPPTs used two guiding principles of the transportation reengineering initiatives: warfighting effectiveness is paramount, and defense transportation should operate the same during peace and war. Major functional initiatives within these processes are establishment of the Joint Traffic Management Office, development of the first transportation acquisition policy, reduction of manpower authorizations (where practical), reduction of Defense Transportation System overhead costs, reengineering of DoD's personal property shipment and storage program, initiatives in developing technology to streamline billing and payment functions with the intent to pay transportation bills quickly and correctly, renewed partnership with industry for passenger travel and small package express delivery, and development of a comprehensive plan for EDI implementation.

In addition to these successes within the scope of transportation process reengineering, there have been several practical, functional improvements. They are:

- Development of a voluntary intermodal sealift agreement to assure DoD access to commercial sealift capability during times of war while contributing to a robust and healthy U.S. merchant marine.
- Strengthening of the Civil Reserve Air Fleet program by implementation of comprehensive aviation war risk insurance indemnification in the FY 1996 DoD Authorization Act.
- Strengthening of DoD policies on the use of government aircraft and implementation of consolidated scheduling by USTRANSCOM of all continental United States (CONUS) Operational Support Airlift, less designated support aircraft.
- Establishment and implementation of minimum standards, including safety, for commercial aircraft operations under contract to DoD.
- Execution by USTRANSCOM of the contract to field the GTN for command and control and global transportation management.
- Implementation of major changes within the DoD Travel Management Program.

The following objectives support these guiding principles:

- Procure best value transportation services using a consistent and streamlined acquisition process that incorporates contingency support requirements, commercial practices, and is an integral part of the entire logistics process.
- Focus on a joint, global, seamless, intermodal transportation system which emphasizes origin to destination movement and visibility, supports customer requirements, and is an integral part of the entire logistics process.
- Embrace best business practices where they enhance effectiveness, readiness, sustainability, environmental consciousness, and quality of life.
- Invest in transportation programs, systems, and enhancements that support mobility requirements, asset visibility, and efficient transportation operations.
- Integrate transportation processes and systems with logistics, deployment, personnel, acquisition, and other functional processes and systems to provide uniform and seamless support to the Total Force.

- Employ standard data elements, protocols, and operating systems; state-of-the-art technology; and other innovative solutions to enhance deployment and the transportation business process.

- Promote a professional, well-trained transportation workforce that focuses on responsive customer service.

- Embrace transportation systems and processes that will allow seamless transition from peace to wartime.

- Integrate transportation and financial management, payment and accounting processes, and systems to enhance responsiveness to customer requirements.

- Provide the policies and systems to support decisions and execute missions at the lowest effective levels.

- Measure performance to ensure transportation processes remain flexible and responsive to customer needs.

Defense transportation, in partnership with the commercial transportation industry, will strive to continually improve its capability to support U.S. peacetime and wartime transportation requirements. The primary focus will be on CONUS-based military forces rapidly responding to a spectrum of activities ranging from major regional conflicts to operations other than war. Throughout the 20th century, in peace and war, the DoD/industry partnership has demonstrated its capability and flexibility in meeting DoD's transportation requirements.

As it enters the 21st century, defense transportation must expect and plan for even greater change. Technological progress, the information revolution, environmental concerns, global mergers and consolidations, diversification, international competition, evolving multinational transportation, and full-service logistics enterprises will challenge the U.S. transportation industry to achieve success in the international marketplace. DoD must preserve and expand the commitments contractually established with commercial partners to ensure the availability and commitment of transportation assets are critical to maintaining defense transportation's future capability.

CONCLUSION

The Department fully realizes that every logistics dollar expended on outdated systems, inefficient organic capability, and excess inventory is a dollar not available to build, modernize, or maintain warfighting capability. During 1996, DoD made great strides in implementing the road map that the Department of Defense Logistics Strategic Plan provides for achieving the improvements necessary to continue a high level of support to U.S. forces into the next century.

Chapter 16

SCIENCE AND TECHNOLOGY

Technological superiority is a principal characteristic of the U.S. military advantage. It is essential to achieving the force dominance envisioned by the Chairman of the Joint Chiefs of Staff in Joint Vision 2010. The objective of the DoD Science and Technology (S&T) program is to develop options for decisive military capabilities based on superior technology. Because the United States is not the only nation with competence in defense science and technology, DoD recognizes that over time, other nations will acquire comparable individual systems. Therefore, to sustain the lead that brought victory in the Gulf War, the United States must invest in the next generation of defense technologies.

Military needs drive DoD's technology investments. It is a fundamental assumption of the U.S. national security strategy that the U.S. armed forces will be technologically superior to any potential opponent. In the past, technology offset numerically superior enemy forces. Today, technology also enables decisive, rapid victory with minimum casualties and maximum control of collateral damage. It is imperative that the DoD S&T program invent, develop, and harness technology to realize new warfighting capabilities.

For an increasing number of technologies important for national defense, the commercial market will exceed the defense market, and the momentum of the commercial market will drive technical progress in those areas. DoD can both benefit from and contribute to a stronger U.S. industry by aligning defense technology development to complement commercial investment where appropriate. At the same time, DoD must continue to identify and support a well-defined set of defense-unique, defense-funded capabilities. In addition, DoD must continue to invest in long-term research in defense-critical technologies. Research results not only provide national security advances, but also lay the groundwork for U.S. economic strength.

Superior weapon system performance must be made more affordable. This demands that DoD pursue technology in new ways. First, where there is an advantage, DoD must exploit the technology innovations of commercial industry and realize the cost reductions that come from the economies of scale available in large commercial markets. Second, DoD must develop technologies that reduce the acquisition, operations, and maintenance costs of defense systems.

STRATEGIC PLANNING FOR SCIENCE AND TECHNOLOGY

The Department has strengthened the strategic planning and assessment processes for the science and technology program in order to enhance the S&T community's responsiveness to its warfighting and acquisition customers. Over the last several years, the Department has reached a new level of integrated corporate planning for the total DoD investment in S&T. This has been a team effort under the leadership of the Director of Defense Research and Engineering (DDR&E) that has included the Office of Secretary of Defense, the Joint Staff, the Services, and the defense agencies. DDR&E is responsible for the direction, overall quality, and content of the DoD S&T program; it develops strategies and supporting plans to exploit and develop technology to respond to the needs of the Services and to maintain U.S. technological superiority.

To guide the Department's investment in science and technology, DDR&E has developed an integrated set of strategic plans. The DDR&E Defense S&T Strategy is responsive to both the National Security S&T Strategy and Joint Vision 2010 and serves as the capstone document for three DoD integrated S&T strategic plans. This Defense S&T Strategy describes how the DoD S&T program addresses the S&T needs of the future warfighting commanders in chief and the Services, while leveraging the S&T efforts of other federal agencies and private sector S&T organizations as highlighted in the National Security S&T Strategy. These DoD strategic plans build upon the S&T plans of the individual Services and defense agencies.

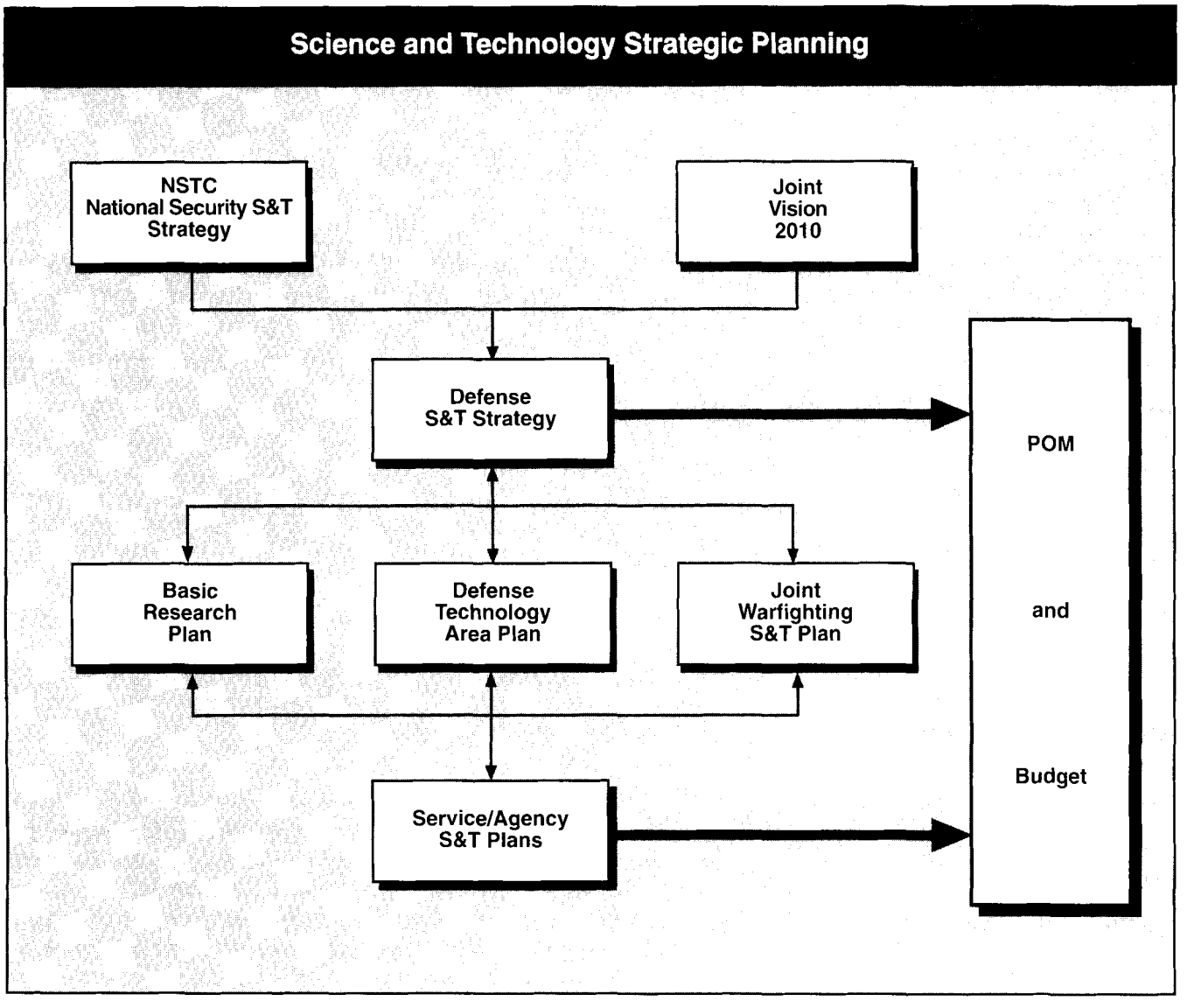
The top-level guidance for this set of DoD plans comes from the National Science and Technology Council's (NSTC's) National Security S&T Strategy and the Chairman of the Joint Chiefs of Staff's Joint Vision 2010. The elements of the National Security S&T Strategy that guide DoD S&T planning include:

- Maintaining technological superiority in warfighting equipment.
- Providing technical solutions to achieve the future joint warfighting capabilities.
- Balancing basic research and applied technology in pursuing technological advances.
- Incorporating affordability as a design parameter.

Under Joint Vision 2010, the traditional concepts of maneuver, strike, protection, and logistics are leveraged with technological advances and information superiority to produce new operational concepts that interact to create the powerful, synergistic effect of full spectrum dominance, the capability to dominate an adversary across the full range of military operations. The four leveraged concepts delineated in Joint Vision 2010 which also guide the S&T plan are dominant maneuver, precision engagement, full dimensional protection, and focused logistics.

Three S&T strategic plans, the Joint Warfighting S&T Plan, the Defense Technology Area Plan, and the Basic Research Plan, detail how DoD will achieve this Defense S&T Strategy. Together, these plans document the overall DoD S&T effort in terms of goals, defense technology objectives, schedules, and funding. These plans not only address opportunities for transitioning technology rapidly into new system acquisition programs and upgrades to fielded systems, but also highlight projected operational payoffs from those technologies. Additionally, they are used to ensure that Service and defense agency efforts are responsive to the overall DoD strategy and that efforts by multiple components are complementary.

These three S&T strategic plans ensure that the near-, mid-, and far-term needs of the joint warfighter are properly balanced and supported in the S&T planning, programming, budgeting, and assessment activities of the Department. They also consider recent technology forecasts such as the Air Force's New World Vistas, the Army's Force XXI, and the Marines' Sea Dragon. These plans are published annually to guide the Services and defense agencies in preparing their S&T budgets and Program Objective Memoranda. The elements of the DoD S&T program are planned, programmed, and conducted by the Services and the defense agencies. These detailed component plans are complementary extensions of the DoD S&T strategic plans. The Services are responsible for training and equipping the military forces; they use the S&T program to provide warfighting and system options for their components. The Defense Special Weapons Agency (DSWA) and the Ballistic Missile Defense Organization (BMDO) execute designated programs in support of national security objectives and are responsible for specific generic and cross-service aspects of S&T. The Defense Advanced Research Projects Agency (DARPA) is charged with seeking breakthrough concepts and technology. The United States Special Operations Command also executes technology efforts to meet unique needs of special operations forces.



PROVIDING FUTURE JOINT WARFIGHTING CAPABILITIES

DoD implemented two initiatives to strengthen the linkage between the science and technology program and future joint warfighting capabilities. The first is the Advanced Battlespace Information System (ABIS) study, which focused on applying advanced information technology to the future joint battlespace. The second is the Joint Warfighting S&T Plan, which provides the strategic link between the S&T program and Joint Vision 2010.

The first initiative was a detailed study into the framework for an ABIS exploiting the rapid advances in information technology. It was a collaborative effort by the warfighting community sponsored by the Joint Staff's Director for Command, Control, Communications, and Computer Systems (J6) and DDR&E. The goal was to craft a common information framework for building the underlying information grid needed to maintain military dominance in the next century. The study defined the detailed information needs of the warfighter, the current limitations in U.S. capabilities to meet those needs, and the underlying technologies that DoD must advance to overcome those limitations. The detailed structure of the ABIS information grid is anticipated to evolve incrementally through a series of research initiatives, technology demonstrations, and operational experiments to ensure that both revolutionary and incremental technology improvements are inserted into the ABIS structure as soon as possible. Recommendations on the

ABIS framework and supporting technology initiatives were incorporated into the Information Superiority section of the Joint Warfighting S&T Plan (JWSTP).

The JWSTP takes a joint perspective horizontally across the Services and agencies to ensure that the S&T program supports each of a set of high priority Joint Warfighting Capability Objectives (JWCOs) endorsed by the Joint Requirements Oversight Council (JROC). The JWSTP summarizes the S&T efforts supporting each of these JWCOs. The JWCOs, developed through collaboration between the Joint Staff, Office of the Secretary of Defense, and the Services, represent some of the most critical capabilities for maintaining the U.S. warfighting advantage. They are derived from the future capability needs identified in Joint Vision 2010, the Chairman of the Joint Chiefs of Staff annual Program Assessment and Program Recommendation, and the work of the Joint Staff's Joint Warfighting Capabilities Assessment (JWCA) teams. The JROC endorsed the following set of 10 JWCOs for the FY 1998 second edition of the JWSTP.

Information Superiority

The Services and DARPA are pursuing many technologies aimed at enhancing the capability to operate inside an adversary's decision loop by obtaining information superiority. The Services are developing the underlying technology to permit information sharing through robust and mobile battlefield networks while assuring survivability of those networks and other U.S. information systems. The Army, Air Force, and DARPA are jointly developing technologies for secure, high capacity direct satellite broadcast communications to theater warfighters that were demonstrated in Bosnia. The microelectronics devices and systems technologies that will enable the migration of small, lightweight information systems from fixed command centers to mobile platforms and the pockets and palms of combatants are being developed. DARPA and the Services are developing the software technologies and tools necessary to transform sensor and intelligence data into useful information for the warfighter and disseminate it to the right place at the right time. DARPA's planning, replanning, and dynamic retasking technologies will enable warfighters to quickly develop, evaluate, disseminate, execute, and monitor courses of action tailored for the particular situation. The joint Services and DARPA Speakeasy program to demonstrate an advanced multimode digital radio to provide common communications between Services and allies will provide an important joint and coalition warfighting capability.

Precision Force

The capability to destroy selected targets anywhere within a theater of operations while limiting collateral damage draws upon multiple technology areas. The Precision Force concept emphasizes high-value and time-critical targets. The Services are advancing data fusion, automatic target recognition, and precision location technologies so that weapons can find the type of target specified or even the particular target specified and hit the target quickly. For example, DARPA and the Air Force are demonstrating new radar signal processing and target recognition algorithms that can rapidly identify critical mobile targets with low false alarm rates for potential upgrades to Joint Surveillance Target Attack Radar System (JSTARS), unmanned aerial vehicles (UAVs), and other radar surveillance aircraft. Use of three dimensional information from a laser radar is proving to be a promising approach for automatic target recognition.

The Army's Rapid Force Projection Initiative for air-deployed early entry forces will demonstrate the technology for finding and identifying enemy forces through command, control, communications, computers, and intelligence (C^4I) linkage and then destroying high priority targets, including armored vehicles, using lightweight precision guided missiles that exploit technologies such as teleoperation and Global Positioning System (GPS) self-location for non-line-of-sight engagements. For precision destruction of hardened fixed targets in fewer aircraft sorties, the Air Force will demonstrate 250 pound small smart bombs with anti-jamming guidance which could replace the current 1,000 pound penetrating bombs for many targets. The Navy will demonstrate technologies to redirect aircraft and cruise missiles after launch, exploiting real-time targeting updates. DARPA and Navy technology efforts are supporting the concept of an arsenal ship which could provide a large magazine of precision weapons to support land and littoral engagements. Technology demonstrations will include an advanced vertical missile launcher demonstration and demonstrations of the command, control, and communications needed to rapidly target and remotely launch missiles from an arsenal ship.

Combat Identification

Providing an accurate combat identification capability requires an integrated architecture that includes noncooperative identification, cooperative identification, and improved situational awareness. Improvements in joint warfighting capabilities will be demonstrated utilizing suites of these capabilities on various platforms in joint operational environments. The Joint Combat Identification Advanced Concept Technology Demonstration (ACTD) focuses on demonstrating several select technologies to determine their military utility and evaluate their ability to integrate into existing and future joint battlefield C^4I architectures. Significant initial improvement is expected for friendly ground target identification during exercise demonstrations and modeling and simulation efforts in 1997 with the inception of new cooperative identification techniques combined with improved situational awareness. The Army Combat Identification demonstration program uses a millimeter wave interrogation/response system to identify friendly systems on the battlefield and is exploring the advancements offered by improved situational awareness derived from battlefield digitization. Air target identification improvements will be achieved by increasing the robustness of overall combat identification capabilities by improving noncooperative techniques, providing more capable data links, adding data fusion capabilities, and increasing the number of equipped platforms. Air Force and Navy combat identification efforts are demonstrating noncooperative target recognition technologies, which include inverse synthetic aperture radar imaging and exploitation of jet engine modulation and unintentional modulations on pulses to identify aircraft types or specific emitters.

Joint Theater Missile Defense

BMDO, DARPA, and the Services are developing technologies to enhance capabilities for defense against theater ballistic missiles and cruise missiles. BMDO is conducting technology demonstrations for advanced radar and infrared surveillance systems and interceptor missiles. Advanced radar transmit-receive modules which would double the power per module and increase the range of phased array missile defense radars by over 40 percent are being demonstrated using new high temperature, wide-bandgap semiconductor technologies. BMDO is developing advanced divert propulsion technology for a ship-based interceptor that would be deployable to nearly all theaters. For the Airborne Laser (ABL) program, the Air Force is demonstrating the technology for a long-range airborne laser system that could destroy theater missiles during their boost phase. BMDO is also developing technologies for multimission, space-based chemical lasers that have boost phase intercept of theater ballistic missiles as one application. For cruise missile defense, DARPA is developing both infrared and radar surveillance technologies.

Military Operations in Urban Terrain

For the most part, Military Operations in Urban Terrain (MOUT) will identify and adapt technologies that are already available or are currently in development. Robust and interactive C^4I is the most critical function capability required in the MOUT environment of the built-up area. DARPA C^4I technology efforts will demonstrate by 2000 lightweight power sources and technologies to overcome the limitations on propagation of radio communications and GPS navigation signals in obstructed urban environments. The MOUT ACTD will integrate technologies that address the operational capabilities of engagement and force protection onto the upgraded land warrior system to ensure their adaptability and interoperability. These technologies include advanced individual combat weapon, less-than-lethal technology, ballistic protection, countersurveillance, combat identification, countersniper, and individual medical technologies.

Joint Readiness and Logistics

Advances in distributed simulations, communications, and information management technologies will provide significant improvements in the capability for commanders to plan and rehearse missions; assess the readiness and status of forces; and conduct distributed training of joint and combined staffs. The Joint Warrior Interoperability Demonstration 1996 exhibited the capability to link models and simulations (M&S) to fielded command and control systems. The Synthetic Theater of War (STOW) ACTD develops and demonstrates M&S technology that can be used by major training simulation programs. A demonstration at the Joint Training, Analysis, and Simulation Center during FY 1997 will show how the object-oriented simulation technology developed under STOW can provide a rehearsal capability for the warfighter. These enhanced M&S capabilities will offer more realistic training and will reduce exercise cost, set-up time, and personnel requirements.

DARPA and the Army are developing and demonstrating real-time logistics control technologies for logistics

planning, execution monitoring, and replanning. This allows logistics planning to be conducted concurrently with operational planning and can influence battlefield decisions. They are also developing technologies for distributed logistics information system architectures, measurements of the current logistics status through automatic identification techniques, and access to heterogeneous databases. DoD technology efforts leverage and complement commercial technologies that can be applied to some logistics technology needs and that are used for affordability wherever feasible.

Joint Countermine

The Army, Navy, and Marine Corps are conducting coordinated technology demonstrations including the Joint Countermine ACTD. During FY 1996, the Army successfully demonstrated a hand-held mine detector, which transitioned to an acquisition program. Key components for off-route smart mine clearance were demonstrated and are being considered as product improvements for the heavy breacher. The Navy successfully demonstrated a laser line scan system for shallow water mine detection during a joint field exercise. They successfully tested a new sonar technology with a wide search swath for deep water mine reconnaissance. The Navy also demonstrated deployment of full-scale explosive mine neutralization line charges and arrays from a landing craft, launch and recovery of the remote minehunting system from a surface combatant, and a highly reliable superconducting magnet for influence mine sweeping. Maturing technologies scheduled for near-term demonstrations include the Army vehicle-mounted mine detector and mine hunter-killer and sensor improvements for the Navy remote minehunting system.

Electronic Combat

During the past year, the Electronic Combat area has taken advantage of commercial computing architectures to enable more affordable, integrated hardware/software solutions to the problems of threat location, identification, and overall situation awareness for the warfighter. Demonstrations exploiting those architectures will rapidly proceed into testing during the next two years. Decoys offer an Electronic Combat solution to several mission scenarios; two technology demonstration programs at different stages of execution are being aggressively pursued. A naval ship decoy is nearing the test and evaluation phase to prove its viability in protecting large surface combatants. In partnership with DARPA, the Air Force is beginning an ACTD to demonstrate a low cost dilution decoy that simulates an attacking aircraft and deceives air defenses into tracking and firing on the decoy. A key set of complementary technology demonstrations is focused on countering the lethality of threat weapon systems that rely on infrared guidance. All three Services are cooperating in synergistic development programs that focus on advanced laser-based infrared countermeasure techniques. Major, phased demonstrations are planned in the near future which promise follow-on transitions into engineering development of infrared self-protection countermeasures systems for rotary wing aircraft, large aircraft, and surface ships before the year 2000.

Chemical and Biological Warfare Defense and Protection

Technology demonstrations are underway supporting all three pillars of chemical and biological (CB) defense: contamination avoidance (detection, identification, and warning), force protection (individual, collective, and medical), and decontamination. During FY 1996, the Services accelerated the Joint Chemical Agent Detector program that demonstrated the technology for a pocket-sized chemical agent detector, and then transitioned it into the demonstration/validation phase of development one year ahead of schedule. A chemical and biological agent hazard assessment model for operational use was also demonstrated which will provide the joint warfighter the ability to avoid CB contamination and protect U.S. forces by giving them the earliest possible warning of a CB attack. An ACTD was initiated to demonstrate biological detection and warning, protection, decontamination, and concepts of operation to protect high-value fixed sites like ports and air bases. The Integrated Biological Detection Advanced Technology Demonstration was also initiated in FY 1996 to demonstrate significantly faster detection of biological agents, improved sensitivity, an increased number of detectable agents, and improved logistics support. Further, technology demonstrations include the Joint Warning and Reporting Network, which will provide commanders and military forces with near-real-time assessments and forecasts of nuclear, biological, or chemical (NBC) hazards.

Counter Weapons of Mass Destruction

The Department is developing technologies to both detect the manufacture, storage, and employment of

NBC weapons and to destroy weapons, related materials, and facilities. Utilizing its experience in nuclear weapons effects and its field test facilities, DSWA is working with Service laboratories to improve the lethality of conventional weapons for attacking underground facilities. DSWA is also developing advanced models to predict dispersal of NBC agents released into the atmosphere as collateral effects resulting from the destruction of NBC weapons-related facilities. Other technology efforts are developing advanced sensors to support target characterization and battle damage assessment and developing alternative weapons payloads to include high-temperature incendiaries and agent defeat warheads that mitigate the hazards of chemical and biological agents. The key integrated demonstration is the Counterproliferation ACTD, which is demonstrating technologies to defeat shallowly-buried NBC weapons storage and production facilities with minimum collateral damage. This ACTD assesses through field tests against realistic targets the performance of advanced penetrating weapons, void-sensing fuses to detonate weapons in rooms within buried facilities, weapon-borne and unattended ground sensors, and targeting and collateral effects prediction tools.

INVESTING IN TECHNOLOGY DEVELOPMENT AND DEMONSTRATION

The integrated S&T strategic planning process plays the key role in ensuring that DoD technology investments are focused on the highest payoff areas and that related efforts by the Services and defense agencies are complementary. The Defense Technology Area Plan (DTAP) presents DoD objectives and investment strategy for 10 technology areas critical to DoD acquisition. It takes a horizontal perspective across Service and agency efforts, charting the total DoD-wide investment in Applied Research and Advanced Technology Demonstration for each technology area. The DTAP is drafted by the Defense S&T Reliance Panels, which include representatives from all Services and agencies that have efforts within a technology area.

About 38 percent of the overall DoD S&T investment is for applied research; 46 percent is for advanced technology development; and 16 percent is allocated to basic research. Approximately two-thirds of the funding goes to industry, nonprofit organizations, and academic performers, while one-third goes to defense laboratories. Most of the work is managed by the Services, including work performed for DARPA, DSWA, and BMDO.

The DoD technology program is organized into 10 technology areas based upon technical affinities among related efforts (Table 9). The DoD technology efforts can be presented either in terms of these 10 technology areas under which they are managed or in terms of the warfighting mission application they support. For example, the technology efforts highlighted in the previous section under the Joint Warfighting Capability Objectives that they support are managed within the appropriate one of these 10 DoD technology areas. Representative highlights from the technology areas are presented in the paragraphs below to illustrate the progress and potential of the technology development and demonstration efforts.

Table 9
The 10 Defense Technology Areas

Information Systems Technology	Human Systems
Sensors, Electronics, and Battlespace Environments	Biomedical
Air Platforms	Weapons
Ground and Sea Vehicles	Chemical/Biological Defense and Nuclear
Space Platforms	Materials/Processes

Information Systems Technology

Information Systems Technology efforts are developing and demonstrating technologies including a flexible architecture that allows use of common software for a variety of decision making software tool kits, seamless communication systems utilizing commercial and common protocols, transparent management and distribution of information among different computer systems, and advanced M&S technologies. Technologies needed to provide a real-time, fused, battlespace picture with integrated decision aids are being developed. The technology efforts will provide the processing infrastructure; the software with artificial intelligence that assists and even anticipates needs for data manipulation and distribution; and the dynamically adaptive, broadband communications links required for both command and control and sensor-to-shooter applications. Accomplishments in decision making technology include the integration of artificial intelligence technology for

transportation and deployment planning. A 25-fold improvement in the time required for preparation of time-phased force deployment data has been demonstrated. Accomplishments in seamless communications technology include coordinated demonstrations of asynchronous transfer mode technology for wideband, high-speed communications; development, testing and near-term deployment of a tactical Internet; and the development of a device for end-to-end security encryption of message and data transmissions in the tactical battlefield environment. Accomplishments in software technology include demonstrations of new language-processing capabilities, including speech understanding and automatic extraction and spotting of key words in text messages — technologies transitioned into hand-held devices used in Bosnia.

Sensors, Electronics, and Battlespace Environments

Sensors, Electronics, and Battlespace Environments technologies under development will provide the eyes, ears, brains, and battlespace awareness for future decision making systems, surveillance and intelligence systems, and tactical and strategic weapons. For example, for long endurance surveillance missions over Bosnia, the detailed radar surveillance of ground activity and long-range communications capability of the Predator UAV have been extremely valuable. Because of the UAV size, weight, and power constraints, installing both a surveillance radar and a satellite communications link in the Predator would not have been feasible without advanced microwave power module technology developed by the Navy. This technology provides a factor of 30 increase in power density and a factor of 10 reduction in volume. Because it operates over a broad frequency range, it offers new opportunities for integrating communications, radar, and electronic combat systems. DARPA, the Army, and the Navy collaborated on developing advanced infrared focal plane array technology for Infrared Search and Track (IRST) sensors. In a sea demonstration, this focal plane technology, combined with advanced signal processing, successfully detected all approaching test missiles with no false alarms. This demonstration enabled the Navy to initiate procurement of an IRST for ship defense which will rapidly detect and track attacking missiles and cue defensive countermeasures.

In Battlespace Environments, advances in the near-term forecasting capability for the natural environment are moving the Department from an era of coping with and avoiding the effects of the environment to an era when U.S. forces can anticipate and exploit the conditions of terrain, oceans, atmosphere, and space. For example, prototype technology for remapping terrain features in near-real-time was used to support the Dayton negotiations on the Bosnia peace accords. This technology was developed by the Army Corps of Engineers and has been transitioned to operational commands to enhance battlefield awareness for ground commanders. For the atmospheric and space environment, the first model of the ionosphere with the resolution needed to assess the operational accuracies of the GPS and the field performance of radio communications was transitioned directly from the laboratory to operational users. This capability will be extended to forecasting future communications conditions and the impact of the space environment on orbiting and terrestrial military systems.

Air Platforms

The Air Platforms technology includes development of advanced aerodynamics, structures, flight control, and subsystem technologies for both fixed-wing and rotary-wing aircraft and cruise missiles. It also includes advancing the technologies for gas turbine propulsion; ramjets, scramjets and combined cycle engines; and fuels. As one example in advanced gas turbine engine component technology, a carbon-carbon composite bearing cage operated for 32 hours at the operating conditions projected for an advanced limited-life engine. This technology enables design of a lightweight lubrication system which eliminates 25 pounds of hardware from an expendable engine used in UAVs and cruise missiles. In the aircraft structures area, a software package for fatigue crack prediction has been developed to help users more accurately predict the structural life of aging aircraft.

Ground and Sea Vehicles

Recent accomplishments in the Ground and Sea Vehicles technology area include a successful demonstration of a tactical electric vehicle for the Army, Marine Corps, and United States Special Operations Command; incorporation of advanced degaussing technology for protection against magnetic mines and surveillance systems into the New Attack Submarine and the new LPD-17 amphibious ship baseline designs; and successful launch and recovery of a tethered

Unmanned Undersea Vehicle (UUV) that will be deployed from SSN-688-class submarines. Future technology development will culminate in demonstrations of a mission-reconfigurable UUV having significantly greater endurance; increased payload, stealth, and precision navigation capability; automated ship damage control using artificial intelligence technology to reduce personnel requirements; and affordable, highly survivable ground vehicle systems with multimission capabilities to meet evolving threats and diverse mission requirements.

Space Platforms

Space Platforms technology programs will enhance the lifetime and performance of space systems. Advanced rocket propulsion technologies are being developed to improve the performance, cost, and reliability of space launch systems and increase the maneuvering capability and on-orbit lifetime of satellites. A flight-qualified arcjet propulsion system that was delivered for a space demonstration could increase by an order of magnitude the number of satellite repositioning maneuvers available and add years to on-orbit life. Air Force and BMDO technology demonstrations supporting on-orbit life improvements include advanced space electric power generation, storage, management, and distribution technologies. Improved structural composite materials will reduce the weight up to 30 percent for both space vehicles and launchers and will permit the use of less costly launch vehicles. Advances in heat removal technologies will extend the lifetime of space electronics. One-year testing of an improved mechanical cryogenic cooler that will permit the use in space of new long wavelength infrared sensors for space and earth surveillance has been completed.

Human Systems

The Army's Rotorcraft Pilot's Associate advanced technology demonstration is applying artificial intelligence and advanced computing and decision support technologies to integrate and manage the flow of information from next-generation sensors and the digital battlespace environment to enhance the lethality, survivability, and mission effectiveness of combat helicopters. Technologists from this area, working with specialists from the Materials/Processes and the Biomedical technology areas, are managing a multiservice integrated program developing eye protection against battlespace laser hazards.

Biomedical

The jointly coordinated Biomedical technology program focuses on the delivery of superior technology that sustains warfighting capabilities through the preservation of combatants' health and optimal mission capabilities in the face of battle and nonbattle health threats. Recent accomplishments include demonstration of several candidate vaccines to reduce the threat of biological warfare agents; demonstration of prototype hemostatic bandages that offer potential for significantly greater effectiveness in management of hemorrhage in the field, a leading cause of death from combat trauma; and development of a new antigen microencapsulation process that promotes immunity against a leading cause of diarrheal disease.

Weapons

Development and demonstration of advanced technologies for conventional munitions, electronic warfare, and speed-of-light directed energy weapons (high power lasers and microwaves) are underway. Improvements in hard target penetrator technology have increased the explosive yield to 150 percent of current penetrating weapons and increased the structural toughness of the penetrators by a factor of three. A new technology record was set with an electromagnetic gun firing an experimental antitank projectile at a velocity of over 2.3 kilometers per second. For tactical rocket propulsion, a new propellant formulation with a low detonation hazard rating exceeded the propulsion performance of current propellants that are more susceptible to accidental detonation. In the electronic warfare area, new infrared countermeasures techniques for protecting aircraft against infrared-guided missiles were demonstrated using lasers to selectively jam the infrared seekers of threat missiles. Countermeasures against missiles were also demonstrated using high power microwave technologies.

Chemical/Biological Defense and Nuclear

The Chemical/Biological Defense and Nuclear technology area is developing technologies to ensure superior defensive capabilities to protect U.S. forces and equipment with minimal logistics burden. This objective requires the capability to avoid contamination through early detection and warning of an NBC threat; protective clothing ensembles, respirators, and collective filtration systems to allow for continuous operations in a contaminated environment; and decontamination capability to quickly reconstitute equipment and

weapon platforms. DSWA technology efforts are demonstrating microelectronics components ranging from radiation hardened memories capable of operating in the most stressing nuclear weapons environments to integrated components suitable for military and commercial satellites with long on-orbit lifetimes.

Materials/Processes

The Materials/Processes technology area provides key supporting technologies to the platform- and system-oriented technology efforts in the Air Platforms, Space Platforms, Ground and Sea Vehicles, and Sensors, Electronics, and Battlespace Environments technology areas. These supporting materials and processes technology efforts are grouped into four foundation technology subareas: survivability, life extension, and affordability; manufacturing technology; civil engineering; and environmental quality. This technology area includes improved lightweight armor materials for protecting both individual combatants and combat vehicles. Advanced materials for gas turbine engines with the higher operating temperatures and rotating speeds necessary to provide twice the thrust-to-weight ratio or half the specific fuel consumption of current engines are also being developed. For affordable sustainment of aging defense systems, this area includes advanced nondestructive inspection techniques for aging aircraft structures; and improved, environmentally acceptable, materials and processes for metal cleaning, corrosion control, and coating. In the manufacturing technology subarea, flexible design and production of both tactical grade and higher precision navigation grade fiber optic gyroscopes on the same production line are being demonstrated in order to make low-volume defense components comparable in cost to high production rate commercial units.

SUPPORTING BASIC RESEARCH

The Basic Research Plan presents the DoD objectives and investment strategy for DoD-sponsored basic research performed by universities, industry, and Service laboratories. The strategy for supporting world-class research consists of four main components: executing a superior quality, competitive, multifaceted research program; maintaining a flexible and balanced investment portfolio; sustaining an essential research infrastructure; and conducting visionary planning, resource constrained prioritization, and oversight. As industry reduces its investments in truly long-term research, it falls increasingly to the federal government, including DoD, to ensure that quantum jumps in military systems capability resolution from investments in the scientific basis are sustained.

Basic research is the foundation for future technology development. The objective of DoD basic research is to produce knowledge in a science or engineering area that has military potential. In most cases, sustained investments in promising research areas over a number of years are required to advance technologies through successive levels of technology development and demonstration to the maturity required for insertion into DoD systems. However, there are many examples of how the fundamental scientific advances emerging from basic research can enable dramatically new system concepts and capabilities such as visual imaging, lasers, information processing, and global positioning.

About 16 percent of the DoD S&T investment is devoted to basic research. The Services and defense agencies conduct basic research both externally through contracts with universities and industry laboratories, and internally at the DoD laboratories. About 60 percent of that work is done at universities, while defense laboratories perform most of the balance. Research done at universities pays dual dividends. In addition to producing new knowledge of military relevance, this program has long been a principal source of funding to produce graduate scientists and engineers in disciplines important to national defense and economic security.

The University Research Initiative (URI) is a group of basic research programs performed by academic institutions. URI activities help to improve the quality of defense research carried out by universities and support the education of young scientists and engineers in disciplines critical to national defense needs. The Multidisciplinary URI supports teams of researchers investigating selected topics that intersect more than one technical discipline, an approach that can accelerate research progress and speed transition to military applications. Other URI programs fund purchases of major research equipment critical to maintaining university capabilities to perform cutting-edge research, support graduate and undergraduate students on research teams in defense-critical fields, and support fellowships for doctoral students in key physical and engineering sciences.

The DoD basic research investment is focused on 12 disciplines that have a potential relationship to a military function or operation: physics, chemistry, mathematics, computer science, electronics, materials science,

mechanics, terrestrial sciences, ocean sciences, atmospheric and space sciences, biological sciences, and cognitive and neural science. Funding decisions for the 12 research areas weigh both technical quality and military relevance. DoD subjects research programs to rigorous merit review.

The Basic Research Plan also presents six Strategic Research Objectives (SROs) in selected multidisciplinary areas that offer significant and comprehensive benefit to U.S. military capabilities. The following six SROs hold great promise for enabling breakthrough technologies for revolutionary 21st century military capabilities. Advances in these areas could have high payoff applications to numerous defense systems.

- Biomimetics. Developing novel synthetic materials, processes, and sensors by understanding and exploiting design principles found in nature.

- Nanoscience. Achieving dramatic, innovative enhancements in the properties and performance of structures, materials, and devices having ultra-small but controllable features on the nanoscale level (characteristic feature sizes of tens of Angstroms).

- Smart Structures. Achieving advanced capabilities for modeling, predicting, controlling, and optimizing the dynamic response of complex, multielement, deformable structures used in land, sea, and aerospace vehicles and systems.

- Mobile Wireless Communications. Providing fundamental advances enabling the rapid and secure transmission of large quantities of multimedia information (speech, data, graphics, and video) from point to point, broadcast, and secure multicast over distributed heterogeneous networks linking C^4I systems.

- Intelligent Systems. Enabling the development of advanced systems with the ability to sense, analyze, learn, adapt, and function effectively in changing and/or hostile environments with minimal supervision.

- Compact Power Sources. Achieving significant improvements in the performance (power and energy density, operating temperature, reliability, and safety) of compact power sources through fundamental advances relevant to current technologies (for example, batteries and fuel cells) and through identifying and exploiting new concepts.

Transition of highly promising research results into defense systems can be relatively rapid in areas like software, theoretical models, and new processes (especially those for microelectronics materials and devices). Major technology advances can sometimes be incorporated into upgraded software without requiring new hardware. For example, the potential payoff from basic research on generalized rate scheduling mathematics was quickly recognized and the technology was transitioned very rapidly into operational software for aircraft sortie planning.

Examples of recent significant accomplishments in DoD-sponsored basic research are presented below. These examples were selected based the substantial technical challenges overcome and the potential military importance.

As an example of the payoffs from research in areas supporting the biomimetics strategic research objective, neuro-computational techniques known to exist in biological vision are being adapted to improve the performance of electronic imaging arrays. Researchers developed retina-like computational algorithms, extended them to infrared imaging arrays, and demonstrated real-time adaptive correction for nonuniformities in an infrared focal plane array.

In research on new microelectronics devices, a new type of memory, a transistorless static random access memory (TSRAM), has been developed. This new technology will be about 10 times faster and 100 times smaller than current static random access memories. This new memory design is also projected to be half the cost of static random access memories and only 10 percent of the size of dynamic random access memories (DRAMs) used in computers today. This TSRAM technology is expected to be inherently far more radiation tolerant than current static random access memories or DRAM technologies, a major advantage for DoD weapon systems and military and commercial satellites.

Research on new nonlinear optical polymers for potential use in active and passive optical waveguides is being immediately transitioned into an advanced technology demonstration of an extremely compact but highly accurate fiber optic gyroscope for precision strike navigation for aircraft, missiles, or precision-guided munitions. This new polymer allows optical control functions to be integrated directly onto a silicon microcircuit chip using a low temperature process that is very attractive for low cost mass production on six inch silicon wafers.

In the materials research area, a new super hard material, second only to diamond in hardness, has been created. The new crystalline composite material containing layers of the new super hard compound carbon nitride has a wide range of potential DoD applications as a coating for devices requiring high protection against friction wear, erosion by particles, or corrosion.

Another research effort has developed a new low cost joining method for bonding dissimilar materials, particularly composites. This new joining technique, called diffusion-enhanced adhesion, offers an affordable, low pressure, low temperature process that could reduce tooling and assembly costs for composite structures. This process is being transitioned to industry and has already been used to bond major thermoplastic and thermoset composite structural components for the Army's composite armored vehicle technology demonstration program.

SCIENCE AND TECHNOLOGY MANAGEMENT INITIATIVES

In addition to the S&T strategic planning initiatives discussed previously, there are S&T management initiatives to focus resources on several critical areas supporting the overall S&T program and to enhance the efficiency and effectiveness of the DoD laboratories.

The first of these initiatives is the DoD High Performance Computing Modernization Program (HPCMP) that establishes a world-class, nation-wide, integrated, high-performance computing infrastructure supporting the high-end computational needs of the defense research, development, and test and evaluation communities. High performance computing is essential for designing and developing advanced technology weapon systems. It enables scientists and engineers to solve computation-intensive problems that could not be solved before. Some examples are calculations of stealth signatures to reduce detectability across the electromagnetic spectrum, more accurate modeling at the molecular level of the flow of air or water across the surface of weapon systems, and improved sea lane weather prediction. For Operation Desert Storm, high performance computing was used, on an urgent basis, to design a new deep-penetrating bomb for attacking deeply-buried enemy bunkers and to visualize the complex electronic battlefield. In addition, computational models can replace live testing in some instances. Simulated tests can lower costs, speedup system development, avoid environmental impacts, and reduce risk to prototypes.

The HPCMP has four elements. The first element is creation of Major Shared Resource Centers with multiple, very high performance computers and expert staffs at four locations: the Army Research Laboratory, Aberdeen, Maryland; the Aeronautical Systems Center, Wright-Patterson Air Force Base, Ohio; the Army Corps of Engineers Waterways Experiment Station, Vicksburg, Mississippi; and the Naval Oceanographic Office, Stennis Space Center, Hancock County, Mississippi. The second element is support for 12 distributed centers located across the country, which have smaller high-performance computers that develop and test applications for particular high-end users. Connecting these centers will be the third element, a high speed, high bandwidth Defense Research and Engineering Network that will provide wide-area networking and will include gateways to many existing military and civilian networks. The fourth element is software support, including development of application software building blocks, visualization tools, and mathematical libraries so that users can take maximum advantage of HPCMP capabilities.

Under the leadership of the Defense Modeling and Simulation Office (DMSO), the Department has taken the initiative to exploit the rapid advances in M&S technology to enhance DoD activities ranging from technology development and demonstration through system acquisition to simulation for training and exercises. The DoD Modeling and Simulation Master Plan, developed by DMSO in coordination with the Services and defense agencies, lays out the integrated plan for the development of interoperable M&S capabilities throughout the Department. DMSO has taken the lead in defining a common technical framework for M&S to facilitate interoperability, data interchange, and reuse of models and simulations. The key element of this common technical framework, the High Level Architecture (HLA), has now been approved. Compliance with the HLA during the time span of the S&T plans is now DoD policy. This architecture will be implemented in the STOW ACTD; in the Joint Simulation System (JSIMS); in the Joint Warfare System (JWARS); and in all future simulation development.

To strengthen the emphasis on affordability in the DoD S&T program, DDR&E chartered an S&T Affordability Task Force to identify mechanisms for focusing S&T programs on obtaining manufacturing process maturity as early as possible in the acquisition cycle. The task

force identified the use of Integrated Product and Process Development (IPPD), including Integrated Product Teams (IPTs), as the single most powerful tool for assuring a focus on affordability in S&T program management. As a result, an S&T Affordability Policy has been published and implementation is underway, including reviews of advanced technology demonstrations for affordability content, designation of specific S&T programs as affordability programs, and education and training for S&T program managers in affordability and the use of IPPD and IPTs.

The Department's Technology Transfer Program is focused on creating partnerships between the defense laboratories and the private sector, working through mechanisms like Cooperative Research and Development Agreements, to bring commercial technology into defense systems and transfer dual-use technology to the private sector. Designated personnel within each Defense R&D facility are responsible for seeking opportunities to match defense and commercial technology needs. A Defense Technology Transfer Information System has been established to help match technology needs with ongoing activities. Best practices and lessons learned from throughout DoD are being identified, and mechanisms to share this information are being developed.

The Department has also been pursuing business process reengineering initiatives to improve the operations of the DoD laboratory infrastructure. The Laboratory Quality Improvement Program (LQIP) has fostered a series of reinvention initiatives, some of which have required congressional action for implementation. These initiatives are intended to increase the effectiveness and technical capabilities of the DoD laboratories by eliminating irrelevant, outdated, or duplicative regulations. One example of an LQIP initiative was the provision in the FY 1995 Defense Authorization Act that allows the S&T Reinvention Laboratories to design alternative personnel systems to improve the ability of the DoD laboratories to recruit, promote, and retain the best scientific and engineering talent available. A second example is the provision in the FY 1996 Defense Authorization Act which raises the minor military construction thresholds and which will greatly streamline and improve the efficiency of local modernization projects at laboratory sites.

For the longer term, the Department has embarked on the preparation of a plan called Vision 21 for the reduction, restructuring, and revitalization of its laboratories and test and evaluation centers. This plan will ensure that the DoD laboratories continue to provide the technology required for warfighting superiority and do so in the most efficient manner possible. The Vision 21 plan will include consideration of both intraservice and cross-service opportunities for reduction, restructuring, and revitalization. Because the historical rate of investment in laboratory facilities has been inadequate, a critical component of the plan will be revitalization of the physical facilities of the laboratories to allow them to meet the rapidly changing requirements for defense technology.

CONCLUSION

To maintain technological superiority — a principal characteristic of the U.S. military advantage — the DoD S&T program must continue to invent, develop, and harness technology to realize new warfighting capabilities. Major initiatives are underway to enhance the Department's corporate planning process for the DoD S&T program and to strengthen the linkage to future joint warfighting capabilities. Significant technology advances have been made during the past year, some of which are already being transitioned to enhance the capabilities of current systems and some of which will have major payoffs in enhanced warfighting capabilities in the longer term. Rapid advances in areas such as information technologies and sensor and electronic technologies offer opportunities to ensure that U.S. forces maintain their technological edge over advanced technology systems that are becoming increasingly available to potential adversaries. Maintaining this momentum to preserve the U.S. technological edge through sustained DoD investment in science and technology is crucial for the future of U.S. military forces.

Part IV
Defense Components

Chapter 17

CONVENTIONAL FORCES

Conventional forces form the bulk of the nation's armed forces. They consist of combat and support elements from all four military Services, excluding units dedicated to special operations and nuclear deterrence. The major categories of conventional forces are land, naval, aviation, and mobility forces. Land forces are contributed by the Army and Marine Corps. These forces, employing both ground weaponry and rotary-wing aircraft, provide capabilities to conduct sustained combat operations on land, as well as power projection and forcible-entry operations. Naval forces constitute the sea-based component of the nation's defenses. These forces are used extensively to provide overseas presence, particularly as part of aircraft carrier battle groups and amphibious ready groups with embarked marines. Naval forces also provide critical support to joint operations. Aviation forces are composed of combat and support aircraft employed by the various Services. Forward-deployed elements of these forces provide overseas presence and the capability to respond quickly to crises. Aviation forces, including both tactical aircraft and long-range bombers, are capable of a wide range of independent action; they also play an integral role in joint operations. Mobility forces consist of airlift and sealift forces, as well as land- and sea-based prepositioned materiel. These forces move troops and equipment to and from operating locations and help sustain U.S. force deployments over time.

The Bottom-Up Review (BUR) defined the missions and capabilities required of the nation's conventional forces to meet current and projected threats. The FY 1998 President's Budget and associated Future Years Defense Program (FYDP) provide the resources needed to sustain the BUR force structure in both the near and far terms. This chapter describes the missions that U.S. conventional forces must perform, the capabilities needed to execute those missions, and the investments in readiness and equipment modernization vital to maintaining those capabilities.

MISSIONS

As dictated by the National Military Strategy, U.S. conventional forces must perform a broad spectrum of missions. These range from prosecuting major regional conflicts to providing humanitarian assistance. The following paragraphs describe these missions in greater detail.

Major Regional Conflicts

The BUR identified the capabilities and force structure needed to execute the most challenging warfighting scenario that the United States would likely confront — two major regional conflicts occurring nearly simultaneously. Earlier chapters of this report reviewed the capabilities and force structure associated with the two-major regional conflict requirement, as well as with overseas presence.

Executing a major regional conflict would impose heavy demands on U.S. conventional forces:

- Phase I — Halting the Invasion. All elements of the conventional force structure would make critical contributions during this phase. Forward-deployed ground, sea, and air units, along with long-range bombers, would be the first forces to engage the enemy. Their primary objectives would be to halt the enemy's advance, establish air superiority, cut enemy lines of communication, and minimize territorial losses during the critical early days of a conflict. Other units would deploy rapidly from the United States and draw on equipment prepositioned for them in the theater.

- Phase II — Force Buildup. Heavy ground elements and additional sea and air power would arrive during this phase. Forces available in the theater, particularly those capable of deep attack, would prevent the enemy from strengthening his position and, if the situation dictated, would continue combat operations to reduce the enemy's ability to withstand a counteroffensive. Airlift and sealift would play a vital role during this phase in delivering the combat and support forces needed to conduct the counteroffensive.

- Phase III — Counteroffensive. Once sufficient forces (including logistical support) were in place, the operation would shift to the attack. Depending on the circumstances, an appropriate combination of land, sea, air, and amphibious assault forces would engage the enemy to reverse his gains and secure victory on terms acceptable to the United States and its allies.

- Phase IV — Ensuring Postwar Stability. Once victory had been achieved, some forces would remain in the theater to provide assistance to allies, deter further aggression, and participate in subsequent operations.

In the case of a second major regional conflict, additional forces would deploy rapidly from the United States, while selected combat elements from the first conflict would swing into the second theater with the goal of halting the invasion. Subsequent phases of the second operation would parallel the phases outlined above. U.S. forces, however, are not sized to prosecute two nearly simultaneous major regional conflicts while also sustaining an active involvement in other conflict operations and maintaining overseas presence. Consequently, in order to prosecute two major regional conflicts, the United States would have to disengage from any sizable peace enforcement or intervention operations and forgo other overseas presence missions in order to ensure that the requisite forces were available.

Overseas Presence

The BUR identified a continuing need to deploy U.S. forces routinely abroad. Forward deployments ensure that forces are ready to fight, are familiar with the regions in which combat operations might take place, and can operate in combination with other U.S. or allied forces. Perhaps more important, deployed forces provide the United States' first response to crises as well as a framework for introducing follow-on forces. While this presence posture exacts a toll on people and equipment, and requires significant resources, it allows American forces to deter aggression, through immediate visibility, and respond to crises within days, if not hours.

Historically, forward deployments have been concentrated in Europe, the Pacific, and Southwest Asia. Despite reductions in the size of these deployments relative to Cold War levels, recent crises have dictated a similar deployment pattern, with emphasis shifted among the three theaters, but with each still covered by the U.S. presence umbrella. These deployments currently include:

- Pacific — Two Army infantry divisions (one light and one heavy), one Marine expeditionary force, three Air Force fighter wing equivalents, one Navy carrier battle group, and one amphibious ready group.

- Europe — Forward elements of one Army armor and one Army mechanized infantry division, two

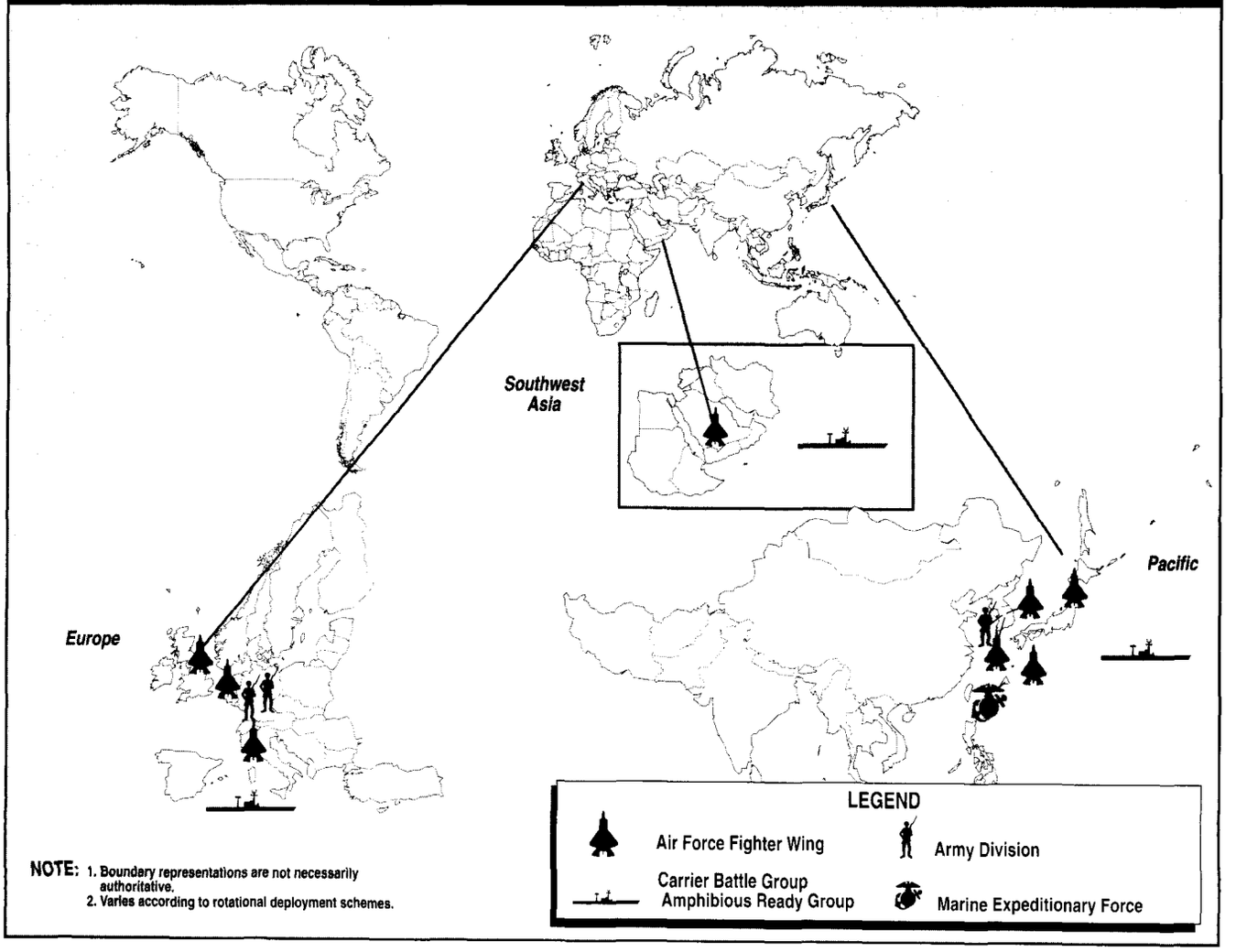
Air Force fighter wing equivalents, one carrier battle group, and one amphibious ready group.

- Southwest Asia — One Air Force fighter wing equivalent, one carrier battle group, and one amphibious ready group.

Beyond the routine deployments discussed above, forces from all four Services carry out periodic deployments in forward locations, as needs arise. These deployments, involving both active and reserve component units, contribute substantially to overseas presence, as does the prepositioning of U.S. equipment and materiel abroad. The following chart shows the current location of major U.S. conventional force elements.

In most cases, the force structure necessary to prosecute the two-major regional conflict scenario is also sufficient to provide overseas presence. Naval forces are an exception, however. The combination of operating and personnel rotation requirements, the lack of permanent overseas homeports, and the transit times and distances involved dictate force levels for selected elements greater than those needed for major regional conflicts alone. Thus, the size of naval forces reflects the demands both of the two-major regional conflict requirement and of forward deployments.

Nominal U.S. Overseas Presence



To take the carrier force as an example: Prosecuting two major regional conflicts would require up to 10 aircraft carriers. The force is sized, however, at 11 active carriers plus one operational reserve carrier capable of undertaking limited deployments. This 12-carrier force meets peacetime needs and satisfies wartime requirements, allowing the Navy to deploy a carrier battle group on a nearly continuous basis to each of the three major theaters — the Pacific, Europe, and Southwest Asia. Other naval force elements — including amphibious ships, attack submarines, surface combatants, and Marine Corps forces — likewise are sized to reflect the dual requirements of peacetime presence and warfighting.

Other Military Operations

American leadership remains crucial in the post-Cold war era. While threats to vital national interests are now less clear and perhaps less acute, the world continues to pose dangers to which the United States must be prepared to respond. Civil and ethnic conflicts, if not contained, can threaten regional stability. A wide variety of missions ranging from limited counterdrug operations to large-scale peace operations, such as the mission undertaken in Bosnia, have helped to maintain stability throughout the world. Although UN peacekeeping forces have declined sharply in size, from about 69,000 troops in 1995 to roughly 26,000 at the end of 1996, these forces continue to provide a mechanism for enhancing regional stability.

In FY 1996, two crises demanded continuous attention. Ethnic strife in the Balkans necessitated one of the largest peacetime operations conducted since World War II, while tensions in Iraq and the Arabian Peninsula resulted in deployments of U.S. troops to the region, as well as preemptive cruise missile strikes against Iraqi air defense systems.

Multiple missions in the new Balkan republics contributed to the peace process and the free elections in Bosnia in September 1996. Operations in support of this goal included Able Sentry, Provide Promise, Sharp Guard, and Joint Endeavor. Moreover, as a result of the 1995 Dayton accord, more than 20,000 U.S. troops were deployed with the NATO Implementation Force (IFOR). A forward-deployed Marine Air-Ground Task Force (MAGTF) served as the designated IFOR in-theater reserve.

In Iraq, operations included enforcement of the no-fly zones over northern and southern Iraqi territory. In September 1996, Iraq challenged the multinational forces monitoring the southern zone, firing missiles at U.S. aircraft. In Operation Desert Strike, Navy Tomahawk missiles and conventional air-launched cruise missiles fired from Air Force B-52 bombers disabled selected Iraqi air defense forces. Also in response to the Iraqi action, the southern no-fly zone was expanded to the 33rd parallel and additional U.S. troops were deployed to the region.

The United States carried out a number of humanitarian and disaster relief operations in 1996, delivering aid to needy populations at home and abroad. Examples include Operation Provide Comfort, supporting the Iraqi Kurds, and Operation Southern Watch, aiding 10,000 people in southern Iraq. Closer to home, U.S. forces provided assistance in response to natural disasters, such as Hurricane Fran on the U.S. east coast.

Many of the skills needed for crisis-response operations reside in the reserve components. Reserve units therefore play a key role in these operations, participating voluntarily in most instances. On only three occasions in recent years — the Gulf War and the Haitian and Bosnian deployments — was presidential Selected Reserve call-up authority invoked. Reserve volunteers have supported numerous recent operations, including Southern Watch, Provide Comfort, and Vigilant Sentinel in Iraq and the Persian Gulf; the Sinai peacekeeping force separating Israel and Egypt; Operations Provide Hope, Deny Flight, Sharp Guard, Able Sentry, and Joint Endeavor in southern Europe; and counterdrug operations in the Caribbean.

The fight against drugs continues in the United States and abroad. Active, reserve, and National Guard forces have provided training and intelligence support to law enforcement agencies. DoD continues to assist host nations in their battle against the production and trafficking of drugs, including the provision of intelligence support to enhance interdiction capabilities. During FY 1995 and FY 1996, South American air forces, aided by U.S. intelligence, interdicted more than 35 drug-smuggling aircraft. Support to U.S. embassies in that region likewise was integral in the arrest of the leaders of the Cali Mafia. DoD also has taken aggressive steps to assist Mexico in drug interdiction operations. In October 1995, Secretary Perry and Mexican Defense Minister Cervantez established a bilateral working group to address counterdrug issues, among other mutual defense concerns. This working group developed a

comprehensive initiative for enhancing Mexico's drug interdiction capability.

THREATS

Each potential regional aggressor possesses a wide range of technological capabilities that could pose significant dangers to U.S. military operations. These capabilities, which are expanding as a result of the worldwide proliferation of modern military technology, include the increasingly capable air-, sea-, and land-based weapons discussed below. Because U.S. strategy demands minimal casualties, American forces must maintain a substantial advantage over potential adversaries capable of employing these weapon systems.

Aviation Threats

Intelligence estimates project potential regional aggressors as having the capability to field numerous combat aircraft, as well as ground and naval forces with significant surface-to-air weapons capability. Examples of systems that could pose increasing challenges to U.S. operations include advanced airborne electronic equipment, modern fighter aircraft, and dense and highly capable integrated air defenses.

New radar, electronic countermeasures, weapons, and other equipment can be added to existing aircraft at a much lower cost than buying new aircraft. Highly capable weapons, such as the Russian-made AA-11 or Israeli-made Python 4 short-range missile and the French-made Mica medium-range missile, could significantly increase the ability of foreign air forces to challenge U.S. aircraft.

One example of an advanced fighter aircraft developed elsewhere is the French Rafale, a single-seat fighter that combines good maneuverability with a reduced radar cross section and infrared signature. The Rafale is planned to achieve initial operational capability in 2002 in the French navy and could be available for sale to potential adversaries early in the next century.

New, integrated air defense systems have advanced electronic features that are difficult to counter. These systems could pose a serious challenge to the quick and successful prosecution of an air campaign. Several potential adversaries have chosen to emphasize acquisition of ground-based air defenses as the highest-leverage method of countering U.S. air power.

Maritime Threats

Potential threats to U.S. forces conducting operations in littoral areas include antiship cruise missiles (ASCMs), naval mines, and diesel-electric submarines.

Antiship cruise missiles — launched from the air, land, or sea — are increasingly available throughout the world. The limited time available to react to them, once airborne, could pose difficulties for existing antiair defenses, particularly in littoral operations, where naval forces may be patrolling very close to the shore. A number of countries in regions vital to American interests, including the Persian Gulf, now possess advanced ASCMs.

Naval mines provide a potentially effective way to delay, or even deny, accomplishment of U.S. maritime objectives. These weapons are generally inexpensive, easy to store and conceal, and rapidly deployable. They range in type and capability from primitive moored contact mines to sophisticated bottom mines, which are difficult to detect and counter and are triggered by acoustic and/or magnetic signatures of passing ships. During the Gulf War, Iraq employed a number of mines of varying types successfully enough to damage two ships seriously and complicate plans for an amphibious landing. Most littoral nations possess at least a rudimentary mine capability, raising the possibility of a mine threat in any contingency.

Diesel-electric submarines constitute a growing threat, and one that can be difficult to detect and counter in shallow water. These submarines could disrupt shipping and shut down vital sea-lanes in littoral areas. Many navies now operate diesel subs, and additional countries could well follow suit.

Ground Threats

Ground threats consist of standing armies of foreign powers, armed with mixes of old and modern weapon systems. Many nations, including members of NATO and the former Warsaw Pact alliance, are selling weapons on the international market. Thus, U.S. forces could encounter a wide variety of systems in combat, including possibly some originally produced in the United States.

Older tank systems that U.S. forces might face include Soviet T-55s and T-62s, as well as early-generation T-72s; newer systems include later-generation Soviet T-72s with reactive armor and T-80(U)s with applique armor. Older attack helicopters that potential adversaries might employ include Soviet MI-8/17 HIPs and German BO-105s; newer systems include Soviet MI-24/25 Hinds and Ka-50 Hokums, and upgraded French SA-342 Gazelles.

New weapon technologies will add more advanced capabilities to threat forces. Examples include tank upgrades (e.g., day and night optics, active defense systems that redirect or destroy incoming projectiles), advanced antitank guided missiles capable of top attacks against tank turrets, increasingly accurate tactical ballistic missiles, and advanced artillery munitions.

Although irregular forces will continue to be unable to match the combat power of heavy U.S. weaponry, these forces could 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 submerge themselves within civil populations could negate some of the advantages of U.S. heavy weaponry.

Nuclear, Biological, and Chemical Weapons

Nuclear, biological, and chemical (NBC) weapons delivered by theater ballistic missiles or other means threaten U.S. security interests and U.S. military forces deployed in regions throughout the world. More than 20 countries possess or are developing NBC weapons, and more than 20 nations have theater ballistic missiles. Since 1980, ballistic missiles have been used in six regional conflicts. The threatened use of NBC weapons not only affects the psychological and political aspects of any military campaign, but also poses a significant technological challenge in countering them.

FORCE STRUCTURE

The force levels established by the BUR for key conventional force elements are discussed in the paragraphs below.

Aviation Forces

Aviation forces — composed of fighter/attack, conventional bomber, and specialized aircraft — offer the advantages of rapid deployability, diversity, and flexibility. Specifically, fighter/attack forces provide air superiority and strike warfare capability on short notice from land and sea; conventional bombers provide a long-range capability to deliver general-purpose bombs, cluster munitions, or precision munitions against point and area targets; and specialized forces conduct support operations such as airborne early warning and control, suppression of enemy air defenses, reconnaissance, surveillance, and combat rescue. The key operational advantage of aviation forces is their ability to respond rapidly to crises; their diversity and flexibility are a result of the differing roles and missions of the Services that operate them.

Beyond the aircraft addressed here, the aviation force structure includes a variety of transport planes, aerial-refueling aircraft, and helicopters. Details on these forces are provided in the sections on mobility and land forces.

FIGHTER/ATTACK AIRCRAFT

Air Force, Navy, and Marine combat aircraft provide versatile striking power for employment worldwide on short notice. The Air Force is capable of deploying seven to eight fighter wing equivalents into a theater as an initial response to a major regional conflict, with additional wings following within the first month. Where the local infrastructure and political conditions permit, these forces can operate directly from airfields within the theater. Navy and Marine air wings also provide a source of air power that can rapidly be employed in distant trouble spots; furthermore, these forces are capable of conducting prolonged operations independent of access to regional air bases. At present, the Navy and Marine Corps cooperatively maintain continuous overseas deployments of about three carrier air wings afloat and elements of four Marine wings ashore.

During FY 1998, the aviation force structure will include 20 Air Force fighter wing equivalents, 11 Navy carrier air wings, and four Marine air wings. Air Force wings are counted in terms of fighter wing equivalents (FWEs), with each FWE including 72 combat aircraft; relative to the notional 72-aircraft FWE, the size of operational wings varies according to each wing's mission. Navy carrier wings include more than 50

fighter/attack aircraft, while Marine wings consist of a variety of task-organized aircraft. Tables 10 through 12 compare the composition of Air Force, Navy, and Marine Corps air wings at the end of FY 1998.

The structure of the Navy's basic carrier air wing has been evolving throughout the 1990s as A-6s have been retired from the force and a mix of F/A-18 C/Ds and modified versions of F-14 fighters have succeeded them. The number of fighter/attack aircraft in each wing has declined to 50 from the previous level of about 56. The smaller wings are more flexible because they operate a greater percentage of multirole aircraft, thus increasing the average number of precision strike-capable aircraft from 36 to 50 per wing.

The Marine Corps will maintain four air wings — three active and one reserve —throughout the program period. In addition to the single-seat F/A-18 (which is identical to Navy models), the Marine Corps employs the two-seat F/A-18D as a multirole fighter, and also as a reconnaissance, forward air control, and tactical air control system for operations at night and in adverse weather. The AV-8B, while capable of multiple missions, is used primarily in the close air support role.

Table 10
Composition of Air Force Wings (Fighter/Attack Aircraft)

Aircraft Type	Mission	Active FWEs	Reserve FWEs	Total FWEs
F-15A/B/C/D	Air superiority	3.5	0.6	4.1
F-15E	Multirole[a]	1.8	—	1.8
F-16C/D	Multirole[b]	6.2	5.2	11.4
F-117	Attack	0.5	—	0.5
A-10	Close air support	1.0	1.2	2.2
Total		13.0	7.0	20.0

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.

Table 11
Composition of Carrier Air Wings (Fighter/Attack Aircraft)

Wing Type	Aircraft Type (PMAI per Wing)	Number of Air Wings			
		FY 1995	FY 1996	FY 1997	FY 1998
Power Projection	F-14 (20), F/A-18 (24), A-6 (16)	6	3	—	—
Littoral	F-14 (14), F/A-18 (36)[a]	4	7	10	10
Reserve	F-14 (14), F/A-18 (36)	1[b]	1	1	1
	Total Navy Combat Aircraft (PMAI)[c]	574	544	490	490

[a] Two air wings will maintain a 12-aircraft 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 36 PMAI F/A-18s, operated by two Navy Reserve squadrons (24 aircraft) and one Marine Reserve squadron (12 aircraft).

[c] Total PMAI shown consists only of Navy F-14s, F/A-18s, and A-6s. 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 12
Composition of Marine Air Wings (Fighter/Attack Aircraft)

Aircraft Type	Mission	Active PMAI (Squadrons)	Reserve PMAI (Squadrons)	Total PMAI (Squadrons)
F/A-18 A/C	Multirole	96 (8)	48 (4)	144 (12)
F/A-18D	Multirole	72 (6)	0	72 (6)
AV-8B	Close air support	140 (7)	0	140 (7)
			Total	356 (25)

CONVENTIONAL BOMBERS

In a major regional conflict, 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. The more advanced munitions 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 payload capacity. The long-range capability provided by bombers could make them the first major U.S. weapon system on the scene in a rapidly developing crisis, particularly in regions where the United States does not routinely maintain forces. Here, too, their ability 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 increase dramatically over the next 10 years as increasingly capable munitions become available for employment by bombers.

At present, the Department has a total inventory of 94 B-52s, 95 B-1s, and 13 B-2s. Of these, 44 B-52s and 48 B-1s are designated primary mission aircraft inventory (PMAI), meaning that they are fully funded in terms of operations and maintenance, load crews, and spare parts. 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. The Department plans to reduce the B-52 inventory to 71 aircraft (44 PMAI) in FY 1998. B-1 PMAI will rise to 70 by 2001, when modern weapons (discussed in detail subsequently) — such as the Joint Direct Attack Munition, Joint Standoff Weapon, Wind-Corrected Munitions Dispenser, and Joint Air-to-Surface Standoff Missile — are available to enhance the bombers' effectiveness in conventional operations.

SPECIALIZED AVIATION FORCES

Specialized aviation forces have taken on added importance in the post-Cold War era. These 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. They bridge the gap in coverage between ground- and satellite-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 are employed within enemy air defense range. Table 13 summarizes the force levels programmed for the end of FY 1998.

Table 13
Specialized Aviation Forces

Electronic Warfare and Air Defense Suppression	
EA-6B	104
Airborne Reconnaissance and Surveillance Systems	
Standoff	
E-2C[a]	62
E-3[a]	28
E-8[b]	8
U-2[b]	29
RC-135 V/W[c]	12
EP-3[c]	12
ES-3[c]	16
RC-12[c]	42
Penetrating[b]	
F-14 (TARPS)	47
F-16 (TARS)	24
F/A-18D (ATARS)	4
RC-7 ARL	6
Pioneer UAV Systems	9
MAE (Predator) UAV Systems	8
Tactical (Outrider) UAV Systems	6

Note: Reflects PMAI totals.

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

[b] Performs ground reconnaissance.

[c] Conducts signals intelligence.

Naval Forces

U.S. naval forces include aircraft carriers, amphibious ships, attack submarines, surface combatants, mine warfare ships, maritime patrol aircraft, and ballistic-missile submarines (discussed in the Strategic Nuclear Forces chapter). Also included in the naval force structure are ships that perform support and logistics functions. By the end of FY 1998, the naval force will number 346 ships (see Table 14).

Table 14
Naval Force Levels

Ballistic Missile Submarines	18
Aircraft Carriers	
CV	2/1
CVN	9
Attack Submarines	
Pre-SSN-688 class	11
SSN-688/SSN-21 class	55
Surface Combatants	
Aegis	51
Non-Aegis	65/10
Amphibious Ships	
Amphibious Assault Ships	11
Other	30/2
Mine Warfare Ships	11/5
Logistics Force Ships/Support Force	65
Total Battle Force Ships	346
Selected Naval Aircraft	
Maritime Patrol Aircraft Squadrons	12/8
LAMPS Helicopter Squadrons	12/2

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

This overall force structure — and each of its major elements — remains consistent with the projections derived in the Bottom-Up Review. For wartime operations, the BUR identified an FY 1999 objective for 10 aircraft carriers and 45 attack submarines as part of an overall force goal of 346 ships. As mentioned earlier, the BUR also reaffirmed the need for naval forces to conduct routine peacetime deployments in forward areas. As a result of this forward presence requirement, the 12-carrier force includes one additional active aircraft carrier, beyond the wartime requirement, plus an operational reserve carrier to support training and undertake limited deployments, if required. The BUR also determined that a force of 45 to 55 attack submarines is needed to meet the dual demands of peacetime and wartime operations.

The naval presence policy established by the Chairman of the Joint Chiefs of Staff, called tethered presence, envisions a nearly continuous presence of naval forces in each of three major theaters — the Mediterranean, the Pacific, and the Indian Ocean. In response, the Navy deploys a carrier battle group (CVBG) and an amphibious ready group (ARG) on a nearly continuous basis in each theater. Each CVBG consists of a carrier, its air wing, and various escorts, while each ARG comprises 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. Consistent with the naval presence policy, roughly three CVBGs and three ARGs are maintained continuously on patrol in forward regions. 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.

Maintaining a continuous CVBG and ARG presence in each of three theaters would require a force of 14 carriers and 13 ARGs. Recent analyses show that tethering allows the accomplishment of the forward presence mission with 11 active carriers, about 100 active surface combatants, and nine ARGs. To carry out training/reserve missions and occasional forward deployments, sustain warfighting requirements for up to 10 CVBGs for two major regional conflicts, and provide amphibious shipping capable of lifting the equivalent of 2.5 Marine expeditionary brigades (MEBs), the Department needs one operational reserve carrier, 20-25 active surface combatants, and three ARGs in addition to the forces required for forward presence. Thus, total naval forces in these categories will consist of 12 carriers, 123 active surface combatants, and 12 ARGs in FY 2003.

The following sections describe in greater detail each of the major naval force elements.

AIRCRAFT CARRIERS

Aircraft carriers provide a forward base for maritime air operations, as well as support facilities for joint force commanders. Operating independent of land-basing restrictions, carriers support joint forces by conducting attack, surveillance, air defense, and electronic warfare missions against targets at sea, in the air, or ashore. Beyond their combat roles, aircraft carriers continue to be a mainstay in quelling crises and in supporting peacekeeping operations.

The FY 1998 budget sustains the current force of 11 active carriers and one operational reserve/training carrier. At the end of FY 1998, the force will consist of nine nuclear-powered carriers — eight vessels of the CVN-68 Nimitz class and the Enterprise (CVN-65) — and three conventionally-powered ships.

AMPHIBIOUS FORCES

Naval expeditionary forces with embarked marines provide joint capabilities for presence in forward areas and for rapid responses to crises. These forces are essential for over-the-horizon, high-speed force projection operations. As noted earlier, amphibious ready groups constitute a responsive, forward-deployed component of naval expeditionary forces.

The FY 1998 budget and FYDP maintain 12 ARGs, capable of supporting three forward-deployed MEU/SOCs in peacetime and lifting the equivalent of two-and-a-half MEBs in wartime. By FY 2003, the amphibious force will consist of 43 active and two reserve ships. Of the active ships, 41 will be amphibious lift ships and two will serve as command vessels.

ATTACK SUBMARINES

Attack submarines (SSNs) provide important capabilities for conducting military operations in forward regions. They gather covert surveillance data, communicate tactical information, control the surface and undersea battlespace, conduct strikes against ground and naval targets, and deliver special operations forces ashore. The increased importance of littoral operations has shifted the mission emphasis for SSNs from open-ocean antisubmarine warfare (ASW) and surveillance to power projection, support of special operations forces, and ASW in littoral regions. The SSN force will continue its post-Cold War drawdown over the FYDP period, declining from 66 submarines at the end of FY 1998 to 52 by FY 2003.

SURFACE COMBATANTS

The surface combatant force consists of cruisers and destroyers equipped with standoff weapons, antiair missiles, guns, and antisubmarine torpedoes, as well as frigates employing a variety of combat systems. Deployed in various mixes, these ships provide a worldwide deep-strike capability, protect carrier battle groups and amphibious ready groups, and conduct combat and presence missions in areas where full battle groups may not be available. Reflecting the high pace of post-Cold War operations, the FY 1998 budget and associated FYDP provide for an increase in the number of active surface combatants from 116 in FY 1998 to 123 in FY 2003.

COMBAT LOGISTICS FORCES

Combat logistics forces (CLF) replenish the stocks of ships operating in forward areas. They provide fuel, food, spare parts, and ordnance to seaborne vessels, as well as perform numerous other functions, including salvage, towing, repair, maintenance, diving, and fire-fighting. The CLF force includes station ships to perform in-theater operations and shuttle ships to ferry material from shore bases. The Navy recently revised the mix of Military Sealift Command (MSC) and active Navy ships in the CLF fleet. The station-ship forces consist primarily of the AOE-1 class and new AOE-6 class of fast combat support ships. The shuttle-ship force consists of the MSC's civilian-manned fleet of oilers, dry stores, and ammunition ships (TAOs, TAFSs, and TAEs). The FY 1998 budget and FYDP provide for a total of 41 CLF ships — 13 station ships and 28 shuttle ships — through FY 2003.

MARITIME PATROL AIRCRAFT

The maritime patrol aircraft (MPA) force, consisting of P-3C aircraft, supports naval task groups at sea by conducting antisurface, antisubmarine, surveillance, and mining operations. The P-3C force is being restructured to reflect the transition from open-ocean missions to littoral warfare. At the end of FY 1998, there will be 241 P-3 aircraft in the inventory.

LIGHT AIRBORNE MULTIPURPOSE SYSTEM HELICOPTERS

The Light Airborne Multipurpose System (LAMPS) MK III system combines the SH-60B helicopter with a computer-integrated shipboard system to provide an airborne platform for deployment of sonobuoys, torpedoes, and antiship missiles and processing of magnetic anomaly detector sensor information. LAMPS also provides an elevated platform for radar and electronic support measures. Embarked, fully integrated SH-60B LAMPS MK III helicopters provide critical capabilities for both antisubmarine and antiship missions. At the end of FY 1998, there will be 169 SH-60B and 13 SH-2G aircraft in the inventory.

Land Forces

The Army and Marine Corps provide unique and complementary capabilities for conducting military 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 part of the nation's naval forces, provides expeditionary forces to project combat power ashore in support of naval campaigns or in conjunction with Army and Air Force units. These diverse capabilities give military commanders a range of options for conducting ground missions. Operationally, land forces are assigned to a joint force commander, who employs them in close coordination with aviation and naval forces.

ARMY

The Army maintains heavy and light forces, based both in the United States and abroad. 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 an additional source of combat power for regional deployments. For major conflicts, the Army can dispatch a U.S.-based contingency force of up to seven divisions plus support elements to any region of the world. Table 15 shows the major elements of the Army force structure programmed for the end of FY 1998.

MARINE CORPS

The Marine Corps maintains forces designed for sea-based, self-sustained power projection and forcible entry ashore. Marine units are employed as part of Marine Air-Ground Task Forces consisting of four elements: command, ground combat, air combat, and combat service support. The Marine Corps has three Marine expeditionary forces (MEFs), home-based in California (I MEF), North Carolina (II MEF), and Okinawa (III MEF). Each MEF is composed of a division, an air wing, and a force service support group. Marine expeditionary units, consisting of about 2,000 Marines, are 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. Table 16 summarizes the Marine force structure programmed for the end of FY 1998.

Table 15
Army Force Structure and End-Strength

Active Component	
Divisions	10
Separate brigades and armored cavalry regiments	3
End-strength[a]	495,000
Army National Guard	
Divisions	8
Separate brigades and armored cavalry regiments[b]	18
End-strength[a]	366,500
Army Reserve End-Strength	208,000

[a] Includes all functional areas of combat, combat support, and combat service support.
[b] Fifteen will be enhanced readiness brigades.

Table 16
Marine Corps Force Structure and End-Strength

Active Component	
Divisions	3
Wings	3
Force service support groups	3
End-strength	174,000
Reserve Component	
Division	1
Wing	1
Force service support group	1
End-strength	42,000

Mobility Forces

Mobility forces — airlift, sealift, and land- and sea-based prepositioning — move military personnel and material to and from operating locations worldwide. These forces include transport aircraft, cargo ships, and ground transportation systems operated both by the military and by commercial carriers. In 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 — the most rapidly deployable mobility component — contributes to the movement of both troops and materiel. Often employed in conjunction with prepositioning, it delivers the forces needed in the critical early days of a combat operation. Sealift delivers the vast majority of follow-on equipment, as well as the bulk of cargo needed to sustain deployed forces over time.

As discussed in an earlier section of this report, the Department conducted two major reviews in recent years to determine the mix of mobility forces needed for post-Cold War operations. Requirements for strategic mobility — the movement of resources between theaters — were defined in the 1995 Mobility Requirements Study Bottom-Up Review Update, or MRS BURU. A companion study, the 1996 Intratheater Lift Analysis, identified transportation requirements within theaters. The mobility objectives identified in these studies will guide force structure and investment decisions in the years ahead.

AIRLIFT FORCES

Military airlift forces provide a range of capabilities not available from civil aircraft. Features unique to military transport aircraft include the ability to airdrop cargo or personnel; to unload cargo rapidly, even at austere airfields lacking materiel-handling equipment; and to carry outsize loads, such as Patriot missile launchers or helicopters. Of the cargo that would have to be airlifted in the early stages of a conflict, about half could not be accommodated by even the largest U.S. commercial cargo aircraft and would have to be transported by military air. The military airlift fleet consists of long-range C-17, C-141, KC-10, and C-5 transports and shorter-range C-130 aircraft (see Table 17 for FY 1998 inventories). These aircraft are operated by both active and reserve component squadrons.

Commercial aircraft augment military airlift forces in moving troops and standard-sized cargo. Through the Civil Reserve Air Fleet (CRAF) program, DoD gains access to commercial passenger and cargo planes in times of crisis. In return for their participation in CRAF, carriers are given preference for DoD's peacetime passenger and cargo business. CRAF forces are mobilized in three stages. Calling up Stage I aircraft provides DoD with access to about 9 percent of the passenger capacity in the long-range U.S. commercial fleet and 15 percent of the cargo capacity. With the addition of Stage II aircraft, those figures rise to 29 percent and 36 percent, respectively. Aircraft from Stage III bring the CRAF contribution, as a share of total U.S. long-range commercial aircraft capacity, to 59 percent for passengers and 75 percent for cargo.

AERIAL-REFUELING FORCES

Aerial-refueling, or tanker, forces extend the range of airlift and combat aircraft by refueling these planes in flight. The long-range tanker force consists of KC-135 and KC-10 Air Force aircraft. In addition to operating in the tanker role, both the KC-135 and KC-10 can be employed as passenger and 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. To cite just one example: Moving a heavy Army brigade with its 20,000 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 5,000 tons, enabling the brigade to be deployed in a week using airlift exclusively. Deploying a brigade in this manner would require only a portion of the Department's total airlift fleet, allowing the remainder to be available 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 material abroad. Afloat prepositioning, while more expensive, provides the flexibility to relocate stocks quickly within and between theaters, as particular operations require.

LAND-BASED PREPOSITIONING

Land-based prepositioning programs are maintained in Europe, Southwest Asia, and the Pacific region. In Europe, the Army will stockpile equipment for three heavy brigades, down from nine sets prepositioned during the Cold War. Two brigade sets will remain in Central Europe, with a third set in Italy. The Marine Corps stores equipment and 30 days of supplies for a brigade-sized MAGTF in Norway. In addition, the Air Force is consolidating 12 air base support sets —

temporary shelters for early-arriving air base personnel — at a site in Luxembourg.

In Southwest Asia, the Army will maintain equipment for two armor brigades. The first brigade set was prepositioned in Kuwait in FY 1995. The second set, which includes equipment for a division headquarters, will be in place in Qatar by the end of FY 2000. The Air Force will maintain 46 air base operation sets in the region. These stocks include shelters, materiel-handling equipment, aircraft refueling trucks, and other gear.

In Korea, the Army has prepositioned equipment for an armor brigade.

SEA-BASED PREPOSITIONING

Sea-based prepositioning programs support Marine Corps, Army, and Air Force operations. Of the 34 ships that DoD is using for afloat prepositioning, 23 have been chartered from the commercial fleet, 10 come from the Navy's Ready Reserve Force (RRF) of general-purpose transport ships, and one ship is a government-owned tanker.

Marine Corps equipment and supplies are carried on 13 chartered vessels, known collectively as Maritime Prepositioning Ships. These ships are organized into three squadrons, each supporting the deployment and operation of a 17,300-person MAGTF for 30 days. The squadrons are stationed in the western Pacific, Indian Ocean, and Mediterranean Sea. All three squadrons were used during the Gulf War and have been fully replenished.

Six chartered vessels and eight RRF ships carry Army equipment and supplies. These ships, stationed in the Indian and Pacific Oceans, provide material for an armor brigade and selected combat support and combat service support units. Beginning in FY 1997, eight large medium-speed roll-on/roll-off (LMSR) ships will be used for afloat prepositioning. As these vessels enter service, seven of the RRF ships now performing this function will be returned to reserve status.

Three chartered ships carry Air Force munitions, such as precision-guided bombs and air-to-air missiles. One of these ships is stationed in the Mediterranean Sea; the other two are in the Indian Ocean. The Navy also charters one ship to carry a fleet (ashore) hospital.

The remaining ships — a government-owned tanker and two RRF ships specially equipped to transfer fuel directly to forces ashore — are maintained for use by all U.S. forces.

SEALIFT FORCES

Sealift forces carry the full range of combat equipment and supplies needed to support military operations abroad. These forces include three primary types of ships: container ships, which are used primarily for moving supplies; roll-on/roll-off (RO/RO) vessels, which move combat equipment; and tankers, for transporting fuels. In addition, the inventory includes a number of breakbulk ships that can move both equipment and supplies.

Sealift capacity comes from three sources: government-owned ships, 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 94-ship fleet is composed primarily of RO/RO vessels (some of which are temporarily supporting the afloat prepositioning program), breakbulk ships, and tankers. These ships are maintained at various levels of readiness, enabling them to be available for operation in four to 20 days.

- Augmenting the Ready Reserve Force are eight fast sealift ships manned by partial crews. These vessels can begin loading on four days' notice. Also maintained in reserve status are two aviation support ships (each providing maintenance capabilities for a Marine air wing) and two hospital ships. Each of these vessels can be readied for deployment in five days.

- To support peacetime operations, DoD currently charters eight dry cargo ships and 10 tankers from commercial operators. These ships transport military cargoes to locations not normally served by commercial routes.

- The U.S.-flag commercial fleet contains 203 ships with military utility. These include 106 dry cargo ships, 95 tankers, and two passenger ships. Another 132 commercial vessels that could contribute to military missions — 58 dry cargo ships, 67 tankers, and seven 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 registered in nations whose laws do not preclude the ships' requisitioning for military operations.

Table 17 shows the FY 1998 inventories for key elements of the military mobility force structure.

Table 17
Military Mobility Forces

Airlift (PMAI)	
C-17	30
C-141	143
C-5	104
C-130[a]	408
Aerial Refueling (PMAI)	
KC-135	472
KC-10[b]	54
Sealift	
Ready Reserve Force Ships	94
Fast Sealift Ships	8

[a] Includes 20 aircraft operated by the Navy.
[b] These aircraft also perform airlift missions.

READINESS AND SUSTAINABILITY

To ensure the rapid responsiveness and combat effectiveness of U.S. forces, the Department has designated readiness and sustainability as its highest funding priorities. Readiness — the ability of forces to arrive when and where needed, fully prepared to carry out their missions — depends on each unit having the equipment, supplies, logistics and intelligence support, and skilled people to accomplish its assigned tasks. Currently, readiness rates are at historic highs. Sustaining those high rates presents a continuing challenge, given the substantial resources needed to meet overseas presence and crisis response requirements.

Readiness

Readiness objectives for operational units are dictated by each Service's peacetime duties and wartime tasking (e.g., forward-deployed versus U.S.-based early-deploying units or first-to-fight versus U.S.-based strategic theater reserve forces) within the framework of the National Military Strategy. Forward-deployed forces maintain the highest readiness levels. Forces not deployed are engaged in training, maintenance, resupply, and personnel rotations.

Most Air Force units (active, guard, and reserve) must maintain high overall readiness levels due to the rapid responsiveness required of them in both wartime and crisis operations. Similarly, forward-deployed naval forces maintain high readiness to ensure their rapid responsiveness for operations around the world. In the case of the Army, units like the 82nd Airborne Division, 101st Airborne Division (Air Assault), 3rd Infantry Division, and 1st Cavalry Division are required to maintain a higher state of readiness than other Army forces because of their first-to-fight deployment status.

OVERALL READINESS

U.S. active and reserve forces stand ready to execute their assigned missions. The Status of Resources and Training System (SORTS) maintained by the Joint Chiefs of Staff measures unit readiness in five categories, called C-ratings. Units with readiness scores in the highest two categories, C1/C2, have between 80 and 100 percent of the resources needed to accomplish their wartime missions and can maintain at least a 70 percent mission-capable rate.

Nearly all first-to-fight forces meet the C1/C2 criteria, while readiness scores forcewide average the levels achieved during the early-to-mid 1980s (i.e., 65-70 percent). The relatively lower readiness status of reserve units, and of some active force units, indicates that those forces will require time to mobilize before being sent into a theater of operations.

MATERIAL READINESS

Equipment readiness, as measured by mission-capable rates for major weapon systems, remains at established Service goals: 75 to 80 percent for the Air Force, the Navy, and aviation elements of the Army and Marine Corps and 90 percent for Marine and Army ground systems. Nevertheless, the demands of contingency operations, along with the effects of aging for certain categories of equipment (e.g., Air Force C-141 and KC-135 aircraft and Army trucks and construction engineering equipment), has placed added demands on Service maintenance personnel and logistics systems, reinforcing the need to continue full funding of these programs.

The overall availability of equipment has improved markedly in recent years as force downsizing has made modern assets available to all units. In the case of the Army Reserve and National Guard, for example, the elimination of active Army units has allowed many

reserve units to modernize and achieve inventory objectives for major items of equipment.

Service depot maintenance programs continue to be funded at about 80 to 90 percent of known requirements in the budget year, generally sustaining an acceptable backlog of unserviced equipment. Increased funding levels in the FY 1998 program for Navy aviation depot maintenance will improve the availability of aircraft, easing the logistical burden of supporting both deployed and nondeployed naval aviation forces.

The Navy has taken steps to ensure the continued high readiness of its F/A-18 strike-fighter force, despite recent shortages of F404 engines. These engines developed serious component durability problems about two years ago, when some parts failed after only a quarter of their anticipated service life. Corrective measures have since improved the availability of replacement engines, and the prospective arrival of new-design parts should eliminate the F404 shortage by the end of FY 1999.

UNIT TRAINING

The overall training of operational units remains at the levels necessary to accomplish wartime missions. Nevertheless, extended participation in contingency operations often reduces opportunities to maintain proficiency in combat-related tasks. For example, Air Force tactical aircrews participating in Operation Southern Watch in Iraq are flying primarily surveillance missions, and cannot train for air-to-air combat tasks, air-to-ground gunnery, or delivery of precision-guided munitions. Similarly, peacekeeping demands on the 1st Armored Division while involved in Operation Joint Endeavor have reduced the opportunity for that division to maintain its maneuver warfare skills. Once these units conclude their participation in contingency operations, they will require about three to six months to prepare effectively for participation in a major regional conflict.

The FY 1998 budget funds Service operating tempos (OPTEMPOs) — flying hours per crew per month, ship steaming days per quarter, and combat vehicle miles per year — at the levels necessary to maintain high unit readiness, but at a lower overall cost. For example, the Army has reduced its OPTEMPO program costs through greater use of computer simulations, replacing certain repetitive procedures and battle staff exercises with techniques made possible by the use of remote-learning technologies. The Navy has consolidated exercise and training operations, saving the transit time and costs incurred in preparing for these events. The Marine Corps has reduced aviation OPTEMPO by changing the focus from flying hours to sortie-based training programs, by conducting fewer training deployments, and by making increased use of flight simulation technology. Similarly, for the Air Force, changes in the size and mix of aviation squadrons have allowed active flying-hour standards to be reduced somewhat relative to Cold War levels. The Air Force currently is reviewing its fighter flying-hour goals, taking into consideration joint mission tasking procedures. The results of this review are expected to be available later this year.

EXERCISES AND JOINT TRAINING

Training and exercise programs are key to maintaining unit readiness and combat effectiveness. Each of the Services maintains excellent combat training centers where realistic joint large-scale, live-fire exercises are held. Significant resources have been invested in capabilities that permit direct assessment of large-scale, force-on-force engagements.

The Army operates the National Training Center (NTC) at Fort Irwin, California, the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana, and the Combat Maneuver Training Center (CMTC) at Hohenfels, Germany. Instrumented field exercises are used at each of these locations to improve the readiness of battalion and brigade-sized units. These training opportunities build on home-station training, which is limited by range availability. The Army will train 10 heavy brigades in FY 1998 at the NTC and 10 light brigades at the JRTC, while providing annual training opportunities at the CMTC for all of its European-based infantry and armor battalions.

The Air Force conducts three Red Flag/Green Flag exercises annually at Nellis Air Force Base, Nevada. In addition to providing training for Navy/Marine Corps and coalition forces, these exercises provide composite force package training for Air Force tactical aircraft squadrons on about an 18-month rotational basis. Air Force units conduct similar training in annual Maple Flag combined-force exercises held in Canada.

The Navy participates in about 175 unit exercises annually. Ninety percent of these exercises involve operations with other U.S. or multinational forces. These deployments improve the ability of naval forces to conduct forward presence missions and to operate effectively as part of a joint or combined force. In

addition, the Naval Strike and Air Warfare Center in Fallon, Nevada, conducts four to five exercises annually for carrier air wings. This program provides predeployment integrated strike training for naval aviation units.

The Marine Corps conducts 10 to 12 combined-arms exercises annually at Twenty-Nine Palms, California. These drills provide combined-arms training and combat readiness evaluations for Marine tactical air and assault support squadrons operating in support of ground forces. In the case of ground forces, eight active and two reserve infantry battalions, plus associated combat support and combat service support elements, train each year at the Marine Corps Air-Ground Combat Center at Twenty-Nine Palms. Marine expeditionary units (special operations capable) undergo intense, 26-week predeployment training, during which they conduct operations both ashore and at sea.

Sustainability

Sustainability is a measure of a force's ability to conduct operations of the duration and intensity needed to achieve military objectives. Sustainability means maintaining the personnel, materiel, and consumables necessary to support military operations, including replacement equipment, spare parts, ammunition, and fuel. Sustainability also includes the manpower required to rotate, replace, and reinforce units as an operation proceeds.

In general, the drawdown of U.S. forces and the diminution of the Cold War threat have contributed significantly to improvements in the adequacy of war reserve stocks. The FY 1998 budget focuses investments on areas where residual shortfalls have been identified. For example, shortages of war reserve spares for newer systems such as the F-15E fighter, the C-17 transport aircraft, and the JSTARS ground surveillance aircraft will be alleviated by the FY 1998 budget and subsequent funding requests. As discussed later in this chapter, the Department also is pursuing a robust program for acquiring preferred munitions, relying on adequate supplies of substitute munitions in the interim. Finally, the Department is conducting a comprehensive review of secondary items to determine the degree of risk associated with any shortfalls that remain.

As the designated single service manager of the conventional ammunition stockpile, the Army continues to downsize and restructure the stockpile of conventional munitions. Special attention is being paid to eliminating excess holdings and ensuring the provision of adequate inventory management controls, emphasizing such functions as ammunition inspection, testing, repair, and demilitarization.

INVESTMENT

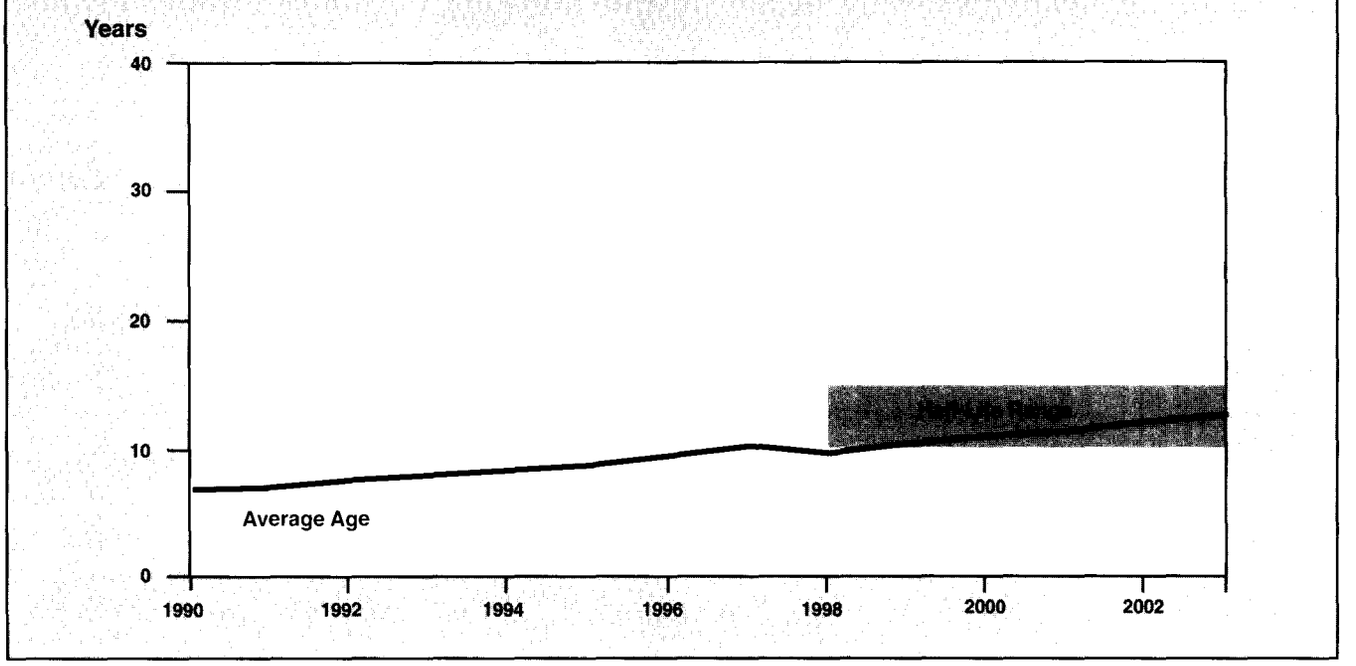
With the end of the Cold War and the resulting force drawdown, the Department could afford to reduce the pace of its modernization programs for a few years. Now, the emergence of technologically-advanced threats, combined with the aging of key U.S. systems and the need to execute missions with minimal casualties, demands a renewed emphasis on modernization. The FY 1998 President's Budget and associated FYDP accomplish this task through a program that:

- Increases procurement funding to approximately $55 billion to $60 billion per year in constant budget dollars by FY 2001, with total investment averaging roughly $80 billion to $85 billion annually.
- Invests in advanced capabilities, potentially allowing for the replacement of aging systems on a less than one-for-one basis, and pursues cost-effective upgrades of existing systems.
- Avoids the need for large increases in procurement accounts beyond the FYDP.

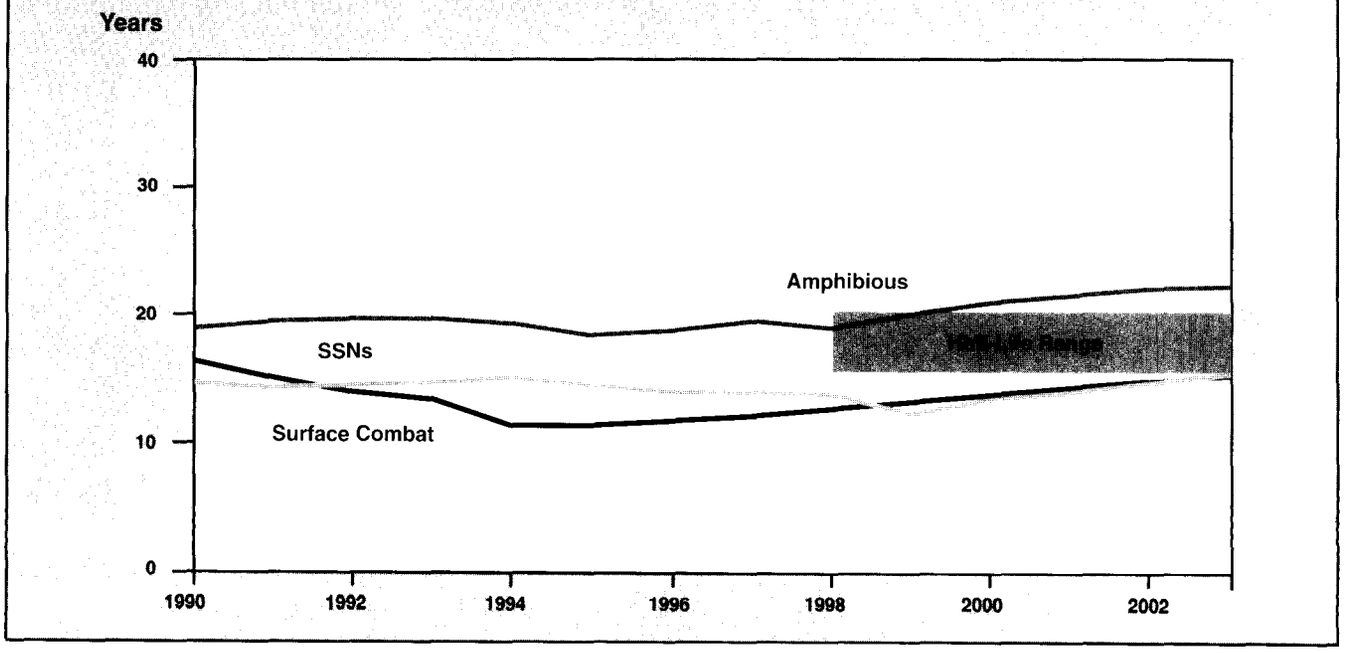
These efforts will maintain a technologically superior force able to execute a full range of missions. Substantial deviation from the modernization plan would result in an erosion of capability, an increase in the average age of equipment, or a declining force structure (as older systems retire without replacement), or some combination of these undesirable outcomes. And while average age serves as only one indicator of program health, it illuminates underlying problems, including shortfalls in procurement.

The Department's modernization program attempts to avoid unacceptable increases in force age by acquiring selected new systems and making major upgrades to existing systems. For some categories of equipment, these actions will maintain average age at acceptable levels; for others, modernization will slow or reverse negative trends. The following series of charts illuminates the effects of the Department's modernization efforts on equipment age.

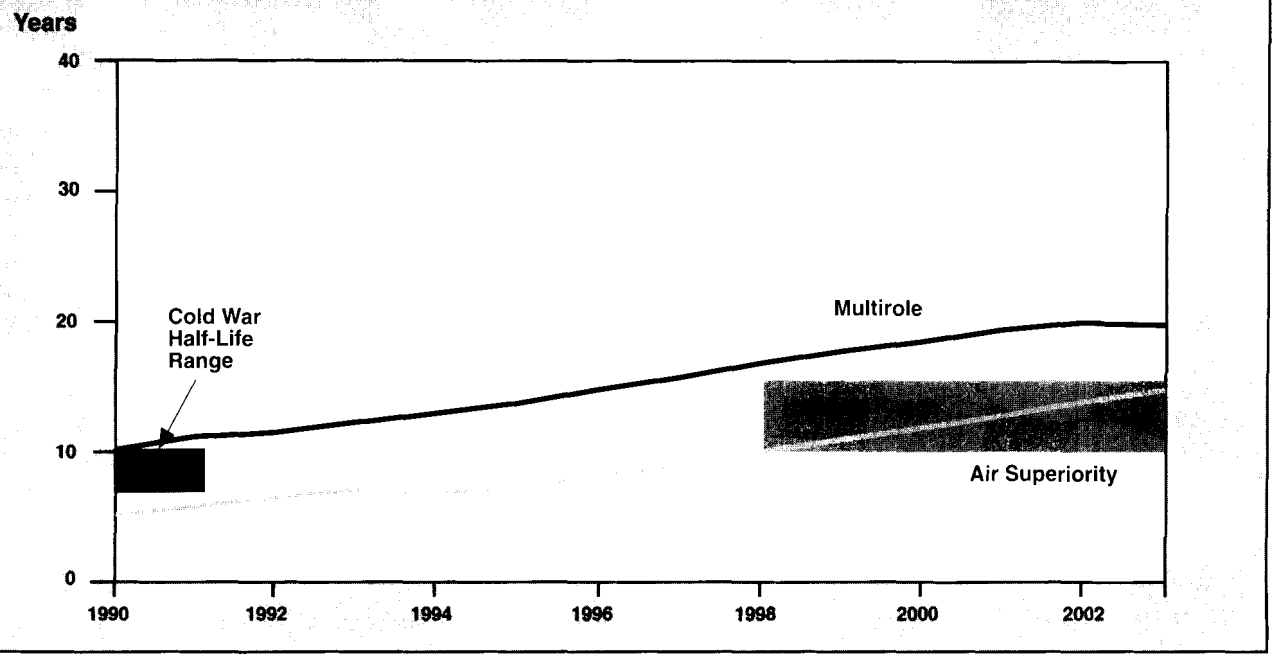
Army Tanks and Infantry Fighting Vehicles



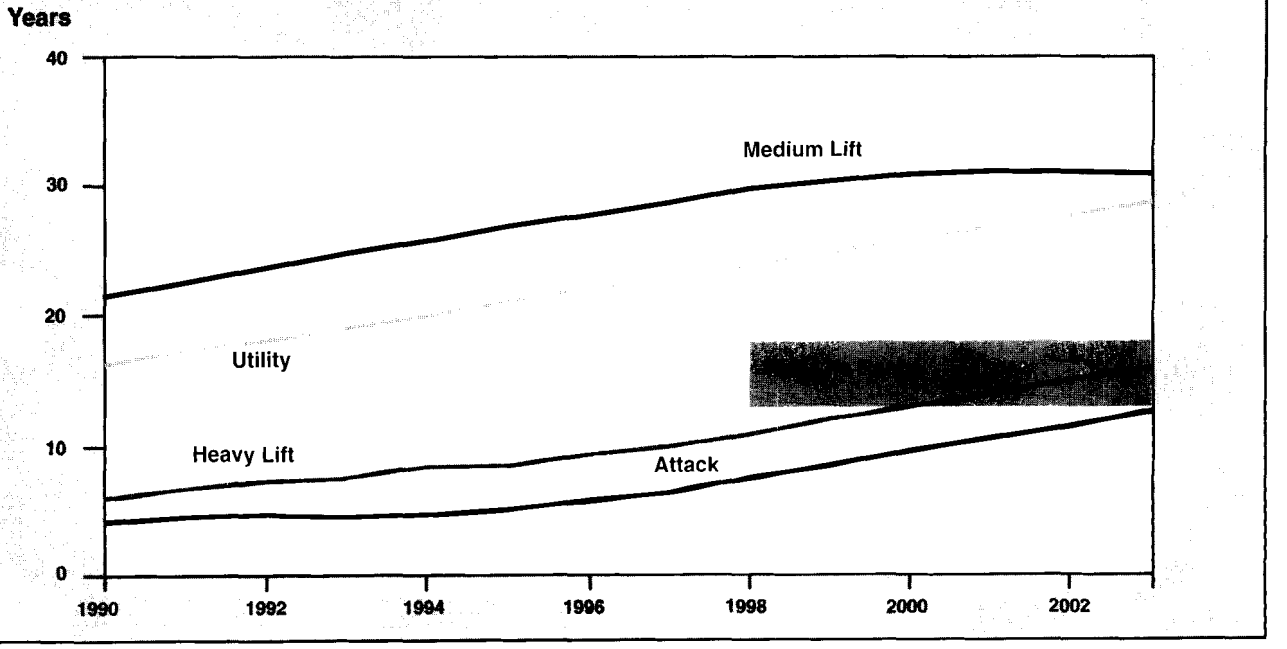
Navy Ships



Air Force Tactical Aircraft



Marine Corps Helicopters



Successful execution of the modernization program will require the Department to take full advantage of opportunities to redefine the way it conducts business. In short, the Department must:

- Aggressively pursue infrastructure reductions, particularly base closures.
- Fully implement acquisition reform initiatives.
- Privatize support functions to the fullest extent possible.

Each of these initiatives will reduce operating costs, providing the basis for increases in procurement funding. While challenges to the execution of this plan exist — for instance, the need to fund unexpected contingencies — the Department will continue to maximize its efforts at cost reduction and equipment modernization.

The following sections describe key investment programs funded by the FY 1998 President's Budget. Each contributes to maintaining the forces and capabilities necessary to execute BUR missions.

Aviation Forces

Modernization programs for aviation forces lay the technological foundation for future enhancements in combat power, while preserving the combat edge that U.S. forces now possess. Investments in the area will improve stealth capabilities and enhance interservice commonality, as well as expand aircraft ranges and payloads.

FIGHTER/ATTACK AIRCRAFT

Joint Strike Fighter (JSF). The JSF is the Department's largest acquisition program, and the first program to develop a family of common aircraft for use by land- and sea-based aviation forces. The JSF will be employed by the Air Force, Navy, and Marine Corps in variants configured for each Service's specific needs. It will replace the F-16 in the Air Force and the F/A-18C/D and AV-8B in the Marine Corps. In the Navy, it will provide a new capability for more survivable attack operations. The creation of a tri-Service program reflects the judgment that it would be prohibitively costly to develop three major new combat aircraft simultaneously, and that advancements in powerplant output and reliability, electronics miniaturization, and other technologies offer the possibility of combining aircraft qualities in ways never before accomplished.

The Department completed an initial definition of JSF characteristics in mid-1995 and developed a preliminary plan for engineering and manufacturing development (EMD) costs and schedules during the winter of 1995-96. The present program fully supports that plan. In particular, the JSF completed the transition in May 1996 from a science and technology-oriented technology base program — the so-called Joint Advanced Strike Technology (JAST) program initiated in 1993 — to the JSF major defense acquisition program. Wide-ranging management actions are underway to ensure that JSF development proceeds smoothly to an FY 2001 decision milestone for entering the engineering and manufacturing development phase. A comprehensive analysis of alternatives will be prepared in support of the EMD decision.

The JSF is anticipated to have a considerably greater mission radius than current-generation aircraft. Key to achieving this objective will be the use of advanced-technology design, materials, and manufacturing techniques. An important feature of the JSF program is the Technology Maturation initiative, aimed at reducing the risk of accomplishing such innovations. JSF risk also is being reduced through the adaptation of major components developed for other programs. These technology developments contribute directly to affordability, a key element of the JSF concept.

F-22. The F-22 is being developed to replace the Air Force F-15C/D in the air superiority role, but it will incorporate substantial air-to-ground capability as well. With a much-reduced radar signature, an ability to cruise at supersonic speeds, and its use of a new generation of avionics, the F-22 will dominate any future air engagement. Likewise, the provision of capability to carry two 1,000-pound Joint Direct Attack Munition (JDAM) bombs will enable the F-22 to conduct air-to-ground attacks anywhere on the battlefield.

The Air Force completed a thorough review of the status of F-22 development in December 1996. That review identified a need to devote additional time to the engineering and manufacturing development effort and to commit an additional $2.2 billion for EMD work. In response, the Air Force proposed a restructured program that sustains full aircraft capability, the initial operational capability date, and previously planned production quantities. The restructured program would be financed within existing F-22 resources over the FYDP

period, in part by shifting $1.45 billion from procurement to development and slowing the rate of increase in early production quantities. An additional $700 million in near-term funding would be freed by forgoing plans to build four pre-production verification aircraft, and using the first two production aircraft temporarily to accomplish initial operational test functions. The Air Force's ability to fund the restructured program within planned resources reflects an Air Force/contractor memorandum of agreement designed to incentivize the contractors to achieve contract prices consistent with these resources. The restructured program retains the previously planned FY 1999 initial procurement date, but buys two rather than four aircraft in that year. The savings resulting from smaller initial purchases will help keep the program affordable in the near term.

The FY 1998 budget reflects the Air Force's restructuring proposal, pending completion of a detailed Departmental evaluation of the implementation plan, which was underway at the time of the budget's submission. A Defense Acquisition Board review of the F-22 program in early 1997 examined the findings of that evaluation; as required by law, the Cost Analysis Improvement Group in the Office of the Secretary of Defense provided the Secretary of Defense, in March 1997, with a cost assessment of the F-22 program, which the Secretary has forwarded to Congress.

F-15s and F-16s. In view of the challenges inherent in operating F-16s to 8,000 flight hours, together with the moderate risk involved in JSF integration, the Department has established a program to earmark by FY 2000 some 200 older, Block 15 F-16 fighter aircraft in inactive storage for potential reactivation. The purpose of this program is to provide a basis for constituting two combat wings more quickly than would be possible through new production. This force could offset aircraft withdrawn for unanticipated structural repairs or compensate for delays in the JSF program. Reactivating older F-16s is not a preferred course of action, but represents a relatively low-cost hedge against such occurrences. The six F-16s procured in FY 1997 will be allocated between the combat fleet and the attrition reserve. Attrition reserve F-16s are needed to maintain the 20-FWE force structure until the JSF enters service. Due to budgetary constraints, the Air Force does not plan to procure new F-16s in FY 1998. The recent sale of 21 aircraft to Egypt will keep the F-16 in production, however, until at least the year 2000.

The Department plans to sustain production of the F-15E for at least two more years, purchasing three aircraft in both FY 1998 and FY 1999. Without FY 1998 procurement, the F-15 production line would begin to close in the absence of new foreign sales. These six additional aircraft, together with the six aircraft approved by Congress in FY 1997, will sustain the present 132-plane combat force structure until about FY 2016. Keeping the F-15E production line open provides the Department with valuable near-term production capacity in the event of need as new-generation aircraft (F-22 and Joint Strike Fighter) proceed in their development.

F/A-18. The F/A-18E/F is the Navy's principal fighter/attack acquisition program. The F/A-18E/F is an enlarged, much-improved follow-on to the proven F/A-18C/D, which is the backbone of carrier aviation. Compared with the C and D models, the F/A-18E/F will have significantly greater range, carrier payload recovery capability, and survivability; it also will be able to function as a tanker for in-flight refueling. Additionally, the F/A-18E/F affords valuable growth capability and more payload flexibility, ensuring that the Navy will be able to effectively employ the next generation of standoff weapons.

The F/A-18E/F entered engineering and manufacturing development in FY 1992, and was approved for low-rate initial production (LRIP) in March 1997. An update of the cost-benefit analysis for the F/A-18E/F program was being conducted to support the LRIP decision. The first 12 production aircraft were funded in FY 1997, and an additional 20 aircraft are requested this year. Establishment of the first operational training squadron is planned for FY 2000.

The Navy will acquire a final six F/A-18C/D aircraft using FY 1997 funds provided by Congress. These aircraft will help sustain the force structure, which already is below the full capacity of aircraft carriers to embark tactical aircraft. Additional F/A-18C/Ds are being produced for Finland, Malaysia, Switzerland, and Thailand, but lacking new foreign orders, the last deliveries of this aircraft type are projected for FY 2000.

AV-8B. The AV-8B remanufacturing program continues on track, with the first three refurbished aircraft having been delivered in 1996. Current plans call for a total of 72 AV-8Bs to be remanufactured with significantly improved avionics and weapons provisions. These specialized vertical/short takeoff and landing (V/STOL) light attack aircraft, operated by the Marine Corps, ultimately will be superseded by the Joint Strike Fighter.

CONVENTIONAL BOMBERS

B-1. The B-1, which is programmed for use solely in conventional missions by the end of 1998, 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 integrated with the Navstar Global Positioning System (GPS) and an improved communications system. Enhancements to the aircraft's computers and electronic countermeasures system are slated to follow around FY 2002. The B-1 can already deliver the entire family of advanced cluster munitions (CBU-87, CBU-89, CBU-97); this increases the aircraft's effectiveness against area targets and armored vehicles in low-to-medium threat environments. Other upgrades will give the B-1 the ability to carry several types of advanced weapons. The Joint Direct Attack Munition (JDAM) and the ALE-50 towed decoy will be fielded on the aircraft in FY 1999, followed by the Wind-Corrected Munitions Dispenser (WCMD), the Joint Standoff Weapon (JSOW), and the Joint Air-to-Surface Standoff Missile (JASSM) in FY 2002.

B-2. The B-2 will be assigned both nuclear and conventional missions. Because of its stealth characteristics, the B-2 is extremely difficult to detect, especially at night and in adverse weather. The B-2's ability to penetrate heavy defenses is further enhanced if it is employed with air-superiority aircraft and electronic warfare aircraft that conduct standoff jamming. Current plans call for the procurement of 21 B-2s (16 PMAI). As of January 1, 1997, 13 B-2s had been delivered to the Air Force.

Table 18

Fighter/Attack Aircraft Modernization Programs

	Current Dollars (Millions)			
	FY 1996 Actual	FY 1997 Estimated[a]	FY 1998 Budgeted	FY 1999 Planned
JSF				
RDT&E (DARPA)	28.9	72.9	23.9	—
RDT&E (Air Force)	81.3	252.0	458.1	465.6
RDT&E (Navy)[b]	80.0	250.1	448.9	443.5
F-22				
RDT&E	2,154.2	1,818.5	2,071.2	1,464.8
Procurement	—	81.3	80.9	934.2
F-15A-E				
RDT&E	160.9	151.0	137.5	109.8
Procurement	351.3	275.2	170.0	165.0
F-16				
RDT&E	146.1	126.2	100.2	100.5
Procurement	165.1	154.8	—	—
F/A-18E/F				
RDT&E	803.1	343.2	267.5	128.7
Procurement	233.6	2,094.8	2,191.6	3,034.4
F-14				
RDT&E	19.8	9.4	11.7	14.8
Procurement	114.4	229.0	290.5	228.6
AV-8B				
RDT&E	25.5	16.1	11.0	11.2
Procurement	259.2	382.1	329.1	385.4
F/A-18C/D				
RDT&E	54.1	79.5	49.4	70.2
Procurement	870.9	419.5	156.2	278.6

[a] Not executed; subject to change.
[b] Includes funding for both Navy and Marine Corps variants.

Table 19
Airborne Surveillance and Reconnaissance Modernization Programs

	Current Dollars (Millions)[a]			
	FY 1996 Actual	FY 1997 Estimated[b]	FY 1998 Budgeted	FY 1999 Planned
E-2				
RDT&E	59.6	62.0	64.9	48.1
Procurement	230.4	324.4	305.1	412.9
E-3				
RDT&E	88.8	78.6	46.8	29.3
Procurement	222.7	265.9	134.7	114.9
E-8				
RDT&E	155.0	215.2	119.2	84.5
Procurement	467.8	536.9	370.9	838.6
U-2				
RDT&E	29.9	27.3	27.8	11.1
Procurement	189.6	118.9	136.7	153.1
RC-135				
Procurement	179.1	308.3	194.3	174.3
MAE (Predator) UAV				
RDT&E	65.8	5.8	15.0	4.4
Procurement	—	107.8	116.5	79.3
Endurance UAV (HAE, HAE-LO)				
RDT&E	173.9	183.5	201.7	163.4
Tactical (Outrider) UAV				
RDT&E	33.6	49.3	83.3	9.8
Procurement	—	—	—	94.0

[a] Includes new weapon systems and modifications.
[b] Not executed; subject to change.

B-2 capability will increase as new aircraft are delivered and existing systems are progressively upgraded from the test configuration and Block 10 design to the more capable Block 20 and 30 versions. The current Block 20 aircraft have the Navstar Global Positioning System, improved communications and offensive avionics, and an ability to deliver 2,000-pound GPS-aided munitions (GAMs). By 2000, the entire B-2 force will achieve the Block 30 configuration, featuring better stealth characteristics, improved avionics, and the ability to employ the JDAM, JSOW, and 4,000-pound GAMs. JASSM will be fielded on the B-2 in FY 2003. During the transition to the Block 30 standard, some aircraft will be undergoing conversion and will not be immediately available for use. The Department is studying the cost-effectiveness of potential B-2 upgrades beyond the Block 30 configuration.

B-52. The B-52 can be used in either the nuclear or conventional role. The B-52's nuclear capabilities are described in the Strategic Nuclear Forces chapter. For conventional missions, the B-52 carries a full complement of unguided weapons. In addition, it is the only launch platform for conventional air-launched cruise missiles (CALCMs). Some B-52s have been modified to carry Have Nap standoff precision weapons and Harpoon antiship missiles. Future modifications will enable the entire B-52 force to carry JDAM, JSOW, WCMD, and JASSM, as well as CALCM, Have Nap, and Harpoon.

SPECIALIZED FORCES

Air Force E-3 and Navy E-2C radars and communications suites are being upgraded, and E-3s are receiving

a new passive emitter detection system. In addition, new E-2Cs are being produced and older models are being remanufactured. Both the E-3 and E-2C fleets also are receiving reliability/maintainability improvements to keep them viable well into the next century.

Many of DoD's airborne signals intelligence (SIGINT) systems, including Air Force RC-135 Rivet Joint aircraft, Navy EP-3s, and Army RC-7 Airborne Reconnaissance Low (ARL) systems, will evolve into a new, more cohesive Joint Airborne SIGINT Architecture (JASA). The Defense Airborne Reconnaissance Office, in conjunction with the National Security Agency, established JASA, which is designed to provide much higher levels of commonality and interoperability and is expected to lead to increasing flexibility and capability at modest costs. Other major changes in airborne SIGINT include expanding the RC-135 fleet to 16 aircraft to support the higher current operating tempos, and installing Navy ES-3 surface terminals on more than two dozen ships. These terminals also provide connectivity with other reconnaissance systems and sensors.

Production of E-8C Joint Surveillance Target Attack Radar System (JSTARS) aircraft will continue throughout the FYDP period. The Department plans to procure 19 aircraft in total, of which 10 have been approved by Congress. The FY 1998 request includes funds for one additional aircraft. Moreover, NATO is considering the acquisition of JSTARS for alliance ground surveillance and reconnaissance missions. These systems provide broad-area moving-target indicator (MTI) radar coverage as well as battle management capabilities.

Significant investments in unmanned aerial vehicles (UAVs) will continue. The Tactical UAV (TUAV/ Outrider) program was begun in FY 1996 as an Advanced Concept Technology Demonstration (ACTD). This system, which will carry a real-time video sensor, is programmed for use by Army and Marine ground units, typically at the brigade level. The first six systems will be delivered during the ACTD, and follow-on procurement is programmed in FY 1999-2003. Approximately 60 systems will be acquired, each comprising four UAVs and a ground station. The Predator Medium-Altitude Endurance (MAE) UAV, which carries real-time imagery sensors, will be operated by the Air Force as a theater and joint force asset. Acquisition was initiated with an ACTD and will continue through FY 1999. Thirteen systems will be procured, each including four UAVs, a ground station, and a communications suite. The High-Altitude Endurance UAV ACTD will continue, and follow-on procurement of some of these systems is programmed after FY 1998.

Other intelligence, surveillance, and reconnaissance (ISR) systems also will be modernized. The U-2 force, recently equipped with new engines, will remain viable well into the next century. To take advantage of the aircraft's expanded life, many of its sensors will be upgraded. Planned enhancements include the addition of an electro-optical/infrared sensor with multi-spectral imagery capability and a synthetic aperture radar with increased range, resolution, and MTI capability. RC-7 ARL platforms will be converted to a common multi-sensor configuration. Other new imaging systems will be based on fighter aircraft. In the Navy, half of the existing TARPS pods (for F-14s) will be converted from film to electro-optical systems, and 31 ATARS sensors will be procured for the F/A-18D force. The Air Force will procure 20 similar but less capable and less costly pods for use on Air National Guard F-16s.

AVIATION FORCE WEAPONS

In the future, combat aircraft will benefit from improvements being made in air-to-air and air-to-ground weapons. New air-to-air missile variants will be effective across a larger engagement area and will have increased lethality. New air-to-ground weapons with increased standoff range and improved accuracy will provide added benefits in 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 usually are less expensive than standoff munitions.

- The ability to attack highly defended targets from the outset of hostilities, without first having to destroy a series of peripheral defenses sequentially.

- 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). Air Force and Navy procurement of the AMRAAM will continue throughout the FYDP period. Enhancements are being made in a number of performance areas, including kinematics and lethality.

AIM-9X. The AIM-9X is an enhanced version of the AIM-9 Sidewinder missile, designed to meet evolving short-range air-to-air missile requirements. The AIM-9X program replaces the AIM-9M seeker and airframe, while retaining the AIM-9M motor, fuze, and warhead. AIM-9X performance will be enhanced by a new helmet permitting the pilot to realign the missile's seeker to detect targets normally outside the aircraft radar's field of view. The AIM-9X program recently entered EMD following a source selection that considered not only U.S. designs but the British ASRAAM as well. Affordability and growth potential are key tenets of this program. Production will begin in FY 2000.

Joint Air-to-Surface Standoff Missile (JASSM). JASSM is a new long-range, survivable missile with excellent autonomous navigation capability and an autonomous terminal seeker. The standoff capability of this weapon will enable it to hold highly defended targets at risk while minimizing aircraft attrition. The program is currently in the product definition/risk reduction phase; EMD will begin in FY 1998 and low-rate initial production in FY 2000. Maintaining low unit cost while attaining desired performance are important goals in the development of this system.

Joint Standoff Weapon (JSOW). JSOW is a long-range, aerodynamically efficient glide weapon with excellent autonomous navigation capability. The initial (baseline) model, which will carry combined effects bomblets, will provide an accurate, relatively low-cost standoff method of delivering tactical munitions in all types of weather. A follow-on version will carry a Sensor Fuzed Weapon (SFW)-derived BLU-108 payload for standoff antiarmor capability. Further planned improvements will provide a unitary warhead and a man-in-the-loop seeker for increased accuracy and target discrimination. EMD for both the BLU-108 and unitary variants began in FY 1995. The baseline version will enter production in FY 1997, followed by the BLU-108 and the unitary variant in FY 2000 and FY 2001, respectively.

Sensor Fuzed Weapon (SFW). The SFW is a tactical munitions dispenser containing 10 BLU-108 submunitions, each with four Skeet warheads for top attacks on enemy armor. SFW is designed to achieve multiple kills against armored vehicles in 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; production is scheduled to begin in FY 1999. The improved munition is expected to be much more effective, 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 munition's susceptibility to countermeasures, increase soft target lethality, reduce the impact of target location errors, and improve target coverage.

Joint Direct Attack Munition (JDAM). Under this program, existing general-purpose bombs will be provided with an improved guidance capability based on an inertial navigation system (INS) coupled with satellite-borne GPS data. INS/GPS guidance will permit the delivery of free-fall munitions in adverse weather, while improving bombing accuracy from medium and high altitudes. Low-rate production will begin in the latter half of FY 1997.

Table 20
Aviation Weapons Modernization Programs

	Current Dollars (Millions)			
	FY 1996 Actual	FY 1997 Estimated[a]	FY 1998 Budgeted	FY 1999 Planned
AIM-9X[b]				
RDT&E	47.1	84.3	113.3	120.1
Procurement	—	—	—	—
JASSM[b]				
RDT&E	27.6	161.0	213.0	153.3
Procurement	—	—	—	—
JDAM[b]				
RDT&E	108.4	70.4	32.3	24.4
Procurement	—	23.0	99.8	107.0
JSOW[b]				
RDT&E	121.7	105.0	96.2	107.0
Procurement	25.5	86.3	59.8	195.0
SFW				
RDT&E	9.5	18.7	19.8	3.6
Procurement	165.4	152.0	153.9	143.3
WCMD				
RDT&E	50.0	53.6	18.1	7.7
Procurement	—	—	19.9	30.1
SLAM				
RDT&E	50.8	31.0	28.9	5.2
Procurement	88.9	42.2	21.9	36.3
AMRAAM[b]				
RDT&E	48.5	26.9	56.5	50.9
Procurement	245.9	172.6	174.8	190.7

[a] Not executed; subject to change.
[b] Includes both Navy and Air Force funding.

Standoff Land Attack Missile (SLAM). A modified Harpoon antiship missile, the SLAM incorporates an

AGM-65 Maverick imaging infrared seeker and Wall-eye datalink for man-in-the-loop control. An upgraded version of the weapon, known as the Standoff Land Attack Missile Expanded Response (SLAM-ER), will provide about a 60 percent increase in range over the baseline SLAM system. The SLAM-ER incorporates enhancements in aerodynamic performance, survivability, anti-jam guidance, and hard-target capability, while providing for more rapid mission planning. About 300 SLAM missiles will be converted to the SLAM-ER configuration between FY 1997 and FY 2003. An enhanced variant, the SLAM-ER Plus, will add an autonomous terminal seeker.

Wind-Corrected Munition Dispenser (WCMD). The WCMD is a modification kit that inertially measures wind and provides corrections to advanced cluster bomb dispensers, thereby improving delivery accuracy from higher altitudes. 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 1998 budget sustains a modernization program for naval forces, built on initiatives begun in previous years. Investments focus on acquisitions that will offset capabilities lost through system retirements, while boosting combat effectiveness forcewide. Reflecting the continued high pace of peacetime operations, the budget calls for no early ship retirements in FY 1998. Moreover, the budget keeps several frigates in service beyond their previously planned retirement dates in order to support current operations.

The average age of the fleet, about 15 years, is currently within acceptable limits. Portions of the amphibious, logistics, and surface combatant fleets have aged, however, to the point that steps must be taken to update or replace them.

The shipbuilding program funded in the FY 1998 budget and FYDP is displayed in Table 21. Highlights of major modernization programs are presented in the sections that follow.

AIRCRAFT CARRIERS

The FY 1998 budget and FYDP will sustain a force of 11 active carriers and one reserve/training carrier well beyond the turn of the century. To maintain this force structure and meet future modernization needs, the FY 1998 budget and FYDP support a dual-track recapitalization program. The FYDP includes funding for the tenth, and final, Nimitz-class carrier (CVN-77) in FY 2002. This carrier will replace the Kitty Hawk (CV-63) in FY 2008 as that ship reaches 47 years of service. The FYDP includes nearly $700 million to develop the next-generation aviation platform, known as the CVX. The first CVX, planned for authorization in FY 2006, will replace the Enterprise (CVN-65) in 2013. As part of the concept development phase of the CVX program, the Department is examining Mobile Offshore Base (MOB) concepts that could contribute to joint operations in forward areas. The results of the CVX evaluations should be available in FY 2000.

Table 21

FY 1998-2003 Shipbuilding Program

	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FYDP Total
New Construction							
CVN-77 (Aircraft Carrier)	0	0	0	0	1	0	1
NSSN (Attack Submarine)	1	1	0	1	1	0	4
DDG-51 (Guided Missile Destroyer)	3	3	3	3	1	2	15
SC-21 (Replacement Combatant)	0	0	0	0	0	1	1
LPD-17 (Amphibious Transport Dock)	0	1	2	2	2	2	9
AOE (Fleet Oiler)	0	0	0	0	0	1	1
Service Life Extensions (SLEPs)/Overhauls							
Carrier Refueling Overhaul	1	0	0	1	0	0	2
TAE/TAFS SLEP	0	0	0	0	2	2	4
AOE SLEP	0	0	1	0	1	0	2

AMPHIBIOUS SHIPS

The key to modernizing the amphibious force is the new amphibious transport dock ship, the LPD-17. The planned 12-ship LPD-17 program will replace 27 ships of various classes in the active, reserve, and inactive reserve fleets. These ships will reach the end of their service lives shortly after the turn of the century. Thus, beyond the FYDP, the LPD-17 — in combination with newer LSD, LHD, and LHA vessels — will constitute the core of the modernized amphibious force. The long-term goal is to achieve and sustain a 36-ship amphibious force consisting of 12 ARGs, each with three ships.

The FY 1998 budget and shipbuilding plan continue the LPD-17 acquisition program. Congress accelerated the lead ship of this class by two years, funding the first unit in FY 1996. In order to implement the accelerated program more efficiently, the LPD profile has been adjusted relative to last year's plan. The revised plan reflects fact-of-life slippage that permitted awarding the contract in December 1996 to a shipbuilding team instead of a single shipbuilder. The resulting profile defers the previously planned FY 1998 ship to FY 1999 to retain the normal one-year construction gap between the lead and follow-on ships of a new class. The resulting delay in the modernization schedule for amphibious forces will have no significant impact on the Navy's ability to fight two major regional conflicts or meet forward presence requirements. Beginning in FY 2000, LPD-17 procurement will be funded at a rate of two ships per year.

LHAs and LHDs are large multipurpose vessels that embark and support Marine ground forces using a combination of vertical/short-takeoff and landing (V/STOL) aircraft, helicopters, and amphibious vehicles. With the delivery of LHD-7 in FY 2001, the Navy will have 12 large-deck amphibious assault ships — five of the Tarawa (LHA-1) class and seven of the Wasp (LHD-1) class. The Tarawa-class ships were commissioned between FY 1976 and FY 1980 and will begin reaching the end of their projected 35-year service lives in FY 2011. The Wasp-class ships began entering the fleet in FY 1989 and have a designed 40-year service life.

ATTACK SUBMARINES

The end of the Cold War and the resulting drawdown of U.S. forces have permitted a significant restructuring of modernization programs for the attack submarine force. Earlier plans to procure the Seawolf (SSN-21) submarine as a replacement for the Los Angeles class have been revised sharply downward, leading to the current objective for three submarines of the Seawolf class. The lead ship will be delivered in FY 1997, and the final two ships are projected to join the fleet in FY 1998 and FY 2003, respectively. Congress did not include in the FY 1997 appropriation the balance of funds needed to complete the third Seawolf submarine. Funding for this purpose is requested in FY 1998.

The New Attack Submarine (NSSN), designed as a lower-cost alternative to the Seawolf class, will provide a more affordable replacement for Los Angeles-class submarines. The NSSN will incorporate Seawolf and post-Seawolf technologies and will offer enhanced capabilities for littoral operations. The FY 1998 budget and FYDP call for procurement of four NSSNs through FY 2003, with the lead ship funded in FY 1998. This profile avoids buying NSSNs ahead of near-term needs, while satisfying projected warfighting requirements. The Department has made a major change to the program funded in last year's budget, and to the competitive acquisition strategy stipulated in the FY 1996 and FY 1997 National Defense Authorization Acts. Specifically, the four NSSNs funded in the FY 1998-2003 shipbuilding program will be procured using an innovative teaming arrangement between the Electric Boat and Newport News shipyards. By taking advantage of specialization at each yard, this evolving strategy will reduce costs relative to those that could result from a competitive approach. Furthermore, it supports the intent of Congress, reflected in the authorization acts, of maintaining two nuclear-capable shipyards. Although the integration and contracting risks of the new teaming arrangement are considerable, the Department believes they are both manageable and outweighed by the potential benefits.

The ongoing deactivation of older SSNs will reduce the force from 73 submarines in FY 1997 to 55 in FY 1999 and 52 in FY 2003. Force levels are projected to range between 45 and 55 vessels thereafter. This force structure reflects the continued inactivation of older SSN-637 and 688-class submarines, deliveries of three Seawolf-class (SSN-21) units through FY 2003, and subsequent deliveries of NSSNs starting in FY 2004. Even though the attack submarine force is being

reduced in size, it is relatively modern, its vessels averaging about 14 years in age throughout the FYDP.

SURFACE COMBATANTS

The FY 1998-2003 shipbuilding program includes funds for 15 DDG-51-class destroyers. These ships will bring the number procured through FY 2003 to 53. The first 12 ships will be purchased at a rate of three per year under a multiyear procurement strategy initiated in FY 1998. This acquisition strategy takes advantage of additional funding provided by Congress in FY 1997 and may allow, according to Navy estimates, the procurement of 12 ships for the price of 11. Funding plans for the remaining three ships included in the FY 1998-2003 shipbuilding plan will be reexamined in future program and budget reviews as the SC-21 program (discussed below) becomes better defined.

Long-term surface combatant requirements are being reviewed as part of the 21st Century Surface Combatant (SC-21) Cost and Operational Effectiveness Analysis (COEA). The COEA is evaluating future needs in light of forward presence requirements, historical operating tempos, and possible contingency deployments. It also is examining the types of ships and capabilities that will be needed to replace older DD-963 and FFG-7 vessels. Phase I of the ongoing analysis of alternatives, which was completed in 1996, identified mission deficiencies in projected joint scenarios. Phase II, slated for completion in 1997, is exploring remedies for those deficiencies. Funding for the lead SC-21 vessel is programmed in FY 2003, consistent with the plan described in last year's report.

In concert with the Defense Advanced Research Projects Agency (DARPA), the Navy is evaluating an entirely new type of surface vessel, called an arsenal ship, as a potential strike platform that could be stationed permanently in forward areas. The Navy and DARPA are jointly funding construction of a research and development/concept demonstration ship in FY 1998, with at-sea testing scheduled to begin in FY 2000. Follow-on planning and cost estimates for constructing complete-design arsenal ships await results from those tests. The arsenal ship concept could have a significant effect on surface combatant force levels, SC-21 designs, and the entire joint strike warfare mission area.

The age of the surface combatant force is relatively low, averaging about 13 years in FY 1998. Force age has dipped somewhat in recent years, due primarily to early retirements of older ships during the post-Cold War drawdown. Now that the drawdown is largely complete, the average age of the force will move slightly upward, reaching about 15 years by FY 2003. Continued deliveries of Arleigh Burke (DDG-51) class guided-missile destroyers equipped with the Aegis weapon system will more than offset the ongoing deactivation of selected FFG-7-class frigates. The fraction of Aegis-capable ships in the force will increase from 40 percent to 55 percent during the FYDP period.

COMBAT LOGISTICS

The Navy has deferred initial procurement of the new ADC(X) dry-cargo ship for at least four years to revisit requirements and reassess acquisition alternatives. This new ship class is needed eventually to replace aging ammunition and dry cargo vessels. Pending completion of the Navy review, and to offset deferral of the lead ship, funds have been programmed in FY 2002 and FY 2003 for service life extensions for four ammunition and dry cargo ships (TAE/TAFS). These refurbishments will allow the vessels to remain in service for an additional 10 years.

To meet long-term requirements for nine high-speed multiproduct combat logistics ships, the Navy has programmed funds to procure a new fast combat support ship (AOE) in FY 2003. This ship will provide munitions, bulk petroleum, oil, lubricants, and dry and frozen provisions to battle forces at sea. With its delivery, the total inventory of AOEs will increase to nine. In the meantime, shortfalls will be mitigated through the use of existing ammunition ships and fleet oilers to support naval forces at sea.

P-3C MARITIME PATROL AIRCRAFT

Land-based maritime patrol aircraft (MPA) provide critical surveillance support for deployed naval task groups. To meet forward presence and warfighting requirements, the FY 1998 budget maintains 12 active and eight reserve MPA squadrons. Investments focus on service life extensions and upgrades of existing aircraft, with plans for a replacement system deferred beyond the FYDP. The service life extensions will increase the operational life of P-3C aircraft to about 50 years; this will require additional fatigue testing and analysis to ensure the safe and effective operation of the aircraft. Capability enhancements will come from the Antisurface Warfare Improvement Program (AIP), begun in FY 1994. This program is using commercial

off-the-shelf technologies to incorporate enhanced surveillance, combat identification, and antiship capabilities into the MPA force. The FY 1998 budget reduces the pace of these upgrade and life extension programs by about 20 percent.

MINE COUNTERMEASURES

The FY 1998 budget continues the mine warfare modernization initiatives implemented in FY 1996. The budget adds funds for the most promising near-term programs, such as the Remote Minehunting System, the Near-Term Mine Reconnaissance System, the Airborne Mine Neutralization System, and the Shallow-Water Assault Breaching System. Funds also are included to provide enhanced satellite communication links for mine countermeasure ships, and to improve mission planning capabilities. These programs will significantly enhance the readiness and sustainability of mine countermeasure forces.

WEAPON SYSTEMS

Tomahawk. The Tomahawk cruise missile enables surface combatants and submarines to launch attacks against land targets from distant ranges in all types of weather. Recent military operations in Iraq and Bosnia have highlighted the utility of improved versions of sea-launched Tomahawk land-attack missiles. In Operation Desert Strike in September 1996, selected military targets within Iraq were destroyed or damaged by Tomahawk Block III missiles equipped with the Global Positioning System. Further enhancements to the Tomahawk system are being made through the Tomahawk Baseline Improvement Program (TBIP). TBIP will provide better terminal guidance and precision strike capabilities as well as improve weapon control systems and afloat planning capability. The FY 1998 budget accelerates the TBIP program by 18 months, to introduce these improvements in FY 2000. Total TBIP quantities have been reduced, however; the current budget cuts the previously planned buy by about 40 percent, funding procurement of about 700 retrofitted missiles through FY 2003.

Standard Missile. Three upgraded versions of the surface-to-air Standard missile (SM-2) are currently in development or production: the Block IIIB, which will enhance fleet air defenses; the Block IV, designed to provide a larger engagement envelope against advanced antiship cruise missiles; and the Block IVA, providing an area (lower-tier) theater ballistic missile defense capability. The FY 1998 budget provides funding for service life extensions and refurbishments of Block II and Block III missiles to improve their capability and sustain a sufficient inventory to support warfighting objectives.

Ship Self-Defense Systems. The FY 1998 budget and FYDP will enhance the self-defense capability of major surface vessels. The FY 1998 budget provides funds to procure additional Rolling Airframe Missiles (RAMs), acquire the Evolved Sea Sparrow Missile (ESSM), and improve the Close-In Weapon System (CIWS). RAM is a lightweight, low-cost, short-range surface-to-air missile that is being added to destroyers and amphibious ships. ESSM, which will provide an important close-in defensive layer, is scheduled for installation on several new classes of ships starting in FY 2001. Both of these programs will add depth to the Navy's air defenses. Funding is included in the FYDP to expedite introduction of Cooperative Engagement Capability (CEC) enhancements throughout the fleet. The CEC program achieved initial operational capability in FY 1996. With CEC, ships will be able to pass detailed target information to other vessels within a task force in near-real time. Analyses show that airborne CEC capabilities will extend threat detection ranges well beyond line-of-sight limitations, significantly increasing the battlespace for naval and joint operations in air threat environments. In particular, the CEC concept will enhance future air defense capabilities against both theater ballistic and cruise missiles.

Light Airborne Multipurpose System (LAMPS). LAMPS helicopters expand the range and capabilities of surface combatants for surface warfare, undersea warfare, surveillance, and targeting missions. The LAMPS force is undergoing a service life extension as well as a number of capability upgrades. The upgraded helicopters, designated SH-60Rs, will incorporate a dipping sonar and surveillance and weapon improvements to enhance their effectiveness and survivability in littoral operations. The first Flight IIA version of the DDG-51, incorporating an organic LAMPS capability, entered construction in FY 1994 and will be introduced in the fleet in FY 2000.

Naval Surface Fire Support. The FY 1998 budget funds near-term improvements in the naval surface fire support mission area. These include modifications to the current 5-inch 54-caliber gun as well as development of an advanced new 5-inch projectile. The advanced projectile, incorporating INS/GPS guidance, will have a range of 60 nautical miles when fired from

the modified gun; initial operational capability is projected for FY 2000. The Navy also is evaluating various long-range guns and missiles that could be employed in the fire support role beginning early in the next decade. Concepts under evaluation include vertical guns for advanced ships (VGAS), a Standard Missile strike variant, and a naval version of the Army Tactical Missile System (ATACMS).

Naval Modernization Programs — Table 22

	Current Dollars (Millions)			
	FY 1996 Actual	FY 1997 Estimated[a]	FY 1998 Budgeted	FY 1999 Planned
Ship Construction				
SSN-23	690.9	634.9	153.4	—
NSSN	790.3	780.4	2,599.8	2,057.6
DDG-51	2,231.6	3,530.6	2,823.6	2,676.8
LHD-1	1,261.3	—	—	—
LPD-17	953.7	—	—	762.3
TAGS-60	15.4	97.3	—	—
Ship Service Life Extensions/Overhauls				
CVN Refueling Overhaul	213.9	231.7	1,707.9	243.2
AE Service Life Extension	30.0	39.2	—	—
Ship Development				
CVX	8.2	5.8	90.2	105.0
Arsenal Ship	—	39.6	150.2	189.5
Mine Countermeasures				
Remote Minehunting System				
RDT&E	6.5	26.3	7.1	11.6
Procurement	—	—	—	18.2
Airborne Mine Neutralization System				
RDT&E	0.8	2.4	8.6	9.9
Shallow-Water Assault Breaching System				
RDT&E	18.5	28.8	26.7	29.8
Procurement	0.8	0.9	—	15.0
Maritime Patrol Aircraft				
P3-C AIP	139.2	93.0	74.7	93.4
Weapons				
Tomahawk				
RDT&E	157.7	140.4	93.4	67.3
Procurement	112.1	103.4	51.8	136.6
Standard Missile				
RDT&E	21.4	9.2	0.5	1.3
Procurement	127.8	215.0	196.5	277.9
RAM				
Procurement	61.3	47.6	44.1	57.0
ESSM				
Procurement	—	—	15.5	36.5
CIWS				
Procurement	32.0	24.9	10.0	3.7
CEC				
RDT&E	248.3	234.5	139.2	87.6
Procurement	—	—	17.9	84.5

[a] Not executed; subject to change.

Land Forces

Today, U.S. land forces have some of the finest equipment in the world, giving them a combat advantage over potential adversaries. Modernization programs will maintain that edge in the future.

Five objectives shape the Army's modernization plan: projecting and sustaining the force, protecting the force, winning the information war, conducting precision strikes, and dominating the maneuver battle. Marine Corps modernization is driven by the concept of operational maneuver from the sea. Modernization programs support this concept by enhancing amphibious and aerial assault capabilities, land mobility, mine countermeasures, and sea-based logistics and fire support.

AIRCRAFT

Comanche Helicopter. The Comanche (RAH-66) is the first helicopter designed for armed reconnaissance. This aircraft will allow Army commanders to pass near-real-time intelligence to soldiers throughout the battlefield. It will significantly expand the Army's ability to locate enemy forces, mass fire against them in close and deep tactical operations, and synchronize Army actions throughout the land component commander's area of operation. The Comanche will replace the current fleets of AH-1, OH-6, and OH-58A/C/D helicopters in early-deploying and forward-deployed units. The first flight test of the system took place in January 1996; the program will continue in research and development throughout the FYDP period. Plans call for procurement to begin in FY 2004, with a total of 1,292 helicopters slated for production through FY 2026.

V-22 Osprey. This tilt-rotor aircraft will replace the Marine Corps' aging fleet of CH-46E and CH-53D helicopters. The V-22's combination of range, speed, and payload will enable Marine units to move assault forces and supplies faster from ship to shore and deeper within the area of operations. This improvement in mobility will also enhance the survivability of ships carrying the aircraft. Amphibious vessels will be able to remain farther offshore, decreasing their vulnerability to shore-based missiles, underwater mines, and detection by ground surveillance systems. The V-22 program is currently in engineering and manufacturing development, with low-rate production scheduled to begin in FY 1997. Current plans call for the procurement of 523 aircraft (425 for the Marine Corps) through FY 2021. The procurement total includes 50 CV-22s modified for Air Force special operations and 48 HV-22s modified for the Navy. Initial operational capability is anticipated in FY 2001.

Apache Longbow and Longbow Hellfire Missile. This modification to 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 digitized target acquisition system can automatically detect and classify targets. The target acquisition system uses a millimeter-wave radar to direct a fire-and-forget version of the Hellfire II missile. Initial operational tests and evaluation of the Longbow system were conducted in 1995, following which the system was approved for production. The Army has signed a multiyear contract for 232 Longbow Apache helicopters. The first Apache AH-64A entered the factory in 1996 and will emerge as an Apache Longbow in 1997. Current plans call for a total of 758 Apache helicopter conversions to the Longbow configuration through FY 2008.

4BN/4BW (H-1 Helicopter) Upgrade. Under this program, the Marine Corps is making extensive improvements to its aging fleets of UH-1N utility and AH-1W attack helicopters. The program provides for 280 existing airframes (100 UH-1N and 180 AH-1W) to be remanufactured and fitted with a newly developed drivetrain incorporating a four-bladed, all-composite rotor system. Increased commonality between the aircraft will enhance maintainability and deployability. The planned avionics upgrade will also enhance joint interoperability. Together, these upgrades will reduce program life-cycle costs, significantly improve operational capability, and extend the service life of both helicopter fleets. The helicopter upgrade program will provide a bridge to a Joint Replacement Aircraft in the 2020 timeframe. The program is currently in the engineering and manufacturing development phase; 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 (MLRS) are both fired by the M270 delivery platform. ATACMS Block I missiles, with antipersonnel/antimateriel (APAM) bomblets, were fielded beginning in FY 1990. An improved version of the weapon, designated ATACMS Block IA, offering greater range and accuracy will enter

service in FY 1998; a total of 800 of these missiles are programmed for production. Two follow-on versions of ATACMS are scheduled for fielding after the turn of the century. ATACMS Block II missiles, carrying the Brilliant Antiarmor Submunition (BAT), will enter service in FY 2001; an inventory objective of 1,206 missiles has been established for this variant. In FY 2003, the extended-range ATACMS Block IIA will be fielded; a total of 600 of these missiles are planned for procurement.

Brilliant Antiarmor Submunition. BAT is a fire-and-forget submunition designed to destroy tanks and other armored targets. It will be delivered deep into enemy territory by ATACMS. Once released from the missile, BAT will use infrared and acoustic sensors to autonomously locate and automatically attack moving armored vehicles. BAT began contractor developmental testing in FY 1996 and will enter low-rate production in FY 1998.

Sense and Destroy Armor Submunition (SADARM). This submunition is designed to destroy lightly-armored vehicles, primarily self-propelled artillery. It will be delivered to its target by 155mm artillery projectiles. Once dispensed from its carrier, SADARM will locate its target using dual-mode millimeter-wave and infrared sensors. SADARM began low-rate production in FY 1995 and is scheduled for initial operational testing in FY 1998. A decision on full-rate production will be made in FY 1999. Current plans call for procurement of 73,612 projectiles (with two SADARM submunitions per projectile) through FY 2012. A fully funded product improvement program will increase the submunition's footprint and lethality through the incorporation of improved electronics and a combined-effects warhead; the product-improved version will enter production in FY 2002.

Javelin. This new man-portable missile system significantly improves the antiarmor capability of dismounted Army and Marine forces. It is replacing the Dragon antitank system in infantry, scout, and combat engineer units. The Javelin can destroy both conventional and reactive armor targets from frontal or top attack positions. The system includes two major components: a reusable command launch unit (CLU) and the missile, sealed in a disposable launch tube. The key feature of the Javelin is the use of fire-and-forget technology, which allows gunners to launch their missiles and immediately take cover. Other features include the ability to fire the missile safely from enclosures and covered fighting positions and to use the CLU separately for battlefield detection and surveillance. Javelin is currently in low-rate initial production; a decision on full-rate production will be made in 1997.

Table 23

Land Force Aircraft Modernization Programs

	Current Dollars (Millions)			
	FY 1996 Actual	FY 1997 Estimated[a]	FY 1998 Budgeted	FY 1999 Planned
Comanche				
RDT&E	284.1	331.4	282.0	371.9
Apache Longbow				
RDT&E	22.0	10.6	—	—
Procurement	442.5	405.6	511.8	586.7
V-22				
RDT&E[b]	717.3	552.1	529.5	272.7
Procurement[c]	47.1	733.0	541.7	676.1
4BN/4BW (H-1 Helicopter) Upgrade				
RDT&E[b]	11.0	70.0	80.7	90.3

[a] Not executed; subject to change.
[b] Navy funds applied to Marine Corps RDT&E.
[c] Navy funds applied to Marine Corps procurement.

Table 24
Missile and Munition Modernization Programs

	Current Dollars (Millions)			
	FY 1996 Actual	FY 1997 Estimated[a]	FY 1998 Budgeted	FY 1999 Planned
ATACMS				
RDT&E	25.4	4.8	—	—
Procurement	121.3	161.8	98.8	103.0
BAT				
RDT&E	190.5	161.8	202.3	129.5
Procurement	—	—	85.2	160.9
SADARM				
RDT&E	15.8	9.9	22.4	20.8
Procurement	41.1	93.7	67.9	77.6
Javelin				
RDT&E (Army)	2.2	6.1	8.0	5.3
RDT&E (Marine Corps)	0.3	0.4	0.2	0.2
Procurement (Army)	200.9	195.2	143.1	326.6
Procurement (Marine Corps)	—	38.1	42.1	83.4
Predator				
RDT&E	33.5	27.7	0.8	—
Procurement	—	—	—	18.2

[a] Not executed; subject to change.

Predator Short-Range Assault Weapon. This new shoulder-mounted fire-and-forget weapon will improve Marine light antitank capability in the field. Operational requirements were established in 1994, and the program is currently in engineering and manufacturing development. Procurement of a planned total of 18,190 Predators is scheduled to start in FY 1999, with full operational capability slated for FY 2006.

GROUND COMBAT SYSTEMS

Abrams Tank Upgrade. Instead of developing a new main battle tank, the Army is upgrading its existing fleet of M1 Abrams tanks. 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, replaces the M1's 105mm main gun with a 120mm gun and incorporates 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 permitting the rapid transfer of data between the M1A2 and other systems on the battlefield. Since the inception of the M1A2 program in FY 1993, the Army has produced 77 new tanks in the A2 configuration and converted 129 older M1s to M1A2s. An additional 580 M1s are being upgraded to A2s under a five-year contract awarded in FY 1996, with a total of 1,000 M1 upgrades planned.

Bradley Fighting Vehicle Upgrade. The A3 upgrade to the Army's Bradley fighting vehicle system will complement the capabilities provided by the M1A2. When equipped with upgraded Bradleys, mechanized infantry units will be able to share battlefield data with M1A2-equipped armor units. In addition to providing a digital command and control capability, enhanced situational awareness, and improved sustainability, the A3 upgrade increases the lethality of the Bradley by adding an improved fire control system and a commander's independent thermal viewer. Approximately 1,602 existing Bradley A2s will be remanufactured into A3s, including fire support and air defense derivatives. Engineering and manufacturing development of the A3 upgrade will continue through FY 1999. Low-rate production is scheduled to begin in FY 1997.

Crusader. The Crusader is a new-generation self-propelled indirect-fire cannon and artillery resupply system for Army heavy forces. It will replace the M109A6 Paladin self-propelled howitzer and M992 field artillery ammunition supply vehicle used by early-deploying and forward-deployed units. Compared to those earlier systems, Crusader will provide a significant increase in range, accuracy, rate of fire, mobility, and survivability, restoring the Army's cannon artillery supremacy. Innovations incorporated in the system include an advanced cannon system, automated ammunition handling, and improved fire control capabilities. Crusader will be in research and development during the program years; production is scheduled to begin in FY 2003, with the first unit to be equipped in FY 2005. Current plans call for the procurement of 824 Crusader systems (824 cannons and 824 resupply vehicles) through FY 2011.

Advanced Amphibious Assault Vehicle (AAAV). The AAAV will replace the AAV7A1 amphibious assault vehicle, which dates from the early 1970s and is well beyond its originally intended service life. The new 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 will also 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 M1A1 tank. Development is proceeding under a demonstration and validation contract awarded in 1996, with low-rate production scheduled to begin in FY 2004. The Marine Corps plans to procure 1,013 vehicles through FY 2013.

Lightweight 155 Howitzer (LW155). This new towed cannon system will replace the M198 155mm howitzer used by Army and Marine forces. Substantially lighter than the M198, the LW155 will significantly enhance ship-to-shore mobility, while increasing the survivability and responsiveness of artillery support for ground operations. The requirements for this joint program were defined in the first half of 1995, at which time concept definition activities were initiated. Subsequent to the completion of a shoot-off among competing systems, an EMD contract was awarded in March 1997. A total of 1,036 howitzers will be procured — 598 for the Marine Corps and 438 for the Army. Production is scheduled to begin in FY 2000, with the Marine Corps version achieving initial operational capability in FY 2002 and the Army system in FY 2005.

Table 25

Ground Combat System Modernization Programs

	Current Dollars (Millions)			
	FY 1996 Actual	FY 1997 Estimated[a]	FY 1998 Budgeted	FY 1999 Planned
Abrams Upgrade				
RDT&E	38.8	71.5	35.4	8.4
Procurement	565.1	463.9	594.9	691.0
Bradley Upgrade				
RDT&E	117.9	89.2	75.4	37.2
Procurement	113.9	234.8	125.6	324.4
Crusader				
RDT&E	206.6	206.8	136.5	69.5
AAAV				
RDT&E	34.0	61.3	60.1	106.2
LW155				
RDT&E (Army)	10.9	—	—	0.38
RDT&E (Marine Corps)	14.4	8.5	12.6	15.6

[a] Not executed; subject to change.

SUPPORT SYSTEMS

Family of Medium Tactical Vehicles (FMTV). This new family of 2 1/2-ton and 5-ton trucks will be used by Army units to move troops, equipment, and supplies within operating theaters. The trucks will be produced in a variety of versions, all incorporating a common chassis. This will reduce production costs and save maintenance time and expenses. The new truck lines will overcome significant performance limitations of the existing fleets, which are now more than 20 years old and will average more than 30 years in age by the end of FY 2001. The reliability problems, and particularly the limited off-road capability, of these vehicles were documented in the Gulf War. The Family of Medium Tactical Vehicles (FMTV) will have much greater off-road mobility and will be much easier to maintain than the systems currently in service. Plans call for the delivery of 53,600 FMTVs through FY 2015.

Army Tactical Vehicle Remanufacture. In addition to developing a new family of trucks, the Army is remanufacturing a number of 2 1/2-ton and 5-ton trucks to extend their service lives and improve their performance. The remanufactured vehicles will have greater off-road mobility than existing truck models, complementing the improvements offered by the FMTV. They will be fielded with later-deploying units not slated to receive the FMTV series. The 2 1/2-ton truck program is producing two remanufactured vehicles from the parts of three older vehicles. A total of 1,620 trucks have been remanufactured to date, against an objective of 4,187. The proposed program for 5-ton trucks will upgrade a total of 3,400 vehicles.

Medium Tactical Vehicle Remanufacture (MTVR). Under the Medium Tactical Vehicle Remanufacture (MTVR) program, the Marine Corps is remanufacturing 5-ton trucks used by combat, combat support, and combat service support units to move troops, equipment, and sustainment supplies. The current fleet will begin to reach the end of its service life in FY 1999; its limited mobility and load-carrying capacity were demonstrated during the Gulf War. In upgrading the fleet, the remanufacturing program is emphasizing modern, nondevelopmental off-road truck technologies. Planned enhancements include the installation of an improved engine, independent suspension, and a central tire inflation system; the upgraded vehicles also will have a 7-ton off-road capability. This program will be pursued under the same contract as the Army's 5-ton truck remanufacturing program, thereby achieving both cost and production efficiencies. A total of 7,945 Marine trucks will be remanufactured.

Table 26
Support System Modernization Programs

	Current Dollars (Millions)			
	FY 1996 Actual	FY 1997 Estimated[a]	FY 1998 Budgeted	FY 1999 Planned
FMTV				
RDT&E	2.9	6.0	3.7	—
Procurement	146.0	238.9	210.0	364.8
Army Tactical Vehicle Remanufacture				
2 1/2-Ton Trucks				
Procurement	19.4	40.0	—	97.4
MTVR				
RDT&E	5.4	4.5	4.0	1.8
Procurement	—	—	—	159.9
Digitization				
RDT&E	99.1	88.1	57.5	49.7
Procurement	—	—	—	—

[a] Not executed; subject to change.

Digitization. This group of programs — including but not limited to the Army Digitization program, the Army Global Command and Control System, and the Army Tactical Command and Control System — will improve Army command and control capabilities. The primary goal of this major research and development initiative is to provide digital communications links between commanders and their forces and among individual force elements. These programs will enable information to be passed around the battlefield in near-real time, improving situational awareness and decision support capability. As part of this initiative, communications systems are being upgraded to carry the immense amounts of digital information that will have to be processed, and to give them the computer hardware and software required for this task. The various systems included in this initiative will be field tested through 1998; a decision on full production will be made in FY 1999.

Mobility Forces

The Department has embarked on an ambitious modernization program to replace obsolete mobility forces and achieve the force deployment goals established in the MRS BURU.

AIRLIFT AND AERIAL-REFUELING PROGRAMS

Airlift investments in coming years will focus on replacing the aging fleet of C-141 intertheater aircraft with state-of-the-art C-17 aircraft. Under a plan announced in November 1995, the Department will acquire a total of 120 C-17s. The first 40 aircraft were purchased prior to that time, and the remaining 80 will be procured through a seven-year contract begun in FY 1997. This multiyear contract will save more than $1 billion compared with the cost of annual buys. The FY 1998-2003 program includes $18.8 billion to complete the C-17 purchases.

Having overcome earlier delays, the C-17 program is performing well. The latest 17 aircraft were delivered to the Air Force ahead of their production schedule. Additionally, the C-17s already in service are demonstrating better reliability than expected. Operationally, the C-17 has successfully supported U.S. missions such as those in Bosnia, where it delivered more than 20,000 tons of cargo and 3,800 passengers to airports lacking facilities to accommodate other intertheater transport aircraft.

Enhancements in intratheater airlift capabilities have come both from the C-17 and from the recent introduction of a new version of the C-130 tactical transport aircraft. The upgraded C-130J model incorporates a redesigned two-crew-member flight station, which will allow the cockpit crew to be reduced from four to two people. In addition, the new model features a modern-technology engine and propeller system, and an integrated digital avionics subsystem. This program also will modernize airborne battlefield command and control center aircraft, weather reconnaissance aircraft, and electronic combat aircraft. The FY 1998 budget includes procurement funds for one C-130J.

The KC-135 tanker force also is being upgraded. All 472 PMAI KC-135 aircraft will receive state-of-art 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 a multipoint refueling pod, enhancing their ability to refuel Navy, Marine Corps, NATO, and other allied aircraft.

Other air mobility investments focus on modernizing materiel-handling equipment; designing command, control, communications, and computer systems to allow in-transit visibility; identifying aircraft modifications needed to comply with the Global Air Traffic Management system; and ensuring access to overseas air mobility infrastructure.

AFLOAT PREPOSITIONING PROGRAMS

Three ships are being added to the Maritime Prepositioning Force (MPF) supporting Marine Corps operations. The first of these ships, funded in FY 1995, will be delivered in FY 1999. The remaining ships, funded in FY 1997, will enter service early in the next decade. These ships will be allocated among the three existing MPF squadrons.

Eight large medium speed roll-on/roll-off (LMSR) ships are being procured for Army afloat prepositioning. These ships, now under construction, will be fully deployed by FY 2001.

SEALIFT PROGRAMS

The MRS BURU validated a need for the acquisition of 19 LMSRs. Eight of these ships will be used for afloat prepositioning and 11 for transporting combat and support equipment of early-deploying Army divisions. The first five ships were purchased on the world market and sent to U.S. shipyards for conversion for military use.

Two of the ships were delivered in 1996, and the third in early 1997. These three ships will go on station in 1997. The remaining two converted ships will be delivered in 1997 and will go on station in 1998. The 14 remaining LMSRs will be new vessels, constructed at U.S. shipyards. Eleven of these ships have been funded through FY 1997, and the first is slated to enter service in 1998. The FY 1998-2003 program includes more than $1.1 billion in ship construction funds to complete the LMSR program.

The Departments of Defense and Transportation, along with commercial cargo carriers, have established the Voluntary Intermodal Sealift Agreement (VISA). Like the Sealift Readiness Program it replaces, VISA provides DoD with access to commercial shipping capacity in times of crisis. As with the CRAF program for airlift, VISA has been structured to make sealift available in phases. Furthermore, VISA provides access to the intermodal capabilities of commercial carriers, such as rail, truck, and pier facilities.

Table 27
Mobility Modernization Programs

	Current Dollars (Millions)			
	FY 1996 Actual	FY 1997 Estimated[a]	FY 1998 Budgeted	FY 1999 Planned
Airlift				
C-17				
RDT&E	72.0	71.7	113.6	202.3
Procurement	2,565.6	2,117.0	2,290.3	3,082.2
C-130J				
Procurement	97.9	62.8	49.9	—
KC-135 Upgrade				
Procurement	87.0	123.9	119.9	112.4
Sealift				
LMSR				
Construction	596.1	902.4	812.9	322.4

[a] Not executed; subject to change.

At the direction of Congress, DoD is executing the National Defense Features program to make commercial ships more militarily useful. This program will pay ship owners to make modifications such as strengthening decks to carry tanks or increasing maximum engine speed to reduce transit time. The Department is evaluating initial proposals submitted by industry and expects to award the first contract during FY 1997. The NDF program may provide some sealift capability to complement the high-readiness vessels in the Ready Reserve Force, which remains the most effective source of shipping to meet mobility requirements.

CONCLUSION

Today, U.S. conventional forces stand ready to execute the missions articulated in the Bottom-Up Review and detailed in the National Military Strategy. The FY 1998 budget ensures that these forces will continue to possess the capabilities needed to defeat any potential adversary. While readiness remains the Department's highest priority, modernization programs will ensure that U.S. forces retain their qualitative edge in the future.

Systems planned for acquisition will allow the Department to replace older equipment with more capable, sometimes less costly variants. For example, the SC-21 and New Attack Submarine will exceed the capabilities of retiring assets at less cost than current programs. New aircraft programs such as the F-22, the Joint Strike Fighter, and the F/A-18E/F could potentially replace existing systems on a less than one-for-one basis given the projected increase in their capabilities. Modernization programs for land forces continue to stress technology upgrades to existing weapons, thereby taking advantage of remaining life, while providing for the development of more capable future systems. Finally, mobility modernization initiatives are replacing aging systems with more capable new designs while adding lift capability where needed to meet emerging requirements.

The careful balance between readiness and investment, and between near-term demands and long-term requirements, requires constant attention and adjustment. The President's Budget reflects this balance, maintaining the ability to fight and to win far into the future.

Chapter 18

SPECIAL OPERATIONS FORCES

Special Operations Forces (SOF) serve four purposes that are increasingly important in the current international environment. First, they are critical to peacetime engagement and crucial to deterrence. Second, they expand the range of options available to decision makers confronting crises and conflicts below the threshold of war, such as terrorism, insurgency, and sabotage. Third, they act as force multipliers in support of conventional forces engaged in major conflicts, increasing the effectiveness and efficiency of the U.S. military effort. Finally, they expand national capabilities to react to situations requiring regional orientation and cultural and political sensitivity, including military-to-military contacts and noncombatant missions like humanitarian assistance, security assistance, and peacekeeping operations.

SOF'S HERITAGE: ROLES AND MISSIONS

Special Operations Forces have a dual heritage. They are the nation's penetration and strike force, able to respond to specialized contingencies across the conflict spectrum with stealth, speed, and precision. They are also warrior-diplomats capable of influencing, advising, training, and conducting operations with foreign forces, officials, and populations. One of these two generic SOF roles is at the heart of each of the following prioritized special operations missions.

- Counterproliferation (CP). The activities of the Department of Defense across the full range of U.S. government efforts to combat proliferation of nuclear, biological, and chemical weapons, including the application of military power to protect U.S. forces and interests; intelligence collection and analysis; and support of diplomacy, arms control, and export controls. Accomplishment of these activities may require coordination with other U.S. government agencies.
- Combating Terrorism (CBT). Preclude, preempt, and resolve terrorist actions throughout the entire threat spectrum, including antiterrorism (defensive measures taken to reduce vulnerability to terrorist acts) and counterterrorism (offensive measures taken to prevent, deter, and respond to terrorism), and resolve terrorist incidents when directed by the National Command Authorities or the appropriate unified commander, or requested by the Services or other governmental agencies.

- Foreign Internal Defense (FID). Organize, train, advise, and assist host national military and paramilitary forces to enable these forces to free and protect their society from subversion, lawlessness, and insurgency.

- Special Reconnaissance (SR). Conduct reconnaissance and surveillance actions to obtain or verify information concerning the capabilities, intentions, and activities of an actual or potential enemy or to secure data concerning characteristics of a particular area.

- Direct Action (DA). Conduct short-duration strikes and other small-scale offensive actions to seize, destroy, capture, recover, or inflict damage on designated personnel or material.

- Psychological Operations (PSYOP). Induce or reinforce foreign attitudes and behavior favorable to the originator's objectives by conducting planned operations to convey selected information to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately the behavior of foreign governments, organizations, groups, and individuals. These operations are conducted across the spectrum from peacetime to post-conflict and are by nature joint and often combined and interagency.

- Civil Affairs (CA). Facilitate military operations and consolidate operational activities by assisting commanders by establishing, maintaining, influencing, or exploiting relations between military forces and civil authorities, both governmental and non-governmental, and the civilian population in a friendly, neutral, or hostile area of operations.

- Unconventional Warfare (UW). Organize, train, equip, advise, and assist indigenous and surrogate forces in military and paramilitary operations, normally of long duration.

- Information Warfare (IW)/Command and Control Warfare (C^2W). Actions taken to achieve information superiority by affecting adversary information, information-based processes, information systems, and computer-based networks while defending one's own information, information-based processes, information-based systems, and computer-based networks.

- Collateral Activities. In the following areas, SOF share responsibility with other forces as directed by the geographic combatant commanders.

  - Coalition Support. Integrate coalition units into multinational military operations by training coalition partners on tactics and techniques and providing communications.

  - Combat Search and Rescue (CSAR). Penetrate air defense systems and conduct joint air, ground, or sea operations deep within hostile or denied territory at night or in adverse weather to effect the recovery of distressed personnel during wartime or contingency operations.

  - Counterdrug (CD) Activities. Train host nation CD forces on critical skills required to conduct small unit CD operations in order to detect, monitor, and counter the production, trafficking, and use of illegal drugs.

  - Humanitarian Demining Operations (HDO). Reduce or eliminate the threat to non-combatants and friendly military forces posed by mines, booby-traps, and other explosive devices by training host nation forces in the location, recognition, and safe disposal of mines and other destructive devices, as well as countermine program management and mine awareness programs.

  - Humanitarian Assistance (HA). Provide assistance of limited scope and duration to supplement or complement the efforts of host nation civil authorities or agencies to relieve or reduce the results of natural or man-made disasters or other endemic conditions such as human pain, disease, hunger, or privation that might present a serious threat to life or that can result in great damage to, or loss of, property.

  - Security Assistance (SA). Provide training assistance in support of legislated programs which provide U.S. defense articles, military training, and other defense-related services by grant loans, credit, or cash sales in furtherance of national policies or objectives.

  - Special Activities. Subject to militation imposed by Executive Order and in conjunction with a Presidential finding and congressional oversight, plan and conduct actions abroad in support of national foreign policy

objectives so that the role of the U.S. government is not apparent or acknowledged publicly.

MAXIMIZING SOF'S EFFECTIVENESS IN SUPPORT OF DEFENSE STRATEGY

To support the National Security Strategy, Special Operations Forces provide decision makers with increased options for achieving the national military objectives of promoting stability and thwarting aggression. To realize their full potential as strategic assets, SOF receive national level oversight to ensure their full integration into planning for conventional operations and interagency planning. Skillful integration with conventional forces allows SOF to be a force and diplomatic multiplier in conventional operations. DoD is improving SOF interoperability with conventional forces and ensuring SOF's inclusion in strategic planning, joint training, interagency exercises, and DoD educational curricula.

Special operations differ from traditional military operations in degree of political risk, often unconventional mode of employment, independence from friendly support, and their dependence on detailed intelligence and indigenous assets. For these reasons, some SOF missions carry an exceptionally high degree of physical risk. Because of the political sensitivities surrounding many SOF missions, where failure can damage national prestige, close coordination at the interagency level between DoD and other U.S. government agencies is necessary. Close interagency coordination maximizes SOF effectiveness in the political-military environment short of war.

SOF AND REGIONAL DANGERS — MAJOR REGIONAL CONFLICTS

Special Operations Forces are force multipliers for U.S. conventional forces combating regional aggression. SOF contribute directly to conventional combat operations, complicating enemy operations through assistance to indigenous forces allied with the United States and sealing the victory through post-hostility and restoration activities. In Operation Desert Storm, for example, SOF conducted extensive information preparation of the battlefield, special reconnaissance, direct action, and other missions behind Iraqi lines, contributing to deception operations that misled the enemy about the coalition's operational plan and facilitated coalition warfare. Psychological operations leaflets and broadcasts encouraged over 17,000 Iraqis to defect and between 50,000 and 80,000 to surrender. Active and Reserve component Civil Affairs units managed displaced person and refugee operations and distributed humanitarian assistance, supplies, and services. Active and reserve PSYOP, as well as reserve CA, also assisted Kuwaiti government ministries in planning and executing the immediate post-conflict restoration.

Because of their language skills and regional orientation, Special Operations Forces are particularly well suited to conventional coalition warfare. For example, in Operation Desert Storm, SOF personnel were deployed as liaison officers to multinational staffs under the tactical control of the Commander in Chief (CINC) of the United States Central Command. Their in-depth knowledge of the coalition members, language, and militaries allowed them to successfully link the CINC to each member of the coalition. General Norman R. Schwarzkopf referred to this contribution as the glue that held the coalition together. SOF performed similar tasks in Operation Joint Endeavor.

SOF AND THE DANGERS POSED BY WEAPONS OF MASS DESTRUCTION

The proliferation of nuclear, biological, and chemical (NBC) weapons is one of the most serious security threats confronting the United States, its allies, and friends. When U.S. forces are faced with a theater NBC threat, SOF can assist in deterring, destroying, or defending against it. Psychological operations can support deterrence by communicating to foreign audiences a U.S. commitment and capability to prevent the proliferation and use of NBC weapons. SOF direct action capabilities contribute to deterrence and destruction options by providing a precision strike capability against weapons, storage facilities, and command and control centers. SOF special reconnaissance capabilities can contribute to the defense against NBC threats by providing real-time intelligence unavailable from other sources.

SOF AND REGIONAL DANGERS — LOW INTENSITY CONFLICT

Special Operations Forces play an important role in low intensity conflict because of the unique capabilities resident in SOF and the special character of low intensity conflicts. Low intensity conflict is a particularly challenging area for the United States, because it encompasses a range of activities that weaken regional security and undermine the ability of the United States to accomplish its objectives. U.S. efforts to counter low intensity

threats do not focus on traditional military objectives. They are not driven by the requirement to destroy enemy forces or capture terrain, but rather by the need to establish or reestablish an environment conducive to regional or international stability without resorting to the political, economic, and military risks of war. Terrorism, lawlessness, subversion, insurgency, and coups d'etat will continue to be some of the principal means by which national and subnational actors carve out their places in the world. Such activities may be used to weaken regional security by undermining support for U.S. presence, reducing U.S. access and influence, complicating the coordination of collective defense efforts, or directly attacking Americans, allies, or regimes friendly to the United States.

SOF AND THE CHALLENGES OF DEMOCRATIZATION

Many of the skills in the Special Operations Forces inventory are directly applicable to support friendly, democratic regimes. With their linguistic ability and cross-cultural sensitivities, SOF can quickly establish an effective working rapport with foreign military and paramilitary forces and, when required, government officials. In this capacity, SOF is a force multiplier for U.S. ambassadors and country teams throughout the world. Specifically, SOF (especially civil affairs, psychological operations, and Special Forces (SF)) can assess appropriate host nation projects, conduct disaster or humanitarian assistance planning seminars, and assist interagency coordination, foreign liaison, and public information programs. Operation Uphold Democracy is a classic example of how unique SOF language and cultural skills can be successfully applied in the initial stages of a peacetime military campaign plan. In Haiti, SOF performed a number of key functions beginning long before the arrival of U.S. forces, causing a significant decrease in the desperate exodus of Haitians and preparing the Haitian population for the return of democracy and the peaceful arrival of U.S. forces. During the peak of the multinational force phase of the operation, there were approximately 1,350 SOF personnel operating in small teams, based in 30 population centers throughout Haiti. From those centers, SOF visited over 500 towns and villages, where they were essential in establishing a safe and secure environment. SOF supported the NATO Implementation Force (IFOR) conducting Operation Joint Endeavor with approximately 1,350 personnel deployed to Bosnia, Croatia, Hungary, Belgium, Germany, and Italy. SOF conducted CA, PSYOP, special operations command and control element support to conventional forces, liaison coordination element support to foreign forces, and air support for IFOR.

Some military units, especially combat support and combat service support units — such as engineer or medical units — and even some civilian agencies benefit from having civil affairs, psychological operations, or SF personnel attached for overseas peacetime missions. Prior to deployment, SOF personnel can train members in the cultural aspects of their projects and in dealing with local military officials and civilians with whom they may come in contact. During deployment, SOF can assist in coordinating with local representatives and populations.

CURRENT AND RECENT OPERATIONS

The sensitivity of Special Operations precludes a discussion of most specific SOF activities in this report. However, examples of some recent operations include the following:

- SOF continue to support the United States Central Command in Saudi Arabia and Kuwait, most recently by assisting with repatriation of Kurdish foreign nationals from northern Iraq and by continuing to support ongoing resettlement operations.

- SOF assisted the UN-sponsored humanitarian efforts in Bosnia and Croatia during Operation Provide Promise. Significant numbers of SOF supported the Implementation Force and continue to support the Stabilization Force in Bosnia. Additional humanitarian support and CSAR were provided for Operation Provide Comfort from Incirlik Air Base, Turkey, and Zahko, Iraq.

- SOF are assisting each of the theater unified commands in planning for democratization support missions.

- SOF continue to support U.S. counterdrug operations in Latin America. SOF trained and provided expert advice to host-nation armed forces and police dedicated to the counterdrug mission, primarily through exercises, joint and combined exercise training programs, and training teams. SOF teams conducted counterdrug missions in support of the Drug Enforcement Agency, the U.S. Information Agency, and U.S. country teams' narcotics affairs staffs. SOF also assisted country

teams and host nations develop counterdrug information campaigns.

- SOF conducted humanitarian demining and mine awareness training in 12 countries in 1996.

- SOF supported the settlement of refugees and displaced persons in Rwanda.

The most telling benchmark of SOF's 1996 operations is the extremely high operating tempo of overseas deployments. SOF conducted over 1,240 missions to 136 countries and five territories. This heavy deployment schedule accomplished tasks in mandated primary and collateral mission areas. Additionally, the average number of SOF deployed overseas per week was 3,175, reflecting a slight decrease from weekly FY 1995 average figures.

FORCE STRUCTURE

Special Operations Forces are prepared to operate worldwide and across the spectrum of conflict. Approximately 44,000 active and Reserve Component personnel from the Army, Navy, and Air Force are assigned to the United States Special Operations Command (USSOCOM). SOF are organized into three Service components and a joint command. In actual operations, Service component units are normally employed as part of a joint force by the theater CINCs through the theater Special Operations Command (SOC). The SOC normally forms a Joint Special Operations Task Force (JSOTF), which may be employed independently or in support of a larger Joint Task Force (JTF). Psychological operations forces form a Joint PSYOP Task Force (JPOTF) to ensure a seamless blending of psychological operations supporting U.S. government policy. Civil Affairs units may be assigned as part of a JSOTF or a JTF, or as a separate Joint Civil-Military Operations Task Force (JCMOTF).

Army Special Operations Forces include Special Forces (Green Berets), Rangers, Special Operations Aviation (SOA), PSYOP, CA, signal, support, and headquarters units under the United States Army Special Operations Command (USASOC). Army Special Forces are organized into five active and two Army National Guard groups. The Ranger regiment consists of three active battalions, based at three locations in the United States. SOA consists of one active regiment in the United States and one detachment in Panama. PSYOP is organized into three groups, one active and two United States Army Reserve (USAR). The CA force structure consists of three USAR CA commands, nine USAR CA brigades, 24 USAR CA battalions, and one active duty CA battalion. Ninety-seven percent of the CA force is found in the USAR.

Naval Special Warfare (NSW) forces support naval and joint special operations within the theater unified commands. NSW forces are organized into two Naval Special Warfare Groups and two Special Boat Squadrons. Each Naval Special Warfare Group is composed of three Sea, Air, Land (SEAL) teams with 10 platoons and a SEAL Delivery Vehicle (SDV) team. Also assigned to each of the groups are Naval Special Warfare Units, which are small command and control elements located outside the continental United States to support NSW forces assigned to theater SOCs or components of naval task forces. The Special Boat Squadrons and their subordinate Special Boat Units are responsible for operating and maintaining a variety of special operations vessels such as high speed boats and patrol coastal ships. The 82-foot Mark Five Special Operations Craft were delivered in August 1995; six (of 20 total) craft have been delivered. There are a total of 13 170-foot Cyclone Class Patrol Coastal ships in the Naval Special Warfare inventory. These ships provide long-range high speed craft capability in support of a variety of SOF mission areas, including coastal patrol and interdiction. Additionally, several nuclear attack submarines are configured to carry dry deck shelters for launching SDVs. Additional submarines are modified to host the Advanced SEAL Delivery System.

Air Force SOF are organized into one active Special Operations Wing, two active Special Operations Groups (one each in Pacific and European Commands), one Air Force Reserve Special Operations Wing, one Air National Guard Special Operations Wing, and one active Special Tactics Group. Within these units are Special Operations squadrons, some of which can perform long-range infiltration, aerial refueling, resupplying, or exfiltration missions deep within sensitive or enemy held territory. Some squadrons can conduct PSYOP leaflet drops, or broadcast radio or television signals, while other squadrons provide close air support, interdiction, and armed escort capabilities. These aircraft support both SOF and conventional forces.

COMMAND RELATIONSHIPS

The DoD Reorganization Act of 1986, as amended by the National Defense Authorization Act of 1987, mandated unique relationships for command, control, and oversight of SOF. The act directed the establishment of the Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict (ASD(SO/LIC)) to serve as the senior civilian advisor to the Under Secretary of Defense for Policy and to the Secretary of Defense on matters pertaining to special operations and low intensity conflict. The act also directed the establishment of USSOCOM and assigned it several Service-like responsibilities, including those of program, budget, and acquisition. The policy and resource oversight responsibilities of ASD(SO/LIC) and the Service-like responsibilities of USSOCOM create a relationship which is unique within the Department of Defense. This relationship facilitates SOF's responsiveness and adaptability to the needs of the National Command Authorities in the changing national security environment.

SOF THEMES FOR THE FUTURE

Recognizing that the demand for forces to selectively respond to diverse regional concerns will be greater than ever, the following themes will continue to guide the SOF community:

- Ensure maximum flexibility consistent with full accountability. SOF missions are fluid, shaped by political context and tactical developments requiring modifications and expediencies. Adherence to rules of engagement and responsiveness to military and civilian authority are paramount.

- Encourage unorthodox approaches and unconventional techniques that bring flexible thinking and innovation in addressing unconventional security threats.

- Invest in science and technology to maintain technical superiority in weaponry, materiel, and delivery systems.

- Stress SOF utility for forward-basing, quick deployment, and adaptability to regional contingencies. The regional orientation of SOF is an essential ingredient of success.

- Continue to integrate SOF with conventional forces and other U.S. government agencies to further enhance SOF's ability to support their principal customers: the geographic CINCs, U.S. ambassadors and their country teams, and other government agencies.

- Design force structure to reflect the mix of SOF missions. As the sophistication of adversaries grows and the nature of SOF missions evolve, special operations activities may require greater specialization in training as physical and technical requirements increase. The linguistic, cultural, and political needs of the training and advisory mission will increase as the regional security environment becomes more complex.

- Ensure appropriate missions are tasked to SOF. Special Operations have key elements that distinguish them from conventional operations. The utility of SOF increasingly hinges upon regional knowledge, flexibility, political awareness, and discipline.

CONCLUSION

Special Operations Forces are particularly suited for many emerging missions which will flow from the National Security Strategy. Many of these missions require traditional SOF capabilities, while others such as counterproliferation and information warfare are relatively new and are the subject of developing SOF doctrine. Recent operations have proven that SOF are invaluable as facilitators and peacetime operators, as well as strike troops. In order to be as effective as possible, SOF face two major challenges: they must integrate — with conventional forces, other U.S. agencies, friendly foreign forces, and other international organizations (like the United Nations and Red Cross) — yet they must preserve the autonomy necessary to protect and encourage the unconventional approach that is the soul of Special Operations. This flexibility will facilitate meeting the other major challenge of the 1990s. SOF will continue to be surgically targeted, timely, and global in scope. SOF's language capability and regional and cultural orientation will continue to make them a peacetime force of choice that is mature, discrete, low profile, and effective. Future defense budgets will demand cost-effective solutions. Because of its low cost/high payback ratio, SOF will continue to be called upon as the nation seeks to promote stability and thwart aggression.

Chapter 19

SPACE FORCES

The United States conducts activities in outer space to defend the nation. Space is a medium — like the land, sea, and air — within which military operations take place by Department of Defense space forces. These forces consist of both space-based and terrestrial systems, plus their associated facilities and personnel.

During the past decade, national security space systems have played an increasingly important role in the Department's overall warfighting capability. Consistent with the National Space Policy, Department of Defense space forces will continue to support military operations worldwide, monitor and respond to strategic military threats, and monitor arms control and nonproliferation agreements and activities. DoD will exploit and, if required, control space to assist in the successful execution of the National Security Strategy and National Military Strategy.

In the future, space power will be as important as sea power and air power are today. The control and utilization of space as a warfighting medium will help to enable the United States to establish and sustain dominance over an area of military operations. Establishing such dominance will be a key to achieving success during a crisis or conflict.

SPACE FORCES AND NATIONAL DEFENSE

The United States is the unparalleled world leader in the use of space for defense and intelligence purposes. U.S. space forces, especially the constellations of reconnaissance, surveillance, communications, navigation, and weather satellites, have contributed significantly both to U.S. successes during the Cold War and in military operations around the globe since then. Utilization of these space systems has evolved from an initial focus on providing support to national decision makers and strategic nuclear operations to a more extensive integration into the overall military force structure and much broader use by warfighters. Currently, U.S. national security space assets are playing a crucial role in supporting national security objectives in many areas around the globe, including the former Republic of Yugoslavia, Korea, and the Middle East.

Space systems have become an integral part of the overall deterrent posture of the U.S. armed forces. They help confer a decisive advantage upon U.S. and friendly forces in terms of combat timing, battlespace awareness, operating tempo, synchronization, maneuverability,

and the application of firepower. Any nation contemplating an action inimical to U.S. national security interests must be concerned about U.S. space capabilities because they help to ensure that hostile actions will be discovered by the United States in a timely manner.

INTEGRATION OF NATIONAL SECURITY SPACE SYSTEMS

National Space Policy emphasizes the need to improve the coordination and integration of DoD and intelligence space activities and architectures. This is being accomplished primarily by the Office of the Deputy Under Secretary of Defense for Space (DUSD (Space)), the Office of the DoD Space Architect, and Joint Space Management Board (JSMB) commissioned activities, such as the National Security Space Master Plan (NSSMP) and the Review of National Security Space Programs and Activities Integrated Product Team (IPT).

DUSD (Space) was created to develop, coordinate, and oversee the implementation of DoD space policy and to provide oversight of DoD space architectures and the acquisition of DoD space programs. It is also the office of primary responsibility and the principal point of contact within the Office of the Secretary of Defense for space matters. As such, it both interfaces with Congress and other government agencies and represents the Secretary of Defense in interagency deliberations and international negotiations regarding space.

The JSMB was formed to ensure that defense and intelligence needs for space systems were satisfied within available resources, using integrated architectures to the maximum extent possible. This will be accomplished by integrating policy, requirements, architectures, acquisition, and funding for defense and intelligence space programs. The JSMB is co-chaired by the Under Secretary of Defense for Acquisition and Technology and the Deputy Director of Central Intelligence, and includes the full participation of the national security space community.

The DoD Space Architect is developing space architectures across the full range of DoD space mission areas and integrating requirements into existing and planned space system architectures. Close coordination with the Intelligence Community in developing these architectures is a priority to ensure that the architectures are fully integrated, leading to improved space systems support to U.S. and allied forces.

The NSSMP provides a long-term strategic vision to guide the national security space community to the year 2020. DUSD (Space) directed the development of the NSSMP to provide this common vision for the Department and Intelligence Community, to help formulate DoD space plans, and to act as a guide for future architecture development.

The Review of National Security Space Programs and Activities IPT was directed by the Director of Central Intelligence and the Deputy Secretary of Defense to conduct a comprehensive review of the space programs and associated activities of both the Intelligence Community and DoD. In particular, it has been tasked to evaluate the ability of military and intelligence space systems and their associated resources to reliably meet critical requirements, without interruption, during the next 10 years within existing and projected fiscal guidance.

COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE AND THE REVOLUTION IN MILITARY AFFAIRS

Advances in technology are fundamentally altering the conduct of modern warfare. Driven primarily by improvements in information collection, processing, and transmission technology, this revolution will have a dramatic impact on military operations. The full impact of these improvements on military operations, however, will only be realized if they are integrated with new operational concepts.

In part, this ongoing revolution involves creating an integrated system-of-systems to apply force with significantly greater precision, less risk, and increased effectiveness. Space systems support this precise application of force by providing highly accurate command, control, communications, computers, intelligence, surveillance and reconnaissance for use by precision-guided munitions.

ENHANCING WARFIGHTER OPERATIONS

Space systems have played an important role in every recent crisis or conflict where U.S. forces were engaged. The combination of space-based navigation, weather information, communications, reconnaissance, and surveillance has provided critical support to deployed U.S. forces.

Table 28
FY 1997 Space-Based Forces

Satellite Systems	Mission	On-Orbit (Primary Mission Capable)
Defense Support Program	Missile Warning	*
Global Positioning System	Navigation	24
Nuclear Detonation Detection System	Nuclear Detonation Detection	24
Defense Meteorological Satellite Program	Weather and Environmental Monitoring	2
Defense Satellite Communications System	Communications	5
Milstar	Communications	2
Fleet Satcom System	Communications	4
UHF Follow-On	Communications	5

* Data is classified.

The first Small Tactical Terminals, providing direct weather satellite imagery at the tactical level, were fielded in Korea and Bosnia in 1996. The remaining terminals, approximately 180, will be deployed at a rate of 10 per month, beginning in early 1997. Timely receipt of high-resolution weather data addressed a shortfall noted in Operation Desert Storm and has enabled field commanders to better use weather data to exploit U.S. technical advantages over an adversary.

To enhance their contributions to U.S. military operations, space forces have been integrated into the joint and service exercise schedules, and United States Space Command components are actively engaged in supporting each combatant commander. Space systems directly enhanced military operations during a number of recent joint and coalition exercises, including Unified Endeavor, Ulchi Focus Lens, Eligible Receiver, Global Guardian, and Vigilant Overview. By fully integrating space capabilities into military operations, combatant commanders are better able to tailor their campaign planning and operations to more effectively employ available forces and achieve objectives at the least risk and cost.

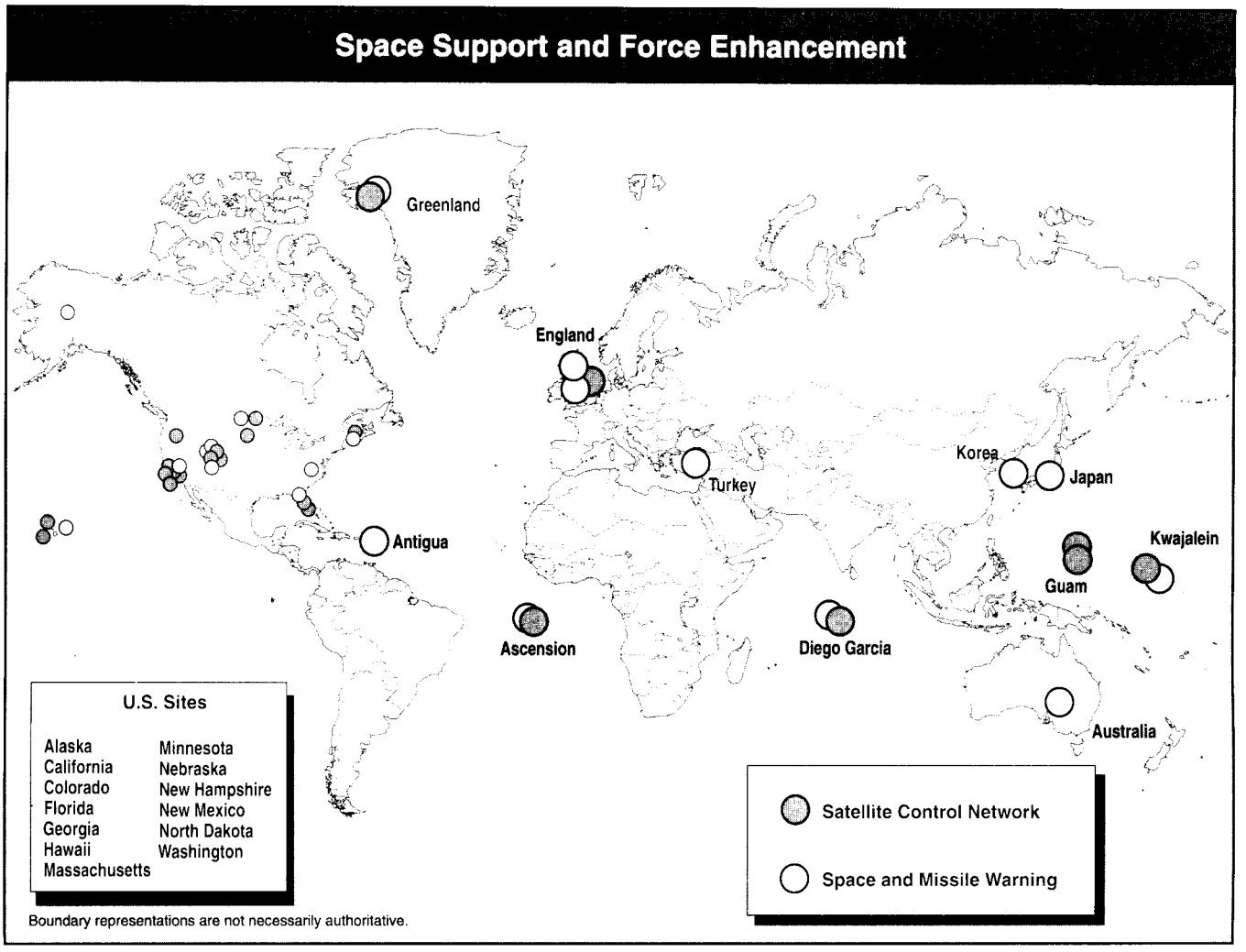
Service Tactical Exploitation of National Capabilities (TENCAP) programs continue to leverage national space assets to better support the warfighter down to the tactical level by providing direct sensor-to-shooter information flow.

SPACE FORCE STRUCTURE

The DoD space force structure is comprised of constellations of satellites and their associated ground-based systems and facilities that ensure the ability to supply immediate support worldwide in four mission areas: space support, force enhancement, space control, and force application.

Space Support

The space support mission area involves operations to deploy and sustain military systems in space. This includes launching and deploying space vehicles, maintaining and sustaining spacecraft on orbit, and deorbiting and recovering space vehicles. The Eastern Range at Cape Canaveral Air Force Station, Florida, and the Western Range at Vandenberg Air Force Base, California, are the nation's primary space launch facilities for expendable launch vehicles (ELVs). DoD employs the Space Shuttle, Pegasus, Taurus, Delta, Atlas, and Titan launch vehicles, as well as the Inertial Upper Stage and the Centaur Upper Stage to deliver payloads into orbit. The Air Force Satellite Control Network (AFSCN) is the primary command, control, and communications support capability for DoD space systems. As a network of systems, it performs a multitude of functions: data processing, tracking, telemetry, satellite commanding, communications, and scheduling. The AFSCN has 15 worldwide fixed antennas, one transportable system, and two mission control nodes (one at Onizuka Air Force Station, California, and the other at Falcon Air Force Base, Colorado) designated as a common user network. The Naval Satellite Operations Center at Point Mugu, California, provides support for Navy satellite systems. As a backup, Air Force Transportable Mission Ground Stations can provide mobile command and control (C^2) capabilities for certain DoD satellites.



Force Enhancement

The force enhancement mission area involves space combat support operations to improve the effectiveness of U.S. armed forces in all four operational media — land, sea, air, and space — as well as operations which support other national security, civil, and commercial users. This includes reconnaissance and surveillance, targeting, tactical warning and attack assessment, communications, navigation, and environmental monitoring. Space-based reconnaissance and surveillance systems support virtually all DoD activities. The National Reconnaissance Office (NRO), a combined activity of DoD and the Central Intelligence Agency, provides spaceborne assets needed to acquire intelligence worldwide for such purposes as monitoring arms control agreements, and supporting the planning and conduct of military operations. Through component TENCAP programs, selected national space systems are exploited by U.S. forces to provide tactical support to combatant commanders and operational forces.

DoD operates space and ground-based systems to provide the National Command Authorities (NCA) with timely, reliable, and unambiguous tactical warning and attack assessment data for force survival or retaliatory decisions against air, space, or ballistic missile threats. The Defense Support Program is a space-based infrared satellite system to detect and track missiles during the boost phase of flight and provide early warning to the NCA.

A network of ground-based radars provides detection, tracking, and warning of a ballistic missile attack against the United States, Canada, the United Kingdom, and Europe. In addition, the Nuclear Detonation (NUDET) Detection System provides timely, reliable, and accurate detection, locational fixes, and yield readings of nuclear detonations for strike, damage, and

attack assessments; force management; and test ban monitoring.

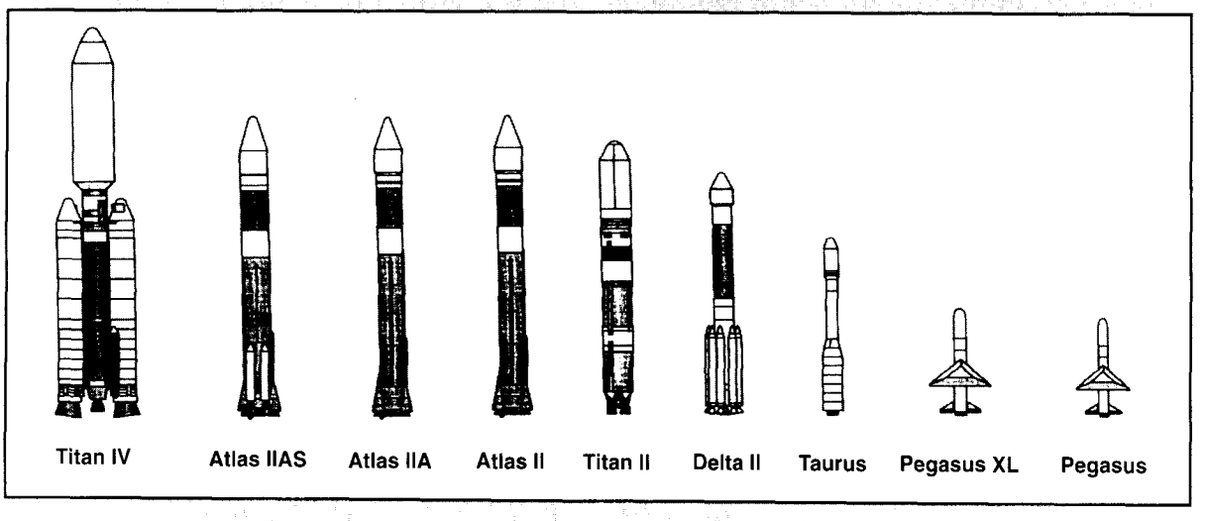
Space-based military satellite communications (MILSATCOM) systems provide communications services in support of numerous DoD and other U.S. government users. The Defense Satellite Communications System (DSCS) provides super high frequency secure voice and high data rate transmissions for worldwide military command and control, crisis management, relay of intelligence and early warning data, treaty monitoring, diplomatic and Presidential communications, and communications support for deployed tactical forces. DSCS also provides limited antijam worldwide connectivity for critical functions such as tactical warning and attack assessment and Emergency Action Message (EAM) dissemination for the NCA, Joint Staff, command centers, and other users.

The Milstar system provides extremely high frequency (EHF) voice and low to medium data rate transmissions for partial worldwide command, control, communications, computers, and intelligence support to the warfighting commanders in chief without reliance on a ground-based infrastructure, due to satellite crosslinks. Milstar provides antijam, survivable, and enduring connectivity for tactically deployed forces and carries EAMs and tactical warning and attack assessment information. This frees up critical DSCS capability for high capacity communications with forward-deployed forces and split-base operations.

The Fleet Satellite Communications and UHF Follow-On (UFO) systems provide ultra high frequency (UHF) and EHF communications for mobile forces, including fleet broadcast and EAM dissemination services and C^2 of operational missions, contingency and crisis operations, and exercise support. Air Force UHF satellite communications packages perform these latter-stated functions as well as C^2 to designated Single Integrated Operational Plan/nuclear-capable users for EAM dissemination, force direction, and force reporting. The last three UFO satellites will also host the military's Global Broadcast Service (GBS), providing high-bandwidth broadcasts directly to deployed forces. DoD is augmenting these dedicated MILSATCOM systems by leasing capacity on commercial communications satellites.

The Global Positioning System (GPS) provides all-weather, day/night, three dimensional positioning information and precise timing data to land-based, seaborne, and airborne U.S. and allied forces, as well as other national security, civil, and commercial users. GPS enhances force coordination, command and control, target mapping, target acquisition, flexible routing, and weapon delivery accuracy, especially at night and in adverse weather.

DoD Launch Vehicles



DoD employs a combination of military, civil, and commercial space systems to support its requirements for environmental monitoring. Civil and commercial land remote sensing systems provide multispectral imagery (MSI) of the earth in support of numerous DoD activities, as well as other national security activities. MSI data is a critical source for the production of maps, charts, and geodesy products. MSI products and data are used to support military planning and targeting, hydrography, counternarcotics operations, and monitoring arms control agreements. In addition, when it becomes operational, the GEOSAT Follow-On system will provide real-time oceanographic topographical data, such as wave heights, ocean currents, and fronts to naval users. The Defense Meteorological Satellite Program collects and disseminates global visible and infrared cloud cover imagery and other meteorological, oceanographic, and solar-geophysical data in support of operational forces. DoD augments this dedicated military space system by using National Oceanic and Atmospheric Administration (NOAA) and international meteorological satellite systems.

Space Control

The space control mission area involves operations to ensure the ability of U.S. and friendly forces to exploit space, while limiting or denying an adversary's ability to exploit the medium for hostile purposes. This requires capabilities for the surveillance of space, protection, prevention, and negation. The Space Surveillance Network provides space object cataloging and identification, satellite attack warning, timely notification to U.S. forces of satellite flyover, space treaty monitoring, and scientific and technical intelligence-gathering. In addition, the Space Surveillance Network would provide targeting and damage assessment information in support of counterspace weapon system operations if such capabilities were deployed. DoD space systems are designed, developed, and operated to assure the survivability and endurance of their space mission capabilities in peace, crisis, and though appropriate levels of conflict commensurate with national security requirements. The survivability of DoD space systems is enhanced, as appropriate, through such protection measures as satellite proliferation, hardening, communications crosslinks, and communications security protection. Space prevention employs measures to prevent an enemy's use of data or services from U.S. and friendly space systems for purposes hostile to the United States. Space system negation to counter the ground- or space-based elements of an adversary's space system or its data linkages could be accomplished by various methods.

Force Application

The force application mission area involves operations to influence the course and outcome of conflicts, e.g., a space-based ballistic missile defense system. Research in this area is aimed at developing treaty compliant advanced follow-on technologies offering promise for improved performance in both tactical and strategic defenses as insurance against possible future threats. At this time, the DoD space force structure does not include any capabilities for power projection.

FUNDING AND MODERNIZATION

The Department's challenge is to operate, maintain, and modernize U.S. space forces to meet national security requirements while efficiently using allocated resources. Major improvements are being made in space transportation, space-based surveillance, communications, navigation, and remote sensing.

Space Transportation

Access to space is a key enabling capability for DoD to effectively use space. The current U.S. space launch systems differ only slightly from ballistic missiles developed during the 1950s and 1960s and have become increasingly costly to use. National Space Transportation Policy seeks to balance efforts to sustain and modernize existing launch capabilities with the need to invest in the development of improved future capabilities. DoD is the lead agency for the improvement and evolution of the current expendable launch vehicle (ELV) fleet, including the development of appropriate technology. The Department's objective for this effort is to reduce costs, while maintaining or improving capability, reliability, operability, responsiveness, and safety.

To implement this guidance, DoD has initiated an Evolved ELV (EELV) program to eventually replace current medium and heavy lift launch systems. The program is defining a new relationship with the launch industry that emphasizes a measured development effort. By using innovative methods, it hopes to allow U.S. industry a greater leadership role in free market access to space. The medium lift EELV could become operational as early as 2001, and the heavy lift version could become operational by 2003. Both would be based on a core system that would spawn a cost-effective family

of vehicles. Current efforts to define the size and capabilities of future satellite architectures will more clearly define the need for medium and heavy lift versions of the EELV.

Although the National Aeronautics and Space Administration (NASA) is the lead agency for the development of reusable launch vehicles (RLVs), DoD will work closely with NASA as it defines requirements and pursues technologies. The expertise at DoD labs on reusable technology will be a valuable asset to NASA as it develops the RLV. DoD investments will focus on technologies common to ELVs and the RLV. This technology investment will lead to improvements in evolved systems and ensures DoD-unique interests are explored in the RLV.

Space-Based Surveillance

DoD is proceeding with the development of a new constellation of infrared detection satellites to replace the Defense Support Program (DSP) satellites. The Space-Based Infrared System (SBIRS) provides initial warning of ballistic missile attack on the United States, its deployed force, or allies; it also has three additional missions — missile defense, battlespace characterization, and technical intelligence. SBIRS will incorporate new technologies to enhance detection; improve reporting of intercontinental ballistic missiles, submarine-launched ballistic missiles, and tactical ballistic missiles; and provide mid-course tracking and discrimination data for National and Theater Missile Defense. The system consists of satellites in geosynchronous orbits (GEO), highly elliptical orbits (HEO), and low earth orbits (LEO), and an integrated, centralized ground station for all space elements that also consolidates all DSP operations in FY 1999. Together, the GEO and HEO constellations comprise the SBIRS HIGH architecture. The LEO is known as SBIRS LOW. The planned first launch of the HEO and GEO systems is in 2002. A May 1997 Defense Acquisition Board will review for approval documentation reflecting a new, accelerated baseline for a FY 2004 first LEO launch. Two competing demonstration programs of the SBIRS LOW alternative concepts are scheduled to fly risk-reduction satellites in FY 1999. Their objective is to mature the technology and to further investigate the contributions of infrared sensors in LEO to the overall mission.

Military Satellite Communications

Current Department of Defense planning has accentuated the increased tactical needs of U.S. armed forces for space-based communications. To meet these needs, the Department has refocused its ongoing and planned satellite communications efforts. In 1994, the Air Force began deployment of its Milstar satellite system, which reached its initial operational capability (IOC) with the launch of a second Milstar in 1995. As the Milstar constellation is deployed, strategic communication users will be transitioned from DSCS to the more secure Milstar system, significantly enhancing survivability, while at the same time freeing substantial tactical capability on DSCS. That capability will become more useful in the coming decade as older DSCS satellites are refurbished to provide greater on-orbit power, effectively doubling the capacity of that workhorse constellation. Future Milstar launches, near the turn of the century, will complete this worldwide strategic connectivity, and will also provide a robust, tactical, antijam, medium data rate capability for deployed ground and sea-based forces around the globe.

In 1996, the Department also embarked on a Global Broadcast Service (GBS) effort using the already planned UHF Follow-On (UFO) system as a host. The purpose of GBS is to leverage commercial direct broadcast capabilities on the high data rate link program needed to support the warfighter. Through streamlined planning and execution, the Department will have fielded, before the beginning of the next decade, a nearly worldwide high-data rate capability that will provide unprecedented access to national and theater information directly to the lowest echelon forces. GBS will be complemented by traditional two-way communications systems that, together, will allow the theater user to request and receive detailed imagery and intelligence products, mapping and geodesy information, and other time-sensitive data when and where it is needed.

With the deployment of the Milstar and UFO constellations, DoD will have completed the military satellite communications (MILSATCOM) architecture goal it established last decade. Even as it does, the Department has begun to work on the architecture it will use in the 21st century. This architecture, recently approved by the Joint Space Management board, takes a revolutionary approach to meeting growing satellite communications needs by taking advantage of the cost savings and capacity increases made possible by the next generation of commercial communications satellites. Within this new architecture, the Department will only pursue

the development of a new communications system (i.e., advanced MILSATCOM) to meet its most stringent protected needs. All other needs will be met through the adoption of new commercial designs and technology, and the leveraging of developing personal communication systems. The lower costs and shorter schedules enabled by this approach ensure that MILSATCOM will be able to support the warfighter's vision for the next century of providing information dominance to deployed forces where and when they need it.

Navigation Satellites

The Global Positioning System (GPS) has become an invaluable asset to international civil and commercial users. In support of the National Global Positioning System Policy, the Department continues to work closely with civil agencies to enhance GPS's contribution to U.S. and allied civil and commercial users, while guarding against a breach in U.S. national security. With regard to the latter concern, DoD is continuing to perform analytical studies and limited testing on GPS signal protection to provide access to authorized users while denying its use to potential enemies on the battlefield. These efforts are key to the continuity of GPS operations in a hostile environment.

Recognizing this balance, in March 1996 the President approved a comprehensive national policy on the future management and use of GPS and related U.S. government augmentations. In it, he announced the government's intention to discontinue the use of Selective Availability, which provides increased accuracy only to authorized users, within a decade. The Department has proposed to Congress a plan for the effective maintenance of GPS services and has acquired the next block (Block IIF) of GPS satellites to sustain the constellation beyond the year 2000.

Remote Sensing

The President's decision to converge U.S. polar-orbiting operational environmental satellite systems will merge the Defense Meteorological Satellite Program and the NOAA Polar-orbiting Operational Environmental Satellite (POES) program, and capitalize on the technologies developed for NASA's Earth Observing System. An Integrated Program Office (IPO), led by NOAA, has been created for the planning, development, acquisition, management, technology transition, launch, and operation of the National Polar-orbiting Operational Environmental Satellite System (NPOESS). DoD is the lead agency responsible for supporting the IPO in NPOESS system acquisitions. As envisioned and directed by the National Performance Review, an objective of the program is to reduce the cost of acquiring and operating polar-orbiting environmental satellite systems, while continuing to satisfy military and civil operational requirements. In July 1996, the tri-agency NPOESS Executive Committee approved an Optimized Convergence Plan with an aggressive risk reduction effort. In March 1997, a Milestone I decision was made aiming toward delivery of the first spacecraft in FY 2007.

The NPOESS program is a three-satellite constellation which will enhance coverage and data availability to U.S. and allied forces. A NOAA-led team that includes DoD and NASA is negotiating with the European Organization for the Exploitation of Meteorological Satellites for provision of the third satellite of the three-satellite converged constellation. DoD is working closely with NOAA and NASA to ensure that NPOESS satisfies national security requirements.

CONCLUSION

DoD will continue to ensure that the United States maintains its lead in the operation and use of space forces, which are essential for the successful execution of National Security Strategy and National Military Strategy. National security space systems provide force multipliers that complement and enhance the capabilities of U.S. operational forces worldwide. The organizational, operational, and modernization initiatives planned for the coming years will ensure that DoD space forces retain the capability and versatility to accomplish their missions effectively and efficiently in support of U.S. national security objectives.

Chapter 20

STRATEGIC NUCLEAR FORCES

The mission of U.S. strategic nuclear forces is to deter aggression against the United States or its allies and to convince potential adversaries that initiating an attack would be futile. To do this, the United States must maintain survivable nuclear forces of sufficient size and capability to hold at risk a broad range of assets valued by potentially hostile foreign powers. The two basic requirements that guide U.S. planning for strategic nuclear forces are the need to provide an effective deterrent while conforming to treaty limitations, and the need to be able to reconstitute adequate additional forces in a timely manner if conditions require.

Russia currently possesses about 23,000 strategic and tactical nuclear weapons and will retain a sizable nuclear arsenal even with the ratification of Strategic Arms Reduction Treaty (START) II. Furthermore, the political situation in Russia remains volatile and uncertain; a return to a foreign policy hostile to the United States is a possibility. Moreover, China is growing militarily and economically and has the potential to make major increases in the size and capability of its strategic nuclear arsenal in the near future. Hence, while the threat of a massive nuclear attack on the United States is lower than it was during the Cold War, there is still a valid need to maintain substantial strategic nuclear forces.

FORCE STRUCTURE AND CAPABILITIES

Until START II is ratified by Russia, the United States will protect options to maintain a strategic nuclear arsenal consisting of the following:

- 500 Minuteman III and 50 Peacekeeper intercontinental ballistic missiles (ICBMs), armed with multiple warheads.
- 18 Ohio-class ballistic missile submarines (SSBNs), each carrying 24 submarine-launched ballistic missiles (SLBMs) with multiple warheads.
- 71 B-52 bombers, each equipped to carry 20 cruise missiles.
- 21 B-2 bombers carrying up to 16 gravity bombs each.

If START II is implemented, the arsenal will be modified by the year 2003 as follows:

- The Peacekeeper force will be eliminated, and each Minuteman III missile will be armed with only one warhead.
- Four SSBNs will be retired from the force.
- The number of bombers will not change, but the cruise-missile capacity of the B-52 fleet will be reduced to stay within treaty limits.

Under START II, the combined total of accountable warheads cannot exceed 3,500 and the number of accountable warheads on SLBMs cannot exceed 1,750.

There has been a major reduction in the U.S. strategic nuclear arsenal in recent years. Table 29 compares the U.S. arsenals for FY 1990, FY 1997, and FY 2003. All force levels are for the end of the years in question.

Land-Based Intercontinental Ballistic Missiles

The United States has 530 Minuteman III ICBMs and 50 Peacekeeper missiles. The Minuteman III force will be reduced to 500 missiles by the end of FY 1998. If START II enters into force, the United States will modify these missiles to carry only one warhead each and will retire all Peacekeepers. As part of this transition, the Department may transfer the Mark 21 warhead from the Peacekeeper to the Minuteman force. Compared with earlier warheads, Mark 21s contain additional safety-enhancing features that reduce the risk of an accidental nuclear explosion and help prevent plutonium dispersal in the event of a fire.

The United States is not developing or producing any ICBMs, and has no current plans to develop a new ICBM. This makes it difficult to sustain the industrial base needed to maintain and modify strategic ballistic missiles. To help preserve key industrial technologies needed to sustain ICBMs and SLBMs, the Department is providing funding to preserve a core of expertise in the areas of reentry vehicle and guidance system technology.

Sea-Based Ballistic Missiles

SSBNs are the most survivable element of the strategic nuclear triad. A significant portion of the SSBN fleet is at sea at any given time, and all submarines that are not undergoing long-term maintenance can be deployed during a crisis. The U.S. SSBN fleet consists of 17 Ohio-class submarines. The final Ohio-class SSBN, the USS Louisiana, is scheduled to be commissioned in 1997. No new SSBNs or SLBMs are under development.

Table 29
Reductions in U.S. Strategic Nuclear Arsenal FY 1990, FY 1997, FY 2003

			FY 2003	
	FY 1990	FY 1997	START I	START II
ICBMs	1,000	580	550	500
Declared Warheads on ICBMs	2,450	2,090	Not over 2,000	500
SLBMs	568[a]	432	432	336
Declared Warheads on SLBMs	4,864[a]	3,456	Not over 3,456	Not over 1,750
Ballistic Missile Submarines	31[a]	18	18	14
Declared Warheads on Ballistic Missiles	7,314[a]	5,546	Not over 4,900	Not over 2,250
Heavy Bombers (PMAI/TAI)	282/324[b]	102/202	60/92[c]	60/92[c]

NOTE: PMAI = primary mission aircraft inventory; TAI = total aircraft inventory.

[a] Excludes five decommissioned submarines (and their associated missiles and warheads) that were still START accountable.
[b] Excludes FB-111s.
[c] Excludes 95 B-1s that will be devoted entirely to conventional missions.

The Trident II (D-5) missile has improved range, payload, and accuracy relative to all previous SLBMs; this increases both the survivability and the effectiveness of the SSBN fleet. The first eight Ohio-class submarines carry the Trident I (C-4) missile; the final ten have been or will be equipped, at the time of construction, with the newer D-5. The FY 1998 budget provides for continued procurement of D-5 missiles to support the conversion of SSBNs currently carrying C-4 SLBMs. The retrofits will be accomplished during regularly scheduled ship depot maintenance periods beginning in FY 2000. Under current plans, if START II enters into force, four submarines will be retired, leaving 14 SSBNs armed with D-5s. These missiles, while capable of carrying eight warheads, will be downloaded consistent with START II limits.

Long-Range Bombers

The U.S. bomber force currently consists of 95 B-1s (48 PMAI), 94 B-52s (44 PMAI), and 13 B-2s. With the growing number of B-2s and the improving conventional capability of the B-1, the Department plans to retire 23 of the 94 B-52s in FY 1998. The twenty-first, and last, of the programmed B-2s is scheduled to become operational in FY 2000. Although these 21 B-2s, in combination with other strategic assets, will meet all expected nuclear requirements, options to expand the B-2 fleet because of its conventional capabilities continue to be examined. In particular, the Department's ongoing Deep-Attack Weapons Mix Study is evaluating the cost-effectiveness of procuring additional B-2s.

All three types of U.S. bombers can deliver either nuclear or conventional weapons. By 1999, all B-1 bombers are expected to be dedicated exclusively to conventional missions. While these aircraft would not be available for nuclear missions on short notice, they could be returned to a nuclear role given sufficient time and a requirement to do so. The B-2 and B-52 forces, by contrast, will continue to have both nuclear and conventional missions.

Reflecting the increased emphasis on nonnuclear operations, bomber modernization efforts are focused primarily on improving conventional warfighting capabilities. For example, several new precision-guided weapons will be deployed on the bomber force between FY 1997 and FY 2003. The B-1 and B-2 will receive various upgrades to improve their performance in conventional missions. For details on these programs, see the Conventional Forces chapter.

Consistent with the post-Cold War drawdown in nuclear forces, programs to acquire new nuclear weapons for bombers have been terminated and the inventory of such weapons has shrunk. Short-range attack missiles (SRAM-As) have been retired. The SRAM-II, a proposed replacement for the SRAM-A, was canceled several years ago. Procurement of the AGM-129 advanced cruise missile was halted at 460 in lieu of 1,460. Moreover, some AGM-86B air-launched cruise missiles (ALCMs) have been converted to conventional air-launched cruise missiles (and redesignated AGM-86Cs) and some gravity bombs and ALCMs have been retired or placed in dormant storage. Some additional AGM-86Bs will be converted to AGM-86Cs in FY 1997.

READINESS AND SUSTAINABILITY

Steps to ensure that the Minuteman III system can be maintained well into the next century are being taken. For example, installation of new guidance subsystems is scheduled to begin in FY 1998. Moreover, Minuteman III first-stage solid rocket motors will soon be overhauled to correct age-related degradation and to maintain system reliability. Similarly, the motors for the second and third stages of the rockets will be replaced beginning in FY 2001.

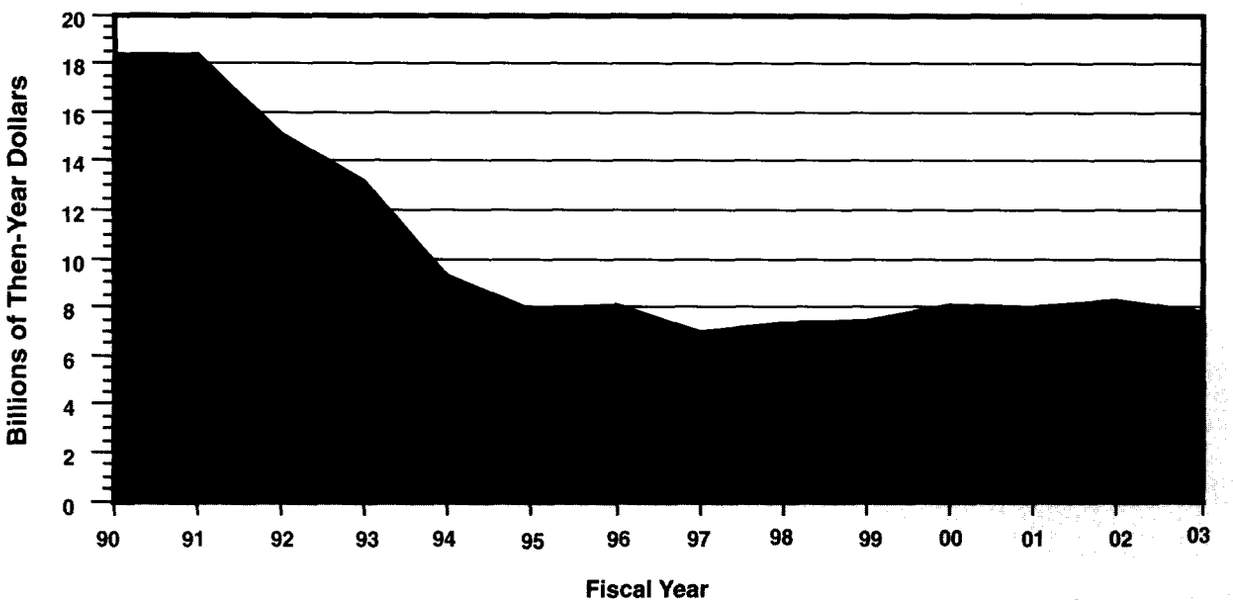
The bomber force is no longer maintained on constant alert, although it could be returned to alert status within a few days if necessary. This change in policy reduces stress on aircraft crews and allows greater emphasis to be placed on conventional training. By contrast, there has been no significant change in the alert status of U.S. ICBMs or SSBNs. For example, the United States maintains two full crews for each SSBN, and about two-thirds of all operational SSBNs are usually at sea. On average, about 10 percent of U.S. SSBNs are undergoing long-term overhauls at any given time, and thus are not immediately available for use. U.S. ICBMs are maintained on continuous alert, but no ICBMs or SLBMs are aimed at any country on a daily basis. This change in targeting policy enhances strategic stability and reflects the new relationship between the United States and Russia, while protecting against the consequences of an accidental launch. The missiles could, however, be returned to their previous targeting status on short notice.

FUNDING AND MODERNIZATION

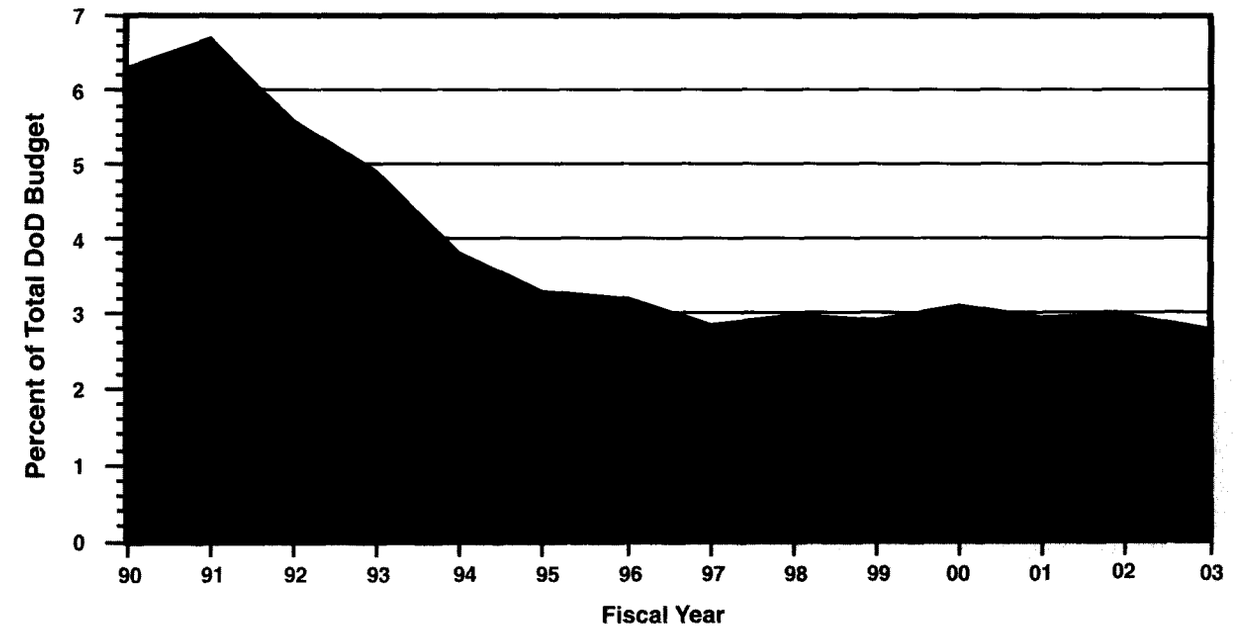
Funding for strategic nuclear forces — bombers, ICBMs, and SLBMs — has declined in recent years. The fraction of the total defense budget that is devoted to nuclear forces also has declined. Moreover, one of the weapon systems included in this category — the B-1 — is in the early stages of its transition to a conventional role.

Modernization programs for strategic forces have been completed or curtailed during the past few years. The only major acquisition efforts that remain are deliveries of the final eight programmed B-2 bombers, B-2 modifications, B-1 conventional mission upgrades, Trident II missile procurement, and Minuteman III life extensions. With most nuclear modernization efforts having been completed, programs to sustain force readiness now account for most strategic nuclear funding.

Total Strategic Offensive Forces Funding



Strategic Offensive Forces Funding as a Percentage of Total DoD Funding



The portion of the strategic budget devoted to operations and support has increased from about 40 percent of the total in 1991 to about 65 percent today and is projected to rise to 67 percent by 2003.

CONCLUSION

Strategic forces remain a critical element of the U.S. policy of deterrence. Although the forces have been reduced in the aftermath of the Cold War, and the percentage of the defense budget devoted to them has declined, strategic forces continue to provide a credible deterrent. Consequently, the United States will protect options to maintain its strategic capabilities at START I levels until the START II treaty has entered into force.

Chapter 21

BALLISTIC 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 forces, its allies, and friendly nations. While the end of the Cold War greatly reduced the threat of a global conflict or large-scale attack on the United States, the proliferation of NBC and ballistic missiles raises new threats to U.S. security interests. Over 20 countries possess or are developing NBC weapons, and more than 20 nations have theater ballistic missiles (TBMs). A robust Ballistic Missile Defense (BMD) program plays a critical role in the broader counterproliferation strategy to reduce, deter, and defend against NBC and ballistic missile threats.

The Intelligence Community has estimated that a new threat to the United States from ballistic missile attack is not likely to emerge for at least another decade, but the threat to U.S. forces in the field and to allies and friends has already arrived. U.S. missile defense priorities reflect the urgency of this immediate threat and the shifting focus from global conflict to the threat of major regional conflicts involving adversaries armed with advanced conventional weapons and weapons of mass destruction. The U.S. ballistic missile defense program places the highest priority on Theater Ballistic Missile Defense (TBMD) programs to meet the threat that is here now. The second priority is the development of a National Missile Defense (NMD) program that positions the United States to field the most effective defense system possible at a time in the future when the threat warrants deployment. The third priority is the continued development of a technology base that improves the capability of both TBMD and NMD systems to respond to emerging threats.

ROLE OF BALLISTIC MISSILE DEFENSE IN U.S. DEFENSE STRATEGY

Ballistic Missile Defense is a critical component of the broad U.S. strategy to meet ballistic missile threats to U.S. forces and allies in a theater and to the United States. BMD plays a role in each of the three components of that strategy: preventing and reducing the threat, deterring the threat, and defending against the threat. Prevention and deterrence are supported by a strong nuclear deterrent, arms control agreements like the Strategic Arms Reduction Treaty (START) and the Nuclear Non-Proliferation Treaty (NPT), threat reduction efforts such as Cooperative Threat Reduction

(CTR), the Missile Technology and Control Regime (MTCR) and export controls, and counterproliferation military capabilities. Missile defense programs complement and strengthen the prevention and deterrence provided by these programs. Effective missile defense systems reduce the incentives for proliferant nations to develop, acquire, or use ballistic missiles and NBC by reducing the chances that an attack would inflict serious damage on U.S. or allied targets. Furthermore, the ability to extend protection to allies and friends may mitigate the desire of many states to acquire their own NBC as an independent deterrent against attack.

The threat of ballistic missile use in regional conflicts has grown substantially, and the potential combination of NBC with theater ballistic missiles poses serious dangers and complications to the management of regional crises and the prosecution of U.S. strategy for major regional conflicts. Ballistic missiles have been used in six conflicts since 1980. The 1980-88 Iran-Iraq War, Libyan attacks on Lampedusa Island, Operation Desert Storm, the war in Afghanistan, the Iranian attack against dissident camps, and the conflict in Yemen demonstrated the capability of ballistic missiles to threaten a full range of targets for political and military purposes.

In the future, an aggressor state may seek to limit U.S. freedom of action by threatening NBC-armed missile attack. Such a threat may intimidate a neighboring nation, thereby discouraging it from seeking U.S. protection or participating with the United States in the formation of a defensive coalition. Hostile states possessing theater ballistic missiles armed with NBC may be able to threaten or use these weapons in an attempt to deter or otherwise constrain U.S. ability to project military forces to meet commitments abroad and achieve national security objectives. With NBC, even small-scale theater ballistic missile threats would raise dramatically the potential costs and risks of military operations, undermine conventional superiority, and jeopardize the credibility of U.S. regional security strategies. By dealing effectively with these threats, ballistic missile defense contributes to both prevention and successful U.S. responses to regional crises.

REVIEW OF BALLISTIC MISSILE DEFENSE PROGRAMS

Early in 1996, the Department of Defense completed a comprehensive review of its BMD program. The goal of the review was to ensure that the Department fields the most effective missile defense at an affordable price in time to defeat emerging ballistic missile threats. The BMD program was reviewed in light of assessments of existing and potential threats, the status of each BMD program or element, changes in force projection needs since the 1993 Bottom-Up Review; FY 1996 congressional and budget actions; Joint Chiefs of Staff spending and modernization priorities; and treaty obligations. BMD priorities are theater missile defense, national missile defense, and an investment in BMD advanced technologies in order to enhance future BMD capability in both TMD and NMD.

The program review concluded that meeting the current threat of theater ballistic missiles against U.S. forward-deployed forces and bases was a top priority within TBMD. TBMD builds on existing infrastructure and prior investment in order to deploy lower-tier missile defense systems as soon as possible. This will strengthen, in the shortest time possible, the ability of the United States to defend against the most immediate threats. Upper-tier missile defense programs provide population and wide-area defense. They can better deal with longer-range theater ballistic missiles and weapons of mass destruction and reduce the number of missiles that lower-tier systems must engage, thereby increasing overall TBMD effectiveness. These programs were also restructured both to provide development of land-based upper-tier systems at a slower rate to reduce risk and to accelerate efforts to develop sea-based upper-tier systems to broaden upper-tier options. The review also shifted the NMD program from a technology to a deployment readiness program. This positions the Department to respond more quickly to new strategic threats to the United States, should they emerge.

FORCE STRUCTURE AND CAPABILITIES

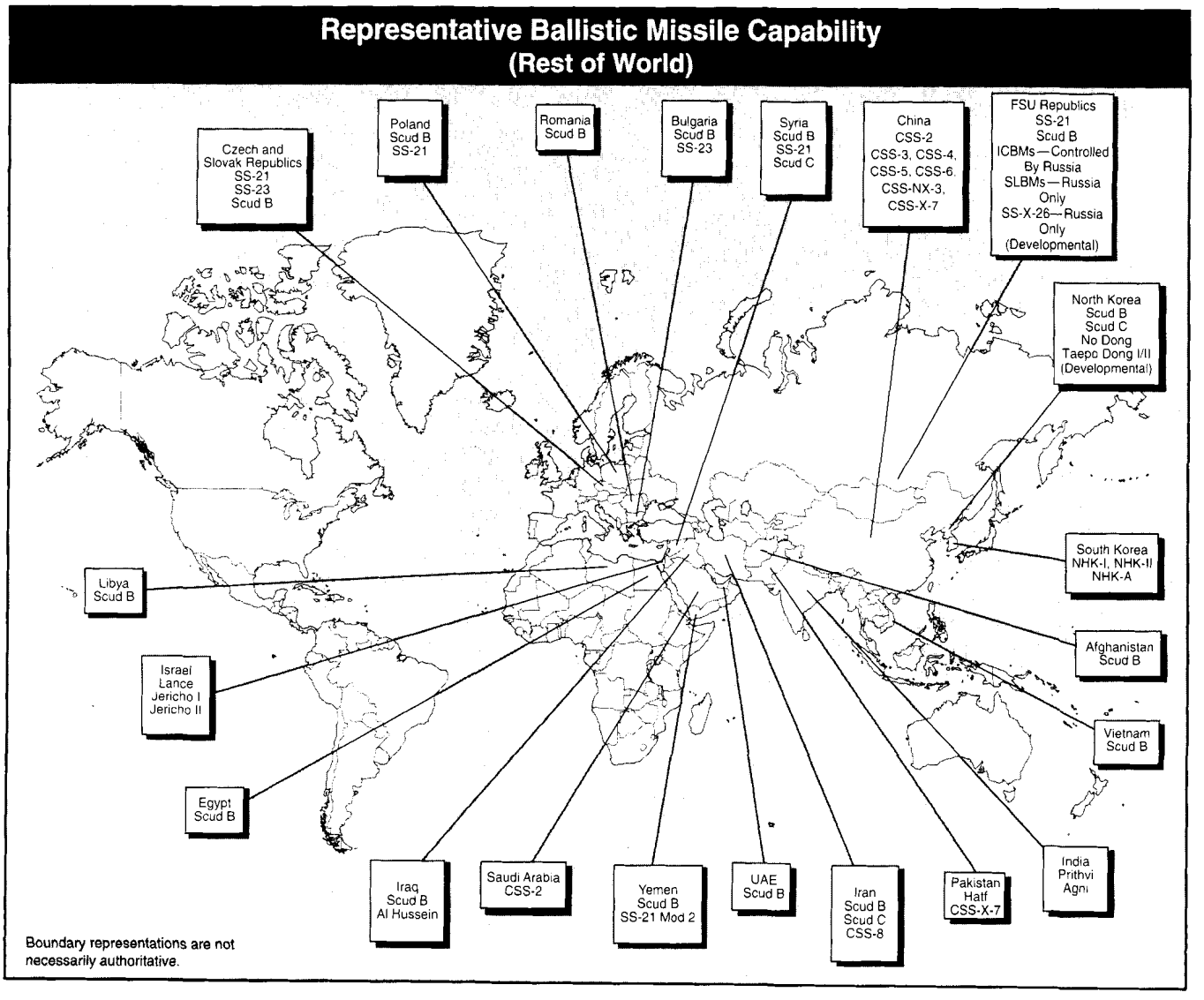
Theater Ballistic Missile Defense Programs

The Department's first BMD priority is to develop, procure, and deploy TBMD systems to protect forward-deployed and expeditionary elements of the U.S. armed forces, as well as U.S. friends and allies, from TBMs. This plan envisions the time-phased acquisition of a multi-tier defensive capability.

Lower-tier systems remain a top priority. The Department will field a capability to defeat short-to-medium range TBMs as soon as possible. Building on existing infrastructure and prior investment, BMD funds have been added to both Patriot Advanced Capability-3 (PAC) and Navy Area Defense. BMD funds are also going to the Medium Extended Air Defense System

(MEADS) to begin project definition and validation of a concept for this system with Germany and Italy. MEADS will be a highly mobile system to be deployed with maneuver forces and provide 360-degree coverage against short-range TBMs, cruise missiles, and other aerodynamic threats.

Upper-tier systems are necessary to defend wide areas, to defeat longer-range ballistic missiles, and to increase theater commanders effectiveness against weapons of mass destruction. The Theater High Altitude Area Defense (THAAD) early deployment system — the User Operational Evaluation System (UOES) Battalion — will be potentially available to U.S. forces for contingency use as early as 1999. The battalion will consist of batteries of two radars and several launchers with each launcher loaded with eight missiles. The production THAAD system, greatly improved by UOES equipment operator input, focuses on the near-term and mid-term threat. The Navy Theater Wide, otherwise known as Navy Upper-Tier, has received additional funding to accelerate this program from advanced capability exploration to system demonstration.



Other TBMD concepts remain important. The Department will continue to explore concepts for boost-phase theater missile defense, both within Ballistic Missile Defense Organization (BMDO) and Air Force programs. These programs would add another layer to missile defenses and further limit the numbers of weapons that terminal defenses will have to defeat. They also will enhance deterrence by confronting an adversary with the prospect that missile warheads will fall back on its own territory. Air Force investment in an airborne laser will provide a contingency capability in a demonstrator platform in the year 2002. The Air Force's Airborne Laser Program, having just completed a three year concept design phase, has been authorized to begin the program definition and risk reduction phase. It is fully funded by the Air Force outside the BMDO program and will produce a single platform with UOES-like residual operational capability by 2002. A decision to proceed would lead an initial operational capability in 2006 with the fielding of three aircraft, and full operational capability in 2008 with seven.

The TBMD program reflects a commitment to deploy, as soon as possible, systems that defend against a threat that has already emerged. With these changes, the Department has increased the number of TBMD systems moving toward early deployment.

TBMD Cooperation with Allies and Friends

As part of broader efforts to enhance the security of U.S. and allied forces against ballistic missile strikes and to complement U.S. counterproliferation strategy, the United States is exploring opportunities for TBMD cooperation with its allies and friends. TBMD cooperation will help strengthen U.S. security relationships, will enhance the U.S. counterproliferation strategy and, should that fail, will protect against such threats.

Recognition of the existence and growing threat of ballistic missile attack is increasing in the international community. The latest stage of TBMD cooperation results from DoD giving high priority to a renewal of the spirit of armaments cooperation, thereby providing impetus to efforts to engage allies and friends in ballistic missile defense programs. The United States has established several working groups with allies to explore the possibility of TBMD cooperation. To capitalize on the interest shown by many allies, the United States is taking an evolutionary and tailored approach to allied cooperation to accommodate varying national programs and plans, as well as special national capabilities. This approach ranges from bilateral or multilateral research and development, to improvements to current missile capabilities, to off-the-shelf purchases, to more robust participation such as co-development and co-production programs, as in the case of MEADS and Arrow. Continued U.S. support and participation in the Arrow program with Israel, for example, are also designed to meet the goal of full interoperability between U.S. and Israeli TBMD systems. The United States is embarking on an early warning sharing initiative aimed at reducing/preventing the TBM threat. The concept envisions that sharing of early warning information of regional TBM launches is the foundation for engendering greater cooperation on TBMD with allies and friends. In 1996, the United States began early warning sharing operations with NATO, Japan, and Israel.

The United States is also exploring opportunities for TBMD cooperation with Russia as one means of fostering cooperative approaches to deal with new regional security challenges of mutual interests like the proliferation of ballistic missiles. Toward this end, a joint United States-Russian TBMD command post exercise was conducted June 3-7, 1996, at the Joint National Test Facility, Falcon Air Force Base, Colorado. The aim of the exercise was to provide a practical basis for U.S. and Russian forces to cooperate in TBMD operations in future regional contingencies where each side's forces could be deployed together against a common adversary possessing theater ballistic missiles. Using simulation capabilities, U.S. and Russian military experts examined operational concepts and procedures for independent but coordinated TBMD operations.

National Missile Defense Program

The second priority of the ballistic missile defense program is National Missile Defense (NMD). The objective of the NMD program is to enable the United States to respond if new strategic missile threats to U.S. territory emerge. As a result of the review, the Department shifted emphasis from technology readiness to deployment readiness, although it is not making a decision now to deploy an NMD system.

The Intelligence Community has concluded that no country, other than the major declared nuclear powers, will develop or otherwise acquire a ballistic missile in the next 15 years that could threaten the contiguous 48 states. Only a North Korean missile in development, the Taepo Dong 2, could conceivably have sufficient range to strike portions of Alaska or the far-western Hawaiian

Islands, but the likelihood of it being operational within five years is very low.

The threat from an accidental or unauthorized launch from the former Soviet Union or China is remote. These systems remain under the firm control of their national leaderships. In addition, the number of former Soviet strategic ballistic missiles, the number of bases and submarines where they are located, and the number of countries where they are based are being reduced by START and the CTR Program. These dramatic reductions in the strategic missile threat to the United States also reduce the opportunities for accidental or unauthorized launch. A ballistic missile detargeted according to the 1994 Clinton-Yeltsin agreement either could not be launched accidentally or, if launched, would land in the ocean.

The NMD program is thus structured to create a technology and programmatic foundation upon which the United States could build if intelligence indicated that a strategic threat was emerging, in order to put a defense against that threat into the field before it emerged. The United States is not making a decision to deploy a national missile defense; deploying before the threat emerges would mean not deploying the most advanced technology if and when the threat does emerge. It would also mean allocating scarce procurement resources on NMD that could otherwise have met more urgent modernization needs.

The NMD program will develop all the elements of a system in a balanced manner, achieving a first test of an integrated system by FY 1999. The United States will be in a position to deploy an initial system, based on the elements tested in FY 1999, within three years of a decision to do so. Thereafter, the NMD program will work to improve the performance of the system by advancing the technology of each element and adding new elements, all the while maintaining the capability to deploy the system within three years of a decision. In order to ensure a properly executed program that will be cost effective and meet the stressful timelines of an FY 1999 demonstration, the Department has designated NMD as an Acquisition Category (ACAT) 1D acquisition program.

The elements of the baseline NMD system are the existing early warning satellite system and its planned follow-on, Space-Based Infrared System (SBIRS) High; Upgraded Early Warning Radars; a new Ground-Based Radar; a Ground-Based Interceptor (GBI) (several options which are currently being evaluated including the use of Minuteman intercontinental ballistic missiles (ICBMs) as the GBI booster); a Battle Management/Command, Control, and Communications (BM/C^3) system; and Forward-Based X-Band Radars (FBXBs). Other elements, including other fixed radars and SBIRS Low, would be part of follow-on NMD architectures. The NMD BM/C^3 architecture will be designed to promote interoperability and evolution to a common BM/C^3 system for theater air defense.

The NMD Deployment Readiness Program will be conducted in compliance with the Anti-Ballistic Missile (ABM) Treaty. Depending on its configuration, a deployed NMD system could either be compliant with the ABM Treaty as written, or might require amendment of the Treaty's provisions. The NMD system currently under consideration would have the purpose of defending against rogue and accidental/unauthorized threats. It would not be capable of defending against a heavy deliberate attack. Decisions about the treaty compliance of potential NMD systems would be made by DoD on advice of the Compliance Review Group.

Technology Base

Activities in the BMD technology base are key to countering future, more difficult threats. The technology base program underpins both the TBMD and NMD programs. It allows DoD to provide block upgrades to baseline systems, to perform technology demonstrations to reduce risk and speed technology insertion, and to advance basic technologies to provide a hedge against future surprises. Advanced technologies are also being exploited to drastically reduce the cost of future BMD systems. The Department is continuing technology projects underway today, such as the exploration of boost-phase intercept concepts and the space based laser (SBL) program, both funded by BMDO.

Additionally, the Department has a number of initiatives outside of the BMD program to improve U.S. ability to detect and defeat threat cruise missiles in-theater or launched against the United States. Just like TBMD, cruise missile defense is an integral part of DoD's efforts to counter aircraft and missile threats. Most air defense sensors, BM/C^3, and weapons (including the PAC-3, Navy Area TBM defense, and MEADS lower-tier systems) have some capability against cruise missiles. The Department is attempting to leverage the synergy between ballistic and cruise missile defense.

CONCLUSION

The Administration is committed to protecting against the proliferation of weapons of mass destruction and the ballistic missiles that deliver them. The United States has a multifaceted strategy for countering such threats, of which BMD is a critical ingredient. The overall structure of the BMD program proposed meets present and possible future ballistic missile threats, will provide the best technology to meet these threats, is fiscally prudent, and is consistent with efforts to reduce and prevent missile threats.

Chapter 22

NATIONAL GUARD AND RESERVE

The National Guard and Reserve are full partners in carrying out the business of the Department of Defense. Over the past year, the Guard and Reserve components (RC) of all the Services have made increasingly larger and more significant contributions to the execution of the National Military Strategy, helping to enhance regional security and reinforce democratic values around the world.

The force structure projected in the Bottom-Up Review (BUR) is predicated on the requirement to achieve decisive victory in two nearly simultaneous major regional conflicts. To achieve this capability in the face of major budget reductions, the BUR rejected a traditional proportional reduction strategy and recommended higher force levels for the Guard and Reserve than had been programmed in the Base Force plan. As a result, the Reserve components are counted upon to provide compensating leverage to offset the risks of a smaller active duty force. Reserve component combat and support roles have been expanded in all post-Cold War operations, including explicit recognition of the Guard's state role as an integral component of U.S. security. This means that although the Reserve components were erroneously perceived during the Cold War as backup forces of last resort, attitudes are changing. Smarter use of the Guard and Reserve was identified as a move that could make a big improvement in the effectiveness of the Total Force.

DoD has worked to adapt the Reserve components to meet their new challenges, including deterring regional aggressors and engaging with emerging democracies. This has been done by force structure changes and innovative approaches to the use of Guard and Reserve capabilities. The foregoing initiatives will be further enhanced when the Training Readiness Oversight authority is fully implemented by the applicable commanders in chief (CINCs).

FORCE STRUCTURE CHANGES

The following are some examples of the force structure changes that have been implemented to increase reliance on the Guard and Reserve:

Army National Guard and Army Reserve

The BUR recommended the establishment of 15 Army National Guard enhanced readiness brigades. These brigades replaced former roundout brigades and are

now the nation's principal reserve ground combat maneuver force. They consist of seven infantry brigades, five mechanized infantry brigades, two armor brigades, and an armored cavalry regiment. Their mission is to reinforce, augment, and/or backfill active component units during war or other military contingency. By FY 1999, the Army will complete a series of enhancements that will result in brigades that are organized, equipped, and trained to achieve premobilization proficiency sufficient to meet full readiness requirements within 90 days of mobilization.

Although these enhancements will not be complete until FY 1999, several important milestones for enhanced brigades occurred during FY 1996. As more of the Regional Training Brigades (RTBs) came on line, 12 of the 15 enhanced brigades underwent demanding training supported by the RTBs. Two brigades — the 48th (Georgia) and the 39th (Arkansas) — conducted successful rotations at the National Training Center (Fort Irwin, California) and the Joint Readiness Training Center (Fort Polk, Louisiana) respectively. Finally, all of the enhanced brigades will enter FY 1997 under one of four standard organizational structures — tank, mechanized infantry, light infantry, or armored cavalry.

The United States Army Reserve (USAR) is relevant to Army needs across the operational continuum and is performing more missions than at any previous time in history. These include operation of Army installations and providing base operations support to active component (AC) customers. RC instructors will replace AC instructors to train AC soldiers under the Total Army School System, as well as cadets with the institution of a Reserve Officer Training Corps pilot program. Support has been given to United States Army Forces Command and Army Materiel Command (AMC) in the execution of Base Realignment and Closures as it affected the move of the 3rd Armored Calvary Regiment from Fort Bliss, Texas, to Fort Carson, Colorado, and ammunition relocations for AMC. USAR units and soldiers perform a robust overseas exercise and training program of CINC-directed and major command support missions daily. The Army Reserve is now a seamless component of the Army.

Naval Reserve

Following the Assistant Secretary of Defense for Reserve Affairs Roles and Missions Study, the Naval Reserve has been restructured to support daily peacetime missions of the United States Navy, while still maintaining critical capabilities to mobilize and assist the Navy to fight and win wars. This restructuring has resulted in the Naval Reserve accepting new missions and hardware while supporting traditional mobilization and augmentation requirements.

The congressionally mandated Roles and Missions Study, titled The Future Naval Reserve, recommended 14 new responsibilities for the Naval Reserve. To date, 10 of the recommendations have been implemented. Further, recognizing the benefits and potential of this process, the Naval Reserve has implemented 14 additional initiatives to maximize support and further integration. The increased reserve participation from the implementation of the 10 recommendations has been significant.

Six classes of ships (CV, FFG, MHC, MCM, MCS, and LST) make up today's Naval Reserve force, including the first operational Naval Reserve carrier, the USS John F. Kennedy, and the first mine countermeasures ship (MCS) USS Inchon. The integration of the active/reserve surface and air mine countermeasures mission continues with the transfer of four Avenger class ships and four Osprey class coastal minehunting ships to the Naval Reserve Force, and the consolidation of two Reserve mine countermeasure helicopter squadrons with two active mine countermeasure helicopter squadrons. In addition, the Naval Reserve operates Perry-class frigates and Newport-class tank landing ships. Reserve Maritime Patrol Aviation Squadrons have completed the transition from P-3B to all P-3C aircraft. The Navy's entire logistics airlift mission is flown by the Naval Reserve with a fleet that includes new C-20G and C-130T transport aircraft.

There are destroyers and submarine tender augment units in the Naval Reserve, with approximately 2,000 selected reservists available. Adversary squadrons have increased capability by using shared personnel assets from the other squadrons within the Reserve tactical airwing. Reserve combat search and rescue and naval special operations squadrons are mobilization ready. A Reserve airborne early warning squadron has accepted the counterdrug mission and deployed to tap aircrew skills for surge requirements. These hardware and personnel changes are also complemented by an increase in airborne electronic warfare, intelligence, and command and control warfare group forces contributory support in 1996. These initiatives continue to make the Naval Reserve a critical force multiplier.

Marine Corps Reserve

In March 1996, the Marine Corps assigned the Commanding General, Marine Corps Combat Development Command, as the Total Force Structure Owner for both the active and Reserve components. This long anticipated initiative provides optimal Total Force Structure oversight by integrating active, Reserve, and civilian personnel under a single manager. This effort provides unity of effort, singular accountability, and economy of management for Marine Corps structure. This Total Force initiative will allow the Marine Corps to integrate and more efficiently employ the Reserve component in support of active component relief and CINC warfighting requirements.

The Readiness Support Program is an initiative established to consolidate multiple support and mobilization functions into a cohesive and synergistic program. The program establishes an organizational structure to efficiently accomplish muster and mobilization processing of the Individual Ready Reserve, civil-military activities, public affairs support, family readiness, and post-mobilization casualty assistance. Previously, many of these functions were performed by separate entities reporting to different components within the Marine Corps. Under this program, Peacetime/Wartime Support Teams will be assigned to each Marine Forces Reserve (MARFORRES) Home Training Center for the purpose of providing peacetime support, as well as back-fill and augmentation of remain-behind active-duty inspector instructor staffs upon mobilization. The program will result in a more streamlined mobilization process and a realistic remain-behind force capable of providing full service family and community support.

Air National Guard and Air Force Reserve

The North American Aerospace Defense Command (NORAD) performs its air sovereignty and air defense missions of the continental United States with Air National Guard (ANG) fighter units only. Having the ANG perform this mission allows all active duty fighter assets to be applied against forward presence and contingency requirements, reduces the number of days airmen are TDY, and contributes toward a lower, overall active duty personnel tempo (PERSTEMPO). The 137th Space Warning Squadron became the first ANG unit in the space support mission area by assuming the mobile Defense Support Program warning mission. In addition, the ANG has now assumed responsibility for all foreign military sales and F-16 programmed flight training. The ANG maintains the only USAF manned reconnaissance capability, using podded F-16 aircraft. The ANG has also recently completed one unit conversion and initiated the conversion of a second unit into the manned strategic bomber mission, flying the B-1B.

The Air Force Reserve (AFR) began three completely new missions this year: Airborne Warning and Control Systems (AWACS) associate squadron, battle-staff support augmentation unit, and assignment of undergraduate pilot training instructor pilots. With the initiation of the 513th Air Control Group, the Air Force Reserve established its first AWACS unit. The 513th is an associate unit that employs Reserve aircrews flying active duty AWACS aircraft. Associate units have traditionally been used in strategic airlift and air refueling, where they are highly cost effective, but this is the first application of the associate principle in a combat role. Similar to an associate unit is the 701st Combat Operations Squadron, which provides battle-staff support to the United States Pacific Command in the form of an experienced, cohesive group of operations, intelligence, plans, and logistics personnel. Finally, taking advantage of Reservists' great pool of experience, the Air Education and Training Command/Air Force Reserve Instructor Pilot Program will provide two units of 25 personnel each at two active duty pilot training bases. The ANG has implemented a program to provide 44 fighter pilot instructors on a volunteer basis to assist in this initiative.

In traditional associate roles, the AFR established a new KC-135 tanker unit in 1996, with follow-on planning for one more unit before the turn of the century. The second C-17 associate unit is progressing well at Charleston Air Force Base (AFB), South Carolina, with six more units to be established at Charleston AFB and McChord AFB, Washington. The ANG unit at Jackson, Mississippi, (172 Airlift Wing) will be the only Reserve component unit receiving the C-17. This conversion from the C-141 aircraft will not take place until after the turn of the century.

INNOVATIVE USES OF GUARD/RESERVE CAPABILITIES

As the force structure of the Services is adjusted to further capitalize on the capabilities of the Reserve components, policies on RC accessibility, use, and new methods of employment are being developed and implemented.

Multinational Force and Observers Sinai

In January 1995, more than 500 Army National Guard and Army Reserve soldiers from 24 states joined active component soldiers in a six-month deployment to the Sinai desert as a part of the multinational force and observers (MFO) mission. This infantry battalion task force had the mission to observe, report, and verify compliance with the Egyptian-Israeli Protocol of 1981. These soldiers manned squad-sized observation posts and conducted squad/platoon training in a rugged, austere environment. In December 1995, the Chief of Staff of the Army approved the development of options for Reserve component participation in future MFO rotations in an effort to reduce active component operating tempo (OPTEMPO).

Increased Use Initiatives

In February 1995, Secretary of Defense Perry initiated a pilot program envisioning utilizing Guard and Reserve components to relieve active component OPTEMPO and PERSTEMPO. Projects for inclusion in this program must relieve active OPTEMPO/PERSTEMPO and must provide meaningful training for participating Reserve component personnel. The Services and CINCs must provide approximately equal matching funds for the incremental costs of the reserve unit participation. Proposed projects are submitted by the CINCs, reviewed by the Services and Joint Chiefs of Staff, and approved by the Assistant Secretary of Defense for Reserve Affairs (ASD(RA)).

The experiences in FY 1995 and 1996 have been highly successful. In FY 1995, which was an unfunded, partial start-up year, Reserve components completed 97 projects, primarily in the United States European and Southern Commands. There were 163 projects approved for completion in FY 1996. A good example of a successful increased use project was Battle Griffin, a NATO exercise conducted in March 1996 in Northern Norway with the support of approximately 3,600 Marine Corps Reservists, commanded by a Marine Corps Reserve general. CINC support for this initiative was presented in March 1996 testimony to the House Appropriations Committee (National Security Subcommittee). Admiral Joseph W. Preuher, Commander in Chief, United States Pacific Command, stated, "Use of the reserve components is a smart move that significantly reduces our active operations and personnel tempo." General George A. Joulwan, Commander in Chief, United States European Command, stated, "It (the increased use initiative) is an extremely important initiative for the European Theatre. As a test concept, it is unquestionably a success that needs to be expanded to make full use of the Total Force." For FY 1997, over 200 projects have been approved worldwide. The pilot program has achieved the initial goals and support for further integration of Reserve component personnel into joint operations and exercises continues to grow.

Civil Military Innovative Readiness Training Pilot Projects

Every day, citizen-soldiers, sailors, airmen, marines, and coast guardsmen provide a critical link between America's military and civilian communities. DoD's involvement in providing support and services for eligible activities and organizations outside DoD — initially implemented under the 1993 National Defense Authorization Act and continued under the 1996 National Defense Authorization Act — has been particularly beneficial in strengthening civil-military relationships and in improving readiness. These units and individuals (primarily medical and engineering) hone wartime skills while working in partnership with the state and community in a manner that does not compete with the private sector or other governmental agencies.

Military participants benefit by training in a more realistic hands-on setting, which enhances morale and contributes to readiness, recruiting, and retention. The community benefits by receiving needed health care, engineering, and infrastructure support. During FY 1996, more than 23 engineering and infrastructure pilot projects and seven medical/health care pilot projects were conducted in 28 states and American Samoa. Projects included constructing an airfield for Alaskan native villagers above the Arctic Circle; providing medical and dental health care in dozens of medically underserved communities; and placing obsolete military tanks in designated off shore areas to create commercial and recreational artificial reefs.

Civil-Military Youth Training Pilot Programs

DoD has traditionally supported youth training programs that provide military personnel the opportunity to enhance their leadership, communication, and management skills, while also contributing to America's youth, a critical recruiting resource. These efforts are provided in addition to regular training and focus upon at-risk youth. For example, the National Guard's ChalleNGe program is a 22-week residential program for 16-18 year old high school dropouts who are unemployed,

drug-free, and not involved with the criminal justice system. The program operates in 15 states utilizing a quasi-military approach that includes community involvement projects, GED/high school diploma attainment, and leadership training. This program is authorized through August 1997.

The DoD STARBASE Program is a nonresidential program that focuses on disadvantaged youth in elementary and secondary schools. The program mentors youth, while improving math and science knowledge through experiential learning, including simulations and experiments in aerospace related fields. The Army and Air National Guard, Navy, and Air Force Reserve operate these programs in 15 states and Puerto Rico. These pilot programs are funded by DoD through FY 1998, after which they must be funded by private, state, or other non-DoD federal funds.

These youth programs directly support the President's commitment to drug-free America by positively impacting youth with military role models.

Reserve Component Intelligence Support

In January 1995, the Deputy Secretary of Defense directed the implementation of a broad plan to engage Reserve intelligence elements fully in support of peacetime intelligence requirements. Since then, 28 Reserve intelligence facilities have been electronically connected to the DoD Intelligence network through the Joint Worldwide Intelligence Communications System. Service-owned intelligence facilities are now functioning more and more as joint and shared facilities. DoD Intelligence Information System compliant intelligence production workstations are being installed in all 28 sites.

These improvements allow reserve intelligence specialists to utilize their normal training periods — inactive duty training, annual training, and active duty training — to provide direct intelligence support to meet CINC operational requirements. Congressional support now permits CINCs and combat support agencies to transfer funds directly to the Reserve components in support of additional man-days to meet unexpected intelligence requirements. Since over 40 percent of DoD's intelligence force is in the RC, these actions provide units and individuals readiness training not otherwise available but, at the same time, provide critical and often unique support to current operational requirements.

Partnering for Fiscal Integrity

Partnering for Fiscal Integrity (PFI) is a joint Under Secretary of Defense Comptroller/ASD(RA) initiative designed to maximize peacetime contributory support of the Reserve components in DoD's pursuit of fiscal excellence. PFI makes available to DoD's financial management community the often untapped civilian marketplace expertise and skills of Guardsmen and Reservists, at the cost of normal military man-days. This program provides a highly effective, task-oriented work force for specific projects, within finite periods of time. PFI matches citizen-soldier skills (civilian and military) to help resolve significant DoD financial management needs. Some of the projects involving PFI include risk assessments, auditing, policy and procedure reviews, and computer/software development.

CONTINGENCY OPERATIONS

An operation may become a contingency either by Secretary of Defense designation, or by employing involuntary authorities (Presidential Selected Reserve Call-up or mobilization) to gain access to Reserve component forces. The National Guard and Reserve have supported the nation's involvement in three contingency operations since Operation Desert Shield/Desert Storm.

Operation Uphold Democracy

Over 2,100 Reservists were ordered to active duty under Presidential Selected Reserve Call-up (PSRC) authority for Operation Uphold Democracy in Haiti. Over 85 percent of them were from the Army National Guard and Army Reserve. Initially, the majority of Reservists were specialists in port operations, civil affairs, psychological operations, or special forces. As the operation matured, the requirement for special forces declined, but the need for additional Reservists logisticians and aviation/helicopter personnel increased. Navy, Marine, and Coast Guard Reservists were also recalled for Haiti. ANG and AFR volunteers with C-130 tactical airlifters as well as Reserve AC-130 gunships were on standby at the inception of the operation. Reserve component volunteers provided airlift, medical air evacuation, and air refueling support throughout the operation. More than 4,000 reservists participated either under involuntary callup or in a voluntary capacity.

Operation Joint Endeavor/Decisive Edge

This contingency operation began in early December 1995, with the first Reserve component volunteers

mobilized under PSRC authority in less than 10 days. Roughly 90 percent of 8,000 called up were from the Army Reserve and Army National Guard, principally from logistics, military police, medical, and civil affairs units. Soldiers with proficiency in Serbo-Croatian were placed with active units to provide quick response foreign language capability. Navy and Marine Reservists served on active duty staffs, and the Air Force used PSRC authority to call-up air traffic controllers. In addition to those called up, Air Reserve component members voluntarily provided medical, fighter, and air refueling support for Operation Joint Endeavor/Decisive-Edge, and its predecessor, Operation Deny Flight. The Air Force has used 800 to 1,000 volunteers per month in support of these operations since 1994.

REMOVING INHIBITORS TO GUARD/RESERVE USE

In order to more fully utilize the Guard and Reserve in these innovative ways, the Department of Defense is rewriting its policies to remove inhibitors to the use of the Guard and Reserve. Just as the Total Force Policy has become a reality, the concept of compensating leverage is being translated into everyday actions through these new approaches.

Accessibility

After the early successes of the Administration in pursuing legislation to enhance the Presidential Selected Reserve Call-up authority, the Department continues to expand the traditional definition of accessibility for Reserve component members. Far from being limited to ensuring that Reserve component personnel are trained and available for call-up only in times of emergency, DoD's approach is to explore opportunities for these components to perform throughout the spectrum of military operations, including peacetime operations traditionally performed by active duty personnel. Efforts include identifying and removing impediments to those opportunities. Cognizant that increased use of the Guard and the Reserve requires a careful balance that takes advantage of Reserve component capabilities while recognizing that the individual member must also consider his or her civilian responsibilities, DoD is focusing on operations that provide real and relevant training opportunities while ameliorating the intense active component operational and personnel tempo.

The Department has launched a plan to integrate existing efforts, establish a requirements determination process with funding mechanisms, and develop more flexible policies for the use of Reserve components on a larger scale than previously accomplished. In refining its planning for a more formal structure for using all Ready Reservist categories — traditional drilling Reservists, Individual Mobilization Augmentees, and members of the Individual Ready Reserve — DoD will continue its review of possible impediments to and enhancements for future employment of the Reserve components.

Reserve Component Quality of Life Initiatives

As Reserve component members are employed more frequently, especially in support of worldwide missions, actions are being taken to enhance the Department's support to those members. Initiatives to enhance Reserve component quality of life include assistance to both the service member and the member's family.

Mobilization Insurance

The FY 1996 National Defense Authorization Act provided members of the National Guard and Reserve with the opportunity to participate in a voluntary program of insurance to guard against their risk of being called to active duty, which can result in a loss of income, increased expenses, or business losses. The insurance program, implemented on October 1, 1996, offered current members of the Ready Reserve an opportunity to enroll for coverage of up to $5,000 per month. Insured members are eligible to collect benefits if they are recalled to active duty involuntarily for a period of more than 30 days in support of an operational mission, war, or national emergency. The Department has experienced some start-up problems (for example, low enrollment, call-up of additional Reservists for Bosnia). To address how to deal with these start-up problems, the Department has initiated a top-to-bottom review of the program, with a view to taking corrective actions as soon as this review is complete.

Employer Support

The National Committee for Employer Support of the Guard and Reserve (NCESGR) is an organization that works in partnership with employers and Reservists to ensure the accessibility of Reserve members when needed. NCESGR serves as a facilitator to resolve employment issues between employers and Reservists and the military chain of command. Through a network of 4,600 volunteers located throughout the United States and the territories, NCESGR offers employer

education programs such as Bosslifts and Breakfast with the Boss to inform employers, legislators, and centers of influence of the new roles of the Guard and Reserve.

NCESGR's mission, however, is not limited to advocacy of Reservists. Through its Employer Action Council, NCESGR also sponsors an Employer Awards Program to recognize employers who are twice the citizen. In 1996, Secretary of Defense Perry presented the first National Employer Support Freedom Award. During Operation Joint Endeavor, the Secretary sent a letter of appreciation to mobilized Reservists and their employers.appreciation to mobilized Reservists and their employers.

The strategic objective of NCESGR is strength through partnership. Through a win-win approach to the concerns of both employers and Reservists, NCESGR works to ensure Reservists are available to protect freedom when the need arises.

Other Reserve Component Quality of Life Initiatives

DoD has authorized a test program that waives the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) deductible payments for National Guard members called up for Operation Joint Endeavor, thus providing a more affordable health care option for families of Guard and Reserve personnel activated in support of this contingency operation. The test is designed to provide Reserve component families with affordable health care premium payment options similar to those already available for active duty families. The Department will evaluate the results of this program based on data collected during the test period. If the test is deemed successful, DoD will request a permanent change in the law that makes this option available to all Reserve component members activated in support of a contingency operation.

The ability of Reserve component members to obtain the new machine readable military identification cards for themselves and their eligible family members was greatly increased during 1996 as more than 200 Real-time Automated Personnel Information System (RAPIDS) accounts were installed at Reserve component unit locations across the country. With RAPIDS, Reserve units can access the Defense Eligibility Enrollment Reporting System (DEERS) to update information and eligibility for military benefits for Guard/Reservists and family members, and can issue machine readable identification cards with computer-generated photos. The use of RAPIDS at locations where Reserve components were mobilized for Operation Joint Endeavor greatly reduced the time needed to issue new identification cards to Guard/Reservists and their family members.

Based on findings from the Secretary of Defense's 1995 Quality of Life Task Force, DoD provided all service members and their families with worldwide access to family centers. This included establishing 80 Family Network (FAMNET) accounts for National Guard and Reserve family centers.

DoD has instituted a Joint Family Support Director's Course, being conducted worldwide, that familiarizes and trains active and Reserve component family readiness directors with the various readiness and support programs offered by the Services. This effort will help facilitate familiarity with and coordination of Total Force family support.

With about 30 percent, or 285,000, of Selected Reserve members enrolled in institutions of continuing education, DoD has been developing initiatives to ensure these student-Reservists are able to resume their courses of study after being released from active duty. Unlike the employment protections for Reserve component members provided in public law, this effort has focused on voluntary support from the educational community. The primary focus has been on ensuring that student-Reservists, called to active duty, receive a refund of tuition and fees for portions of the course that cannot be completed, partial course credit for completed course work, or a grade of incomplete, and the right to return to the educational institution without prejudice. This voluntary effort worked adequately for those Reserve personnel called up for Operation Joint Endeavor.

READINESS ENHANCEMENTS

The Guard and Reserve must be able to sustain appropriate readiness in order to carry out their expanded roles during a time of shrinking defense dollars. The following initiatives have supported that effort.

Equipping Strategy

The increased requirements for the Reserve components to protect U.S. interests abroad and during domestic emergencies led the Department to an intense look at

RC equipment readiness. The Department has developed an RC equipping strategy to ensure that RC units are equipped with modern, compatible equipment to enable them to do their job side by side with the active components and coalition partners.

During FY 1996, the Services provided $1.4 billion in new equipment and upgrades. Congress directly provided $0.8 billion for new equipment, such as C-130 aircraft, C-9 replacement aircraft, heavy tactical trucks, and aircraft system enhancements and modifications. The predominant method for providing modern combat equipment is redistribution of major weapons systems from the active to the Reserve components. The value of equipment redistributed to the Reserve forces in FY 1996 was about $6.4 billion.

Army Reserve Component Readiness Enhancements

The readiness enhancements of Title XI of the 1993 National Defense Authorization Act (the Army National Guard Combat Readiness Reform Act of 1992) are in the fourth year of implementation. The FY 1996 National Defense Authorization Act amended Title XI to apply most provisions to the Army Reserve and early deploying combat support and combat service support RC units. Some of the more noteworthy accomplishments during 1996 include:

- Assignment of over 80 percent of the mandated 5,000 active duty personnel to newly established collective and institutional training support structures.

- Establishment of the remaining six regional coordinating elements of the Total Army School System. This system will enhance individual and leader qualification of all Army component soldiers with course quality and standardization controlled by Army proponent schools. Under the Army Distance Learning Plan, current and future technologies will bring new capabilities and efficiencies.

- Establishment of additional Ground Force Readiness Enhancement (GFRE) RTBs and subordinate battalions. The RTBs assist Reserve component commanders in the planning, execution, and evaluation of their unit training, using a combination of field mentoring and the lanes training methodology to achieve combat training center standards.

- Accomplishment of simulated battle staff exercises are accomplished during inactive duty training and annual training under the guidance of Battle Command and Battle Staff, Training Brigades, RC battalion, and higher level leaders. Although FY 1998 is the first official GFRE mission year, RTB elements conducted highly successful annual training support during FY 1996.

- Continued expansion of combat simulation opportunities with the fielding of 20 Abrams Full Crew Interactive Training Simulators, seven Bradley-reconfigured Conduct of Fire Trainers, and 14 Engagement Skills Trainers.

Facilities Enhancements

Implementation of the Base Realignment and Closure (BRAC) process continues. Realignments, consolidations, and use of Reserve enclaves at BRAC installations have allowed the Reserve components to reduce their backlog of construction by $2 billion. Use of facilities made available by BRAC will enable the Reserves to move out of many leased facilities into government-owned property, substantially reducing costs while improving readiness. In 1996, the Army Reserve established a Reserve Forces Training Area enclave at Fort Devens, Massachusetts, and the Air Force Reserve assumed control of March Air Reserve Base, California. The Army has initiated installation transfers to the USAR, including Fort Dix, New Jersey; Fort Hamilton, New York; and C.E. Kelley Support Facility, Pennsylvania. These will be completed in FY 1997.

The Reserve components completed and occupied 155 new facilities in 1996. They are now moving forward with execution of the 123 projects in their FY 1996 Military Construction Program. This program provides operations and maintenance facilities for air units converting to new aircraft; other components are building maintenance facilities to accommodate modernized ground equipment. These new facilities and additional improvements to training facilities and installation infrastructure will also improve readiness. In FY 1997, the Reserve components will complete the design and award construction projects totaling $414 million, primarily for maintenance, operations, and training facilities.

BEYOND THE YEAR 2000

The Department is preparing to undertake further analysis of the force structure required to meet the National Military Strategy — the Quadrennial Defense Review (QDR). The QDR will include a comprehensive examination of defense strategy, force structure, force modernization plans, infrastructure, budget plan, and other elements of the defense program and policies, with a view toward determining and expressing the defense strategy of the United States and establishing a revised defense program through the year 2005. The QDR will address anticipated RC roles and missions in the defense strategy and the strengths, capabilities, and equipment necessary to assure that the RC can capably discharge those roles and missions.

Army Guard Division Redesign

In advance of the QDR deliberations, the Army addressed key force structure imbalances during its Total Army Analysis process during 1996. In May, the Secretary of the Army approved the Army National Guard Division Redesign Study. The study group, composed of representatives from the Army Secretariat, the Army Staff, the National Guard Bureau, and the States' Adjutants General, was tasked to study issues generated by the recommendations of the Commission on Roles and Missions. These include possible reallocation of 60,000 ARNG combat personnel to fill known Combat Support (CS) and Combat Support Service (CSS) shortfalls, possible elimination of 50,000 combat spaces from the Total Army, and reduction and/or reorganization of ARNG divisions.

The ARNG Division Redesign Study examined alternatives to convert existing low priority combat units to support forces. DoD plans to inactivate up to 12 ARNG combat brigades and use the generated force structure to form two divisions and an additional six brigades consisting of CS/CSS units. These 42,700 conversions will reduce the Army's CS/CSS shortfall to a more acceptable level of 15,700.

Based on the approved study, the ARNG will consist of eight divisions: three divisions remaining as currently organized, three divisions consisting of an enhanced brigade and two other combat brigades, and two composite divisions formed by converting existing divisional structure to CS/CSS units. In addition, six brigades containing CS/CSS organizations will be formed. Six enhanced brigades will remain as currently organized and six will become part of an AC/RC integrated division test.

The Secretary of the Army directed the United States Army Training and Doctrine Command to conduct a detailed assessment of the Integrated Division proposal to determine the viability of the concept, addressing doctrine, organization, training, mobilization, and warfighting impacts.

The ARNG Division Redesign Study accomplished two major goals. The Army's CS/CSS shortages will be reduced to the lowest level in decades and the active Army and Reserve components will take another major step towards integration. The plan has the combined support of the Army's senior uniformed and civilian leaders, the National Guard Bureau, and the states' Adjutants General.

A VERY BUSY PEACE

The readiness of RC units can be seen in their assumption of increased operational missions in full partnership with active forces in implementing the National Military Strategy.

Naval Reserve Contributory Support

As the Navy has downsized, reliance on the Naval Reserve has increased, becoming an inextricable part of naval presence. Reservists perform in virtually every area of naval operations. Reserve frigates and mine countermeasures ships are making overseas deployments. The Naval Reserve has assumed 100 percent of the Helicopter Range Support for the Southern California Offshore Range and the Gulf of Mexico. Elements of Reserve helicopter combat rescue squadrons have augmented battle group capabilities on numerous deployments. The Naval Reserve conducts 100 percent of the air adversary mission for the Navy. Additionally, there has been increased Reserve participation on board tender ships, integrated undersea surveillance, and counterdrug operations. A dedicated E-2 squadron provides airspace control and surveillance for counterdrug operations. Naval Reserve P-3 crews have been instrumental in operations in support of Caribbean and Gulf of Mexico counterdrug narcotics operations, in UNITAS — a joint exercise with South American navies — and in numerous operations and exercises in the Western Pacific and North Atlantic. Additionally, the Naval Surface Reserve has deployed ships for numerous operations and exercises, including counterdrug, UNITAS, and the first reserve ship visit to a former Soviet Bloc

country. The Naval Reserve provides 100 percent of fleet capabilities with C-9 and C-130 organic airlift, mobile inshore undersea warfare units, logistics support, and aviation adversary squadrons. Over 80 percent of Total Force capabilities for military sealift, naval control of shipping, cargo handling, and combat search and rescue are resident in the Naval Reserve.

Marine Corps Reserve Peacetime Support

Marine Corps Reserve participation in FY 1996 has been significant. Exercise Battle Griffin is a joint combined military exercise designed to demonstrate allied reinforcement of NATO's northern flank. Battle Griffin 96 was unique because this traditionally active component exercise was conducted almost exclusively by reservists. Approximately 4,100 American servicemen and women participated in Battle Griffin. Eighty-five percent of the marines and sailors were from Marine Forces Reserve and Navy Reserve units. The efforts and innovation of the Reserve units participating made a significant contribution to the theatre commander's ability to accomplish the mission while reducing the active component's operations, personnel, and deployment tempo by approximately 56,000 man-days. Other exercises in which Marine Forces Reserve units participated alongside their active component counterparts during FY 1996 included Ulchi/Focus Lens in Korea, Freedom Banner in Okinawa, Cobra Gold in Thailand, and Brilliant Invader in England.

Marine Forces Reserve units provided logistics, intelligence, and surveillance support to civilian law enforcement agencies in over 100 counternarcotics missions. These missions include deployments by both air and ground assets throughout the Caribbean and numerous border areas in the southern United States. To date, these missions, involving over 1,700 Reserve Marines, have resulted in the eradication of millions of dollars worth of narcotics. Without this critical participation by Reserve units and individuals, many of these missions would fall to the to the active component.

Air Reserve Components

The Air Reserve Components are participating in nearly every major Air Force mission area and weapon system, the only notable exceptions being F-15E, F-117, and B-2 aircraft and strategic missile operations. Reserve forces will be used to meet operational commitments and limit active component PERSTEMPO, particularly in AWACS and strategic mobility. The traditional areas of fighter deployments, special operations, combat search and rescue, and medical air evacuation will continue to require extensive RC participation. The versatile capabilities of airpower are equally useful in limited and large scale hostilities, making it unlikely the demand for RC augmentation will decrease. The Air Reserve components have sole propriety of several missions, notably continental air defense/air sovereignty and aerial spray for disease control. Reserve component participation in the space mission area is growing with establishment of the 137th Space Warning Squadron in the Air National Guard, the 702nd Space Operations Squadron in the AFR, and the potential addition of Defense Meteorological Satellite Operations to AFR satellite control activities. Reserve component participation will increase in the growing area of information dominance and warfare.

Normal peacetime requirements, such as aerial firefighting, are increasing for both the ANG and AFR. In support of the National Science Foundation, the Air National Guard has assumed Antarctic resupply responsibilities from the Navy. The Air Force Reserve operates the only severe storm and hurricane reconnaissance unit in the world. ANG and AFR units participate with active duty assets to provide full-time search and rescue capability at Keflavik, Iceland, to National Aeronautics and Space Administration space shuttle launch activities, and to deployed active forces throughout the world.

CONCLUSION

As the nation defines its military role in the 21st century, it is clear that defense dollars will continue to be constrained. Nevertheless, modernization of the Total Force will be given a high priority. The experiences over the past five years have demonstrated that peacetime operational requirements continue to place high demands on shrinking active forces. Through the innovative approaches being implemented in the Department, National Guard and Reserve capabilities will continue to play a critical role in the future in satisfying the requirements of the National Military Strategy.

Chapter 23

COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE

Changes in information technology and the rapid assimilation of that technology in the marketplace are resulting in quantum changes to products, services, and organizations. Information ownership, stewardship, access, and possession are becoming recognized as measures of power and influence. Technology is rapidly diffusing this power downward to individuals and outward to those organizations and nations best equipped to exploit it. This offers DoD both an important opportunity and a demanding challenge to establish and meet command, control, communications, computers, intelligence, surveillance, and reconnaissance (C^4ISR) requirements.

C^4ISR capabilities enable generation, use, and sharing of knowledge among warfighters throughout the battlespace and with the decision makers who guide and support them. C^4ISR capabilities are more than a collection of hardware and software systems. They are comprised of concepts, operations, people, training, and supporting systems and processes that are essential for achieving battlespace dominance. Through application of C^4ISR capabilities, DoD will dramatically improve information quality and enable comprehensive streamlining of decision making processes. These capabilities extend from maintaining a useable picture of the battlespace to exercising decisive command based on timely situational awareness.

C^4ISR capabilities enable warfighters to understand the threat and the environment; obtain a comprehensive, shared picture of the battlespace; exercise decisive command and control of forces; coordinate, order, and direct forces; and monitor and assess actions. C^4ISR capabilities enable DoD leaders to establish policy and direction; provide the right capabilities, at the right place and time, required to accomplish the mission; and manage and administer the Department effectively and efficiently.

C^4ISR INTEGRATION AND INTEROPERABILITY

To maintain information superiority in support of military operations, DoD continues to improve C^4ISR integration and interoperability. The Defense Science Board and the Commission on Roles and Missions have both stated that an integrated C^4ISR architecture is key to enhancing U.S. military effectiveness. Service, Joint Staff, and commander in chief (CINC) initiatives have laid the foundation for new and accelerated efforts toward this objective.

In October 1995, the Deputy Secretary of Defense directed the Department to improve the means and processes for meeting the C4ISR needs of warfighters. The Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (ASD(C3I)) formed a C4ISR Integration Task Force to address integration and interoperability from a broader perspective and at a higher level than any previous effort. Completing its work in August 1996, the task force established a defense-wide C4ISR strategic vision and made 15 major recommendations for improving the means and processes that deliver C4ISR capabilities. The task force endorsed the C4ISR architecture framework, which provides guidelines and a development process for consistent, integrated operational, systems, and technical architectures, and endorsed clearly defined levels of information system interoperability.

As a logical follow-on to the task force, and in response to Commission on Roles and Missions recommendations for a Quadrennial Defense Review, DoD has undertaken a C4ISR Mission Assessment (CMA) to develop a C4ISR objective system architecture and investment strategy. CMA's initial iteration is linked to the ongoing force/weapons mix studies addressing Deep Attack Weapons Mix, Joint Suppression of Enemy Air Defenses, Close Support End-to-End Assessment, and Theater Air and Missile Defense. The CMA focuses on performance impacts and new concepts enabled by future C4ISR capabilities.

Related architecture and decision support activities to enhance C4ISR interoperability are ongoing. DoD developed the initial version of a Joint Technical Architecture (JTA), for use in all C4I systems development, upgrade, and integration. The JTA provides the standards and protocols to be implemented in systems so that information can flow seamlessly throughout DoD. The JTA will be extended to include the information technology standards and protocols for other functional domains.

The ASD(C3I) redesignated the Command Intelligence Architecture Program as the C4ISR Integrated Architecture Program and expanded the program to encompass C4ISR integration at the command level and below. Through this effort, techniques and procedures developed for the intelligence community will be applied across a wider range of C4ISR domains.

A Decision Support Center was established in October 1996 to conduct top-level quantitative and qualitative trade-off analyses for C4ISR requirements and acquisition decision makers. These analyses will support fielding of the components of the DoD integrated C4ISR system-of-systems for joint and combined operations, consistent with the evolving C4ISR architecture framework. The Decision Support Center will leverage off existing analyses — for example, by extending the Joint Staff's sensor-to-shooter studies.

INFORMATION OPERATIONS

The ASD(C3I) has developed information operations (IO) concepts that focus on actions needed to affect adversary information and information systems, while defending U.S. information and information systems. DoD policy covering IO was published in December 1996, and responsibilities were assigned to the DoD components. Each of the Services and agencies has established an organization to coordinate IO efforts. To provide community-wide understanding of the benefits and drawbacks inherent in IO, initial emphasis has been placed on integrating IO into training, education, and wargames. Additionally, DoD is reducing information system vulnerability by developing information assurance procedures and obtaining essential protection hardware and software.

In conjunction with the Under Secretary of Defense for Policy, the ASD(C3I) has begun IO coordination with other federal agencies and the civilian community. This includes participation in the President's Commission on Critical Infrastructure Protection; establishment of the Highlands Group of key DoD, industry, and academic IO experts; and briefings to senior members of the civilian community. Primary DoD goals are to raise the civilian community's awareness of information system vulnerabilities and to assist in establishing procedures for their protection.

COMMAND AND CONTROL

Command and control (C2) systems comprise the facilities, sensors, connectivity, and equipment necessary to manage strategic, conventional, and special operations forces. The Global Command and Control System (GCCS) will provide warfighters with global C2 information exchange, and a fused picture of the battlespace. The initial fielded version of GCCS provides CINC/Service functionality for crisis planning, deliberate planning, operations plan generation, force deployment, indications and warnings, situation awareness, readiness assessment, imagery exploitation, and intelligence

access. Future versions will incorporate weather, intelligence, joint task force requirements, and Service-specific functionality.

DoD continues to pursue battlefield digitization to enhance situational awareness. The Army will conduct a Task Force XXI advanced warfighting experiment in March 1997 to quantify requirements and evaluate digitization capabilities. The Army's Battlefield Combat Identification (Combat ID) System will be included in studies and demonstrations to determine long-term Combat ID solutions for ground warfare. In the air, DoD is cooperating with NATO in developing a new waveform for the Mark XII Identification Friend or Foe system, to be implemented if proven cost-effective.

DoD continues modernizing, consolidating, and optimizing strategic C^2 systems for nuclear forces. The Nuclear C^3I Review recommends continuation of the current command center architecture of air, mobile ground, and fixed ground nodes and supports a survivable minimum network of critical links and nodes from sensor to decision maker to shooter. This survivable network provides the minimum essential assurance of the capability to initiate, execute, or terminate an effective initial attack response. Key to future network effectiveness is increased dependence on Milstar for survivable connectivity.

DoD participates actively in NATO's consultation, command, and control restructuring process to improve system integration, coordination, and overall effectiveness and efficiency. The Department is discussing interoperability issues with Partnership for Peace nations and is also preparing for operations with nontraditional partners.

The Department is also improving theater and tactical C^2 capabilities for regional crisis response. For example, DoD is improving Airborne Warning and Control System (AWACS) radar range and reliability, identification, communications, and navigation to ensure future effectiveness.

DEFENSE INFORMATION INFRASTRUCTURE

The Defense Information Infrastructure (DII) is the shared or interconnected system of computers, communications, data, applications, security, people, training, and other support structures serving DoD's local and worldwide information needs. By addressing DoD's information technology infrastructure as a single entity, the DII focuses planning on interoperability, security, efficiency, and end-to-end user services. The DII provides information transfer (communications) and processing (computer infrastructure) resources that connect DoD mission support, C^2, and intelligence computers and users through voice, data, imagery, video, and multimedia services. The DII common operating environment (COE) provides an architecture of standards and reusable software to facilitate system development and simplify user access to multiple applications through common hardware. The DII is part of the National Information Infrastructure (NII) and relies upon the NII for full performance.

Defense-Wide Communications

The Defense Information Systems Network (DISN) is DoD's primary worldwide telecommunications network for warfighter support and supports value-added information service applications such as the Defense Message System (DMS). Value-added services provide customers with additional capabilities such as preparation, encryption, and receipt of electronic mail that utilize the basic connectivity of the telecommunications network. DISN incorporates surge capability, security, robustness (using a mix of military and commercial media), global coverage, interoperability with tactical and allied systems, end-to-end network control, and precedence. DISN information service applications provide value-added service to the user. They also interface with user-owned equipment, such as secure and unsecure voice, data, electronic mail, video teleconferencing, imagery, and directory services.

Early phases of DISN implementation involved adopting common standards and integrating separate, disparate DoD networks and services. Currently, the program is acquiring and implementing a Synchronous Optical Network (SONET) backbone service providing improved interoperability, greater reliability, and enhanced information transfer. The continental United States (CONUS) phase of this global program will reach initial operating capability in 1997. Also, the European, Pacific, and Southwest Asia theaters of operations are also undergoing incremental infrastructure upgrades.

DoD's communications, weapon control systems, radars, telemetry, and radio navigation systems use the electromagnetic spectrum to achieve information dominance. Private sector demand for this spectrum is also growing, fueled by an explosive market for information technology. Commercial communications are not attacked by jammers, and in saving the cost of these features, commercial equipment uses more spectrum

than a comparable military device. However, the auction of spectrum to commercial users generates many billions of dollars in federal revenue. Ultimately, a balance must be struck between the national security needs for adequate spectrum and that sought by the private sector for its numerous uses.

DMS will provide secure, reliable messaging services for DoD and other agencies (including the national intelligence community), using mainline commercial products. DMS implementation will allow phase-out of the existing, archaic automatic digital network message system. DMS will provide DoD with high-grade secure services and reliable e-mail messaging and directory services, supporting deployed warfighters, theater commanders, and individual users. Initial test and pilot sites will become operational during 1997. By the year 2000, all electronic messaging should be DMS-compliant and fully interoperable within DoD, the national intelligence community, and some federal agencies.

The Department has updated its policy for life-cycle management of information in records, including electronic media. DoD is designing an information system to satisfy electronic record management needs, including standard retention schedules, reduced number of retention periods, and a standard DoD coding scheme. DoD is also developing an interface between DMS and a records management application for storage and retrieval of electronic information.

DoD is upgrading and improving its DII Electronic Commerce (EC) and Electronic Data Interchange (EDI) infrastructure to support functional EC applications by the financial, personnel, and acquisition communities of the Department. DoD's EC/EDI infrastructure also supports many federal agencies and includes links to industry and universities through value-added networks. DoD has worked closely with the civil agencies to produce federal standards that facilitate the government's goal of a single face to industry. Enhancements to network entry points have increased throughput and laid the groundwork for centralized format translation, which will reduce the burden on individual Service/agency legacy systems. Expanded problem identification and resolution procedures have improved customer service, while updated value-added network licence agreements encourage DoD's service-provider partners to introduce improved systems. EC is increasingly using World Wide Web technology for public information dissemination and access. Defense EC is posturing to exploit the DMS for business quality messaging and the defense public key infrastructure for security.

The Department continues enhancing tactical communications to provide secure, survivable, and interoperable systems for joint and combined conventional force operations. Preplanned product improvements and system enhancements for fielded systems such as the single channel ground and airborne radio system (SINCGARS), mobile subscriber equipment, and joint tactical equipment will ensure continued interoperability, capacity, and new information exchange capabilities. The Department is considering technology advances which will provide a programmable digital communications capability to reduce the proliferation of unique equipment. DoD has begun development of a tactical Common Data Link (CDL) to provide upgraded digital communications for tactical systems and compatibility with currently fielded systems. The lightweight, low cost CDL will be used for manned and unmanned reconnaissance platforms as well as the systems that interface with them. Incorporation of standard data links in tactical platforms will provide standardized, interoperable, data link support directly to the battlefield operator, yielding tactical C^2 situation awareness never before available.

Operation Joint Endeavor provided an opportunity to integrate several communications technologies and provide advanced information technology to the field. DoD initiated support for Operation Joint Endeavor under the C^4I for the Warrior Bosnia Command and Control Augmentation (BC^2A) program. A consortium of DoD components melded communications and functional applications into an integrated whole to provide better communications connectivity, while taking advantage of the latest commercial technology. The mission successfully increased battlespace awareness for the ground commander and made a suite of operational capabilities available. For the first time, the U-2 and Predator unmanned aerial vehicle (UAV) were able to provide an around-the-clock stream of timely intelligence information to even the most remote areas in Bosnia. In addition, DISN's Leading Edge Services (DISN-LES) provided high bandwidth secure capability for a myriad of operational systems. This network, synergistically employed with the Joint Broadcast Service, geometrically advanced operational capabilities by making available applications such as electronic mail, video conferencing, secure Internet service, GCCS, and interactive data sharing in a field environment.

Computer Infrastructure

In the 1993 Base Realignment and Closure process, the President and Congress approved the consolidation of 43 Service and agency data centers into 16 existing DoD megacenters, managed by the Defense Information Systems Agency (DISA), to improve information processing and reduce costs. Approximately 70 percent of the workload has migrated to the megacenters, with completion planned by mid-FY 1997. Net savings will exceed $450 million from FY 1994 to FY 1999, and $209 million per year thereafter, including the elimination of 2,400 civilian positions. The Department continues to look for additional economies and efficiencies, such as further consolidation and outsourcing opportunities.

Data

DoD continues setting up a common data language for its computer systems to improve the quality of data in databases, and to facilitate interoperability among systems. Nonstandard data elements used in the Department's information systems are being reviewed to identify a significantly reduced number of standard data elements for future application. Individual functions such as logistics, C^2, intelligence, finance, and personnel identify the standard data elements needed to support their customers. A total of over 11,000 approved data elements are now available for DoD users. Requirements for message standards have been identified and are also being incorporated into DoD data standards. Information about DoD data is maintained in an operational central repository. Revisions of the Defense Data Dictionary System and the Personal Computer Access Tool were released to more than 2,100 users, providing the capability to map legacy, migration, and standard data.

Information Systems

In 1993, the Secretary of Defense directed all functional areas to select standard information systems and applications, and eliminate legacy systems. The Department has identified 2,056 information systems, of which DoD's functional communities have selected 365 as migration systems. DoD will eliminate at least 966 of the remaining legacy systems by the year 2000. The Department's Software Management Initiative (SMI) continued to implement software management improvements recommended by the Defense Science Board. Major SMI accomplishments include changes to DoD systems acquisition policy to require consideration of commercial and reusable software; introduction of two new software acquisition courses; establishment of a software engineering education clearinghouse to inform DoD acquisition managers of training courses for their software engineering staffs; issuance of a guide on best software acquisition commercial practices; and development of a software acquisition capability maturity model to help DoD software acquisition organizations improve their processes and capabilities.

DoD has begun an initiative to correct the Year 2000 problem in defense weapon systems and automated information systems. Year 2000 is the term used to describe the potential failure of information systems due to their inability to roll over into the next century, causing erroneous processing of date-related data after January 1, 2000. DoD components are completing risk assessments and contingency plans. The Department is prioritizing systems for resourcing, reprogramming systems as necessary, and accelerating migration system implementation plans where appropriate. Where possible, DoD is terminating legacy systems that would otherwise require Year 2000 repairs.

Information Assurance

Information assurance is the application of information operations concepts to protect information systems by ensuring their availability, integrity, authentication, confidentiality, and nonrepudiation. DoD's information assurance strategy encompasses efforts to assure networking and information systems readiness, reliability, and continuity. It addresses protecting functions against exploitation, manipulation, degradation, and denial of service, while providing the means to reconstitute and reestablish vital information systems capabilities efficiently. As part of a training and awareness program for all DoD programs, DoD has established a defense-wide information assurance training data base as a comprehensive source of existing and emerging training efforts.

In 1996, the Department established an Information Assurance Group (IAG) to provide a forum for cooperation within the defense community on information assurance policies, initiatives, technologies, programs, and related budgets. The IAG established a government-industry partnership that ensures a complete and thorough understanding of critical infrastructure issues facing DoD's information assurance initiative. DoD is also working closely with industry to develop common communications and network security practices and an

equitable and effective application of vulnerability detection and reporting tools.

The Department continues to refocus information assurance policies to meet current requirements and provide the goals, directives, and leadership to ensure the reliability and responsiveness of the communications infrastructure into the 21st century. DoD has developed information assurance tools and system security services and products for DII users and managers. To ensure that these and future DII information assurance initiatives are interoperable with the NII, the Department is expanding support to other agencies and government-wide programs, such as the public key infrastructure initiative led by the Department of the Treasury.

BUSINESS PROCESS REENGINEERING

DoD established the business process reengineering (BPR) support program to redesign the Department's business processes and to achieve improvements in DoD measures of performance. The BPR support program includes cost effectiveness training, methods, tools, hotline support, and a variety of other support services. BPR tools and techniques can be used to analyze and improve virtually any kind of process or activity. BPR projects are underway at all levels and within all DoD functions. Some BPR projects are oriented toward mission effectiveness and increased readiness, while others target management improvements and cost savings. With nearly 200 BPR projects completed, DoD has achieved significant improvements in effectiveness and efficiency. DoD, the National Academy of Public Administration, the National Performance Review, and several other partners established joint linkages to BPR information, training, and government reinvention materials, including a BPR CD-ROM. DoD developed this CD-ROM as a self-contained College of Process Innovation, which features the latest government and industry information on BPR and a toolset called Turbo BPR for desktop use. These materials and tools have been extensively adopted by a wide range of federal, state, and local government agencies.

INTELLIGENCE AND COUNTERINTELLIGENCE

Intelligence

The Department, in coordination with the Director of Central Intelligence (DCI), has fostered a number of innovative and critical changes to improve the effectiveness and integration of intelligence functions. Emphasis continues to be placed on meeting the needs of users. Among other initiatives, the Department established the National Imagery and Mapping Agency (NIMA) which provides a single focal point for imagery and geospatial information.

Twenty-one months after the Deputy Secretary of Defense signed the DoD Plan for Peacetime Utilization of Reserve Intelligence Elements, 28 joint Reserve intelligence sites across the United States have full connectivity with DoD's primary intelligence network. The large-scale installation of high capacity workstations is providing unprecedented opportunity for the full integration and effective utilization of over 16,000 Reserve intelligence specialists and linguists. Applying Total Force concepts, where Reservists are full partners with the active component, will greatly improve intelligence support in peacetime as well as during conflict.

In 1996, the Deputy Secretary and the DCI reoriented and streamlined the intelligence planning, programming, and budgeting process. Based on primary intelligence missions, the retooled process focuses on support to military planning and operations, national policymakers, law enforcement, and countering foreign intelligence activities. The reorientation resulted in the reallocation of resources to improve airborne reconnaissance, Signals Intelligence (SIGINT) analysis, and imagery analysis and exploitation and placed additional emphasis on improving counterterrorism efforts.

In coordination with the DCI, DoD initiated a civilian intelligence personnel reform effort that culminated in the passage of the Defense Intelligence Civilian Personnel Policy Act of 1996. The legislation provides a foundation for common personnel practices and procedures to enable unimpeded mobility across the intelligence community. The personnel reform effort also included establishment of an Intelligence Community Assignment Program (ICAP), the first large-scale structured rotational program for all defense intelligence organizations and the Central Intelligence Agency. ICAP will create a civilian intelligence corps that has experience with a variety of capabilities, customers, and missions and that can readily adapt to changing intelligence support requirements. Prior to NIMA's standup, legislation was also passed that grandfathers NIMA employees with Merit Systems Protection Board appeal rights and continues collective bargaining.

In addition to the civilian intelligence personnel reform program, DIA's Joint Military Intelligence College is

seeking approval to award the Bachelor of Science in Intelligence, as well as its currently accredited Master of Science in Strategic Intelligence curriculum.

Counterintelligence

Counterintelligence components are critical to the security of operational forces. DoD counterintelligence components provide defensive antiterrorism services, satisfy information collection and production requirements, execute counterespionage operations, and provide input to planning for military operations. Counterintelligence personnel regularly accompany battle groups at sea and military units exercising in foreign countries, provide dedicated support to defense agencies, and have on-call responsibilities for locations designated in military contingency plans. Modernization objectives include development of an advanced forensics capability to deal with computer crime and espionage.

In 1996, DoD continued to successfully interrupt foreign intelligence service espionage efforts through numerous investigations, highlighted by the arrest of two individuals. Offensive counterintelligence operations continued to both interfere with foreign intelligence service efforts and provide critical insights into their levels and collection methods.

Intelligence and Security Support to Force Protection

Since the Khobar Towers bombing in Dhahran, Saudi Arabia, DoD has undertaken an extensive review of requirements for force protection and antiterrorism. In conjunction with the DCI, resource requirements have been identified to enhance significantly the security of deployed U.S. military personnel around the world. This ongoing effort integrates physical security, personnel security, intelligence, counterintelligence, and investigative resource requirements that will focus the Department's force protection efforts. Defense signals and human source intelligence collection will be integrated into more detailed, relevant, and timely analysis to provide better warning of terrorist threats to deployed U.S. military forces. DoD will increase counterintelligence resources dedicated to providing active antiterrorism defensive measures. Additionally, focused support will be given to training and equipment requirements for physical security and investigative personnel charged with defending against terrorism and responding to terrorist attacks.

SURVEILLANCE AND RECONNAISSANCE

Superior intelligence, reconnaissance, and surveillance provide the requisite battlespace awareness tools for U.S. forces to take and hold the initiative, increase operating tempo, and concentrate power at the time and places of their choosing. The Defense Airborne Reconnaissance Office (DARO) was created to unify airborne reconnaissance architectures, streamline acquisition of airborne assets and associated ground systems, and ensure availability of advanced airborne reconnaissance systems to satisfy dominant battlespace awareness requirements.

The cornerstone of the DARO's strategy is extended reconnaissance, providing all-weather, day or night sustained data from anywhere within enemy territory as warfighter needs dictate. Over the last three years, interoperability and commonality have advanced significantly from the information stovepipes of the past. UAV programs have been fashioned into a tiered architecture emphasizing tactical (Outrider), medium altitude endurance (Predator), and theater-level high altitude endurance (Global Hawk and DarkStar) platforms. DARO's airborne reconnaissance architecture provides a coherent strategy assuring commonality and interoperability between unmanned and manned reconnaissance systems, ground systems, and technology insertions, including such capabilities as imaging, mapping, communications links, and sensors upgrades.

Responsiveness to the warfighter has been emphasized through the use of UAV Advanced Concept Technology Demonstrations (ACTDs). This concept was successfully implemented in the Predator program, allowing a contract award just one year after the UAV's first operational deployment. While the Predator UAV ACTD was successfully completed in FY 1996, ACTDs for the Conventional High Altitude Endurance (HAE) UAV (Global Hawk), Low Observable HAE UAV (DarkStar), and Tactical UAV (TUAV — Outrider) are ongoing. DarkStar's initial flight in FY 1996 was the first flight of a low-observable UAV and the first time a UAV flew autonomously from takeoff to landing. After a second demonstration flight mishap, DarkStar will return to flight testing by the third quarter of FY 1997. The Global Hawk and Outrider ACTDs are progressing on schedule, with first flight planned for both UAVs during FY 1997. The Pioneer UAV continues to provide a much-needed interim capability until the

Outrider becomes available to satisfy the warfighter's requirement for a timely and accurate battlefield picture.

To ensure manned reconnaissance platforms and sensors remain robust and fully capable of fulfilling the warfighter's needs into the 21st century, the RC-135 Rivet Joint fleet is being increased from 14 to 16 aircraft, and reengineering of the U-2 to increase its service life and operational capabilities has begun. Two airborne reconnaissance low aircraft-multifunction (ARL-M) enhanced with moving target indicator capability are now operational in Korea to meet immediate CINC requirements. Advanced sensor initiatives for manned platforms are underway to provide increased support to the warfighter and compatibility with unmanned systems.

DoD is implementing the Joint Airborne Signals Intelligence (SIGINT) Architecture (JASA) to ensure commonality and interoperability among SIGINT airborne surveillance and reconnaissance systems. The Joint SIGINT Avionics Family (JSAF) was developed in FY 1996 as an affordable approach to implement JASA. The Department also developed and published SIGINT standards to help industry develop JSAF components, leading to common, interoperable SIGINT collection systems for airborne reconnaissance platforms.

The Department is migrating imagery ground processing stations to a common, interoperable architecture using standards for the Common Imagery Ground/ Surface System. DoD has begun development of the Common Imagery Processor, a critical element of this migration plan, to provide a single processor used by all Services for multiple airborne platforms and multiple sensors.

SECURITY AND CLASSIFICATION

Defense security programs include activities required to prevent or deter espionage, sabotage, subversion, theft, or unauthorized use of classified or controlled information, systems, or war materiel in the Department's custody. Approximately one billion pages of material are subject to automatic declassification by the year 2000 in accordance with Executive Order 12958, Classified National Security Information. The Defense Declassification Management Panel and a panel of civilian and military historians continue to identify declassification resources and priorities to meet the Executive Order's objectives.

The Deputy Secretary of Defense and the DCI have approved initiatives to implement Executive Order 12968, Access to Classified Information, including standard investigative and reinvestigative scopes for access to Confidential, Secret, Top Secret, and Sensitive Compartmented Information, and common adjudicative guidelines to help ensure consistent and logical adjudicative outcomes across agencies. Both initiatives will promote the reciprocal acceptance of clearances and accesses throughout the federal government, reduce costly clearance delays, and implement the Joint Security Commission's conclusion that the personnel security program will remain the centerpiece of the federal security system.

DoD has progressed significantly over the last several years in the development and implementation of an industrial security process through the National Industrial Security Program (NISP). Current efforts are based on sound threat analysis and risk management practices and consistent security policies and practices throughout the government. The relationship between industry and government has transformed from adversarial to a partnership, empowering industry to more effectively and directly manage its own administrative security controls.

C^{4}ISR INFORMATION TECHNOLOGY MANAGEMENT

Major Automated Information System Oversight

Major automated information systems (AISs) are selected for Office of the Secretary of Defense oversight if more than $30 million will be spent in one year for system investment, if the total system investment cost is greater than $120 million, if the total life-cycle cost is greater than $360 million, or if the system is designated as special interest. There are currently 50 major AISs in DoD. Of these, 40 are reviewed by the Department's Major AIS Review Council (MAISRC), while oversight of the remaining 10 systems is delegated to the responsible Service or agency. AIS investment decisions have been improved through earlier involvement of oversight officials, use of integrated product teams, tailoring of the oversight process to the requirements of individual programs, and de-emphasis of excessive mandatory documentation. During 1996, the MAISRC members recommended approval of 16 acquisition decisions. Additional oversight was provided to every MAISRC program by OSD staff involvement in working-level integrated product teams.

Implementation of the Information Technology Management Reform Act of 1996

The Information Technology Management Reform Act (ITMRA) was signed into law on February 10, 1996, and became effective on August 8, 1996. The act increases the responsibility and authority of officials of the Office of Management and Budget and other federal agencies, and the accountability of these officials to Congress and the public for the use of information technology and other information resources supporting agency missions. On March 14, 1996, the Deputy Secretary designated the ASD(C^3I) as DoD's Chief Information Officer.

A DoD information technology strategic plan will be developed and updated annually to reflect the Department's information technology strategies, goals, and objectives. The DoD plan will also include Service, agency, and field activity plans and will provide a basis for measuring progress of the DoD information technology program implementation. Component Program Objectives Memoranda will benefit from the strengthened information technology strategic planning process. DoD will institutionalize performance measures for information technology and National Security Systems. These measures will be the critical means by which senior DoD managers obtain timely information regarding the progress of these investments.

C^4ISR-RELATED DEFENSE AGENCIES

Defense Intelligence Agency

The Defense Intelligence Agency (DIA) is a combat support agency and a major collector and producer in the defense intelligence community. DIA provided warfighters, force planners, and policymakers timely, objective, and cogent intelligence to meet a variety of challenges in 1996, including the Quadrennial Defense Review. Implementation of Joint Vision 2010 began with DIA's strategic plan, Vector 21, whose goal is dominant battlespace knowledge, and Vision Force 2010, which identifies future DIA workforce and skill requirements.

Working with the CINCs, DIA established baseline threat assessments for all operational plans and improved intelligence support for the deliberate planning process. DIA provided intelligence on enemy capabilities and intentions for military operations under U.S. and NATO auspices, including Implementation Force monitoring and reconstitution in Bosnia; peacekeeping in Haiti, Burundi, and other African states; conventional targeting operations in response to UN resolution violations in Iraq; sensitive arms control negotiating sessions; and various humanitarian and domestic disaster relief operations.

Through its representation on the Joint Staff, DIA led the deployment of multiagency National Intelligence Support Teams, which provide the necessary information flow from the national to tactical level during periods of crisis and military operations other than war. DIA led the Chairman of the Joint Chiefs of Staff intelligence, surveillance, and reconnaissance (ISR) assessment program to ensure fielded capabilities meet joint operational needs. The Joint Worldwide Intelligence Communications System and the Joint Deployable Intelligence Support System provided electronic connectivity and timely access to critical, fused information across decision making echelons. DIA's leadership of the defense intelligence community's transition into the DII COE and GCCS will advance the transfer of intelligence to operating forces.

DIA is the lead element in providing warning of terrorist threats to DoD personnel and interests outside of the United States. DIA produced intelligence on other high priority, national interest topics and transnational issues including the proliferation of weapons of mass destruction. Additionally, DIA established an Information Warfare Support Office to conduct intelligence preparation of the battlefield, foreign threat assessments, and analysis of foreign deception activities.

To strengthen the DoD Intelligence Production Program, DIA developed a strategic concept for the Joint Intelligence Virtual Architecture. This program will move the production community toward a virtual production environment and improve battlespace visualization. Integration of Intelink, the Internet, and open sources enhanced DIA's efforts to provide rapid, cost-effective intelligence-on-demand to operators and other users. DIA's Armed Forces Medical Intelligence Center provided policymakers and operational units with medical intelligence and preventive medicine countermeasures.

The National Foreign Intelligence Program (NFIP) Human Intelligence (HUMINT) elements of the Services were consolidated into DIA's Defense HUMINT Service and new worldwide field elements were created. Five new defense attache offices were opened, expanding U.S. military diplomatic presence around the

world. DIA's Central Measurement and Signature Intelligence (MASINT) Office spearheaded significant advances in complex sensors, unattended MASINT monitoring, and chemical and biological weapon detection programs. To posture intelligence operations for the future, DIA invested in more efficient systems and practices, recruited and retrained skilled people, and modernized existing facilities.

Defense Investigative Service

The Defense Investigative Service (DIS) administers the NISP, which prescribes security countermeasures for contractors executing classified contracts for DoD and 22 other executive branch departments and agencies. Through a reinvention initiative began in 1994, NISP was changed from oversight of strict contractor compliance to a government/industry partnership. DIS now provides advice, counterintelligence support, and industrial security oversight to over 11,000 cleared business entities. A major part of this initiative integrated counterintelligence principles and the use of classified foreign collection threat information to improve risk management of classified programs in industry.

New technologies and the growing international defense market have increased the foreign intelligence threat and have taxed DIS's ability to provide security countermeasures support and assistance. In conjunction with the Federal Bureau of Investigation, DIS is using counterintelligence information to enhance threat awareness and to deter illegal technology transfers and economic espionage in defense contractor facilities.

Personnel security is more important than ever. DIS is coordinating with other elements of the DoD security community and the Security Policy Board to reinvent the entire personnel security process, many of whose standards and procedures were developed in the 1950s. During FY 1996, DIS opened nearly 650,000 personnel security investigations and completed over 680,000 investigations.

DIS is implementing a complete suite of information technology applications developed to support reengineered processes. The core of the DIS automation initiative is a standardized corporate database containing all DIS mission information, with Internet access for in-house and outside customer data retrieval. The transition from mainframe-based legacy systems will be complete in FY 1997, when all DIS elements will be unified into a single agency-wide mission support system.

Defense Information Systems Agency

The Defense Information Systems Agency (DISA) is the combat support agency responsible for planning, developing, and providing information services to support the National Command Authorities and the warfighter. DISA and the Services share management and operations responsibility for the DII. DISA provides overall system engineering and end-to-end management and also manages and operates DII common user elements. The Services manage and operate the DII elements that provide an information technology infrastructure on Service facilities.

Information for the warfighter must be integrated in a secure, seamless manner and passed to the theater and ultimately the warrior's battlespace. This C^4I For The Warrior concept is implemented through the DII and its C^4I centerpiece, the GCCS. DISA has fielded GCCS at 37 initial operational capability sites. As of August 1996, GCCS became the C^2 system of record, reducing the number of C^2 migration systems from 154 to 59.

DISA is implementing the DISN, which consolidates individual service-level networks to eliminate redundant networks and reduce rates through larger buys. DISA has fielded initial CONUS segments of a SONET backbone service and has awarded two of the four contracts that make up the DISN strategy, the Global Support Services contract and the CONUS Switched/ Bandwidth Manager Services contract. Since DoD currently leases over $168 million worth of satellite communications (SATCOM) per year, DISA is pursuing the congressionally mandated commercial SATCOM initiative to apply similar consolidation strategies to SATCOM services as well.

DISA launched the Global Combat Support System (GCSS) initiative to apply GCCS concepts to information systems that provide combat support functions, such as logistics support, to the warfighter. GCSS will integrate systems across combat support functions to provide end-to-end connectivity and access to all combat support and C^2 data and applications needed at any time from any place through a signal workstation running the DII COE. Combat support mission areas include acquisition, logistics, engineering, finance, personnel and health services, and key initiatives such as EC/EDI.

DISA and the Defense Advanced Research Projects Agency (DARPA) have established leading edge services through which CINCs, Services, and agencies can evaluate advanced technology for future assimilation into core DII, GCCS, and GCSS programs. Technology from several DARPA advanced technology demonstrations and ACTDs will migrate through leading edge services to enable new operational concepts in these programs. DISA is also responsible for the information security of DISA-managed portions of the DII, providing defensive, detection/protection, and reaction capabilities to prevent and resolve DoD computer system attacks.

National Imagery and Mapping Agency

NIMA became operational as a combat support agency on October 1, 1996. NIMA merges the imagery and geospatial information functions of the Defense Mapping Agency (DMA), Central Imagery Office (CIO), National Photographic Interpretation Center, Defense Dissemination Program Office, and other related activities from DIA, Central Intelligence Agency, National Reconnaissance Office (NRO), and DARO. NIMA has overall program and budget authority as well as research, development, acquisition, exploitation, and production responsibilities for imagery and geospatial information elements of NFIP, Joint Military Intelligence Program (JMIP), and Tactical Intelligence and Related Activities (TIARA).

Geospatial information includes any data that has associated with it some geographical and temporal reference. NIMA provides timely, relevant, and accurate imagery, imagery intelligence, and geospatial information in support of national security objectives. NIMA is populating a massive global geospatial information distributed database to provide direct, customer-specified, electronic user access to new imagery, imagery products, and global geospatial information and services (GGIS). NIMA will significantly enhance dissemination and archiving through worldwide deployment of scalable libraries of imagery, imagery intelligence, and geospatial information products. The agency is also developing the capability to use alternate commercial and foreign national sources for GGIS production. Ultimately, NIMA will be the single source for geo-referenced information for customers who will connect into an on-demand database and retrieve the specific information they require.

DEFENSE MAPPING AGENCY OPERATIONS DURING FY 1996

During 1996, DMA continued implementing the recommendations of the Defense Science Board's Task Force on Defense Mapping for Future Operations. To provide dominant battlefield awareness, DMA led a multidisciplined Geospatial Information Integrated Product Team to quickly develop a common operational view of the battlespace keyed to a standard geospatial framework. The current Integrated Product Team schedule calls for 12 months of focused development, testing, documenting, and resource determination. DMA established an on-line, user-accessible limited capability data warehouse to manage its information holdings and deployed 30 cartographers with desktop work stations to support the major commands with the DMA-developed Joint Mapping Tool Kit, now an integral part of GCCS.

CENTRAL IMAGERY OFFICE OPERATIONS DURING FY 1996

During 1996, CIO concentrated on continued evolution of the U.S. Imagery System (USIS). Warfighter support improved with the further maturation of the Accelerated Architecture Acquisition Initiative (A^3I), CIO's keystone imagery dissemination program. A^3I extended the capability to digitally retrieve, process, and store imagery and imagery-derived products to the United States Central Command. Based on recommendations of the Bosnia Impact Team, CIO accelerated delivery of 24 image product archives to the United States European Command, expanding imagery availability for U.S. and NATO peacekeeping forces in Bosnia.

CIO provided near real-time imagery to support 215 military exercises, training, demonstrations, evaluations, and operations — up from 80 just three years ago. Collection managers' ability to levy and monitor imagery requirements improved when the new Requirements Management System reached initial operational capability in June 1996, replacing the outdated COMIREX Automated Management System.

In February 1996, the National Performance Review Office presented CIO with the Hammer Award for its community-wide Exploitation Process Reengineering Study, which will transition the imagery community into a predominantly digital environment. It will also foster commonality among imagery users and analysts through migration of 12 legacy systems to a single system by early in the next century. To establish strategies for balancing capabilities across the USIS,

CIO and NRO led an Imagery Architecture Study that examined prospective architectures for 2003 and beyond.

FY 1996 saw the final declassification and release to the public through the National Archives and Records Administration of approximately 800,000 frames of national satellite imagery collected from 1960 through 1972, and nearly 20,000 cans of national airborne reconnaissance imagery collected prior to 1976.

FUTURE NIMA ACTIVITIES

One major challenge for NIMA will be to integrate ongoing information technology initiatives begun by the organizations it subsumed. These initiatives include accelerated replacement of the Digital Production System, enhanced capability to exploit new sensors and alternate source material, and final transition to the Requirements Management System and A^3I. Consolidating these efforts will produce superior global geospatial information and improved customer service by leveraging emerging commercial technology to migrate to an open systems environment.

National Reconnaissance Office

A joint DoD and intelligence community organization, NRO designs, builds, and operates on-orbit reconnaissance systems. Intelligence gleaned from NRO systems support a wide variety of intelligence community assessments. In FY 1996, NRO operations ranged from intelligence support for contingency operations like Joint Endeavor to support of other government agencies involved in disaster relief and humanitarian missions. NRO assigns customer service representatives to CINCs to ensure the commanders' needs are addressed. For most CINCs, in-theater support representatives are also assigned to provide technical expertise on space reconnaissance systems, real-time two-way communications between the NRO and CINC staffs, and expanded access to NRO systems.

NRO expanded its involvement in combat systems integration efforts, successfully implementing sensor-to-shooter technology for the EA-6B in support of NATO efforts in Bosnia. Based on in-house expertise with Global Broadcast Service technology, NRO implemented the Joint Broadcast Service portion of the DARPA/DISA BC^2A initiative. This advanced commercially available technology will enable military customers to receive video and data at unprecedented rates with small, low cost, portable receive terminals. Information was collected from national sources and the theater, sent to a broadcast center, and beamed by satellite to ground stations in-theater. Functions readily adaptable to this technology include intelligence, logistics, weather, mapping, or any other systems that require the passing of large quantities of data.

National Security Agency/Central Security Service

The National Security Agency/Central Security Service (NSA/CSS) is a DoD combat support agency resourced through NFIP and Defense programs that form the NSA/CSS portion of the U.S. Cryptologic System. The SIGINT component of NSA/CSS provides integrated support to military commanders and deployed forces, and delivers timely, actionable support to national policymakers. NSA is also responsible for the development of information systems security products and services to protect vital information, including that transiting the DII. NSA/CSS has developed a comprehensive strategic roadmap, the National Cryptologic Strategy for the 21st Century, to ensure that the U.S. Cryptologic System continues to provide information superiority for the nation in an efficient and timely manner.

NSA/CSS provides time-critical support to military commanders and deployed forces involved in crisis or contingency operations worldwide through 24-hour crisis response centers at NSA headquarters and national intelligence support teams on the ground in-theater. When cryptologic support to operations could include insight into the status of an adversary's force, or indications and warning of imminent threat or hostile action, NSA/CSS personnel are deployed directly to tactical elements to integrate cryptology with joint operations.

NSA also continues to respond to a broad array of requirements from the policy and law enforcement communities, such as support to U.S. trade policies, sanctions monitoring and support to the demarche process, weapons of mass destruction counterproliferation, and counternarcotics support to both DoD and the law enforcement community. The U.S. Cryptologic System is able to field flexible, agile collection and processing systems that are capable of responding to the dynamic information needs of military, policy, and law enforcement customers.

NSA/CSS continues to develop dissemination capabilities to deliver fused, actionable, and sanitized multimedia intelligence information to users. NSA/CSS provides high volumes of critical data to warfighters over existing broadcasts, including graphically fused all-source SIGINT through the Joint Deployable Intelligence Support System's Advanced Tactical Cryptologic Support system. This increases SIGINT utility and impact by delivering actionable intelligence information at the time and in the format best suited to meet warfighter needs. To improve tactical SIGINT system interoperability and connectivity, NSA has expanded its role in the oversight of TIARA, JMIP, and Service information systems security tactical SIGINT investment programs. Cryptologic personnel are being integrated into the commands to better understand customer requirements and more effectively support deployed products and services.

CONCLUSION

DoD is aligning and focusing its command, control, communications, computers, intelligence, surveillance, and reconnaissance programs, capabilities, and systems to maximize warfighter benefits in the changing environment through a combination of better intelligence, sophisticated command and control, highly motivated and trained C^4ISR personnel, and global defense information access.

Chapter 24

DEFENSE BUDGET

President Clinton's FY 1998 defense budget begins implementation of the FY 1998-2003 Future Years Defense Program (FYDP), the DoD blueprint for ensuring America's security and sustaining the nation's vital global leadership role. The new budget and FYDP strike a prudent balance between immediate military needs, such as high readiness and troop morale, and long-term safeguards, such as procurement and research and development (R&D).

About the time the Department was finalizing the FYDP and FY 1998 budget, intense work began on the Quadrennial Defense Review (QDR). The QDR is a comprehensive reassessment of U.S. military strategy, force structure, readiness, modernization, and infrastructure. Conducting just such a comprehensive review every four years was one recommendation of the Commission on Roles and Missions, and that recommendation was accepted by Secretary Perry. Although the Department was planning its QDR for 1997, Congress in its FY 1997 authorization bill decided to mandate the review, as well as some important details regarding it.

The Department will begin to take account of QDR recommendations as soon as they are approved by the Secretary of Defense. But the first budget to fully reflect the QDR findings will be the FY 1999 budget, which the President will submit to Congress in February 1998.

THE DEFENSE TOPLINE

The President's FY 1998 budget requests $250.7 billion in budget authority and $247.5 billion in outlays for the Department of Defense. Budget authority in FY 1998 is $8.1 billion above the level the President requested for FY 1997, but $2.1 billion below the level finally appropriated by Congress ($252.8 billion). This decline partially reflects the fact that last year Congress added about $10 billion to the President's budget request for FY 1997.

Data include a requested $2.0 billion supplemented appropriations for FY 1997 and a proposal for rescinding $4.8 billion in FY 1997 appropriations.

Funding for programs in the FYDP was based on current estimates of inflation and the latest program execution information.

Table 30

Department of Defense Budget Topline
($ in Billions)

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003
BUDGET AUTHORITY							
FY 1998 Budget	250.0	250.7	256.3	262.8	269.6	277.5	284.6
Percent Real Growth	—	-2.3	0	+.2	+.2	+.5	+.1
OUTLAYS							
FY 1998 Budget	254.3	247.5	249.3	255.2	256.2	261.4	276.1

DoD budget authority requested for FY 1998 is, 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. FY 1985 budget authority of $286.8 billion equates to $414.5 billion in FY 1998 constant dollars.

As a share of America's gross domestic product, DoD outlays are expected to fall to 3.0 percent in FY 1998, well below average levels during the past five decades. Other long-term trends for defense spending are detailed in Appendix B. Requested budget authority by appropriations title and by DoD component, in current and constant (inflation-adjusted) dollars, is also shown in Appendix B.

PRIORITIES IN THE FYDP AND FY 1998 BUDGET

Readiness, People, and Quality of Life

The FYDP and FY 1998 budget continue to give top priority to keeping U.S. forces ready to fight and win. This commitment to force readiness is reflected in strong funding support for training, supplies, maintenance of weapons and equipment, and other preparedness essentials. Since 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 FY 1998 budget.

Force readiness also requires taking good care of uniformed people and their families, which in turn requires strong support for quality of life (QOL) issues like pay, housing, and medical services. During his tenure, Secretary Perry placed great emphasis on QOL issues, and that is reflected in the latest defense plans. For example, DoD budget projections fund the full military pay raises provided for under law. The budget also reflects Secretary Perry's continued support for construction and maintenance of family and bachelor housing; cost-of-living allowances; child care; community and family support; and morale, welfare, and recreation programs. These funding increases supplement already strong DoD quality of life programs.

Ensuring force readiness and putting people first are mutually reinforcing goals. On the one hand, enabling U.S. forces to train rigorously and prepare properly for possible future combat is key to preserving the high morale and quality of military people. On the other hand, the quality and morale of men and women in uniform determine — more than any other factor — the readiness of America's armed forces.

The Clinton Administration's commitment to ensuring the high readiness and quality of U.S. forces is best measured by the actual preparedness and performance of U.S. forces. When called upon for a wide variety of missions, America's armed forces continue to react swiftly and decisively.

Force Structure and End Strength

The drawdown of U.S. military forces in response to the end of the Cold War is virtually complete. The U.S. force structure is roughly two-thirds of its size when the Berlin Wall fell in November 1989. The Clinton Administration's budgeted force levels are somewhat lower than those proposed by the Bush Administration's Base Force plan. (See Table 31.)

Table 32 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 1,137,600 in FY 1991. 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.

Defense Outlays as a Share of the Gross Domestic Product (GDP)

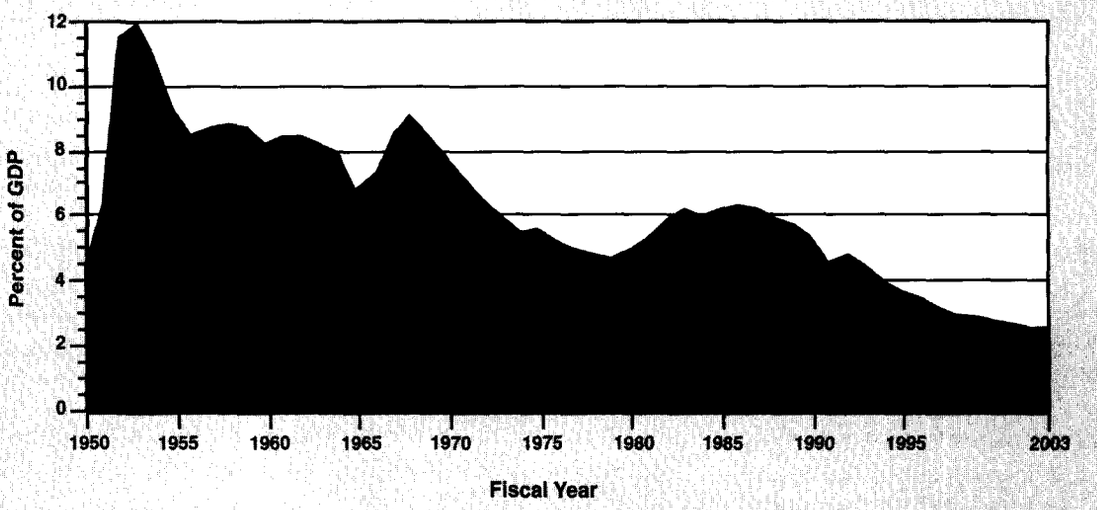


Table 31

Force Structure[a]

	Cold War FY 1990	Base Force Plan[b]	FY 1997	FY 1998
Army — active divisions	18	12	10	10
Reserve component brigades[c]	57	34	42	42
Marine Expeditionary Force[d]	3	3	3	3
Navy aircraft carriers (active/reserve)	15/1	12/1	11/1	11/1
Carrier air wings (active/reserve)	13/2	11/2	10/1	10/1
Battle force ships (active/reserve)	546	430	354	346
Fighter wing equivalents (active/reserve)	24/12	15/11	13/7	13/7

[a] Dual entries in the table show data for active/reserve forces, except for carriers, which depicts deployable/training carriers.

[b] Bush Administration's planned FY 1995 force levels, as reflected in the January 1993 Annual Defense Report.

[c] An appropriate equivalent. Includes 15 enhanced readiness brigades. Backing up this force will be an Army National Guard strategic reserve of eight divisions (24 brigades), two separate brigade equivalents, and a scout group.

[d] One reserve Marine division, wing, and force service support group supports the active structure in all cases.

Table 32

Department of Defense Personnel
(End of Fiscal Year Strength in Thousands)

	FY 1987	FY 1997	FY 1998	Percent Change FY 1987-1998
Active Military	2,174	1,452	1,431	-34
Army	781	495	495	-37
Navy	587	402	391	-33
Marine Corps	199	174	174	-13
Air Force	607	381	371	-39
Selected Reserves	1,151	902	892	-22
DoD Civilians (FTEs*)	1,133	799	772	-32

* Full-time equivalents

Recapitalization of U.S. Forces

During the years following 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. One reason was the modernization achieved during the years of strong defense spending during the 1980s. Moreover, in spite of a sharp decline in procurement funding, the average age of U.S. military equipment did not increase, because as the forces were drawn down, older equipment was weeded out. But now that the drawdown in forces is virtually over, DoD's reprieve from equipment aging is over as well.

To ensure military readiness in the long term, the Department must modernize U.S. forces with new systems and upgrades to existing systems in order to maintain America's technological and qualitative superiority on the battlefield. Over the next several years, DoD will begin a recapitalization of U.S. forces which will be critical to the readiness of U.S. forces in the next century.

In his FY 1998 budget and FYDP, the President retains the goal of increasing procurement funding to $60 billion by FY 2001, a target the Administration established in its FY 1996 budget. By FY 2002, procurement spending is projected to reach $68 billion — in real terms 48 percent higher than in FY 1998.

The goal of DoD's modernization/recapitalization plan is to ensure a ready, flexible, and technologically superior force for a changing security environment. Numerous programs will help preserve America's battlefield dominance by exploiting information-age technology like advanced sensors, computers, and communications.

The DoD modernization plan reflects several priorities:

- Precision-guided bombs and other crucial enhancements for long-range bombers (B-1, B-2, B-52H), and autonomous precision munitions, to support a full range of conventional operations.
- Surveillance systems such as Joint Surveillance Target Attack Radar System (JSTARS), new unmanned aerial vehicles, and spaced-based infrared systems (SBIRS), which will provide enhanced, more timely warning of ballistic missile attack directly to theater forces.
- For several tactical missile systems, improvements to achieve greater accuracy and lethality; for example, the Longbow Hellfire II missile upgrade for Apache helicopters and an enhanced Tomahawk cruise missile.
- Airlift, most notably the C-17, and space lift (the EELV will provide assured, affordable access to space).
- Sealift and afloat prepositioning, especially large medium-speed roll-on/roll-off ships.
- Theater missile defense through new systems like the Patriot Advanced Capability-3 and Theater High Altitude Area Defense (THAAD) systems.

- Fundamental equipment needed by ground forces, such as tactical communications gear, trucks, and upgraded tanks and infantry fighting vehicles.

DoD modernization plans call for other new systems as well, including the Comanche armed reconnaissance helicopter, F-22 and F/A-18E/F fighter/attack aircraft, the Joint Strike Fighter, V-22 Osprey, Advanced Assault Amphibious Vehicle, LPD-17 Amphibious Transport Dock ship, DDG-51 guided-missile destroyers, and a new attack submarine.

For these DoD modernization programs to be realized, the President's defense topline for FY 1998-2003 must be approved by Congress. It also is critical that Congress support the specific spending allocation proposed for DoD weapons development and procurement and refrain from diverting funds to unrequested uses. Finally, the Department also must achieve its projected savings from infrastructure reductions, most importantly base closings, and from acquisition reform.

The Department's modernization/recapitalization plan is the result of intense assessments by many highly experienced defense leaders. They have produced a balanced, prudent plan to ensure the long-term readiness of U.S. forces well into the 21st century.

Research and Development

The new budget and FYDP support research and development (R&D) funding and programs that will ensure the future superiority of U.S. forces and weapons. Of particular note, the Science and Technology program seeks to foster both established technologies and longer term ones that promise greater military capabilities and/or reductions in costs. The Advanced Concept Technology Demonstration (ACTD) initiative seeks to accelerate the fielding of maturing technologies that are likely to yield high payoffs for U.S. forces.

Streamlining Infrastructure, Improving Management, and Outsourcing

Streamlining the U.S. defense infrastructure (bases, facilities, and support organizations) is a critical part of the restructuring of America's defense posture. It requires both reductions to infrastructure, as well as realignment to achieve optimum effectiveness and efficiency. Major reductions are being accomplished through the base realignment and closure process.

To get the most from every defense dollar, DoD leaders are vigorously pursuing improvements in all major management areas. Of particular note, fundamental acquisition reforms are achieving significant budget savings, as well as exploring applications of world-class practices to accomplish cost and time reductions in the development and production of defense materiel.

The Department continues to work hard to identify which of its functions might be transferred to the private sector without adversely affecting operations. The goal of this outsourcing is to increase efficiency, save money, and enhance efficiency. (See Chapter 13.)

DEFENSE BUDGET ISSUES

Readiness and Contingency Operations Costs

The Department continues to take action to prevent unbudgeted costs of operations like those in Bosnia or Southwest Asia from diverting funds needed for readiness, modernization, and other top priorities. While the Department does its best to mitigate the impact of these diversions, they are still disruptive and counterproductive. Fortunately, Congress has been very helpful in the financing of costs for these operations.

In its FY 1997 defense bill, Congress appropriated $1.3 billion to handle contingency operations costs that were projected at the time of the bill's completion. After that, two relevant developments occurred that now leave the Department facing $2.0 billion in unbudgeted FY 1997 contingency operations costs. First, last September new provocations by Iraq increased the intensity of operations in Southwest Asia. Second, this past November President Clinton decided to have U.S. forces participate in a new phase of operations in Bosnia. To cover these new projected costs, the Clinton Administration is requesting a FY 1997 supplemental appropriation of $2.0 billion.

Also being forwarded to Congress is a request for authority for the Secretary of Defense to rescind $4.8 billion in previously appropriated FY 1997 funds. The goal is to target spending that, in the Secretary's judgment, would not make significant contributions to U.S. military capabilities if spent. About $2.0 billion of these rescissions would be to offset the FY 1997 supplemental appropriations, and $2.8 billion would be to prevent DoD outlays from exceeding its budget targets in FY 1998 and FY 1999.

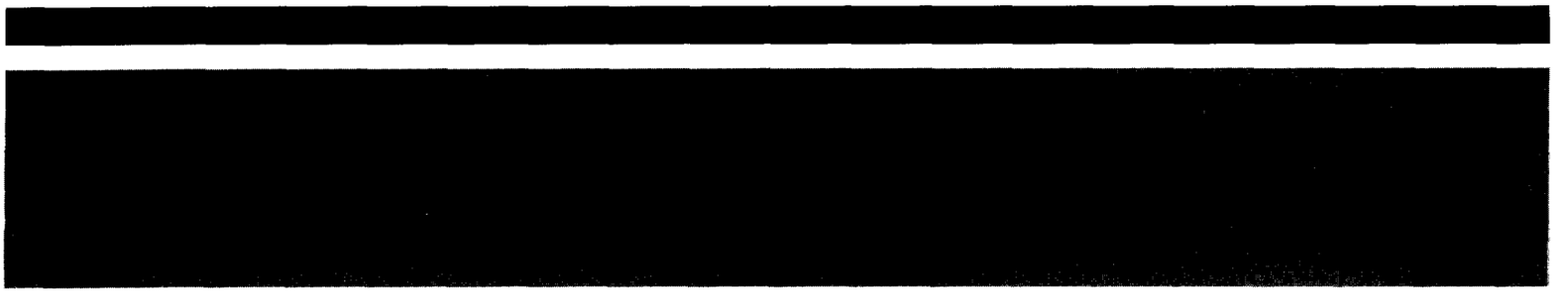
The FY 1998 budget carries forward the practice, begun last year, of requesting all funding projected to be needed for any operations expected in the new fiscal year. It requests $1.5 billion in FY 1998 for the Overseas Contingency Operations Transfer Account, to complete planned operations in and around Bosnia. Costs of other planned operations, such as Southern Watch in Iraq, are budgeted for in the various DoD account in which those costs are projected to occur.

Unrequested Spending

Each year Congress includes substantial spending in the defense budget that was not requested by the President. This invariably drains money from expenditures that would better enhance the nation's security. Sometimes the additions are for weapons or other uses included in the FYDP, but not planned for inclusion until some time after the budget year. In these cases, the issue is the timing of the expenditures — not whether the spending is needed. But when the additions are for non-FYDP uses, there is a more clear-cut diversion of funds from the spending requirements determined during the Department's rigorous program and budget review. Unrequested spending is especially damaging when it fails to take account of the future spending that it will generate.

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 1998 defense budget, and the strategy and plans on which it is based, support that need while remaining fiscally responsible.



REPORT OF THE SECRETARY OF THE ARMY

For over two hundred years, the United States Army has served the nation in peace and in war. It is truly America's Army — a Total Force consisting of the active Army, the Army National Guard, the Army Reserve, and civilian employees. It is the world's premier land combat force, trained and ready to answer the nation's call. The primary mission of our Army remains what it has always been — to fight and win the nation's wars. But the Army is also called on to perform a number of other important missions — from peacetime engagement, to preventing conflict, to providing humanitarian assistance. Whether conducting operations in support of national security policy, participating in joint and combined training exercises, or stationed overseas, American soldiers are the nation's standard bearers throughout the world. Committing the Army commits the nation. Soldiers on the ground are our nation's strongest signal of resolve and are the ultimate expression of American will.

The Army has changed significantly and must continue to change to meet the challenges of the post-Cold War world. It is now a power projection army, based largely in the United States. It is smaller, more versatile, and more deployable. It remains a highly skilled and professional Army, serving the nation in a challenging time. It is an indispensable component of the national security strategy of engagement and enlargement, forms the strategic core of joint military operations, and is essential to deterring or defeating an adversary.

SERVING THE NATION

The 1990s have seen a significant increase in the number of missions that the Army performs in support of the national security strategy. This increased demand accentuates the flexibility and importance of the Army in an ever-changing global environment. In the world today, ground forces are required to meet the requirements of engagement and enlargement.

Wars are won on the ground — history has confirmed this time and again. The Army contributes to the nation's ability to force a decision by providing unique capabilities to conduct sustained land combat. Our superior land combat force, logistical sustainability, communications, intelligence, and special operations forces capabilities are critical in war and essential to win the peace. The nation needs the Army to compel enemies, deter potential foes, reassure and lend stability to our allies, and in times of emergency, lend support to our communities at home.

When all else fails, the Army compels adversaries to yield to our nation's will through the conduct of sustained, high tempo land warfare under all conditions — day and night. This was demonstrated in operations to compel Noriega to leave Panama, Saddam Hussein to depart from Kuwait, and the military junta to leave Haiti. Success was assured because of the multiple capabilities built into a force that allows the nation to commit it, without reservation, into any situation.

The Army deters others from actions hostile to our nation's interests. Forward deployed Army forces provide continuous presence and represent U.S. commitment to our allies. They are our nation's strongest deterrent. American troops have deterred aggression in Europe and Korea for over 50 years. Today, the Army's ability to project power continues to deter aggression around the world. Trained, ready, sustainable, and rapidly deployable forces guarantee that aggression will be costly to potential adversaries. The deployments to Kuwait of over 6,000 soldiers in 1994 and 3,500 soldiers in 1996 were a compelling deterrent to Iraqi aggression.

The Army reassures friends and allies. American soldiers are a visible symbol of U.S. commitment to stand firm against any external threat to their sovereignty. The demand for Army forces is increasing — the majority of forces for missions to which America has committed its military resources since Operation Desert Storm have been Army. In the recent past, our deployment of Patriot missiles to Korea reassured Korean allies, and the deployment of forces to Haiti stabilized the political situation and provided time for democratic development. The almost 20,000 soldiers deployed to Bosnia professionally and firmly implemented the military aspects of the Dayton Peace Accords. Through the military-to-military contact program, the Army is taking an active role in the democratization of former Soviet and Eastern Bloc nations. The Army also continues to reassure allies in Kuwait, the Sinai, Macedonia, the border region of Ecuador and Peru, and in over 65 other countries around the world.

Finally, the Army supports communities throughout the United States. For decades, the Army has provided military support to civil authorities during natural disasters, civil disturbances, and other emergencies requiring humanitarian assistance. American soldiers provided logistical and security assistance to the Olympic Games in Atlanta; provided relief supplies, logistical support, and other equipment in the aftermath of Hurricane Fran; assisted local authorities in fighting fires in the West; and aided flood victims in the South, Midwest, and Northwest. Today, the Army continues to contribute to the counterdrug activities of international, federal, state, and local drug law enforcement agencies at home and abroad.

ARMY PRIORITIES: READINESS, MODERNIZATION, QUALITY OF LIFE

The Army's primary mission is to fight and win the nation's wars. In the post-Cold War world, the Army has also performed a number of other important missions — from peacetime engagement, to conflict prevention, to humanitarian assistance. The enormous importance of the Army's varied and wide-ranging missions and the limited resources that are available require careful consideration to the Army's priorities — readiness, modernization, and quality of life.

Readiness

The Army's highest priority is to maintain a trained and ready force. When a crisis arises, the President will not ask if the Army is ready. He will assume, and rightly so, that the Army is ready to secure the nation's interests, wherever and whenever needed. Tough, realistic, mission-focused training and high quality people ensure the Army is a force capable of decisive results in any endeavor.

America's Army maintains a steadfast commitment to quality training. It is one of the Army's greatest strengths. Our training system remains a model for other armies, particularly for new and developing democracies. The Army meets training readiness objectives primarily through home station training reinforced with quality training at combat training centers. These training centers provide the richest unit training by virtue of a professional staff, opposing forces, battlefield instrumentation, and feedback to participating units. The Army also participates in numerous joint and combined training exercises to enhance its ability to operate as a member of the joint team with the other Services and coalition forces. As committed as the Army is to quality training, it is also mindful of its environmental stewardship to protect the land, air, and water entrusted to it by the American people.

The Army also is investing in simulators and simulations to enhance training and produce more capable units in the future. Through an initiative called Future Army Schools — 21st Century, the Army is establishing a Total Army School System with fully integrated active Army, Army National Guard, and Army Reserve schools. The Army is leveraging information age technology in its distance learning program. This program allows the Army to deliver training and education to widely dispersed geographical areas where and when needed. Each component is expanding efforts to reduce duplication, share information and resources, and make tough decisions on necessary organizational change.

High quality people are absolutely imperative to maintaining a trained and ready army. They are the defining characteristic of a quality force and are the overarching requirement for America's Army. Peacekeeping operations, disaster relief, humanitarian missions, and other military operations require soldiers who are skilled, well-trained, and well-led. They must be capable of adapting to complex, dangerous, and ever-changing situations throughout the world, often while operating in small groups, in remote locations, and in ambiguous situations.

We continue to enjoy success in attracting and retaining high quality recruits. Today's soldiers are the best educated and well disciplined in our history. We are meeting our recruiting goals in the active Army, in terms of both quantity and quality. However, success is not easy in the recruiting business. The active Army recruiting mission continues to steadily increase as the drawdown concludes and we begin to replace losses one-for-one — from 63,000 in FY 1995 to 73,000 in 1996 and approximately 90,000 in 1997. We have added 350 noncommissioned officers to the active recruiting force since 1994. That increase provides the force needed to meet the continuing challenge. Increased funding for advertising also has produced significant results over the past two years. Our latest Youth Attitude Tracking Study shows an increased awareness among youth of the Army's opportunities. We will continue to succeed only with adequate funding and with the tenacity of our dedicated force of recruiters.

Sustaining the force is also a critical element of readiness and is necessary to achieve the intended objectives of any operation. Providing the needed fuel, ammunition, food, supplies, repair parts, medical support, repair of equipment, life support activities, transportation, and other aspects of support are crucial to the effectiveness, morale, welfare, and continued readiness of our force. It requires an extensive, complex, yet effective infrastructure to acquire, manage, store, move, and distribute the required materiel and services. Initiatives to modernize the Army's logistics infrastructure, such as Total Asset Visibility and Velocity Management, have provided more efficient and responsive support, while producing substantial savings. They will continue to challenge us as new technologies and concepts evolve.

Modernization

Modernization is a continuous process essential to ensuring the Army is capable of successfully responding to our nation's needs today and in the future. Modernization permits the Army to meet requirements with a more capable and versatile force. The Army faces tremendous opportunities and significant challenges as the 21st century rapidly approaches. Our modernization challenge is to leverage new technology to maximize our greatest asset — the American soldier. We must employ information age technology at every level and modernize our equipment to provide the technological overmatch needed to obtain rapid, decisive victory.

In order to achieve the level of modernization required to ensure our soldiers are adequately equipped, the Army must fund modernization more robustly. We are taking prudent steps to recapitalize our procurement and research, development, test, and evaluation accounts. We are achieving savings for reinvestment through acquisition reform efficiencies, by reducing infrastructure through careful and deliberate privatization, and through more efficient ways of doing business.

The Army's modernization program makes the best use of available resources. Our strategy is to balance capabilities to ensure a force capable of dominance across the full spectrum of military operations. Our modernization program is designed to ensure the Army retains the warfighting capabilities required to accomplish assigned missions and to maintain the ability to fight and win with minimum casualties as an integral part of a joint or combined team. The nation needs a modernized, flexible, and responsive force prepared to execute a wide range of military operations against diverse threats.

Because modernization dollars are limited, we are buying a limited number of new, high payoff weapons while extending the lives and capabilities of many existing systems. We will also retire some older, expensive-to-maintain systems that provide minimal return in combat capability. Upgrading proven weapons by

adding information technology will increase capabilities and lengthen the lives of our weapon systems. Still, the Army will eventually reach the point where additional product improvement of today's systems will provide only marginal benefits. Therefore, in the out-years of the Future Years Defense Program, we are programming the resources necessary to achieve decisive battlefield dominance.

The Army's modernization program continues the flight test program and development of the reconnaissance mission equipment for the Comanche helicopter and funds most of the demonstration and validation phase on the Crusader field artillery system. The program also continues improvements and upgrades to the Abrams tank, the Apache helicopter, the Bradley fighting vehicle, tactical and theater-level missile defense programs, and other systems that are essential to digitization of the battlefield. It also provides procurement funds for the family of medium tactical vehicles, which will modernize the Army's aging medium truck fleet.

Quality of Life

Quality of life for both married and single soldiers is a top priority of the Army. It is an extremely important factor in ensuring we attract and retain quality soldiers. Quality of life, more than any other single factor, influences a soldier's decision to reenlist or leave the Army. We are committed to ensuring our soldiers receive adequate pay, retirement benefits, health care, housing, family support, commissaries, and the prospect of a full and rewarding career.

The quality of life of family members also is important. Sixty-six percent of the Army's soldiers are married. As the Army deploys units more frequently, Army families must be prepared to deal with the stress and uncertainty that deployment brings. Through the Army Family Action Plan — a bottom-up process beginning with family symposia at the installation level and extending to the most senior Army leaders — the Army addresses quality of life issues and improves services to soldiers and their families.

Quality housing is another important example of our commitment to sustaining a suitable quality of life. The Army has increased funding for both family housing and barracks programs. We are focusing our efforts on investing in essential, high-payoff facilities. The Army's Barracks Program will transform barracks into single soldier communities that meet the design standard agreed upon by all the Services — a net living area of 118 square feet. The goal of our Army Family Housing Upgrade Program is to renovate family quarters on a 35-year cycle, while reducing recurring maintenance, energy consumption, and inconvenience to occupants.

Well-managed quality of life programs are critical to ensuring that the Army continues to attract and retain the quality people necessary to maintain a quality Army. A standard of living comparable to that found in civilian life is directly linked to successful mission accomplishment. The Army is committed to the continued improvement and enhancement of its quality of life programs.

THE 21ST CENTURY

America's Army is ready today and preparing for tomorrow. We are building the Army of 2010 today — Army XXI. But even as we build Army XXI, we have begun to anticipate changes beyond the year 2010 to provide the Army leadership with a long-term view of warfare in the next century.

The information age is upon us, and the Army is acting to take full advantage of digital technology. Our 21st century Army must be prepared to conduct quick, decisive, highly sophisticated operations. The Army will integrate emerging information technology with sound doctrine, reinvented organizations, and quality people to make a smaller force more lethal, more survivable, more versatile, and more deployable.

We are transforming an industrial age army into an information age army that will possess the capabilities America will need in the next century. By integrating information technologies with the weapons of today and tomorrow, leaders will be able to act on real-time information and near real-time intelligence. The capability to integrate all elements of combat power faster than an opponent will allow America's Army to overmatch any adversary and ensure decisive victory.

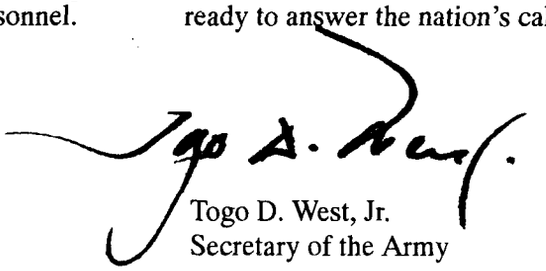
While retaining and improving the programs that have successfully built today's ready force, the Army is fundamentally changing the way it does business as it prepares for the future. The Army is at the forefront in implementing the National Performance Review principles and initiatives. These allow the testing of new and innovative ways of doing business. The Army has institutionalized a quality approach to managing change. We are redesigning the Department of the Army headquarters and major Army commands by

reexamining the way they function. We will divest the Army of those functions not absolutely essential, and reallocate resources to support our core capabilities.

The Army also is making fundamental changes in the way it develops, acquires, and fields new capabilities. Acquisition reform enables us to leverage resources, thereby creating significant savings needed for developing our 21st century Army. We have fostered significant acquisition successes by streamlining and reengineering our acquisition programs. Our dedication to real, lasting reform is reflected in our training program. We have trained over 5,000 personnel through our acquisition training seminars and are developing career path training programs for Army acquisition personnel.

CONCLUSION

The tasks America asks of the Army are more complex and more diverse than at any time in the past, but the expectation is and will remain the same — be ready to fight and win, to control the land, to force a decision. Warfare in the future will not be remote, bloodless, sterile, or risk free. It will still be war, and ultimately, wars are won by soldiers on the ground. Today's Army is trained and ready to deliver decisive victory across the full spectrum of military operations. Simultaneously, we are looking to and planning for the 21st century. As it has for over two centuries, the Army is and will remain ready to answer the nation's call.



Togo D. West, Jr.
Secretary of the Army

REPORT OF THE SECRETARY OF THE NAVY

ENDURING IMPACT . . . FROM THE SEA: READY, CAPABLE, AND INNOVATIVE TODAY AND INTO THE 21ST CENTURY

Events over the past year reaffirmed the enduring role that forward deployed, combat ready Naval Forces play in shaping the strategic environment. The presence of the Navy-Marine Corps Team around the world underscored American resolve, bolstered strategic and conventional deterrence, contained crises, reassured allies and potential coalition partners, and enhanced regional stability.

As reflected in Table 33, the Navy-Marine Corps Team remained the force of choice in response to international crisis in 1996. For example, in March the USS Nimitz (CVN-68) and USS Independence (CV-62) Carrier Battle Groups (CVBG) moved into the South China Sea in a measured, but swift response to tensions in the Taiwan Strait. From April through August, the 22nd Marine Expeditionary Unit (Special Operations Capable) [(MEU/SOC)] and the USS Guam (LPH-9) Amphibious Ready Group (ARG) evacuated over 750 American citizens and foreign nationals from war-torn Liberia and the Central African Republic. And in September, the USS Carl Vinson (CVN-70) CVBG was at the center of a joint response to Iraqi aggression against the Kurds. Daily, America's Naval Forces demonstrate their ability to support and defend U.S. national security interests through highly visible forward presence, expeditionary readiness, and potent on-scene power projection capability from the sea.

The ability to execute our strategy and support such diverse missions ultimately rests on the continued dedication and professionalism of our Sailors and Marines. The complexity of today's warfare environment requires the talents of quality personnel led by innovative leaders and a continuing allegiance to the core values of Honor, Courage, and Commitment. We must continue to attract and retain high caliber people to remain the world's preeminent naval power. Consequently, we are dedicated to three principles in support of our personnel — acquiring leading-edge equipment, providing realistic training, and emphasizing quality of life initiatives for our Sailors, Marines, Civilians, and their families.

Table 33

1996 Navy-Marine Corps Operations

DATE	OPERATIONS	FORCES	LOCATION
Jul 92-Mar 96	PROVIDE PROMISE (Humanitarian Operations)	America, George Washington CVBGs; Wasp, Guam, Saipan ARG: 22nd, 24th, 26th MEU/SOC	Bosnia
Aug 92-Present	SOUTHERN WATCH (Enforcement of No-Fly Zone)	America, Nimitz, George Washington, Carl Vinson, and Kitty Hawk CVBGs, and 2D MAW Units	Persian Gulf
Apr 93-Present	DENY FLIGHT transitioned to DECISIVE EDGE transitioned to DELIBERATE GUARD (Enforcement of No-Fly Zone)	2D MAW Units, Carrier Air Wings, and MP Sqdns.	Bosnia
Jun 92-Present	SHARP GUARD transitioned to DECISIVE ENHANCEMENT transitioned to DECISIVE ENDEAVOR (Enforcement of UN Sanctions)	America, George Washington CVBGs; Wasp, Guam, Saipan ARG: 22nd, 24th, 26th MEU/SOC	Adriatic Sea
May 94-Feb 96	SEA SIGNAL (Migrant Operations)	II MEF Units	Cuba
Mar 95-Apr 96	UNMIH (Reestablishment of Haitian Infrastructure)	Globally sourced Marine linguist/staff personnel	Haiti
Oct 95-Present	FULL ACCOUNTING (Accounting of POWs/MIAs)	1st MAW	Southeast Asia
Aug 95-Present	VIGILANT SENTINEL (Response to Iraqi Threats)	I MEF Units, MPS-2	Southwest Asia
Dec 95-Present	JOINT ENDEAVOR transitioned to JOINT GUARD (Enforcement of Dayton Accord)	22d, 24th, 26th MEU/SOC, Marine Corps Security Forces, I and II MEF UAV Units, NMCB 133 and 140	Bosnia
Mar-Apr 96	Flexible Deterrent Option	Independence and Nimitz CVBGs	Taiwan Strait
Apr 96-Present	USSPTGRPHAITI (Support for Haiti Operation)	MARFORLANT units	Haiti
Apr-Aug 96	ASSURED RESPONSE (Liberian NEO)	22d MEU/SOC, SPMAGTF Liberia, Guam ARG, II MEF Units	Bosnia
May-Aug 96	QUICK RESPONSE (Central African Republic NEO)	22d MEU/SOC, SPMAGTF Liberia, Guam ARG, II MEF Units	Liberia
Jun 96	21st Olympiad	Chemical-Biological Incident Response Force	Atlanta, Georgia
Jul-Oct 96	TWA 800 Salvage Operations	Grasp, Grapple, Oak Hill, Trenton, EOD Teams	Long Island, New York
Jul 96-Present	NAVCENT Security Enhancement	USMC Security Forces	Bahrain
Jul 96-Present	DESERT FOCUS (Counterintelligence support to JTF SWA)	Det I MEF	Southwest Asia
Jul 96-Present	PACIFIC HAVEN (Kurd Refugee Relocation)	MARFORPAC and II MEF units	Guam
Sep 96	DESERT STRIKE (Response to Iraqi Aggression)	Shiloh, Laboon, Carl Vinson, Russell, Hewitt. Jefferson City	Persian Gulf
Sep 96	Domestic Fire Fighting Support	I MEF Units	Oregon
Sep-Oct 96	MARATHON (Support for USCG Migrant Intercept Operations)	II MEF Units, Marine Corps Security Forces	Bermuda, Cuba
Sep 91-Present	Maritime Interdiction Operations	America, Nimitz, George Washington, Carl Vinson, and Kitty Hawk CVBGs	Persian Gulf
Oct 96	AeroPeru Flt 603 Salvage Support	UNITAS 96 EOD Det	Peru
Continuous	Counterdrug Operations	Navy/Marine Corps Active/Reserve Air, Surface, and Ground Units	Caribbean, East Pacific, U.S. Borders

The Department of the Navy is proud of its heritage of innovative thinking and long-standing contribution to national security. Our commitment to maintaining an immediate response capability for national security tasking, anytime and anywhere, remains paramount. As a member of the Joint Team, and with Joint Vision 2010 as a guide, the Department of the Navy is aggressively preparing for the future warfare environment to ensure continued operational primacy.

Equally important to our future success are the programmatic and acquisition decisions we make today. Detailed coordination between the Navy and Marine Corps during the Department's budget preparations, combined with streamlined acquisition procedures, will provide the Naval Services of the 21st century with modern, efficient, and affordable equipment.

NAVAL EXPEDITIONARY FORCES: PERSUASIVE IN PEACE, COMPELLING IN CRISIS, CAPABLE IN EVERY ASPECT OF WAR

The National Military Strategy defines two national military objectives—promoting stability and thwarting aggression — and three sets of tasks — peacetime engagement, deterrence and conflict prevention, and fight and win. Because we are a maritime nation with vital economic and security interests that span the earth's oceans, we must meet these objectives through the complementary concepts of overseas presence and power projection. Naval Forces are ideally suited to execute these concepts. Indeed, they are the centerpiece of the strategic guidance contained in the Naval White Papers . . . *From the Sea* and *Forward . . . From the Sea.*

Persuasive in Peace

Naval forces play a unique and vital role in maintaining U.S. overseas presence. Their full combat capability, inherent mobility, and capacity for self-sustained operations make them an expeditionary force without peer. Consequently, a balanced forward deployed Naval Force serves multiple purposes. It can simultaneously reassure friends and allies, build and enhance coalition interoperability, deter potential aggressors, and respond effectively to crisis or war. On any given day, roughly 30 percent of our Navy and Marine Corps — over 50,000 Sailors and Marines and 100 ships — are deployed throughout the world. Our CVBGs, ARGs, and MEUs are forward deployed to achieve near-continuous presence in three major regions: the Mediterranean Sea, the Persian Gulf/Indian Ocean, and the Western Pacific. In Japan, we maintain a Marine Expeditionary Force (MEF), as well as the forward stationed USS Independence (CV-62) CVBG and USS Belleau Wood (LHA-3) ARG. Finally, the Navy's Western Hemisphere Group is specifically focused on supporting our nation's counterdrug efforts, as well as strengthening and improving our ties to Caribbean and South American friends and allies. From these strategically placed forward locations, Naval Forces can quickly deploy to crisis areas outside these regions.

Naval Forces participate in the full gamut of peacetime engagement activities, such as multinational exercises, personnel exchanges, and port visits. These activities provide enormous benefits through military-to-military contacts, as well as promoting trust, respect, and good will in the local communities. While actively supporting the objectives of peacetime engagement, the presence of the potent power projection capabilities of a CVBG or ARG/MEU (SOC) often reshape situations before they reach the crisis level. Additionally, Navy and Marine Corps cooperative efforts with the sea, land, and air forces of friends and allies are a key ingredient for successful coalition building. Because sea-based forces do not require sophisticated support facilities ashore to operate with other nations, the burden imposed on an exercising partner's infrastructure is limited. Ultimately, these activities provide tangible evidence of our commitment to peace and regional security.

As a key tenet of the National Military Strategy, our military forces must present a credible deterrent to an adversary's most potent weapon. As long as nuclear weapons are deployed in a manner that threatens our homeland or other national interests, we must continue to discourage their proliferation and use. Fundamental to overall nuclear deterrence is our highly mobile and capable strategic ballistic missile submarine force. This force, able to remain undetected at sea, is the most survivable element of the nation's strategic nuclear triad.

The prevention of conflict through deterrence remains a primary function of the Navy-Marine Corps Team, intrinsically and inseparably linked to their ability to fight and win. Their high profile while forward deployed provides a deterrent effect against intimidation and aggression that facilitates regional stability, including the economic stability so vital to our nation. Forward deployed Naval Forces also serve as a concrete symbol of the powerful joint forces that can be projected from the continental United States. Naval presence and

capabilities combine to make our forces persuasive in peace.

Compelling in Crisis

Naval Forces conducting peacetime engagement simultaneously serve the nation by providing immediate crisis response capabilities. Their expeditionary character becomes more pronounced when nations are reluctant to offer visible support or grant access for fear of reprisal or because warning is ambiguous. Operating in an uncertain world, the Navy-Marine Corps Team — highly mobile, self-sustaining, and responsive in nature — is a prudent first choice when our national interests are threatened. Naval Forces, on-scene at the onset of a crisis or conflict, represent the nation's willingness to act and share in the risks. To limit the extent of a crisis, U.S. leadership is provided with a wide range of options including strike operations, naval fires, amphibious operations, special operations, and Marine Air-Ground Task Forces (MAGTF) operations ashore.

An increasingly important issue in promoting regional stability is our emerging ability to extend theater missile defenses (TMD) to joint forces, friends, and allies. Mobile sea-based TMD will enhance the security of allies and friendly nations by providing defense against missile attacks by rogue states. Building on the existing Aegis system, the Navy is vigorously pursuing area and theater missile defense capabilities.

The Navy-Marine Corps Team remains a powerful, visible, and credible instrument for supporting national policies and preventing conflict. Forward deployed Naval Forces, expeditionary and adaptive in nature, are the preeminent force for responding to impending crises. When necessary, they can bring sustained, decisive force to bear. Naval Forces represent our nation's global interests — most of which reside within the littorals. Their on-scene capability, ready to respond immediately to the nation's tasking, makes them compelling in crisis.

Capable in Every Aspect of War

The ability to fight and win against any adversary is the irreducible core of what the nation's military must do. Naval Forces are an integral part of this joint capability. When deterrence fails, forward deployed Naval Forces, working with other U.S. and coalition forces, must blunt an adversary's offensive, prevent the consolidation of his position, and protect friendly forces until additional combat forces can arrive in theater. Naval Forces must also ensure maritime superiority and provide the strategic sea lift to transport joint and allied forces into theater. The sea control, strategic sealift, and forced entry capabilities inherent in our Naval Forces are essential to Joint Force dominant maneuver. The threat of amphibious operations disrupts enemy planning and execution, forcing him to either concentrate his forces at the most likely avenues of approach or spread his defenses thin to cover the entire threatened area. In either case, the enemy's action or inaction will expose gaps and vulnerabilities that joint or combined forces can exploit.

Maneuver operations from the sea provide an opportunity to use unique Naval advantages in executing precision engagement. Naval precision engagement underscores the Navy-Marine Corps Team's ability to tailor force packages for specialized and task organized missions, to employ special operations forces and MAGTF, and to deliver extremely accurate and high volume naval fires.

Naval Forces also provide the defensive umbrella under which joint and combined forces can safely deploy during a conflict. These forces counter enemy threats from the air, land, or sea. Developing capabilities will respond to information warfare and ballistic missile threats. Beyond defensive measures, Naval contributions to full dimensional protection will include enhanced offensive measures to eliminate potential threats at the source. Sea-based defenses will, in many circumstances, be the only capability available at the onset of a crisis. They provide critical protection to forces flowing into theater by airlift, sealift, or prepositioning ships. Overall, Naval Forces provide critical contributions during all phases of a conflict, and demonstrate a wide range of capabilities in every aspect of war.

PEOPLE: THE MEANS TO SUCCESS

The most vital resource of the Navy-Marine Corps Team is our people — active, reserve, and civilian. The intense demands of a modern, high technology Naval Force operating in a complex foreign littoral environment requires highly motivated, well-trained and responsibly-led Sailors and Marines. The daily sacrifices of our people, who are deployed around the globe to ensure the security of the United States, deserve the best possible career and family support. Wise investment of resources in people and their families will maintain the Navy-Marine Corps Team as the world's preeminent Naval Force and will ensure the Department

of the Navy enters the 21st century on a solid foundation.

The Department's readiness depends on the ability to attract and retain high quality people. While challenging, 1996 was a highly successful year for Navy and Marine Corps recruiting. Navy and Marine Corps recruiters achieved 100 percent of their enlisted accession goal through targeted marketing. The strategy successfully procured qualified individuals for particular skill areas needed most in the Fleet and Fleet Marine Forces, while achieving significant progress in recruiting minorities. Minority accessions will be the most representative in the Department's history. Although low national unemployment and other changes in demographics combined to create a tough recruiting environment, the academic quality of enlisted recruits remained high; 95 percent possessed a high school diploma and more than 66 percent scored in the upper half of the Armed Forces Qualification Test.

The year was also successful for officer recruiting, with nearly all programs attaining 100 percent of their goal. Medical recruiting accessed 36 percent more physicians and dentists than just one year ago. Similar increases were achieved for Pilots and Naval Flight Officers.

To continue the positive momentum of the Navy-Marine Corps recruiting effort, the Department of the Navy proposed several initiatives to improve the process. The addition of more recruiters to the force and the approval of a congressionally sponsored increase to recruiter Special Duty Assignment Pay will help maintain the best recruiters in this challenging assignment.

Adopting proven methods from the commercial sector, the Navy successfully tested the concept of using professional telemarketers, resulting in over 34,000 quality leads for recruiters. Additionally, a 60-second infomercial was developed for selected cable networks. This promising program generated leads comparable to direct mail efforts and will be further evaluated during 1997. Traditional commercials emphasizing core values are well received and continue to be a major recruiting tool to reach the general populace. Based on new recruit surveys, our FY 1996 advertising program worked. The Department of Defense Youth Attitude Tracking Survey registered the first positive movement in male youth desire to join the Navy since 1991.

For the Marine Corps, the propensity to enlist remained constant. This is largely attributable to an effective yet prudent advertising program. An increase in the direct mail budget realized a 25 percent rise in contacts. The Internet also proved to be a useful low cost source of leads and contacts. Continued improvements include an expanded enhanced area canvassing effort through event partnerships with youth oriented programs. This program, along with other cost-effective methods, are directly connecting our recruiters and youth market, with promising results.

Maintaining a quality force is a key element of overall readiness, and retention of our Sailors and Marines is a critical component. We have many tools to accomplish this. Special pays and bonuses are targeted for those skills most costly to replace. The Selective Reenlistment Bonus (SRB) and Special Duty Assignment Pay (SDAP) are two of these. The enlisted SRB program is the Navy and Marine Corps' most cost-effective tool for increasing or maintaining the retention of high quality people and highly technical skills. It provides the capability to respond quickly and precisely to changes in either requirements or retention.

Similar to bonuses, special pays provide compensation for personnel serving in specific billets, locations, or types of arduous duty. SDAP is used to attract high quality volunteers into the most demanding and responsible billets. This permits significant savings in the areas of permanent change of station (PCS) costs and retraining of new personnel for those billets.

These bonuses and special pays are also essential tools for ensuring our future inventory of Navy and Marine Corps officers will meet diverse and highly technical requirements. Examples of these include Nuclear Officer Incentive Pay, Aviation Continuation Pay, and Medical Officer Incentive Special Pay. Bonuses and special pays help us to remain competitive for those skills which can be directly utilized in certain civilian industries. As a case in point, problems were encountered in Marine Corps aviator retention, primarily due to a major increase in civilian airline hiring. The Marine Corps has expanded its Aviation Retention Pay program in FY 1997 to reverse this trend. Improved retention in mission-critical skills and compensation for our personnel serving in these environments allow us to maintain peak readiness and morale. This is critical in today's all volunteer force.

This year, the Navy has initiated a new Homebasing Program designed to reduce the turbulence and costs associated with PCS moves. Since 1980, the number of Sailors with families has increased from 42 percent to 57 percent. The Homebasing Program's goals are to

improve the Sailor's quality of life and improve retention.

Voluntary education programs make a significant contribution to recruiting, retention, and readiness. For those already in the service, the vast majority of Tuition Assistance users are our prime retention candidates in pay grades E-4 to E-6. Offering continuous access to educational opportunities is one of the most effective ways to increase the proficiency and capabilities of our personnel, and retain a quality force for the 21st century. Demonstrating our commitment to voluntary education, we made concerted efforts toward standardizing Tuition Assistance payment policy; improving distance learning opportunities through the Program for Afloat College Education and the Marine Corps Satellite Education Network; expanding access to basic academic skills learning (reading, writing, and math); and establishing an official educational transcript program that will ensure military personnel receive full academic credit for their educational experiences.

The transformation process of making Sailors and Marines is challenging. This requires an emphasis on instilling the ideals and core values of our Naval Services to build an effective fighting force. The Marine Corps has improved and made harder its tried and true methods of transforming young men and women into United States Marines. The process has been strengthened in four phases including: recruiting, recruit training, the strengthening of cohesion, and sustaining the transformation. In the recruit training phase, an additional week has been added to focus on core values and includes a 54 hour Crucible event that serves as the defining moment in the recruit training experience. Additionally, portions of Basic Warrior Training were combined with Marine Combat Training to create an improved continuum of combat skills instruction and application. The Navy adopted the concept of mentorship and individual stewardship to further promote internalizing core values.

Leadership and professional education remain a high priority. The Navy's Leadership Continuum is a total career concept of professional education and development designed to groom and prepare our personnel for the challenges of leadership. It includes resident and nonresident schools and courses, and an extensive professional reading program. Key elements of this professional military education are required either for promotion eligibility or immediately following promotion. Additionally, the Marine Corps University continues to expand education opportunities through improved non-resident professional military education courses, distance learning resources, video-teleconferencing, and virtual seminar and conference groups. Finally, the Navy Civilian Leadership Development program is designed to establish a framework of technical and leadership training for civilian employees.

The Department of the Navy is fully committed to ensuring our personnel are provided a working environment which promotes success. We continue our dedication to important areas, such as promoting Core Values and Equal Opportunity, while preventing sexual harassment and drug and alcohol abuse. These efforts are also reflected in our recruiting campaigns to ensure young people joining the Navy and Marine Corps Team understand our expectations and are willing to serve at this caliber of excellence. The benefits of imbuing these values in our people enrich our nation, whether an individual stays in the service or returns to civilian life.

While it is imperative that our Naval Forces are well trained and equipped, it is equally important that we maintain the highest possible quality of life for our personnel and their families. An adequate package of compensation and benefits and a positive environment that offers service members the tools to reach their full potential are key to retaining quality people.

Bachelor and family housing continue to be a high priority quality of life issue in the Department. Recently, a private sector housing strategy was accepted and later enhanced by the public-private venture introduced by the 1996 Family Housing Revitalization Act. It was expanded to include bachelor housing in 1997. Revitalization and construction of bachelor and family housing depend on the use of these authorities. A combination of these approaches will permit accelerated achievement of the Department's goals without increasing costs.

Another critically important workforce issue is quality child care at affordable prices. Several options to meet the growing child care demand are underway or being developed. These initiatives include contracting for spaces in qualifying off-base civilian centers, expanding Family Child Care to include off-base residences, enhancing our Resource and Referral Program, encouraging school-age care partnerships, and obtaining wrap-around contracts with local providers.

We also remain committed to providing a full range of community and family support services for our family members. These services help prepare family members for the challenges of frequent relocations, major life

transitions, employment opportunities, deployments, and mobilizations. In cases where the demands of work and personal life become increasingly difficult, family members can seek counseling from their nearest Family Service Center. Additional funding is programmed in FY 1998 for counseling services to ensure the highest quality professional assistance is available.

One of the most important facets of individual and family support is the spiritual services supplied by our Chaplain Corps. In addition to providing critical pastoral teachings, the over 800 Navy chaplains continue to foster initiatives for our Sailors, Marines, and their families in numerous religious and counseling programs.

Finally, the Department continues to ensure single member needs are also addressed. Funding has been earmarked specifically for single Sailor and Marine programs, such as pierside laundry facilities and secure parking and storage for deployed personnel.

While there have been dramatic changes in the world environment requiring changes in our Naval Forces, we remain committed to our most valuable asset: the Sailors, Marines, civilians, and families who make up the Navy-Marine Corps Team. The Department is fully committed to building the strongest possible Naval Force, capable of meeting every contingency while maintaining the highest standards of character and ethical behavior.

READINESS: PERFORMANCE TODAY . . . PREPARATION FOR TOMORROW

Navy and Marine Corps readiness is high today, but concerns about the future persist. Readiness requires a careful balance between force structure and recapitalization. Failure to properly balance force structure and recapitalization could result in a force that is ready today, but has mortgaged the future with a smaller, aging, and ultimately less capable force.

As fiscal resources become increasingly constrained, unfunded contingencies that require deployment of additional ships, squadrons, and Marines cause reductions in other accounts, which directly affect current readiness. The Navy and Marine Corps Active and Reserve Operation and Maintenance (O&M) accounts bear the burden of supporting unfunded contingencies. Diverting programmed O&M funds delays vital equipment repairs and disrupts quality training.

The shift in the National Security Strategy from fighting a global war to meeting the challenges of regional contingencies has changed the focus of the Naval and Marine Corps Reserves. Instead of training solely for wartime mobilization, our Reserves are completely immersed in significant training and operations in day-to-day support of the active duty forces. In 1996, Navy and Marine Corps Reservists routinely provided tens-of-thousands of man-days in support of the active component while acquiring operational experience. This total force integration of Navy and Marine Corps Reserves provides a significant offset to the operating and personnel tempo of the active component and, as a result, increases overall readiness.

Future readiness requires investment today. Both the Navy and Marine Corps are planning increases in procurement and R&D accounts to guarantee future readiness. These actions must be taken in concert with maintaining readiness today. New Attack Submarines (NSSN), San Antonio-class LPDs (LPD-17), and the F/A-18 E/F Super Hornet will replace their aging predecessors in the near term. Next generation platforms and systems, such as the Surface Combatant of the 21st century (SC-21), MV-22 aircraft, the Joint Strike Fighter (JSF), Advanced Amphibious Assault Vehicle (AAAV), and Theater Missile Defense are essential long-term investments. Where considered most cost efficient, current systems, such as the AV-8B Harrier and P-3 Orion aircraft, are being remanufactured or given service life extensions. Cost efficiencies are also sought by designing ships such as the new Arsenal Ship with reduced manning requirements. Whether giving new life to old systems or taking a technology leap to systems of the next century, it is only through proper funding of modernization accounts that Naval Forces will be able to support the national security and military strategies in the future. The budget constraints challenge us to create and maintain the correct balance between current and future readiness. Both are important and neither can be ignored. The Department believes that within these constraints a correct balance has been made.

TECHNOLOGY: INNOVATION AND MODERNIZATION

Mature, carefully integrated technology is the linchpin for a Naval Force required to operate in disparate regions of the world. Yet, the price of technology can be prohibitive without the correct mixture of innovation and modernization. Our approach relies on an acquisition investment strategy that maximizes our scarce procurement dollars without compromising quality or

losing critical capabilities. This strategy must capture the cutting edge of technology to guarantee the continued operational primacy of our Navy-Marine Corps Team. Our goal is to maintain a balance between reinvigorating older platforms through technology insertion and acquiring the next generation of systems.

Solid, proven platforms are superb candidates for modernization. The Arleigh Burke-class (DDG-51) destroyer, Los Angeles-class (SSN 688) submarine, AV-8B Harrier, F/A-18 Hornet, and the Marine Corps' light and medium vehicles are perfectly suited to this approach. Modernizing these platforms is fiscally sound. For example, a relatively small investment in Arleigh Burke destroyer modernization initiatives results in exceptional capabilities upgrades. Similarly, a remanufactured AV-8B saves more than 20 percent compared to the cost of a new aircraft.

While modernization of major systems is appropriate in the short term, retaining our operational primacy requires recapitalization. A successful recapitalization program requires continued support from Congress to achieve production goals and acquisition timelines. Our investment strategy must remain executable to avoid losing future capabilities.

New generation platforms, such as the JSF and AAAV, are critical replacements for older technology. By the time some of these platforms enter active service, they will replace systems which have been on the front lines for 30 or more years. Our strategy maximizes the return on our investment. One example of this strategy is the dual-track recapitalization philosophy being pursued with CVN-77. In addition to modernizing the carrier force, CVN-77 will incorporate innovative technologies for both existing and future aircraft carriers. Most importantly, CVN-77 maintains the carrier force level while facilitating long-term planning for CVX, a completely new and revolutionary air capable platform for the 21st century.

In another approach, revolutionary technology will be introduced through platforms such as the tilt-rotor MV-22 Osprey, the replacement for aging CH-46E and CH-53A/D helicopters. The MV-22 will radically change the battlefield and stimulate further use of advanced technology.

Advanced Enclosed Mast System (AEMS) is an excellent example of using technology insertion to produce advanced equipment at a reduced cost. AEMS encloses rotating antennas in a composite structure to reduce radar signature, improve sensor performance, and reduce maintenance. The AEMS will be installed on the USS Radford (DD-968) during FY 1997 and is under consideration for the San Antonio-class (LPD-17) ships.

Every day, our Sailors and Marines operate complicated systems around the world in extremely diverse and challenging physical environments. To contend with these complex requirements, we must embrace change and keep pace with rapid technological advances. Training, materials, systems, and platforms all require cutting edge technology. Consequently, the Department is using the latest business applications, commercial off-the-shelf (COTS) technology, and streamlined acquisition methods to expand capabilities for the future. These methods ensure new technology is readily available to our Sailors and Marines. The use of COTS in systems such Battle Force Tactical Training; command, control, communication, computer and intelligence equipment; and submarine sonar processing and display equipment are examples of accelerating technology insertion into the Fleet.

Naval science and technology efforts ensure tomorrow's dominance in critical areas. A few areas which demand technological superiority include: the rapid collection, analysis, and dissemination of tactical information; weapons maintenance, dependability, and delivery; and incorporation and use of new materials. To ensure the required technology is in place when needed, the Department's program will span the entire technology spectrum: basic and applied research, advanced technology development, and a vigorous manufacturing technology program. Additionally, since commercial technology opportunities are generally more abundant, the Department will foster partnerships with the other Services, government agencies, academia, and industry to reduce the cost of acquiring new technology.

The Department of the Navy has made great strides in the pursuit of international programs to assist modernization requirements and reduce costs. Cooperative research, development, and acquisition activities on key programs such as Joint Strike Fighter, Multifunctional Information Distribution System, and the Evolved Sea Sparrow Missile (ESSM) are already underway. International cooperation in such projects resulted in contributions of over $800 million by foreign partners in 1994 and 1995, plus the application of world-class foreign technology to meet mutual needs. Innovative activities in foreign military sales also have a positive impact on modernization efforts. For example, F/A-18

foreign military sales produced $2.3 billion in unit cost savings associated with domestic F/A-18 purchases over the past 18 years. In addition to the savings realized through technology and modernization burden sharing, international programs result in the deployment of common equipment in the forces of allied and friendly nations, directly enhancing coalition building. In view of recent successes, the Department plans to expand the scope of international activities which will minimize duplicative investment, and result in a greater number of high quality, high payoff cooperative programs in future years.

EFFICIENCY: THE QUEST FOR EXCELLENCE

Today's fiscal realities clearly mandate efficient, responsible utilization of our precious resources. The Department continues to search for better and smarter ways of doing business. Our Sailors, Marines, and Civilian professionals have been steadfast in efforts to scrutinize every aspect of our operations, infrastructure, and methodology to identify efficiencies and cost savings. Additionally, we are capitalizing on enabling technologies, employing lessons learned from other successful defense programs, and implementing acquisition policies that stabilize our out-year procurement funding. Initiatives in four key areas provide a basis for these efficiencies: infrastructure reform, acquisition reform, organizational reform, and innovative business practice implementation.

Infrastructure reform is being pursued through a number of venues. The Department of the Navy aggressively implemented the Base Realignment and Closure (BRAC) strategy identified during the four BRAC rounds. To date, 115 of 178 required BRAC closures and realignments have been completed, and all remaining actions will be accomplished within the mandated six year time frame. The Department is intensifying efforts to implement BRAC actions to reap the savings. The prompt and efficient closure and disposal of excess shore infrastructure is expected to yield significant savings over the course of BRAC implementation — almost $2 billion in FY 1997, growing to a steady-state savings of approximately $2.7 billion after FY 1999. These funds can and should be directed to support remaining infrastructure as well as force modernization initiatives. The potential savings make it imperative that BRAC actions remain appropriately funded. Otherwise, delays could reduce anticipated savings and create new closure costs. The Department has budgeted about $1.4 billion in FY 1997, and almost $1 billion in FY 1998 to meet this goal. The FY 1997 funding will complete all remaining BRAC 1991 moves and realignments. This will leave the Department with most major closure actions completed, and a substantial portion of the environmental remediation actions required for property disposal and conveyance well underway. The FY 1998 budget submission reflects a change in direction, with more funds dedicated to support disposal actions than to construction and moving, firmly demonstrating the Department's commitment to prepare excess infrastructure for follow-on redevelopment.

A significant effort over the past year has focused on stabilizing the civilian shipbuilding industrial base, a crucial part of the nation's industrial readiness. As an example of this partnership, commercial shipyards are deeply involved in the construction of Arleigh Burke-class destroyers through innovative multiyear contracting. The industrial base is also doing its share to facilitate efficiency by adopting innovative business practices to reduce costs and improve product quality. This approach is crucial in helping the Department of the Navy transition to the future.

Shore installations and Marine Corps bases are complex activities similar to towns or small cities. Each installation provides hundreds of services, including law enforcement, food, medical, fitness, and communications. Most of these have civilian or industrial equivalents. The Department has initiated a program to leverage commercial technology and methods. This program, known as SMART BASE, will examine the use of state-of-the-market commercial technologies and methods that can reduce the cost of running shore installations. Classified as an Advanced Concept Technology Demonstration and a Re-Invention Laboratory, SMART BASE is empowered to use abbreviated acquisition procedures and authority to waive regulations as required for rapid, direct implementation.

Likewise, the Department is looking for similar savings by identifying the best candidates for commercialization or privatization. Cost savings and efficiencies are anticipated through the realignment of certain operations to commercial activities. The SMART BASE initiative and regional maintenance strategy are two examples which promise significant returns. These programs will improve efficiency through state-of-the-art commercial technology and consolidation of certain facilities to reduce operating costs, respectively. And while not considered a reform initiative, stabilizing our ship building industry through multiyear contracting is

considered essential to the long-term health of our industrial base.

Acquisition reform is being implemented across the full spectrum of Department of the Navy programs. As an example, the newest class of amphibious warfare ship, LPD 17, is capitalizing on acquisition reform initiatives to change fundamentally the way ships are designed, built, acquired, and operated. This program uses competitive teams of shipbuilders and systems integrators to design a new class of amphibious warfare ship.

Another success is the Joint Lightweight 155 (LW155) Towed Howitzer Program. This program is demonstrating the power and efficiency of Integrated Product Teams (IPT) by moving through developmental phase approval in just one year. The success of the LW155 Program, with multiagency, multiservice, IPT concepts, is spurring similar application to programs at lower category levels, resulting in tremendous cost and time savings.

The F/A-18 E/F Super Hornet is a model program; an affordable, low risk continuation of the proven F/A-18C/D aircraft. This acquisition success story is proceeding on cost, on schedule, and meeting or exceeding all performance requirements and will be ready for fleet introduction in FY 2001.

Organizational reform is taking place in both the operational forces and in the Service staffs. 1996 marked the first full year for fleet reorganization designed to maximize training and to meet changing operational commitments worldwide. Stand up of the 5th Fleet in Southwest Asia and the reorganization of our forces into 12 core battle groups enhanced operational integrity and increased the efficient use of our Fleets. Improvements to internal staff functioning and the Combat Development System are both a focus of the Marine Corps. Through its Business Enterprise, proven Department of Defense and industry techniques are adopted and key processes such as resource allocation and information management are improved.

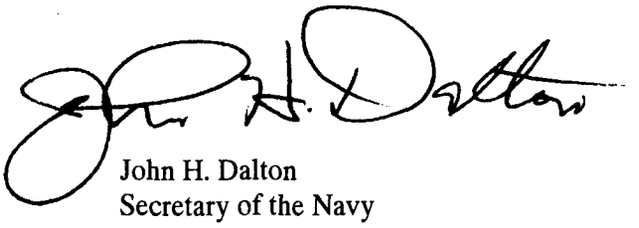
The Department is also evaluating and incorporating the best available commercial business practices. The implementation of Integrated Process Teams is one of the most important initiatives for encouraging cost avoidance and meeting schedules and performance goals. Similarly, regionalizing common support services in areas of fleet concentration will create additional efficiencies and savings. Finally, international cooperative programs provide a means to reduce research, development, and acquisition costs in systems such as the Joint Strike Fighter and the ESSM.

These reforms translate into major program successes. From the New Attack Submarine to the antiarmor Predator program, efficiencies are being realized. The Department's dedication to achieving every efficiency possible — a continuing quest for excellence — will contribute to future modernization and readiness.

CONCLUSION: CHARTING A COURSE FOR THE FUTURE, READY AND CAPABLE TODAY

The ultimate value of any organization is its ability to perform when required. In 1996, the Navy-Marine Corps Team responded successfully around the globe and across the spectrum of operations, from peacetime presence through humanitarian support to crisis response and combat. Operations included direct action to deter Iraqi aggression, a show of force to diffuse tensions between China and Taiwan, embassy protection and evacuation in Africa, counterdrug support in the Caribbean and Eastern Pacific, and humanitarian assistance in the waters off the coast of Peru. Within the continental United States, Sailors and Marines answered the call for antiterrorist support during the 1996 Atlanta Summer Olympic Games, provided manpower and equipment to fight forest fires in California, and supplied the essential resources to conduct the recovery operation of TWA Flight 800 off Long Island, New York. The Navy-Marine Corps Team, with its inherent mobility, firepower, flexibility, and self-contained sustainability, is tailor-made to contend with this diverse range of missions.

Throughout the Department of the Navy, dedicated men and women have used the solid foundation of... *From The Sea* and *Forward... From The Sea* to deal with the complexities of today's international environment. We have also charted a course for the future which will blend the finest Sailors and Marines in the world with the proper tools to meet the requirements of our National Security Strategy and National Military Strategy. Because of our enduring emphasis on people, readiness, efficiency, innovation, and modernization, the Navy-Marine Corps Team is on-station, on-call, and ready: today, tomorrow, and into the 21st century.



John H. Dalton
Secretary of the Navy

REPORT OF THE SECRETARY OF THE AIR FORCE

INTRODUCTION

On September 18, 1996, the Air Force entered its 50th Anniversary year, celebrating it with the theme "Golden legacy — boundless future." The Air Force has been engaged around the globe this past year, exploiting the flexibility of air and space power to meet this nation's strategic needs.

CURRENT OPERATIONS

Global Attack. The United States military demonstrated its global reach in Operation Desert Strike, the joint strike against Iraqi air defense facilities. In the first strike, B-52s from Barksdale Air Force Base (AFB), Louisiana, staged out of Guam on a 34-hour mission and fired 13 conventional air-launched cruise missiles (CALCMs) while the U.S. Navy fired an additional 14 Tomahawk Land Attack Missiles (TLAMs) from the USS Shiloh and the USS Laboon. During this mission, the B-52 and CALCM weapon systems demonstrated their capability for rapid enroute retargeting, providing the joint force with additional target coverage and strike flexibility that otherwise would have been unavailable.

Sustained Theater Operations. Beyond global reach and responsiveness, the Air Force offers a unique ability to sustain high-tempo air operations over extended periods of time. Over the past year for example, we sustained Operations Southern Watch over southern Iraq, Provide Comfort over northern Iraq, and Joint Endeavor over Bosnia. In each operation, with superb support from the Air Force Reserve component, we worked hand-in-hand with our coalition partners and forces from our sister Services.

The Air Force continued to play a role in Bosnia as NATO deployed its peacekeeping force. The Air Force has now flown more than 5,000 sorties over Bosnia, providing the full range of theater air capabilities. At the peak of operations in 1996, we had over 4,100 people deployed in five nations supporting NATO-led contingency operations.

The coalition air operation over southern Iraq, Operation Southern Watch, continued, with the Air Force having flown over 28,800 sorties in this coalition effort as of the end of 1996 — 68 percent of the total for the operation. Similarly, the Air Force executed the bulk of the missions over northern Iraq in Operation Provide Comfort, flying over 4,800 sorties in 1996 alone — about 60 percent of the coalition total.

Force Protection. The June 1996 bombing of the Khobar Towers in Saudi Arabia accelerated Air Force efforts to protect its forces operating around the globe and gave us new insights into the operating methods of world terrorism. Responding to this tragedy, the Air Force, in conjunction with the United States Army, assisted in the repatriation of over 900 Department of Defense military, civilian personnel, and family members; relocated the majority of our Southern Watch forces to Al Kharj; and instituted an aggressive series of force protection measures throughout the United States Central Command area of responsibility.

Air Expeditionary Force. We look to the Air Expeditionary Force (AEF) to provide a flexible, quick-response force to fill theater needs across the spectrum of conflict. Because it is designed to deploy rapidly when needed, and operate for limited periods in theater, the impact on the host nation is less than with permanently based forces. In addition to their operational capabilities, the AEF has provided powerful opportunities for working with host nations, improving military-to-military relations, and laying the foundation for future coalitions.

The Air Force exercised this concept with AEF deployments to Bahrain, Qatar, and Jordan in 1996. These forces demonstrated the power of the AEF concept in providing rapid, tailored capability to fill theater requirements. These AEFs were tasked with flying their first combat sorties in less than 72 hours of notification to deploy, and they were totally successful in meeting this requirement. Each provided a balanced capability for air superiority, precision attack missions, and suppression of enemy air defenses.

In the near-term, we must anticipate the need to deploy lethal and nonlethal AEFs to areas outside the Middle East, and to exercise them under controlled conditions during some of our upcoming exercises. For the long-term, we expect AEFs to mature into a significant component of our global capability, and to adapt our operational and logistics systems to accommodate their widespread use.

Space Launches and Operations. During 1996, the Air Force conducted 33 successful space launches. The Eastern Range supported 25 space launches, while the Western Range supported another eight. Of particular note, we launched five Titan IV heavy-lift vehicles, all on the first attempt and all achieving successful orbital entry. Two of these launches were done three weeks apart, demonstrating our increased turn-around capacity. The Delta II launch vehicle continued its string of successful launches with another 10 in 1996.

The Air Force recently demonstrated an increased global situational awareness in Bosnia when direct satellite feeds were used to transmit live unmanned aerial vehicle (UAV) images to theater commanders and supporting forces via the Joint Broadcast Service (JBS). Efforts are currently underway to provide an identical capability, globally, through a program known as Global Broadcast Service (GBS).

In the area of survivable military satellite communications, we increased our on-orbit capability by launching the second Milstar satellite. This satellite is providing commanders in the East Atlantic and European theaters with nuclear survivable, jam-resistant, communications connectivity between subordinate combat forces, key military leaders, and national-level authorities residing in the United States.

Noncombatant Evacuation Operations. Between April 9 and 14, 1996, an Air Force contingent deployed from Royal Air Force Mildenhall, United Kingdom, and executed the evacuation of Americans and third country nationals from Liberia in support of Operation Assured Response. The Air Force led the effort to evacuate approximately 2,400 people from Liberia through Freetown, Sierra Leone, to Dakar, Senegal, under the cover of AC-130 gunships.

Domestic Assistance. While the Air National Guard (ANG), in support of its state mission, provides the primary Air Force response to domestic emergencies across the country, the Air Force has stepped forward in a federal role to assist in disaster relief within the United States as well. For example, we responded with airlift support following Hurricane Fran and assisted in damage assessment of the afflicted areas. As fires raged out of control across the western United States last summer, our Air National Guard and Air Force Reserve flew over 400 sorties, and dropped more than one million gallons of water and an additional 10 million pounds of fire retardant to help control the blazes.

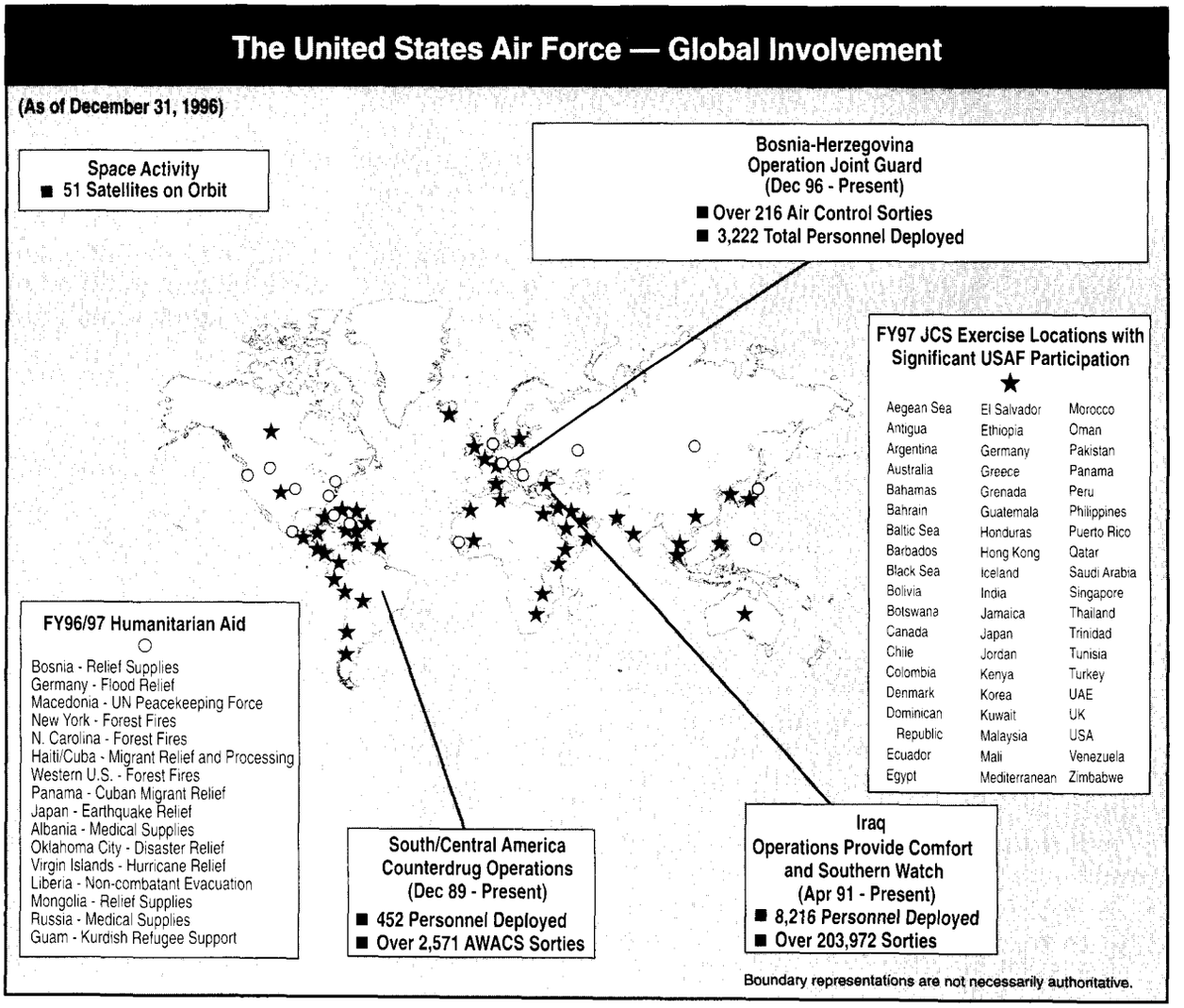
Engagement/Partnership for Peace. The Air Force is intensely engaged around the world in supporting the national security strategy of engagement and enlargement. Thousands of airmen are engaged in military-to-military activities around the globe — from the Joint Contact Team Program in Central and Eastern Europe to Constructive Engagement with China. In 1996, Air

Force units participated in 11 Partnership for Peace exercises with 28 nations.

OPERATING TEMPO/PERSONNEL TEMPO

Since the end of the Cold War, the Air Force has stepped up to an Operating Tempo (OPTEMPO) four times that of the Cold War Air Force — while reducing its force structure by about 40 percent across the board and with 32 percent fewer people. That increase in taskings has, of course, increased demands on our people, our units, and our weapon systems. Over and above our existing forward presence, on an average day in 1996, about 13,700 Air Force men and women were deployed on missions ranging from combat in Bosnia and Iraq, to humanitarian aid in Africa and the Caribbean. In a very real sense, this is a direct result of our providing the precision and flexibility our nation needs across the diplomatic and political spectrum — Air Force capabilities are in demand around the world.

The Air Force has therefore taken a series of steps to posture our force to sustain this tempo. We established a goal for limiting the time our people spend deployed to no more than 120 days/year and are developing a system for tracking that metric. We have structured a strategy to meet that goal: first, share the burden of these taskings across the force so that temporary duty (TDY) days are more equitable; second, eliminate or find alternative capabilities where taskings allow; and third, adjust our forces where appropriate to meet the need, using the ANG and Reserves when possible.



The Air Force has been able to reduce the load on some units by relying on our sister Services or our allies to fill mission requirements — for example, Navy EA-6Bs and E-2Cs. In some cases, we have reduced taskings by the operational commanders where the balance of operational requirements in theater, versus the long-term health of our force, demanded.

Finally, we have taken steps to strengthen some portions of our force which are facing particularly heavy demands. As an example, we established a Reserve associate unit for our Airborne Warning and Control System (AWACS) wing at Tinker AFB to reduce the Personnel Tempo (PERSTEMPO) in that highly-tasked system; and we have begun the procurement of two additional RC-135 RIVET JOINT aircraft to lessen the worldwide TDY mission load on the current fleet of 14 airframes. Using AEFs offers the potential to help relieve the heavy PERSTEMPO load. Through the careful use of AEFs, the Air Force will be able to provide a rapid response capability anywhere in the world, while reducing the need for standing deployments.

This aggressive range of management actions has already begun to have a positive effect. In 1994, personnel operating or supporting more than 13 of our weapon systems exceeded the 120-day goal for deployed time; in 1996, that number was down to four. Low-density, high demand career fields are still a challenge. In particular, Combat Control Teams, as well as RC-135RJ, A/OA-10A, HC-130, and U-2 weapon systems, remain the most highly tasked assets. The Air Force will continue to work this issue to enable us to provide these capabilities while maintaining reasonable PERSTEMPO into the future.

We also recognize the imperative to take care of the families of our deployed personnel. For example, the Family Support Center (FSC) Family Readiness Program aided our families impacted by the Khobar Towers bombing and paid for food and lodging for those families living in low-lying areas near Pope AFB — getting them to a safe shelter before Hurricane Fran hit. Our 84 FSCs are doing an excellent job of supporting the families of our people. The FSC Career Focus Program provides family members with information on career/employment opportunities and strategies for job search as a result of relocation.

LONG-RANGE PLANNING

Global Reach-Global Power, published in 1991, outlined the Air Force's strategic vision for the early post-Cold War period. While it effectively guided the Air Force through this period, it became clear that we needed to extend our vision into the first quarter of the next century. Over the past year, the Air Force did exactly that, with an unprecedented long-range planning effort involving both the headquarters and our field commands. In October 1996, the Air Force leadership, both civilian and military, sketched out its broad vision for our future growth, captured in *Global Engagement: A Vision for the 21st Century Air Force.*

This vision extends across the range of Air Force activities — operations, personnel, and infrastructure. It provides a comprehensive map for our future growth, defined by the expertise and experience from all elements of our force. Over the coming year, we will focus on converting this broad vision into a plan, and on implementing a series of initiatives agreed during the October conference.

AIR FORCE CONTRIBUTIONS TO THE JOINT TEAM

The Air Force's central responsibility is to develop, train, equip, sustain, and integrate the elements of air and space power that produce these core competencies:

- Air and space superiority.
- Global attack.
- Rapid global mobility.
- Precision engagement.
- Information superiority.
- Agile combat support.

AIR AND SPACE SUPERIORITY

Our first order of business is to establish control over the entire vertical dimension — the domain of air and space power. This control provides us with the freedom to operate, freedom from attack, and freedom to attack — not just for air forces, but for every member of the joint team. Simply put, air and space superiority is the key to winning wars with the fewest casualties.

We are looking ahead to ensure that we can fill this need far into the future. The key component in this effort is the F-22 — the successor to the F-15 as our air superiority fighter. This aircraft will bring a revolutionary combination of stealth, supercruise, and integrated avionics to the fight, providing an overwhelming advantage against the sophisticated threats that will increasingly proliferate around the world in the years to come. It remains on course for its first flight in the spring of 1997, and for introduction into service in 2004. The F-22, combined with the Joint Strike Fighter (JSF), which will be fielded about 2008, will replace the mix of F-15s, F-16s, and A-10s that has served the nation so well over the past decades. The JSF, like the F-22, is on track toward its Initial Operational Capability (IOC), as we downselected from three competitors to two in November 1996.

Aside from the risk of attack by advanced enemy aircraft, deployed U.S. forces face a dangerous theater missile threat as well — a threat that has already taken American lives and is proliferating around the world. In 1996, the Airborne Laser (ABL) program transitioned from a technology demonstrator into a key acquisition program, to counter that threat. We demonstrated the required laser power and chemical efficiency while making significant strides in maturing the tracking and beam control portions of the ABL. In November 1996, Boeing was selected as the contractor to bring this revolutionary system into service in the first years of the next century. With the ABL, the Air Force steps across a threshold to a new era of directed-energy weapons. More significantly, we will provide our forces a boost-phase theater missile intercept capability — a true weapon of deterrence. By attacking Theater Ballistic Missiles (TBMs) early, the enemy faces the potential of having his own weapon fall back upon his homeland.

The Air Force is pursuing the airborne laser not only for its revolutionary combat potential, but as part of an overall system of theater missile defense capabilities. The most effective way to combat missile threats is with a layered capability: offensive counter air and attack operations to find, fix, and destroy launchers and their support equipment as well as enemy command and control; boost-phase interception of missiles in flight; and mid-course and terminal interceptors. The layered systems will all be provided with the best intelligence, surveillance, and reconnaissance possible, and linked with an effective theater-wide command and control system. The Air Force has extensive experience with just such a system of systems to counter enemy air operations, with the result that in all our past conflicts since 1952, no American troops have suffered an attack from enemy aircraft. The Air Force is working to extend this expertise to shape the architecture for counter-missile operations by supporting emerging technologies in Cruise Missile Defense (CMD) and National Missile Defense (NMD).

Spacelift is fundamental to our achieving air and space superiority in the future. The Air Force is currently taking the necessary steps to move beyond the current family of intercontinental ballistic missile (ICBM)-based vehicles for our launch capabilities, expecting to reduce launch costs by 25-50 percent as we do so. In December 1996, the Air Force downselected the Evolved Expendable Launch Vehicle (EELV) program competitors from four to two, keeping the program on track for a 2001 first test launch for the medium launch system, and 2003 for the first heavy test launch. This program offers clear advantages not just for the Air Force, but for other national security users and for the commercial sector as well.

Another major continuing effort over the past year was the Space-Based Infrared System, or SBIRS. This system will replace the Defense Support Program (DSP) early warning system in the first part of the next century. This system will provide more rapid detection and warning to theater forces of strategic launches, improved capability to detect and track theater missile launches, and a cueing capability for missile defense systems.

GLOBAL ATTACK

The special quality of the Air Force lies in its ability to project power rapidly, precisely, and globally. We demonstrated this quality, as noted earlier, in the B-52/CALCM strikes against Iraq in the summer of 1996. The ability to rapidly re-target weapons enroute provided the flexibility Joint Force Commanders needed to conduct that joint strike. While global response is a capability that the Air Force has focused on since its founding days, we are now working to improve flexibility and response time.

In particular, that need is driving upgrades to improve the conventional response capability of our bomber force. Our B-1 force has fielded and is undergoing further upgrades to improve combat capability, and in 1996, fielded the capability to drop cluster bomb munitions. The B-2 has also shown steady progress in a conventional role, with the GATS/GAM (Global Positioning System (GPS) Aided Targeting System/GPS

Aided Munition) program providing it a much improved capability at low cost, relatively quickly. During a test mission in Nevada in October 1996, three B-2s destroyed 16 targets with 16 bombs using this system — a dramatic demonstration of capability. This mission vividly demonstrated the ability for individual aircraft to engage and destroy multiple targets per pass.

Although the risk of worldwide nuclear conflict is substantially lower today than during the Cold War, nuclear deterrence remains an important component of national security. The global attack capability of our ICBMs and nuclear capable bombers continues to provide the nation with an essential capability.

RAPID GLOBAL MOBILITY

Our ability to rapidly respond to the full spectrum of contingencies from humanitarian relief to peacekeeping, to major conflicts, is a prerequisite for winning future conflicts. The speed, range, and flexibility that are unique to air and space forces are essential ingredients for success, and we continue to aggressively pursue systems and processes that increase our capability to respond anywhere, anytime, and with decisive influence.

The C-17 will provide the backbone of our airlift capability far into the future. 1996 was a remarkable year for that aircraft. Its very existence in doubt a few years ago, it has successfully demonstrated its capability in deployments around the world in its first full year in operation. Its most dramatic exploit perhaps, was the insertion of 15 Bradley Fighting Vehicles and floating bridge sections into Tuzla in late December 1995 to bolster ground presence and enable the U.S. Army troop crossing at the Sava River in Bosnia. Recognizing its maturity, the Air Force signed a multiyear procurement contract that will ensure stable funding as we bring on this essential system. It is our highest-priority program in the near term.

PRECISION ENGAGEMENT

When one thinks of precision engagement, it is perhaps too easy to reflect on the vivid pictures of weapons flying down air vents or smashing into hangars. Certainly, that sort of precision delivery is a key part of this Air Force core competency, but precision engagement is much broader and more demanding than merely ensuring that you can hit what you aim at. It entails the ability to bring together the global awareness of objectives and priorities with the ability to apply overwhelming and decisive air and space power.

Historically, the world's air forces have faced technical and operational restrictions in their ability to deliver precision weapons at night or in bad weather. We now own the night, as demonstrated in Operation Desert Storm, and are well along in our efforts to develop an all-weather precision capability with the next generation of conventional weaponry. These weapons, the Joint Direct Attack Munition (JDAM), Joint Air-to-Surface Standoff Missile (JASSM), and Joint Standoff Weapon (JSOW), will provide a complementary mix of capabilities, creating a range of options for our forces.

AGILE COMBAT SUPPORT

The old adage that amateurs talk strategy, professionals talk logistics, remains as true today as it has been for centuries.

Like so much else, our concept for logistics support for our combat forces has evolved since the end of the Cold War. The Air Force is moving away from deploying masses of materiel to support our forces, and instead is using high-velocity, high-reliability transportation and information systems to get the right parts to the right place at the right time. Through this approach, we will increase our operational capability while reducing both our mobility footprint and our costs.

We are extending the concept of reachback to include elements ranging from command, control, communications, computers, and intelligence (C^4I), logistics, and personnel, exploiting information technology to reduce our footprint in the deployed location. Time definite resupply will be an important part of improving this capability in the future. This, coupled with a combined logistical architecture of lighter, more reliable equipment designed for support from an agile information based logistics system, will yield a revolution in combat support. Indeed, the success of the Air Expeditionary Force will ultimately rest on our ability to deploy rapidly and to sustain U.S. forces effectively once deployed.

INFORMATION SUPERIORITY

Success in the 21st century will require that we rely more and more on the ability to use and protect our information technology. The pace and volume of the

flow of information enabled by modern technology provide advantages to the nation's military forces — but with these advantages come vulnerabilities as well. On October 1, 1995, we stood up the 609th Information Warfare Squadron (IWS), the Air Force's first IWS, at Shaw AFB, South Carolina. The 609th IWS will help ensure that we can protect our own information systems, both in garrison and when deployed, as we develop the ability to attack those of our adversaries.

The Air Force has long fielded the heavyweights of the information war, systems such as the U-2, AWACS, Joint Surveillance Target Attack Radar System (JSTARS), and RIVET JOINT. These aircraft are among those most in demand around the world today, as our Joint Force Commanders seek to gain the information superiority that they need to execute their missions. The Air Force is exploiting new capabilities in these aircraft. As an example, we recently fielded the Rapid Targeting System, which builds on the capabilities of our Contingency Airborne Reconnaissance System and enables near real-time transmission of U-2 imagery to the cockpit of airborne fighters. In the not-too-distant future, we will standardize our network of linked weapons, Intelligence, Surveillance, Reconnaissance, and command and control (C^2) platforms — increasing our commanders' situational awareness and avoiding any blindspots.

The Air Force crossed a historic threshold in 1996, assuming operational control of the Predator UAV. This system moved into operations directly from its Advanced Concept Technology Demonstration (ACTD) phase, which generated problems with support and operational flexibility. Despite growing pains, Predator has been a workhorse over Bosnia and has provided a wealth of information to our joint forces there. In July 1995, we established our first UAV squadron, the 11th Reconnaissance Squadron, at the Nellis AFB complex in Nevada, to speed the maturation of our efforts in the employment of UAVs. We learned a great deal about the employment of UAVs, and with the 11th Reconnaissance Squadron reaching IOC in October 1997, the Air Force will be poised to exploit them more effectively in future operations.

AIR FORCE PEOPLE

When people think of the Air Force, they rightly think of high technology — of supersonic aircraft, satellites orbiting overhead, computers, and communications networks at the leading edge of technology. But it is not our technology that makes us successful. It is the people operating the technology — their dedication, their skill, their education, and most importantly, the core values by which they live and work.

CORE VALUES

Our core values are essential to our very existence as an institution. These fundamental and timeless values — integrity first, service before self, and excellence in all we do — form the bedrock of our force. It is crucial to our capabilities that our members share a common understanding of these values, and live by them.

To strengthen our efforts in this area, the Air Force has decided to institute an Air and Space Basic Course for all newly commissioned officers and selected civilians. This course will provide them with a common, shared foundation in Air Force core values as well as in the doctrine, and operations of employing air and space power. Over time, we will follow up this initial training with a continuing education process in technical training, our professional military education courses, and in periodic refresher training. We will ensure the most solid possible foundation of institutional integrity for the force of the future.

LEADERSHIP INITIATIVES

Leadership has always been an art and has always been at the heart of military effectiveness. Today we find our leaders at all levels challenged by new responsibilities as they operate in an increasingly complex environment. So, over the past two years we have fundamentally restructured our approaches to selecting, training, and supporting our leaders — and we will continue to refine these processes.

In 1995, for the first time, the Air Force conducted a Command Screening Board to identify eligible colonels and colonel selects to fill wing commander and group commander vacancies. Through this process, we ensure officers most qualified to command are identified so that the future leadership of our Air Force is comprised of the best people.

The next essential element in effective leadership is preparation for command — and here again, we have refined our approach. Once selected for command, all wing, group, and squadron commanders now receive formal resident training prior to assuming command. These courses emphasize command responsibility,

accountability, and discipline. In addition to these fundamentals, the courses include case studies and time-sensitive topics for effective command in this very complex environment — with a focus on issues ranging from violence in the workplace, to equal opportunity and diversity in the workplace, to outsourcing and privatization.

QUALITY OF LIFE

The Air Force traditionally works at the leading edge of technology and relies on highly trained and disciplined people throughout the ranks to sustain that approach. That strategy depends on our ability to recruit, train, and retain quality people — and ultimately, to provide a reasonable quality of life for our people serving this nation. People are at the top of our priority list, and the Air Force has benefited enormously from Secretary of Defense and congressional support for enhanced quality of life (QOL) for our people.

The Air Force Quality of Life strategy is to pursue a balanced approach supporting our seven priorities: fair and equitable compensation; safe, affordable housing; quality health care; OPTEMPO/PERSTEMPO considerations (the demands our operational tempo places on our people); increased community programs; improved retirement systems and benefits; and continued support to educational programs.

Air Force Quality of Life initiatives rank compensation and benefits as our first priority in ensuring the right quality of life for our people. Congress has already taken steps necessary to embed pay adjustments for inflation in our program, so that in future years, there will be no surprises and these adjustments can be made within a planned framework. The 3 percent pay raise authorized in FY 1997 will close the private sector pay gap, but clearly we have some distance yet to travel in this area.

The report by the Marsh Commission framed Secretary of Defense Perry's priorities, and with congressional support, the Air Force made gains in many of these areas. For example, the Air Force continues to place great emphasis on upgrading housing throughout the force. Over 1996, the Air Force began a long-term effort to improve the quality of our housing for unaccompanied enlisted members. Initiatives range from the approval of new construction and assignment standards, to renovation of old dormitories. We also began construction of our first-ever Dormitory Master Plan to establish a common yardstick for our installations and improve our management oversight in this crucial area. We expect to complete this effort by the summer of 1997.

Already these initiatives are bearing fruit. The Air Force began implementing the new DoD one-plus-one dormitory standard, with 28 such dormitories approved for construction in FY 1996. We will follow these with another 20 projects in FY 1997. And we established an institutional goal of eliminating all gang latrines in permanent party dorms by the year 1999. All of these initiatives, and this considerable capital investment, represent our commitment to meet our single and unaccompanied members' highest priority concern in quality of life — privacy.

For Air Force families, we need to revitalize over 58,000 housing units. With the average age of our housing units now over 34 years, this is a major requirement as we seek to improve living conditions for our people.

It appears that as we move ahead to improve our family housing, privatization offers a real opportunity for improved quality with limited investment of Air Force resources. The Air Force's first project in this area will be at Lackland AFB, Texas, where we identified a deficit of 580 units and another 521 units as substandard. To address this problem, the Air Force has funded a 420 unit project including construction of new units, demolition of existing substandard units, and ownership and operation of the new housing by the developer. We expect this innovative approach to provide a pattern for others to follow.

Finally, the Air Force is continuing to focus attention and resources on providing our people the child care they need to enable them to perform their duties. The increased requirement of high PERSTEMPO and the demands of changing society where more of our families have both parents employed have expanded the demand for child care. We need about 86,000 child care spaces to meet these demands. Over the past year, we added 325 trained personnel and will increase our child care capabilities to 65 percent over the next five years, while keeping parent fees stable.

REVOLUTION IN BUSINESS PRACTICES

If the Air Force is to succeed in its modernization and QOL initiatives, we must free up resources through a revolution in business practices. The Air Force cannot afford to continue traditional means of doing business

in acquiring and supporting our forces. We have therefore instituted an aggressive series of reforms that extend across the range of our infrastructure and acquisition practices.

ACQUISITION REFORM

In 1995, I reported on the Lightning Bolt initiatives, designed to jump-start our acquisition reform. In 1996, I can report that these have succeeded beyond our expectations — and that they are generating the cultural change across the force that is essential for their long-term effect. Already, the Air Force has identified about $17 billion in savings and cost avoidance through these measures, and we are still exploring this terrain. Our focus will be to continue to press these reforms aggressively and to broaden our focus into two new areas. First, the Air Force will sharpen our processes for defining operational requirements by improving the dialogue between our acquisition experts and our operators. The intent is to prevent the shifting requirements that in the past have led to program instability. The second major thrust line will be to work toward closer cooperation among the financial, program evaluation, and acquisition communities — again, with the intent to improve financial stability.

The JDAM program provides a vivid example of the benefits we are reaping from acquisition reform. We will acquire that system at $14,000 per unit instead of our projected $40,000; we will buy out the program in 10 years instead of the projected 15; and we will receive a warranty increase from five years to 20.

OUTSOURCING AND PRIVATIZATION

Outsourcing and privatization provide an essential means of freeing resources to apply toward modernization. More than that, these steps enable the Air Force to harness the expertise of the commercial sector for our needs and to enable us to focus more consistently on our core responsibilities.

Over 1996, the Air Force has made considerable progress in this very complex arena. We successfully transitioned the depot work at Newark Air Force Station to private contractors. We are in the early stages of depot maintenance competition for a large portion of the Sacramento Air Logistics Center workload and the C-5 business area at Kelly AFB. We have progressed toward completing a strategic plan covering the range of our outsourcing and privatization initiatives and expect to finish that this coming year, and we have identified those areas where we expect to find the most near-term payoffs: support functions, depot maintenance, and military family housing.

The key to our success in the support area is competition between the public and private sector. Our most notable example, and also our largest competition to date, is a recent cost comparison of Aircraft Maintenance at Altus AFB, Oklahoma. The competition, completed in only 16 months, was won by a streamlined in-house organization which reduced its manpower by 49 percent, and resulted in a $95 million savings over five years.

COMMERCIAL OFF-THE-SHELF TECHNOLOGY

The distinction between military technology and commercial systems has become increasingly blurred over recent years. The line that once divided the commercial sector from defense industry, too, has faded. It has become increasingly attractive to employ off-the-shelf commercial technologies in our systems. The Air Force is aggressively pursuing those technologies — and we are abolishing old prohibitions that limited our ability to take advantage of them.

One vivid example is what is now called the GBS, which we are now using to provide upgraded flow of data to our deployed forces. By using an existing commercial satellite constellation to provide an interim operational capability, we saved an estimated $800 million.

The Air Force has used this same approach to structure our acquisition of the VC-32A, our next-generation long-range executive transport, to procure four Boeing 757 aircraft. By using commercially available off-the-shelf technologies, we have saved almost $40 million per aircraft, and reduced acquisition time by about one-third.

FINANCIAL MANAGEMENT

Ultimately, the success of all these measures relies on sound financial management practices and good business sense. The Air Force financial management community has worked hard to improve business practices, quality of management accounting data, and financial reports required by the Chief Financial Officers (CFO) Act of 1990. These financial reports not only provide meaningful information to senior Air

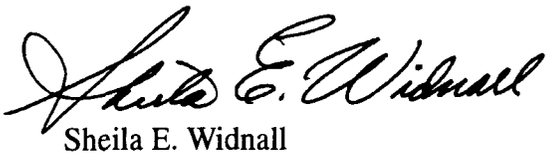
Force managers, but also assurances to the public that the Air Force is a good steward of its financial resources.

The Air Force has made fast moving progress in shaping reform and bringing about change. Problem disbursements have been reduced up to 90 percent since 1993. Antideficiency violations are down nearly 80 percent since 1994. Nearly 70 percent of the CFO audit recommendations have been corrected, and generally the remaining corrective actions represent the critical long-range financial system improvements required for CFO Act compliance. Corrective actions required for existing financial and other systems are being prioritized and implemented. In instances where systems are being replaced, the Operational Requirements Document now stipulates that the new system be compliant with Federal Generally Accepted Accounting Principles.

The Air Force also developed an Automated Battlefield System (ABS) to improve our ability to accomplish those financial transactions that must be done during overseas operations. The ABS, which consists of a simple piece of software that works with ground-based communication equipment or a portable satellite transmission device, permits the user to access all financial information resident in stateside computers. The ABS avoided the need to develop costly new software for use during contingency operations.

CONCLUSION

Air Force people have built a force that is engaged around the globe, and we are building the capabilities our nation will need from its air and space force in the future. The Air Force is proud of its golden legacy of service over the past 50 years and of our current role in support of our national strategy of engagement and enlargement. We stand ready to work along side of the rest of the joint team to secure our country's security for the next 50 years and beyond.



Sheila E. Widnall
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 (Board) observations and recommendations of the past year. The annual report of the Board will provide a comprehensive review of all aspects of Reserve component programs and include a summary of the Board's positions and recommendations on specific issues.

Two of the Board's areas of interest have been jointness and the increasing reliance on Reserve components as the active component is downsized. Joint operational readiness is the key to our ability as a nation to respond to threats to U.S. security and international stability, to deal with national and international emergencies, and to conduct activities that contribute to the national welfare. Joint readiness is the ability of all our forces to be prepared, trained, fully manned, interoperable, and supportive across Service and component lines.

In last year's Report of the Chairman, at the request of the Secretary of Defense, the Board assessed the Report on the Commission on Roles and Missions of the Armed Forces (CORM). The CORM brought into focus a number of issues revolving around jointness, as well as increased use of Reserve forces. The willingness of the Services to take up the issues of the CORM has been excellent. This was aided inestimably by Secretary of Defense Perry. The results of the Board's study of the CORM report identified three themes that are essential elements for continued growth and evolution of the Reserve component's contribution to the National Military Strategy: integration, jointness, and increased Reserve and Guard participation in peace operations and Military Operations Other Than War (MOOTW).

As the United States has moved toward a smaller military establishment, reductions in the active force have necessitated heavier reliance on the Reserve components. The Board knows that the Reserve components are both cost-effective and capable. The Reserve components stand ready to accept additional responsibilities. However, the Reserve components must be adequately resourced, given greater flexibility in providing personnel support to MOOTWs, as well as more timely recall notification when possible.

The Joint Staff has been strong, solid, and inventive in dealing with joint issues. It has been involved well beyond the strategic level and has effectively used mechanisms such as Process Action Teams (PAT) to resolve joint issues that involve Services, commanders in chief (CINCs), and the Joint Staff. The problems encountered during Operation Joint Endeavor, the U.S.

involvement in the Implementation Force in Bosnia, resulted in the Joint Staff sponsoring a PAT to resolve the issues identified with the Presidential Selected Reserve Call-up (PSRC). The PAT consisted of representatives from the Joint Staff, the United States European Command (USEUCOM), the CINCs, and all the Service components. This PAT led to a major redesign in Reserve force inclusion in CINC contingency plans. The CINCs will identify forces in contingency plans to allow more timely notification. The emphasis on general rather than specific numbers of mobilized Reservists will provide more flexibility to the CINCs, Services, and Reserve components.

The Reserve component now works closely with the Joint Requirements Oversight Council (JROC) to resolve cross-Service requirement issues and to assist the Chairman of the Joint Chiefs of Staff in carrying out his responsibility to assess military warfighting capabilities. The JROC also directs assessment of specific joint military capability areas, examines key relationships and interactions between joint warfighting capabilities, and identifies opportunities for improving warfighting effectiveness. This council is necessary to support joint issues from a Total Force perspective. The Reserve component's effort alongside the JROC has been successful for both Active and Reserve components. Unquestionably, Reserve membership in the Joint Warfighting Capabilities Assessment (JWCA) is essential. Reserve participation will provide the CINCs and Joint Staff with a better understanding of Reserve capabilities. Participation in this process will result in the inclusion of appropriate Guard and Reserve forces in contingency operations and war plans. Participation in this activity is a logical step in making the Reserve forces joint.

At the urging of Secretary Perry, Board and staff representatives observed how Reserves were doing in Operation Joint Endeavor. The field study started with visits to Fort Benning, Georgia, and Fort Dix, New Jersey, during the winter of 1996 to observe the PSRC announced December 8, 1995. The Services achieved the difficult but appropriate balance necessary to fill the CINC's requirements for this operation while maintaining the nation's ability to respond to any rapidly developing major regional conflict. The Guard and Reserve leaders and members anticipated a call-up, using their resources to man and equip their lower tiered units to bring them up to the necessary level of readiness. Despite the lack of early warning, the Guard and Reserve came to the colors. Some were mobilized and some volunteered, but all were well-motivated and fully prepared to accomplish their mission. Observations made during the visit indicated the Active, Guard, and Reserve came together as a team; there was a greater degree of mutual acceptance among components; the mobilization stations were well organized; installation commanders showed great interest in soldier support; and deploying Reserve component members received the same intense training as deploying active component members. The Reserve components were in good physical condition; approximately one percent were nondeployable due to medical conditions. There were some issues noted: education protections are not as well established as those for employment; certain elements of the PSRC, such as more timely notification, need fine-tuning; and modern technology could eliminate the requirement for the reissuance of the military ID card. In early calendar year 1996, Board representatives visited Germany, Hungary, and Italy to talk with senior leaders, planners, and Reservists in the field supporting Operation Joint Endeavor. Bottom line: in the field, Total Force is working.

In August 1996, the Board traveled to Fort Dix, New Jersey, to welcome home returning Reservists from Bosnia and to observe first-hand the demobilization process. Field studies provide the Board one of its primary means to identify issues/problems that can be further studied and resolved. Although it is unsure what effect the PSRC and MOOTW will have on Reserve recruiting and retention, the Board is carefully monitoring the issue. Minor problems identified by the Board to the Services were dealt with quickly and expeditiously. Larger problems were identified, worked, and resolved as a result of the Joint Staff PAT.

While Operation Joint Endeavor demonstrates the important contributions Reserve component members are making, it also affords the Board an opportunity to deliberate on issues to improve upon the readiness of the Reserve components: a single joint Total Force identification card; government fares for Reservists traveling to their duty site; physical exams for Reservists at military treatment facilities, hospitals, and clinics; foreign employer support; joint facilities; compatible equipment; family support to Individual Mobilization Augmentee (IMA) and Individual Ready Reserve (IRR) members; equal opportunity to earn the Soldier's Medal; joint billet/joint unit creation; and Reserve participation in MOOTW.

World events and the post-Cold War period have brought uncertainty, significant change, and transition. The first half of the 1990s has shown increased use of the Reserves in every major operation involving American forces: Desert Shield/Storm, Restore Hope, Support/Uphold Democracy, and Joint Endeavor. Trends are developing — more reliance on combined operations, decreased defense budgets, increased reliance and integration of Reserve components, and a shrinking military. The Board thinks all the Services should be included in this joint venture. To ensure that nobody is left out, the Services must be challenged to be responsive, inventive, and evolutionary in their approach to jointness. The Board, with its diverse membership, will continue to make recommendations to the Secretary of Defense on the effective integration and efficient use of the Reserve components in sustaining many of the missions we now have and will have in the future. The Board has been making a difference since its inception in 1952. The Services have lived with the Total Force Policy for approximately 25 years. As DoD nears the end of the present downsizing of its military force with the potential of additional cuts in the future, partnership, trust, and increased integration will be the key ingredients to move successfully into the 21st century.

The Reserve Forces Policy Board's annual report entitled, Reserve Component Programs, Fiscal Year 1996, is scheduled for publication in March 1997. It will provide more detailed information regarding Reserve component programs and issues.

Forwarded to the
Secretary of Defense

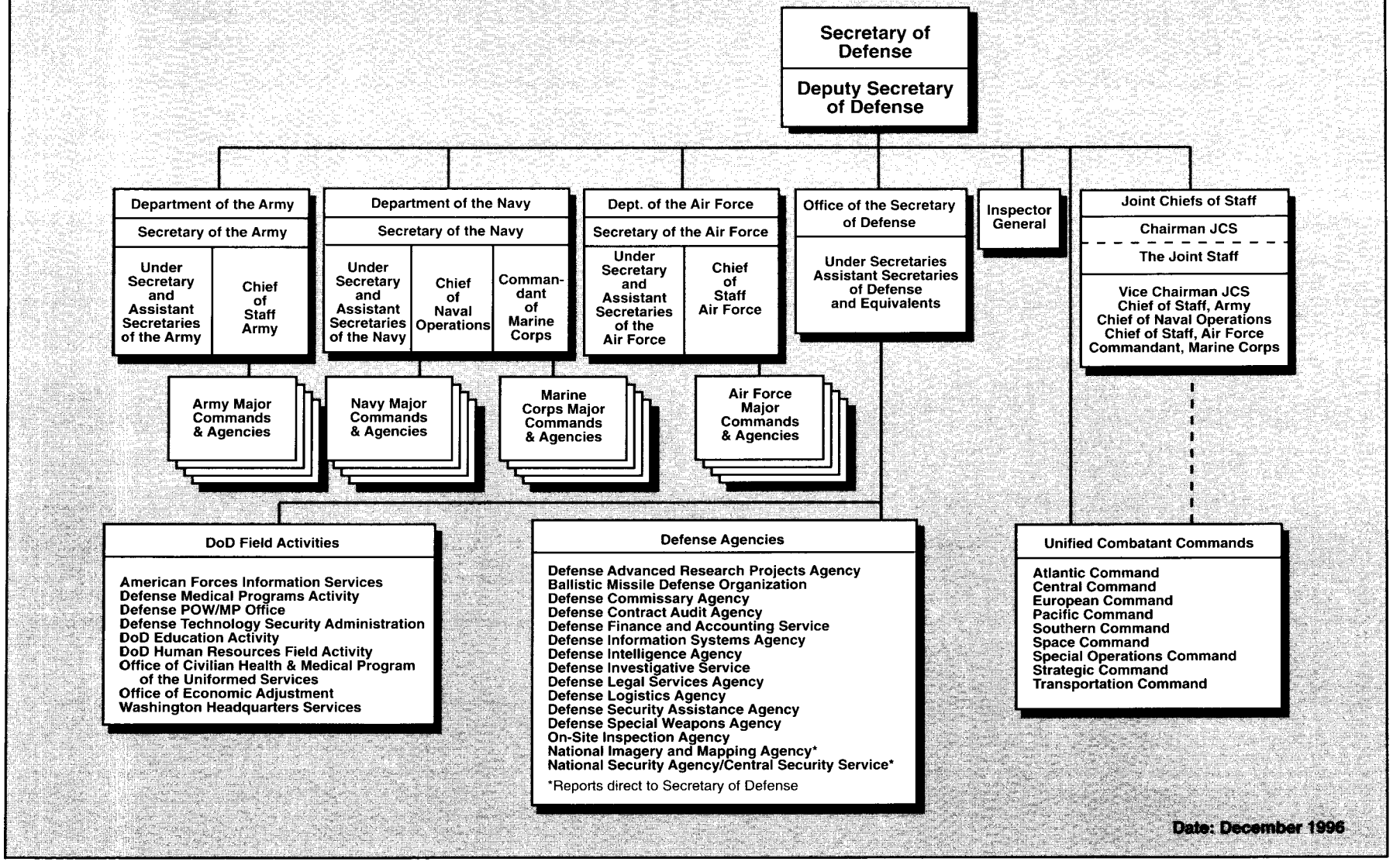
Terrence M. O'Connell
Chairman

Deborah R. Lee
Assistant Secretary of Defense
for Reserve Affairs

Appendices

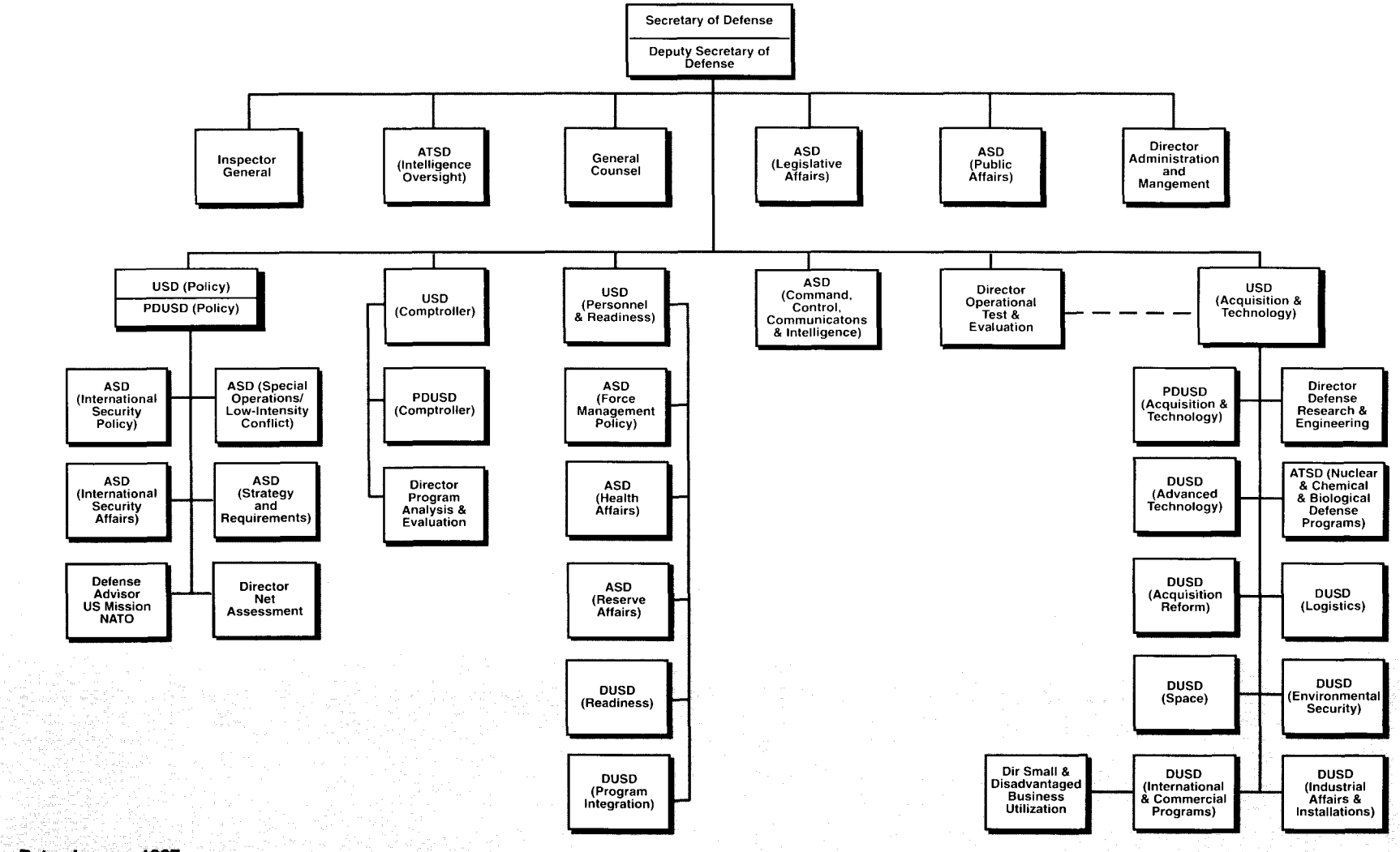
Department of Defense

Chart A-1



Office of the Secretary of Defense

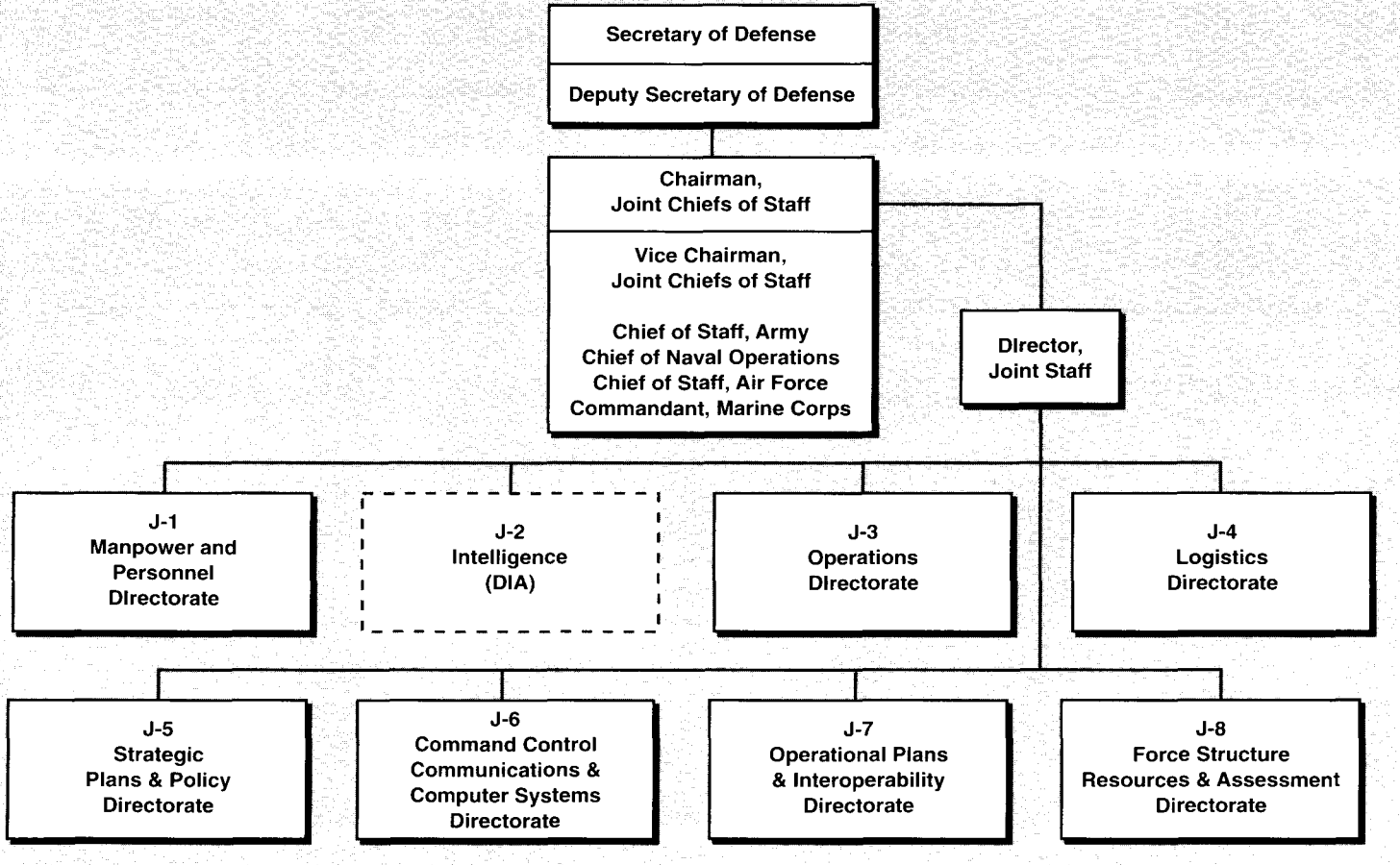
Chart A-2



Date: January 1997

Joint Chiefs of Staff

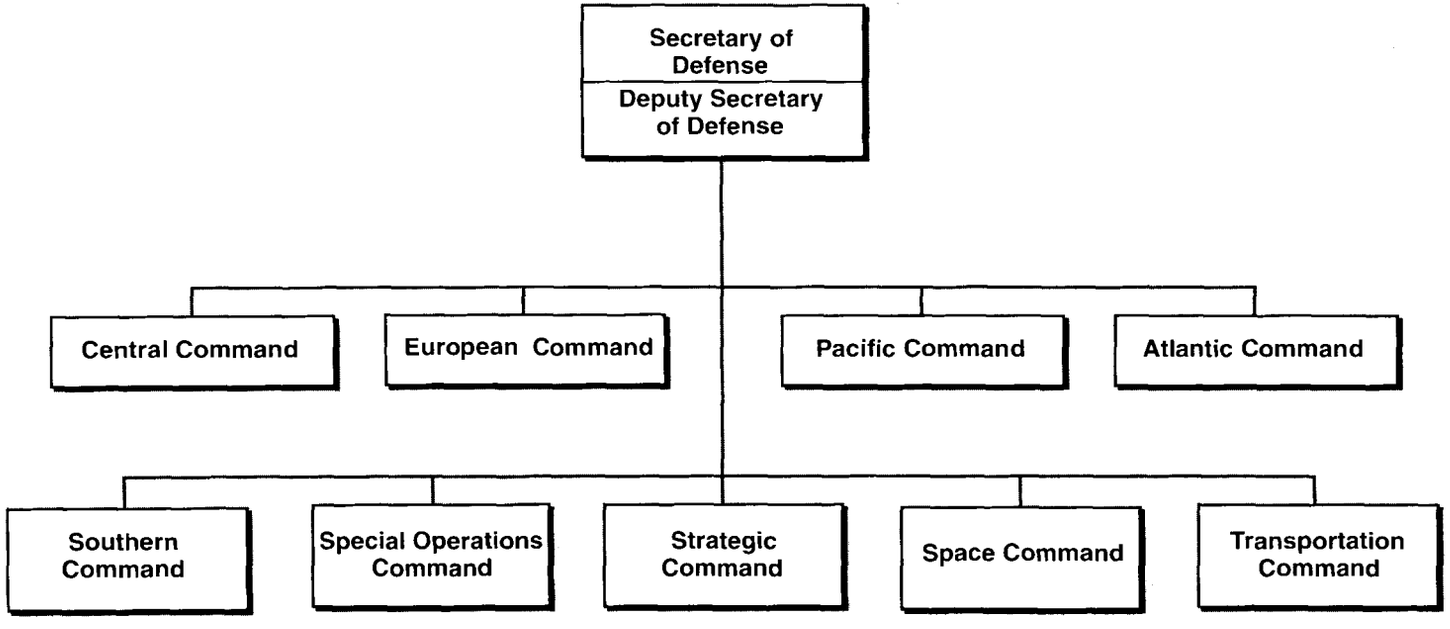
Chart A-3



Date: October 1993

Unified Combatant Commands

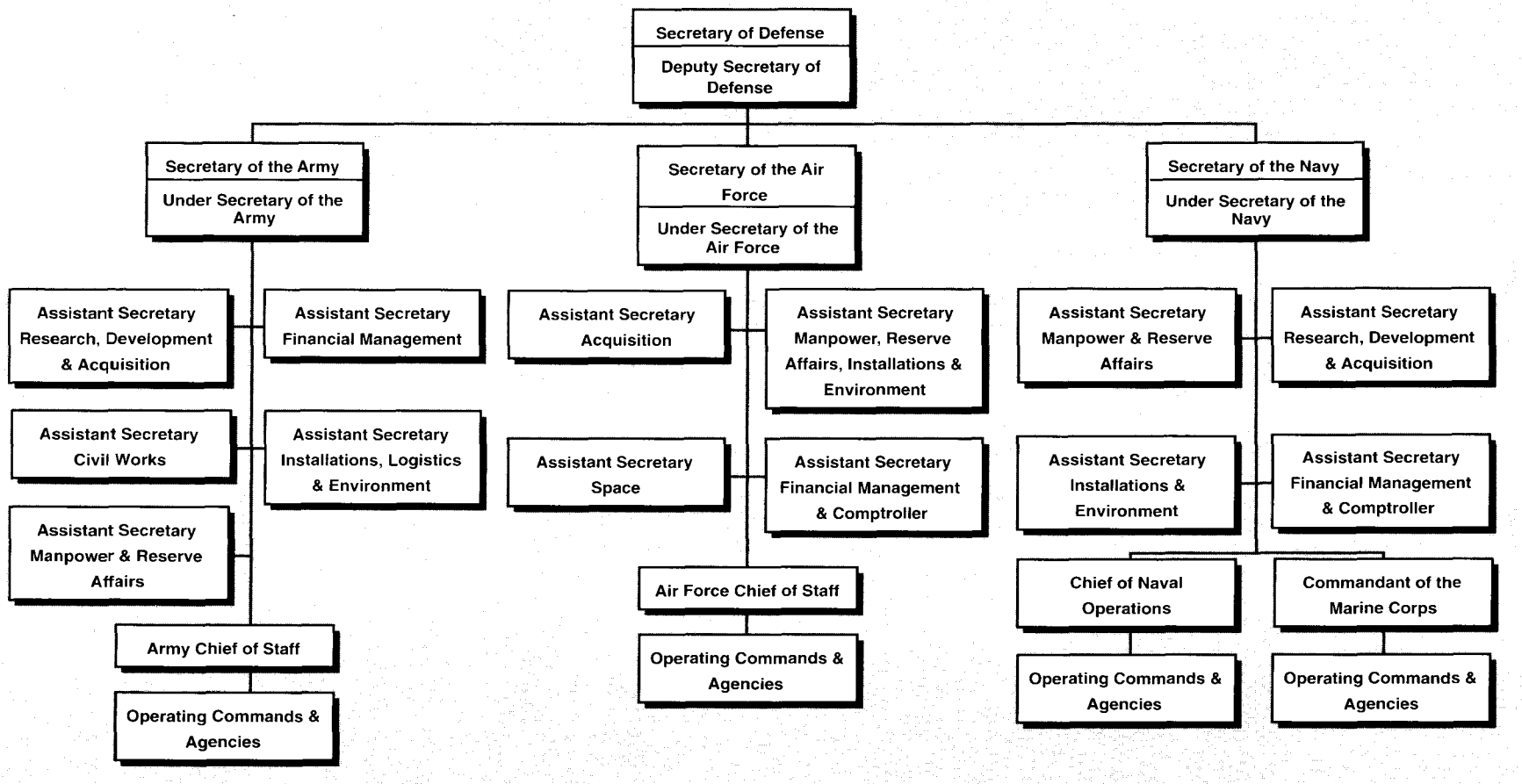
Chart A-4



Date: October 1993

Military Departments

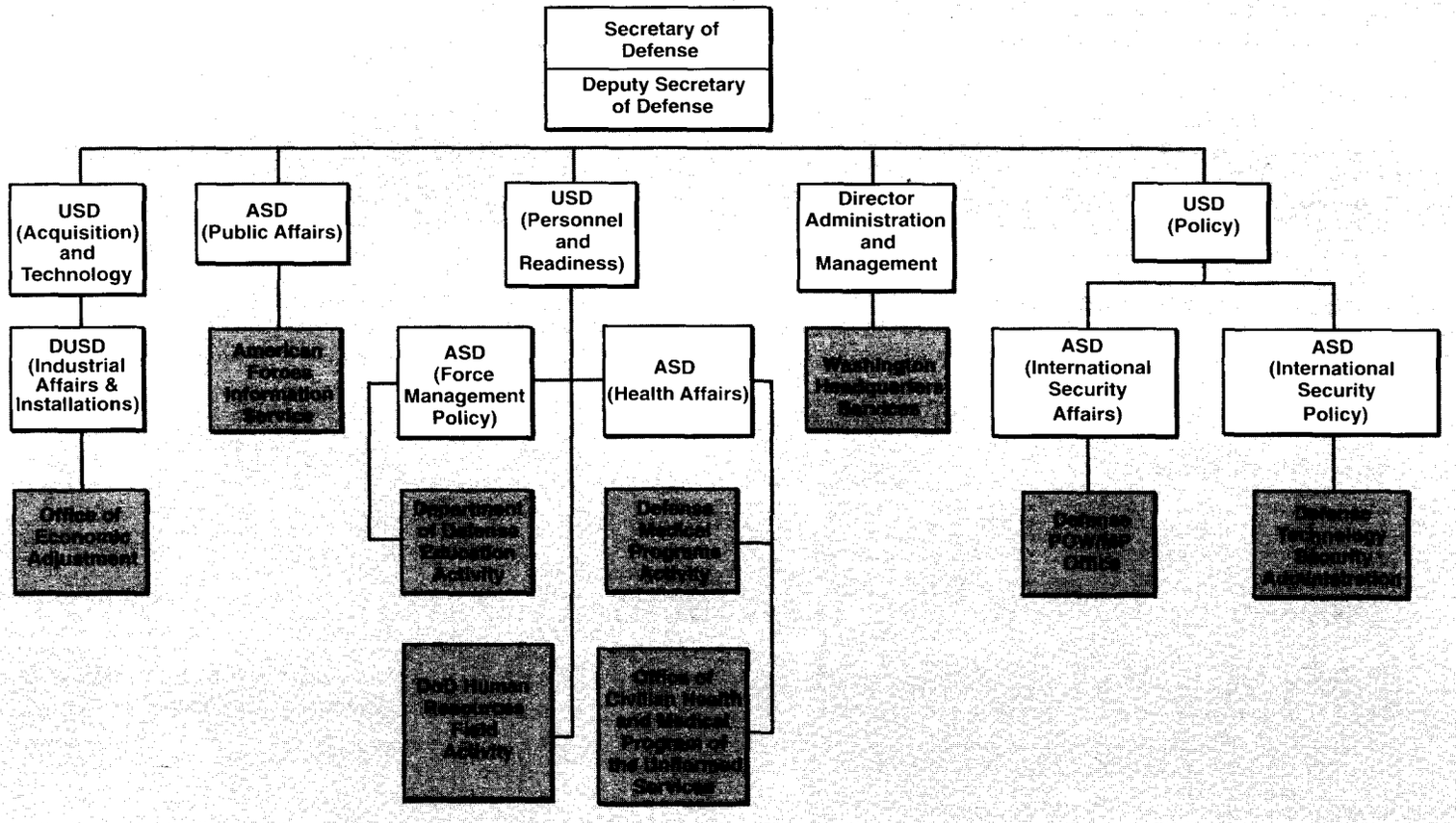
Chart A-5



Date: February 1997

DoD Field Activities

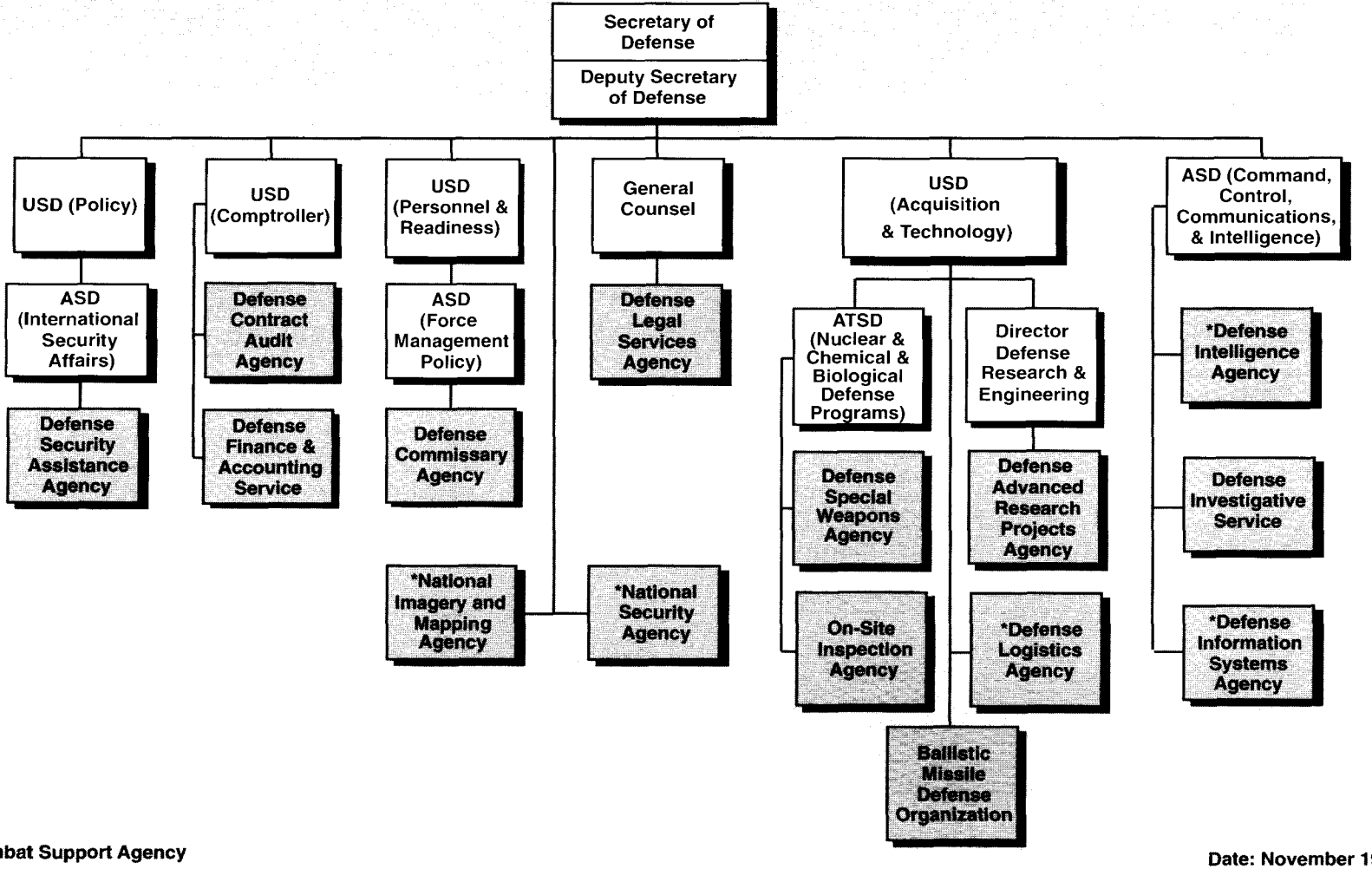
Chart A-6



Date: December 1996

Defense Agencies

Chart A-7



*Combat Support Agency

Date: November 1996

BUDGET TABLES

DEPARTMENT OF DEFENSE — BUDGET AUTHORITY BY APPROPRIATION[a,c] (DOLLARS IN MILLIONS)

Table B-1

	FY 1991[b]	FY 1992[b]	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998
Current Dollars								
Military Personnel	84,213	81,221	75,974	71,365	71,557	69,775	69,920	69,474
O&M	117,234	93,791	89,172	88,341	93,751	93,658	92,734	93,555
Procurement	71,740	62,952	52,789	44,141	43,572	42,420	44,247	42,310
RDT&E	36,193	36,623	37,974	34,567	34,522	34,972	36,589	35,934
Military Construction	5,188	5,254	4,554	6,009	5,426	6,893	5,860	4,715
Family Housing	3,296	3,738	3,941	3,501	3,393	4,260	4,122	3,668
Defense-wide Contingency							-4,800[d]	
Revolving & Management Funds	2,701	4,587	4,503	4,354	5,260	3,061	2,270	1,667
Trust & Receipts	-44,329	-5,733	-435	-809	-1,648	-331	-743	-796
Deduct, Intragovernment Receipt	-29	-550	-1,069	-104	-180	-291	-205	-151
Total, Current $	**276,208**	**281,883**	**267,402**	**251,364**	**255,652**	**254,417**	**249,994**	**250,377**
Constant FY 1998 Dollars								
Military Personnel	102,608	96,195	86,245	79,045	77,378	73,727	71,809	69,474
O&M	136,617	108,698	100,553	96,990	101,249	98,825	95,504	93,555
Procurement	82,951	71,165	58,464	47,929	46,370	44,224	45,179	42,310
RDT&E	42,095	41,514	42,134	37,587	36,800	36,512	37,384	35,934
Military Construction	6,025	5,958	5,057	6,537	5,784	7,193	5,987	4,715
Family Housing	3,820	4,235	4,367	3,799	3,616	4,445	4,213	3,668
Defense-wide Contingency							-4,901	
Revolving & Management Funds	3,149	5,218	5,005	4,745	5,609	3,205	2,323	1,667
Trust & Receipts	-51,671	-6,488	-481	-877	-1,752	-345	-759	-796
Deduct, Intragovernment Receipt	-34	-623	-1,182	-113	-192	-303	-209	-151
Total, Constant $	**325,560**	**325,872**	**300,164**	**275,641**	**274,863**	**267,483**	**256,531**	**250,377**
% Real Growth								
Military Personnel	2.1	-6.3	-10.4	-8.4	-2.1	-4.7	-2.6	-3.3
O&M	23.3	-20.4	-7.5	-3.6	4.4	-2.4	-3.4	-2.1
Procurement	-14.2	-14.2	-17.9	-18.0	-3.3	-4.6	2.2	-6.4
RDT&E	-4.2	-1.4	1.5	-10.8	-2.1	-0.8	2.4	-3.9
Military Construction	-1.7	-1.1	-15.1	29.3	-11.5	24.4	-16.8	-21.3
Family Housing	0.5	10.9	3.1	-13.0	-4.8	22.9	-5.2	-12.9
Total	**-10.0**	**0.1**	**-7.9**	**-8.2**	**-0.3**	**-2.7**	**-4.1**	**-2.4**

[a] Numbers may not add to total due to rounding.

[b] In FY 1991-92, abrupt increases in budget authority, especially O&M, were due to the incremental costs of Operation Desert Shield/Storm. The FY 1991-92 sharp rise in receipts reflects offsetting allied contributions.

[c] 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 billion in FY 1998. The 1993 Reconciliation Act included dollar limits (caps) on discretionary spending by the federal government and its various entities, including DoD. These limits have been superseded by caps imposed on Congress through its Budget Resolutions, and by caps imposed by the Office of Management and Budget on entities covered in the President's Budget.

[d] This entry reflects a proposal to Congress to rescind $4.8 billion in previously appropriated DoD funding. Some $2.0 billion of that would be to offset the requested $2 billion supplemented appropriations, and $2.8 billion is needed to prevent outlays in FY 1998 and beyond from exceeding budget targets.

DEPARTMENT OF DEFENSE — BUDGET AUTHORITY BY COMPONENT[a] (DOLLARS IN MILLIONS)

Table B-2

	FY 1991[b]	FY 1992[b,c]	FY 1993[c]	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998
Current Dollars								
Army	91,825	73,636	64,803	62,470	63,268	64,505	62,366	60,112
Navy	103,470	90,311	83,198	78,055	76,873	79,966	78,893	78,806
Air Force	91,257	82,340	79,146	74,575	73,932	72,992	72,358	75,017
Defense Agencies/OSD/JCS	21,134	29,151	22,158	19,380	21,120	22,269	22,525	21,633
Defense-wide	-31,477	6,445	18,097	16,883	20,460	14,686	13,853	14,808
Total, Current $	**276,208**	**281,883**	**267,402**	**251,364**	**255,652**	**254,417**	**249,994**	**250,377**
Constant FY 1998 Dollars								
Army	109,109	85,787	73,018	68,767	68,131	67,886	63,976	60,112
Navy	121,766	104,493	93,571	85,595	82.702	84,095	80,998	78,806
Air Force	106,515	95,083	88,794	81,736	79,626	76,841	74,348	75,017
Defense Agencies/OSD/JCS	24,902	33,195	24,679	21,160	22,581	23,303	23,043	21,633
Defense-wide	-36,732	7,316	20,101	18,383	21,824	15,358	14,166	14,808
Total, Constant $	**325,560**	**325,872**	**300,164**	**275,641**	**274,863**	**267,483**	**256,531**	**250,377**
% Real Growth								
Army	12.0	-21.4	-14.9	-5.8	-0.9	-0.4	-5.8	-6.1
Navy	-1.2	-14.2	-10.5	-8.5	-3.4	1.7	-3.7	-2.7
Air Force	-7.0	-10.7	-6.6	-8.0	-2.6	-3.5	-3.3	0.9
Defense Agencies/OSD/JCS	9.3	33.3	-25.7	-14.3	6.7	3.2	-1.1	-6.1
Defense-wide	-1,128.3	-119.9	174.8	-8.6	18.7	-29.6	-7.8	4.5
Total	**-10.0**	**0.1**	**-7.9**	**-8.2**	**-0.3**	**-2.7**	**-4.1**	**-2.4**

[a] Number may not add to total due to rounding. Entries for the three military departments include Retired Pay accrual.

[b] FY 1990-93 data for the three departments and defense agencies includes Gulf War incremental costs, FY 1991-93 defense-wide entries include appropriations that made available allied cash contributions to offset these incremental costs.

[c] In FY 1992, $9.1 billion was shifted from the Services to defense agencies/OSD for the new Defense Health Program (DHP). In FY 1993, the DHP began being reflected in the defense-wide line.

FEDERAL BUDGET TRENDS (DOLLARS IN MILLIONS)

Table B-3

Fiscal Year	Federal Outlays as a % of GNP	DoD Outlays as a % of Federal Outlays	DoD Outlays as a % of GDP	Non-DoD Outlays as a % of Federal Outlays	Non-DoD Outlays as a % of GDP	DoD Outlays as a % of Net Public Spending[a]
1950	15.6	27.4	4.3	72.6	11.3	18.5
1955	17.3	51.4	8.9	48.6	8.4	35.5
1960	17.8	45.0	8.0	55.0	9.8	30.3
1965	17.2	38.8	6.7	61.2	10.5	25.2
1970	19.4	39.4	7.6	60.6	11.7	25.4
1971	19.5	35.4	6.9	64.6	12.6	22.4
1972	19.6	32.5	6.4	67.5	13.2	20.6
1973	18.8	29.8	5.6	70.2	13.2	19.0
1974	18.7	28.8	5.4	71.2	13.3	18.2
1975	21.4	25.5	5.5	74.5	15.9	16.5
1976	21.5	23.6	5.1	76.4	16.4	15.4
1977	20.8	23.4	4.8	76.6	15.9	15.5
1978	20.7	22.5	4.7	77.5	16.1	15.2
1979	20.2	22.8	4.6	77.2	15.6	15.4
1980	21.7	22.5	4.9	77.5	16.8	15.3
1981	22.2	23.0	5.1	77.0	17.1	15.8
1982	23.2	24.7	5.7	75.3	17.5	16.9
1983	23.6	25.4	6.0	74.6	17.6	17.3
1984	22.3	25.9	5.8	74.1	16.6	17.5
1985	23.1	25.9	6.0	74.1	17.1	17.6
1986	22.6	26.8	6.1	73.2	16.6	17.9
1987	21.8	27.3	6.0	72.7	15.9	17.6
1988	21.5	26.5	5.7	73.5	15.8	17.0
1989	21.4	25.8	5.5	74.2	15.9	16.5
1990	22.0	23.1	5.1	76.9	16.9	14.8
1991	22.6	19.8	4.5	80.2	18.1	12.6
1992	22.5	20.7	4.7	79.3	17.8	13.1
1993	21.8	19.8	4.3	80.2	17.5	12.4
1994	21.4	18.4	3.9	81.6	17.5	11.6
1995	21.1	17.2	3.6	82.8	17.5	10.8
1996	20.8	16.2	3.4	83.8	17.5	10.1

[a] Federal, state, and local net spending excluding government enterprises (such as the postal service and public utilities) except for any support these activities receive from tax funds.

DEFENSE SHARES OF ECONOMIC AGGREGATES — Table B-4

	DoD as a Percentage of Public Employment[a]		DoD as a Percentage of National Labor Force[a]		Gross Domestic Product (GDP) Percentage of Total Purchases		
Fiscal Year	Federal	Federal, State, and Local	Direct Hire (DoD)	Including Industry	National Defense[b]	Total Federal	State and Local
1965	69.8	28.2	4.8	7.6	7.4	17.2	10.9
1966	71.1	29.6	5.4	8.8	7.7	17.9	11.0
1967	71.9	30.5	5.8	9.8	8.8	19.4	11.5
1968	72.0	30.3	6.0	9.9	9.4	20.5	11.8
1969	72.0	29.5	5.7	9.3	8.7	19.4	12.3
1970	69.5	26.5	5.0	7.9	8.1	19.4	13.0
1971	67.1	23.7	4.6	6.9	7.3	19.5	14.0
1972	64.5	20.9	3.8	6.1	6.7	19.6	14.3
1973	63.6	19.8	3.6	5.6	5.9	18.8	13.9
1974	62.4	18.9	3.4	5.4	5.5	18.7	13.8
1975	61.6	18.1	3.3	5.2	5.6	21.4	14.8
1976	60.8	17.6	3.2	4.9	5.2	21.5	14.8
1977	60.2	17.0	3.1	4.9	4.9	20.8	13.9
1978	59.6	16.6	3.0	4.7	4.7	20.7	13.4
1979	59.6	16.1	2.9	4.7	4.7	20.2	13.1
1980	59.8	16.1	2.8	4.6	4.9	21.7	13.6
1981	60.8	16.6	2.8	4.7	5.2	22.2	13.4
1982	61.6	16.9	2.8	4.8	5.8	23.2	13.6
1983	61.9	17.2	2.8	4.9	6.1	23.6	13.6
1984	62.0	17.1	2.8	5.2	6.0	22.3	13.2
1985	61.2	17.0	2.8	5.3	6.2	23.1	13.5
1986	61.6	16.8	2.7	5.5	6.2	22.6	13.8
1987	61.3	16.6	2.7	5.7	6.1	21.8	14.3
1988	60.1	16.0	2.6	5.4	5.9	21.5	14.2
1989	60.4	15.8	2.6	5.2	5.7	21.4	14.2
1990	59.2	15.0	2.5	5.0	5.3	22.0	14.7
1991	58.4	14.7	2.4	4.8	4.7	22.6	15.5
1992	56.5	13.8	2.2	4.4	4.9	22.5	16.0
1993	55.1	12.9	2.1	4.1	4.5	21.8	15.9
1994	54.0	12.2	1.9	3.8	4.1	21.4	15.8
1995	52.6	11.4	1.8	3.5	3.8	21.1	15.7

[a] DoD civilian employment data excludes foreign nationals.

[b] Includes Department of Defense — military, atomic energy defense activities, and other defense-related activities, such as emergency management and maintenance of strategic stockpiles and the Selective Service System.

PERSONNEL TABLES

MILITARY AND CIVILIAN PERSONNEL STRENGTH[a,b] (END FISCAL YEAR — IN THOUSANDS)

Table C-1

	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94	FY 95	FY 96	FY 97[f]	FY 98[g]
Active Component													
Army	781.0	780.8	771.8	769.7	750.6	725.4	611.3	572.4	541.3	508.6	491.1	495.0	495.0
Navy	581.1	586.8	592.6	592.7	582.9	571.3	541.9	510.0	468.7	434.6	416.7	402.0	390.8
Marine Corps	198.8	199.5	197.4	197.0	196.7	195.0	184.6	178.4	174.2	174.6	174.9	174.0	174.0
Air Force	608.2	607.0	576.4	570.9	539.3	510.9	470.3	444.4	426.3	400.4	389.0	381.1	371.6
Total	**2169.1**	**2174.1**	**2138.2**	**2130.2**	**2069.4**	**2002.6**	**1808.1**	**1705.1**	**1610.5**	**1518.2**	**1471.7**	**1452.1**	**1431.4**
Reserve Component Military (Selected Reserve)													
ARNG	446.2	451.9	455.2	457.0	437.0	441.3	426.5	409.9	369.9	374.9	370.0	366.8	366.5
Army Reserve	309.7	313.6	312.8	319.2	299.1	299.9	302.9	275.9	259.9	241.3	226.2	215.2	208.0
Naval Reserve	141.5	148.1	149.5	151.5	149.4	150.5	142.3	132.4	107.6	100.6	98.0	96.3	94.3
MC Reserve	41.6	42.3	43.6	43.6	44.5	44.0	42.3	41.7	40.7	40.9	42.1	42.0	42.0
ANG	112.6	114.6	115.2	116.1	117.0	117.6	119.1	117.2	113.6	109.8	110.5	109.2	107.4
Air Force Reserve	78.5	80.4	82.1	83.2	80.6	84.3	81.9	80.6	79.6	78.3	73.7	73.3	73.4
Total	**1130.1**	**1150.9**	**1158.4**	**1170.6**	**1127.6[c]**	**1137.6[d]**	**1114.9**	**1057.7**	**998.3**	**945.8**	**920.4**	**902.7**	**891.6**
Civilian[e]													
Army	416.1	416.9	406.2	401.5	398.4	369.6	364.5	327.3	289.5	272.7	258.6	256.2	248.4
Navy	354.5	349.7	351.5	350.2	349.0	331.8	319.5	295.0	276.5	259.3	239.9	224.9	215.7
Air Force	266.2	264.7	256.2	258.6	255.4	235.0	215.0	208.2	196.6	188.9	182.6	181.2	176.2
DoD Agencies	93.9	95.8	97.6	97.1	99.6	112.4	139.4	153.6	154.0	144.3	137.6	137.2	131.6
Total	**1130.8**	**1127.1**	**1111.4**	**1107.4**	**1102.4**	**1048.7**	**1038.4**	**984.1**	**916.5**	**865.2**	**818.7**	**799.5**	**771.9**

[a] As of September 30, 1996.

[b] Numbers may not add to totals due to rounding.

[c] 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.

[d] 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.

[e] Includes direct and indirect hire civilian full-time equivalents.

[f] FY 1997 National Defense Authorization Act.

[g] Projected in FY 1998 President's Budget.

U.S. MILITARY PERSONNEL IN FOREIGN AREAS (END FISCAL YEAR — IN THOUSANDS)[a,b]

Table C-2

	FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92[b]	FY 93	FY 94[d]	FY 95	FY 96
Germany	247	250	251	249	249	228	203	134	105	88	73	49
Other Europe	75	75	73	74	71	64	62	54	44	41	37	62[e]
Europe, Afloat	36	33	31	33	21	18	20	17	17	9	8	4
South Korea	42	43	45	46	44	41	40	36	35	37	36	37
Japan	47	48	50	50	50	47	45	46	46	45	39	43
Other Pacific	16	17	18	17	16	15	9	3	1	1	1	1
Pacific Afloat (including Southeast Asia)	20	20	17	28	25	16	11	13	17	15	13	15
Latin America/ Caribbean	12	13	13	15	21	20	19	18	18	36[d]	17	12
Miscellaneous	20	26	27	29	13	160	39[c]	23	25	15	14	17
Total[c]	**515**	**525**	**524**	**541**	**510**	**609**	**448**	**344**	**308**	**287**	**238**	**240**

[a] As of September 30, 1996.

[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 91	FY 92	FY 93	FY 94	FY 95	FY 96	FY 97	FY 98	FY 99
Land-Based ICBMs[b]									
Minuteman II (I warhead each) plus Minuteman III (3 warheads each)	950	880	737	625	535	530	530	500	500
Peacekeeper (10 warheads each)	50	50	50	50	50	50	50	50	50
Heavy Bombers (PMAI)[c]									
B-52	151	129	110	64	62	44	44	44	44
B-1	89	84	84	84	48	48	48	54	54
B-2	0	0	0	3	6	9	10	12	13
Submarine-Launched Ballistic Missiles[b]									
Poseidon (C-3) and Trident (C-4) missiles on pre-Ohio-class submarines	352	176	96	48	0	0	0	0	0
Trident (C-4 and D-5) missiles on Ohio-class submarines	264	288	312	336	360	384	408	432	432
Strategic Defense Interceptor Aircraft (PMAI)[d]									
Active Aircraft	18	0	0	0	0	0	0	0	0
Air National Guard Aircraft	216	216	216	150	150	150	90	90	90

[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 1995 budget. The actual force levels for FY 1998 and FY 1999 will depend on future decisions.

[b] Number of operational missiles. Not in maintenance or overhaul status.

[c] PMAI = Primary mission aircraft inventory. For FY 1995 and later, the numbers shown reflect only combat-coded aircraft and not development/ test, attrition reserve, depot maintenance, or training aircraft. Prior to FY 1995, no bombers were training coded. By FY 1998, most bombers will be devoted primarily or entirely to conventional mission.

[d] The numbers shown reflect only combat coded PMAI aircraft.

DEPARTMENT OF DEFENSE GENERAL PURPOSE FORCES HIGHLIGHTS — Table D-2

	FY 92	FY 93	FY 94	FY 95	FY 96	FY 97	FY 98	FY 99
Land Forces								
Army Divisions								
Active	14	14	12	12	10	10	10	10
Reserve	10	8	8	8	8	8	8	8
Marine Corps Divisions								
Active	3	3	3	3	3	3	3	3
Reserve	1	1	1	1	1	1	1	1
Army Separate Brigades[a]								
Active	7	7	7	3	3	3	3	3
Reserve	27	24	24	24	22	18	18	18
Army Special Forces Groups								
Active	5	5	5	5	5	5	5	5
Reserve	4	4	2	2	2	2	2	2
Army Ranger Regiment	1	1	1	1	1	1	1	1
Tactical Air Forces								
(PMAI/Squadron)[b]								
Air Force Attack and Fighter Aircraft								
Active	1,254/57	1,131/56	966/53	936/53	936/52	936/52	936/52	936/52
Reserve	924/43	816/42	639/40	576/38	504/40	504/40	504/40	504/40
Conventional Bombers								
B-52G	33	33	0	0	0	0	0	0
Navy Attack and Fighter Aircraft								
Active	678/61	610/56	590/50	528/44	504/37	452/36	452/36	452/36
Reserve	116/10	116/10	90/7	38/3	38/3	38/3	38/3	38/3
Marine Corps Attack and Fighter Aircraft								
Active	346/24	330/23	320/22	320/23	320/23	308/21	308/21	308/21
Reserve	72/6	72/6	68/5	48/4	48/4	48/4	48/4	48/4
Navy Forces								
Strategic Forces Ships	34	24	19	16	17	18	18	18
Battle Forces	357	342	315	302	297	294	286	276
Support Forces Ships	57	51	41	35	24	24	24	23
Reserve Forces Ships	19	18	16	19	18	18	18	18
Total Ship Battle Forces	**467**	**435**	**391**	**372**	**356**	**354**	**346**	**335**
Mobilization Category B: Mine Warfare Ships	16	15	0	1	2	6	8	10
Local Defense Mine Warfare Ships and Coastal Defense Craft	0	2	8	12	13	13	13	13
Total Other Forces[c]	**16**	**17**	**8**	**13**	**15**	**19**	**21**	**23**

[a] Includes the Eskimo Scout Group and the armored cavalry regiments.

[b] Primary mission aircraft inventory (combat coded aircraft only).

[c] Excludes auxiliaries and sealift forces.

DEPARTMENT OF DEFENSE
AIRLIFT AND SEALIFT FORCE HIGHLIGHTS

Table D-3

	FY 91	FY 92	FY 93	FY 94	FY 95	FY 96	FY 97	FY 98	FY 99
Intertheater Airlift (PMAI)[a]									
C-5	109	109	109	107	104	104	104	104	104
C-141	234	234	214	214	199	187	163	143	135
KC-10[b]	57	57	57	54	54	54	54	54	54
C-17	0	0	2	9	17	22	24	30	37
Intratheater Airlift (PMAI)[a]									
C-130[c]	461	417	380	424	428	432	430	388	389
Sealift Ships, Active[d]									
Tankers	20	20	20	18	18	12	13	13	13
Cargo	39	40	40	51	51	49	48	50	54
Sealift Ships, Reserve									
RRF[e]	96	97	97	93	77[f]	82	87	90	90

[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 role.

[c] Does not include Department of Navy aircraft.

[d] Includes fast sealift, afloat prepositioning, and common-user (charter) ships, including aviation support ships.

[e] RRF — Ready Reserve Force. Vessels assigned to 4-, 5-, 10-, or 20-day reactivation readiness groups. Excludes RRF ships tendered to the Military Sealift Command.

[f] Includes 29 ships below readiness standards.

GOLDWATER-NICHOLS ACT IMPLEMENTATION REPORT

This appendix contains the Department's Joint Officer Management Annual Report for FY 1996. 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 (JDAMIS) 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 developed and fully implemented by the Department. The Services have continued to revise career development paths to accommodate early joint assignments; assign greater numbers of former 0-5/0-6 commanders and Senior Service College graduates to joint duty; educate the officer corps on joint education opportunities; and toughen the quality standards for Joint Specialty Officer (JSO) designation.

The following brigadier general/rear admiral (lower half) promotion boards were completed during FY 1996 (does not include professionals):

CATEGORY	USA	USAF	USMC	USN
Number of officers selected for O-7	45	51	8	34
Number (percent) of officers joint qualified	18 (40%)	39 (76%)	5 (63%)	11 (32%)
Number of joint equivalency waivers used (percent)	4 (9%)	1 (2%)	0 (0%)	0 (0%)

The Department is committed to ensuring the completion of a joint duty assignment remains an essential element of an officer's ability to perform duties at the general/flag officer level. Attention will continue to be devoted to guarantee long-term compliance with the personnel policy objectives of the Goldwater-Nichols DoD Reorganization Act of 1986.

SUMMARY OF JOINT SPECIALTY OFFICER AND JOINT SPECIALTY OFFICER NOMINEE DESIGNATIONS FOR FY 1996 — Table E-1

CATEGORY	USA	USAF	USMC	USN	TOTAL
Number of officers designated as JSOs	346	125	0	44	515
Number of officers designated as JSO nominees	797	934	140	485	2356
Number of JSO nominees designated under COS provisions	405	471	97	292	1265

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			
Combat Engineers			

SUMMARY OF OFFICERS ON ACTIVE DUTY WITH A CRITICAL OCCUPATIONAL SPECIALTY (AS OF SEPTEMBER 30, 1996)					Table E-3
CATEGORY	**USA**	**USAF**	**USMC**	**USN**	**TOTAL**
COS officers who have completed JPME	1566	1952	509	1264	5291
COS officers designated as JSOs	1109	1037	430	899	3475
COS officers designated as JSO nominees	2144	2863	554	1717	7278
COS officers designated as JSO nominees who have not completed JPME	1495	1810	353	1330	4988
COS JSO nominees currently serving in a JDA	1149	1212	253	832	3446
COS JSO nominees who completed a JDA and are currently attending JPME	8	0	1	0	9

SUMMARY OF JSOs WITH CRITICAL OCCUPATIONAL SPECIALTIES WHO ARE SERVING OR HAVE SERVED IN A SECOND JOINT ASSIGNMENT (AS OF SEPTEMBER 30, 1996) **Table E-4**

	USA	USAF	USMC	USN	TOTAL
Field Grade					
Have served*	163 (46)	173 (66)	21 (9)	41 (16)	398 (137)
Are serving*	155 (74)	141 (68)	17 (9)	51 (29)	364 (180)
General/Flag					
Have served*	14 (7)	18 (7)	5 (3)	11 (6)	48 (23)
Are serving*	12 (9)	29 (10)	4 (3)	7 (3)	52 (25)

*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 1996) ON THEIR FIRST ASSIGNMENT FOLLOWING DESIGNATION AS A JOINT SPECIALTY OFFICER **Table E-5**

ASSIGNMENT CATEGORY	USA	USAF	USMC	USN	TOTAL
Command	116	39	10	13	178
Service HQ	13	6	6	6	31
Joint Staff critical	2	2	0	4	8
Joint Staff other	6	6	0	0	12
Other JDA critical	15	6	1	9	31
Other JDA	84	10	2	3	99
PME	15	22	2	2	41
Other Operations	32	5	5	10	52
Other Staff	60	12	4	13	89
Other Shore	—	—	—	6	6

*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 1996) (IN MONTHS) — Table E-6

GENERAL/FLAG OFFICERS			
	JOINT STAFF	OTHER JOINT	JOINT TOTAL
USA	20.8	25.5	24.4
USAF	22.8	24.4	24.0
USMC	15.0	24.0	22.7
USN	26.6	25.3	25.6
DoD	22.8	25.1	24.6
FIELD GRADE OFFICERS			
	JOINT STAFF	OTHER JOINT	JOINT TOTAL
USA	32.9	37.0	36.5
USAF	35.5	38.2	37.9
USMC	35.8	39.6	39.3
USN	36.6	38.6	38.4
DoD	34.8	38.0	37.6

SUMMARY OF TOUR LENGTH EXCLUSIONS FOR FY 1996 — Table E-7

CATEGORY	USA	USAF	USMC	USN	TOTAL
Retirement	141	140	7	40	328
Separation	0	0	0	15	15
Suspension from duty	9	4	0	0	13
Compassionate/Medical	6	3	1	0	10
Other joint after promotion	15	1	1	0	17
Reorganization	11	2	0	1	14
Joint overseas-short tours	183	132	12	39	366
Joint accumulation	6	18	0	2	26
COS reassignment	145	124	10	129	408
TOTAL	516	424	31	226	1197

JOINT DUTY POSITION DISTRIBUTION BY SERVICE (AS OF SEPTEMBER 30, 1996) — Table E-8

	JOINT STAFF	OTHER JOINT DUTY	TOTAL JOINT DUTY	TOTAL DOD JDAs%	TOTAL DOD OFFICERS %*
USA	269	2980	3249	34.8%	28.7%
USAF	270	3247	3517	37.7%	38.1%
USMC	65	494	559	6.0%	8.4%
USN	213	1802	2015	21.6%	24.8%
DoD	817	8523	9340	100.0%	100.0%

* Total Commissioned Officers: 0-3 through 0-10 less professional categories.

CRITICAL POSITIONS SUMMARY (AS OF SEPTEMBER 30, 1996) Table E-9

Category	USA	USAF	USMC	USN	TOTAL
Total Critical Positions	366	351	59	195	971
Number of Vacant Positions	54	80	20	57	211
Of Those Filled, Number (and %) Filled by JSOs	281 (90%)	239 (88%)	31 (79%)	121 (88%)	672 (88%)
Number of Critical Positions Filled by Non-JSOs	31	32	8	17	88
Percent of Critical Positions Filled by JSOs or Non-JSOs	85%	77%	66%	71%	78%

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 31
Best qualified officer not joint specialist 50
Position filled by non-JSO incumbent prior to being a critical position 1
Other 0

TOTAL 88

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) 3
Joint Staff 18
U.S. Atlantic Command (USACOM) 4
U.S. Central Command (USCENTCOM 2
U.S. European Command (USEUCOM) 2
U.S. Pacific Command (USPACOM) 5
U.S. Southern Command (USSOUTHCOM) 2
U.S. Strategic Command (USSTRATCOM) 3
U.S. Transportation Command (USTRANSCOM) 1
Allied Command Europe (ACE) 12
Defense Attaches 5
Defense Logistics Agency (DLA) 3
Defense Intelligence Agency (DIA) 2
Deputy Chairman NATO Military Committee 1
Joint Warfighting Center 1
Joint Interagency Anti-drug Task Force 1
Defense Special Weapons Agency 1
National Defense University (NDU) 3
Non-Joint Staff (G/FO) 19

TOTAL 88

COMPARISON OF WAIVER USAGE (FY 1996)					Table E-10
CATEGORY	USA	USAF	USMC	USN	TOTAL
Field Grade Section					
JSO Designations	345	125	0	43	513
JSO Sequence Waivers	5	2	0	0	7
JSO Two-tour Waivers	0	4	0	0	4
JSOs Graduating from JPME	5	14	1	9	29
JDA Assignment Waivers Granted	2	2	0	1	5
Field Grade Officers who departed JDAs	1070	1081	151	471	2773
Field Grade JDA tour length waivers	80	78	0	19	177
General/Flag Officer Section					
General/Flag Officers who departed JDAs	45	33	9	33	120
Attended CAPSTONE	36	41	12	24	113
General/Flag Officer JDA tour length waivers	10	7	0	6	23
CAPSTONE Waivers	0	0	0	0	0
*Selected for Promotion to 0-7	45	51	8	34	138
Good of the Service Waivers	13	0	1	7	21
Other Waivers	18	19	2	22	61

*Does not include professional categories.

JOINT PROFESSIONAL MILITARY EDUCATION (PME) PHASE II SUMMARY (FY 1996)					Table E-11
	USA	USAF	USMC	USN	TOTAL
Students graduating from Armed Forces Staff College in FY 1996	282	321	46	212	861
Students who had not completed resident PME (percent of total)	43(15%)	68(21%)	0(0%)	73(35%)	184(21%)
Students who had completed nonresident PME (percent of total)	40(14%)	68(21%)	0(0%)	72(34%)	180(21%)
Students who had not completed resident or nonresident PME (percent of total)	3(1%)	0(0%)	0(0%)	1(0%)	4(0%)

Reasons for students not completing resident Professional Military Education (PME) prior to attending Phase II

Officer completed Phase I by correspondence/seminar 173
Officer completed Phase I equivalent program 7
Officer scheduled to attend a resident PME immediately following Phase II 1
Officer career path did not allow attendance at a resident PME program 3
Other 0

FY 1996 JOINT OFFICER PROMOTION RATES

Table E-12

GRADE	JOINT 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)											
0-8	Joint Staff	67	N/A	N/A	50	N/A	N/A	5	3	60	
	JSO	-	N/A	N/A	-	N/A	N/A	67	20	30	
	Service Hqs	36	N/A	N/A	20	N/A	N/A	19	6	32	
	Other Joint	20	N/A	N/A	33	N/A	N/A	10	3	30	
	Board Avg	29	N/A	N/A	29	N/A	N/A	94	27	29	
0-7	Joint Staff	23	N/A	N/A	4	N/A	N/A	36	4	11	
	JSO	-	N/A	N/A	-	N/A	N/A	642	30	5	
	Service Hqs	5	N/A	N/A	17	N/A	N/A	157	11	7	
	Other Joint	1	N/A	N/A	4	N/A	N/A	234	5	2	
	Board Avg	3	N/A	N/A	3	N/A	N/A	1818	51	3	
0-6	Joint Staff	89	12	0	67	8	33	57	44	77	
	JSO	-	-	-	-	-	-	195	127	65	
	Service Hqs	68	4	6	61	8	5	156	98	63	
	Other Joint	58	4	0	28	1	0	216	94	44	
	Board Avg	42	4	1	42	4	1	1198	502	42	
0-5	Joint Staff	96	14	-	100	0	-	31	30	97	
	JSO	-	-	-	-	-	-	2	2	100	
	Service Hqs	85	4	38	88	5	50	251	216	86	
	Other Joint	73	6	9	61	3	3	476	329	70	
	Board Avg	63	3	5	63	3	5	2200	1386	63	
0-4	Joint Staff	100	-	-	-	-	-	1	1	100	
	JSO	-	-	-	-	-	-	-	-	-	
	Service Hqs	97	5	-	80	14	-	45	42	93	
	Other Joint	85	0	11	90	0	0	42	36	86	
	Board Avg	73	2	11	73	2	11	2859	2088	73	
ARMY PROMOTION RATES (COMPETITIVE CATEGORY)											
0-8	Joint Staff	67	N/A	N/A	50	N/A	N/A	5	3	60	
	JSO	-	N/A	N/A	-	N/A	N/A	40	18	45	
	Service Hqs	33	N/A	N/A	-	N/A	N/A	6	2	33	
	Other Joint	83	N/A	N/A	67	N/A	N/A	12	9	75	
	Board Avg	46	N/A	N/A	46	N/A	N/A	69	32	46	
0-7	Joint Staff	7	N/A	N/A	6	N/A	N/A	66	4	6	
	JSO	-	N/A	N/A	-	N/A	N/A	848	10	1	
	Service Hqs	4	N/A	N/A	6	N/A	N/A	275	13	5	
	Other Joint	3	N/A	N/A	2	N/A	N/A	275	7	3	
	Board Avg	2	N/A	N/A	2	N/A	N/A	1810	45	2	
ARMY PROMOTION RATES											
0-6	Joint Staff	89	0	13	55	8	0	56	43	77	
	JSO	-	-	-	-	-	-	201	96	48	
	Service Hqs	34	1	3	43	2	0	131	52	40	
	Other Joint	58	0	3	30	1	0	144	65	45	
	Board Avg	44	1	3	44	1	3	717	319	45	

FY 1996 JOINT OFFICER PROMOTION RATES (Continued) — Table E-12

GRADE	JOINT 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)											
0-5	Joint Staff	90	29	0	60	0	–	15	12	80	
	JSO	–	–	–	–	–	–	14	14	100	
	Service Hqs	68	8	6	82	11	0	123	91	74	
	Other Joint	76	6	2	56	3	4	364	247	68	
	Board Avg	60	5	3	60	5	3	1838	1103	60	
0-4	Joint Staff	–	–	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	–	–	–	
	Service Hqs										See Note
	Other Joint	100	25	50	100	0	–	8	8	100	
	Board Avg	73	5	9	73	5	9	1967	1442	73	
MARINE CORPS PROMOTION RATES (UNRESTRICTED)											
0-8	Joint Staff	–	N/A	N/A	0	N/A	N/A	2	0	0	
	JSO	–	N/A	N/A	–	N/A	N/A	17	6	35	
	Service Hqs	33	N/A	N/A	50	N/A	N/A	5	2	40	
	Other Joint	–	N/A	N/A	–	N/A	N/A	–	–	–	
	Board Avg	30	N/A	N/A	30	N/A	N/A	20	6	30	
0-7	Joint Staff	20	N/A	N/A	23	N/A	N/A	18	4	22	
	JSO	–	N/A	N/A	–	N/A	N/A	238	6	3	
	Service Hqs	2	N/A	N/A	3	N/A	N/A	120	3	3	
	Other Joint	0	N/A	N/A	7	N/A	N/A	29	1	3	
	Board Avg	2	N/A	N/A	2	N/A	N/A	517	8	2	
0-6	Joint Staff	56	0	0	54	0	0	21	12	57	
	JSO	–	–	–	–	–	–	63	32	51	
	Service Hqs	39	0	5	61	0	0	41	22	54	
	Other Joint	58	0	6	25	0	0	27	13	48	
	Board Avg	45	0	1	45	0	1	207	93	45	
0-5	Joint Staff	100	0	0	100	0	0	8	8	100	
	JSO	–	–	–	–	–	–	–	–	–	
	Service Hqs	69	0	14	82	0	8	73	56	77	
	Other Joint	75	0	6	69	0	0	90	66	73	
	Board Avg	66	0	6	66	0	6	501	328	66	
0-4	Joint Staff	–	–	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	–	–	–	
	Service Hqs										See Note
	Other Joint	50	0	–	75	–	–	10	6	60	
	Board Avg	77	0	12	77	0	12	809	619	77	
NAVY PROMOTION RATES											
0-8	Joint Staff	–	N/A	N/A	43	N/A	N/A	7	3	43	
Unrestricted	JSO	N/A	N/A	N/A	N/A	N/A	N/A	15	9	60	
Line	Service Hqs	50	N/A	N/A	55	N/A	N/A	15	8	53	
	Other Joint	–	N/A	N/A	50	N/A	N/A	6	3	50	
	Board Avg	44	N/A	N/A	44	N/A	N/A	36	16	44	

FY 1996 JOINT OFFICER PROMOTION RATES (Continued) — Table E-12

GRADE	JOINT 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	%	
NAVY PROMOTION RATES (Continued)											
0-8	Joint Staff	–	N/A	N/A	–	N/A	N/A	–	–	–	
Aerospace	JSO	–	N/A	N/A	–	N/A	N/A	1	1	100	
Engineering	Service Hqs	–	N/A	N/A	–	N/A	N/A	–	–	–	
Duty	Other Joint	–	N/A	N/A	–	N/A	N/A	–	–	–	
	Board Avg	50	N/A	N/A	50	N/A	N/A	2	1	50	
0-8	Joint Staff	–	N/A	N/A	–	N/A	N/A	–	–	–	
Engineering	JSO	N/A	N/A	N/A	N/A	N/A	N/A	–	–	–	
Duty	Service Hqs	100	N/A	N/A	–	N/A	N/A	2	2	100	
	Other Joint	–	N/A	N/A	–	N/A	N/A	–	–	–	
	Board Avg	50	N/A	N/A	50	N/A	N/A	4	2	50	
0-8	Joint Staff	–	N/A	N/A	100	N/A	N/A	1	1	100	
Fleet Support	JSO	N/A	N/A	N/A	N/A	N/A	N/A	1	0	0	
	Service Hqs	–	N/A	N/A	–	N/A	N/A	–	–	–	
	Other Joint	–	N/A	N/A	–	N/A	N/A	–	–	–	
	Board Avg	50	N/A	N/A	50	N/A	N/A	2	1	50	
0-7	Joint Staff	27	N/A	N/A	0	N/A	N/A	46	6	13	
Unrestricted	JSO	N/A	N/A	N/A	N/A	N/A	N/A	368	9	2	
Line	Service Hqs	2	N/A	N/A	5	N/A	N/A	275	10	4	
	Other Joint	6	N/A	N/A	0	N/A	N/A	96	4	4	
	Board Avg	3	N/A	N/A	3	N/A	N/A	952	27	3	
0-7	Joint Staff	–	N/A	N/A	–	N/A	N/A	–	–	–	
Restricted	JSO	N/A	N/A	N/A	N/A	N/A	N/A	6	0	0	
Aerospace	Service Hqs	0	N/A	N/A	0	N/A	N/A	11	0	0	
Engineering	Other Joint	0	N/A	N/A	0	N/A	N/A	5	0	0	
Duty	Board Avg	2	N/A	N/A	2	N/A	N/A	60	1	2	
0-7	Joint Staff	–	N/A	N/A	–	N/A	N/A	–	–	–	
Restricted	JSO	N/A	N/A	N/A	N/A	N/A	N/A	4	0	0	
Engineering	Service Hqs	0	N/A	N/A	0	N/A	N/A	8	0	0	
Duty	Other Joint	–	N/A	N/A	–	N/A	N/A	–	–	–	
	Board Avg	2	N/A	N/A	2	N/A	N/A	83	2	2	
0-7	Joint Staff	–	N/A	N/A	–	N/A	N/A	–	–	–	
Special Duty	JSO	N/A	N/A	N/A	N/A	N/A	N/A	33	1	3	
Intelligence	Service Hqs	20	N/A	N/A	0	N/A	N/A	7	1	14	
	Other Joint	0	N/A	N/A	0	N/A	N/A	7	0	0	
	Board Avg	2	N/A	N/A	2	N/A	N/A	43	1	2	
0-7	Joint Staff	–	N/A	N/A	0	N/A	N/A	1	0	0	
Special Duty	JSO	N/A	N/A	N/A	N/A	N/A	N/A	17	1	6	
Fleet Support	Service Hqs	0	N/A	N/A	0	N/A	N/A	3	0	0	
	Other Joint	0	N/A	N/A	–	N/A	N/A	1	0	0	
	Board Avg	5	N/A	N/A	5	N/A	N/A	21	1	5	

FY 1996 JOINT OFFICER PROMOTION RATES (Continued) — Table E-12

GRADE	JOINT 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	%	
NAVY PROMOTION RATES (Continued)											
0-6 Unrestricted Line	Joint Staff	88	0	0	60	3	0	58	39	67	
	JSO	–	–	–	–	–	–	68	32	47	
	Service Hqs	56	0	17	60	3	0	83	49	59	
	Other Joint	64	2	0	29	0	0	92	39	42	
	Board Avg	49	1	2	49	1	2	500	243	49	
0-6 Engineering Duty	Joint Staff	–	–	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	3	2	67	
	Service Hqs	33	0	0	100	0	–	4	2	50	
	Other Joint	–	0	–	100	0	–	1	1	100	
	Board Avg	45	1	10	45	1	10	31	14	45	
0-6 Engineering Aerospace	Joint Staff	–	–	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	–	–	–	
	Service Hqs										See Note
	Other Joint	0	0	0	–	0	–	1	0	0	
	Board Avg	42	0	13	42	0	13	24	10	42	
0-6 Cryptology	Joint Staff	–	–	–	–	0	–	–	–	–	
	JSO	–	–	–	–	–	–	3	1	33	
	Service Hqs	–	–	0	50	0	0	2	1	50	
	Other Joint	33	0	0	–	0	–	3	1	33	
	Board Avg	50	0	0	50	0	0	10	5	50	
0-6 Intelligence	Joint Staff	–	–	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	12	6	50	
	Service Hqs	0	0	–	0	0	–	2	0	0	
	Other Joint	–	0	0	50	0	0	4	2	50	
	Board Avg	46	3	0	46	3	0	22	10	46	
0-6 Public Affairs	Joint Staff	–	–	100	0	0	–	1	0	0	
	JSO	–	–	–	–	–	–	3	2	67	
	Service Hqs	–	100	0	0	0	100	2	0	0	
	Other Joint	0	0	–	50	–	0	3	1	33	
	Board Avg	44	10	17	44	10	17	9	4	44	
0-6 Oceanography	Joint Staff	–	–	–	0	–	–	1	0	0	
	JSO	–	–	–	–	–	–	4	1	25	
	Service Hqs	0	0	–	100	0	0	3	1	33	
	Other Joint	–	0	–	–	–	–	–	–	–	
	Board Avg	50	0	10	50	0	10	8	3	38	
0-6 Limited Duty (Line)	Joint Staff	–	–	–	–	–	–	1	0	0	
	JSO	–	–	–	–	–	–	–	–	–	
	Service Hqs	–	–	–	–	–	–	–	–	–	
	Other Joint	0	0	–	–	–	–	1	0	0	
	Board Avg	15	3	17	15	3	17	13	2	15	

FY 1996 JOINT OFFICER PROMOTION RATES (Continued)

Table E-12

GRADE	JOINT 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	%	
NAVY PROMOTION RATES (Continued)											
0-6 Civil Engineer	Joint Staff	–	0	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	3	1	33	
	Service Hqs	71	0	–	67	0	0	10	7	70	
	Other Joint	50	0	–	0	0	–	3	1	33	
	Board Avg	43	2	18	43	2	18	37	16	43	
0-6 Supply	Joint Staff	–	0	–	0	–	–	2	0	0	
	JSO	–	–	–	–	–	–	9	2	22	
	Service Hqs	–	14	–	0	0	–	1	0	0	
	Other Joint	50	0	0	60	0	–	9	5	56	
	Board Avg	45	1	0	45	1	0	44	20	45	
0-6 Special Duty Officer (Fleet Support)	Joint Staff	100	0	–	0	0	0	2	1	50	
	JSO	–	–	–	–	–	–	8	5	63	
	Service Hqs	–	–	–	50	0	0	2	1	50	
	Other Joint	–	0	–	0	0	–	2	0	0	
	Board Avg	43	1	10	43	1	10	21	9	43	
0-5 Unrestricted Line	Joint Staff	100	7	0	75	0	–	15	14	93	
	JSO	–	–	–	–	–	–	15	13	87	
	Service Hqs	72	13	0	67	16	0	58	41	71	
	Other Joint	79	3	0	47	5	0	94	63	67	
	Board Avg	62	4	3	62	4	3	600	373	62	
0-5 Engineering Duty	Joint Staff	–	–	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	–	–	–	
	Service Hqs										See Note
	Other Joint	–	0	–	50	0	–	2	1	50	
	Board Avg	61	4	11	61	4	11	61	37	61	
0-5 Engineering Aerospace	Joint Staff	–	–	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	–	–	–	
	Service Hqs										See Note
	Other Joint	–	–	–	0	–	–	1	0	0	
	Board Avg	67	0	29	67	0	29	15	10	67	
0-5 Cryptology	Joint Staff	–	–	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	1	0	0	
	Service Hqs	50	0	–	–	0	–	2	1	50	
	Other Joint	50	0	–	50	–	–	4	2	50	
	Board Avg	63	3	0	63	3	0	19	12	63	
0-5 Intelligence	Joint Staff	–	–	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	1	0	0	
	Service Hqs	100	0	–	100	0	–	2	2	100	
	Other Joint	78	0	0	58	0	0	30	21	70	
	Board Avg	63	3	10	63	3	10	40	25	63	

FY 1996 JOINT OFFICER PROMOTION RATES (Continued) Table E-12

GRADE	JOINT 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	%	
NAVY PROMOTION RATES (Continued)											
0–5 Civil Engineer Corps	Joint Staff	–	–	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	–	–	–	
	Service Hqs										See Note
	Other Joint	50	0	–	67	–	–	5	3	60	
	Board Avg	64	1	14	64	1	14	47	30	64	
0–5 Supply Corps	Joint Staff	–	–	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	–	–	–	
	Service Hqs										See Note
	Other Joint	71	0	0	100	0	0	10	8	80	
	Board Avg	68	2	5	68	2	5	93	63	68	
0-5 Public Affairs	Joint Staff	–	–	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	–	–	–	
	Service Hqs										See Note
	Other Joint	50	0	0	–	0	–	2	1	50	
	Board Avg	57	5	50	57	5	50	7	4	57	
0-5 Oceanography	Joint Staff	–	–	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	–	–	–	
	Service Hqs										See Note
	Other Joint	–	0	–	–	–	–	–	–	–	
	Board Avg	65	4	0	65	4	0	17	11	65	
0-5 Limited Duty (Line)	Joint Staff	–	–	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	–	–	–	
	Service Hqs										See Note
	Other Joint	100	0	0	0	–	100	2	1	50	
	Board Avg	41	3	21	41	3	21	68	28	41	
0-5 Special Duty Officer (Fleet Support)	Joint Staff	–	0	–	100	–	–	1	1	100	
	JSO	–	–	–	–	–	–	–	–	–	
	Service Hqs	80	0	0	–	0	0	5	4	80	
	Other Joint	67	0	–	71	17	–	10	7	70	
	Board Avg	62	3	5	62	3	5	78	48	62	
0-4 Unrestricted Line	Joint Staff	–	–	–	100	–	–	1	1	100	
	JSO	–	–	–	–	–	–	–	–	–	
	Service Hqs	–	9	0	100	0	–	4	4	100	
	Other Joint	25	0	0	33	25	–	7	2	29	
	Board Avg	61	3	8	61	3	8	1017	618	61	
0-4 Engineering Duty	Joint Staff	–	–	–	–	–	–	–	–	–	
	JSO	–	–	–	–	–	–	–	–	–	
	Service Hqs										See Note
	Other Joint	100	–	–	–	–	–	1	1	100	
	Board Avg	81	7	14	81	7	14	78	63	81	

FY 1996 JOINT OFFICER PROMOTION RATES (Continued) — Table E-12

GRADE	JOINT 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	%	
NAVY PROMOTION RATES (Continued)											
0-4 Oceanography	Joint Staff	-	-	-	-	-	-	-	-	-	
	JSO	-	-	-	-	-	-	-	-	-	
	Service Hqs										See Note
	Other Joint	-	0	-	-	-	-	-	-	-	
	Board Avg	62	4	33	62	4	33	26	16	62	
0-4 Intelligence	Joint Staff	-	-	-	-	-	-	-	-	-	
	JSO	-	-	-	-	-	-	-	-	-	
	Service Hqs										See Note
	Other Joint	-	0	0	-	0	-	-	-	-	
	Board Avg	64	3	20	64	3	20	45	29	64	
0-4 Public Affairs	Joint Staff	-	-	-	-	-	-	-	-	-	
	JSO	-	-	-	-	-	-	-	-	-	
	Service Hqs										See Note
	Other Joint	0	0	50	-	-	-	1	0	0	
	Board Avg	58	0	29	58	0	29	12	7	58	
0-4 Limited Duty (Line)	Joint Staff	-	-	-	-	-	-	-	-	-	
	JSO	-	-	-	-	-	-	-	-	-	
	Service Hqs										See Note
	Other Joint	100	0	100	100	-	-	4	4	100	
	Board Avg	63	2	15	63	2	15	237	149	63	
0-4 Special Duty Officer (Fleet Support)	Joint Staff	-	-	-	-	-	-	-	-	-	
	JSO	-	-	-	-	-	-	-	-	-	
	Service Hqs										See Note
	Other Joint	67	0	-	67	0	-	6	4	67	
	Board Avg	62	4	21	62	4	21	80	45	62	
0-4 Supply Corps	Joint Staff	-	-	-	-	-	-	-	-	-	
	JSO	-	-	-	-	-	-	-	-	-	
	Service Hqs										See Note
	Other Joint	100	0	0	100	-	-	3	3	100	
	Board Avg	68	3	0	68	3	0	127	86	68	

Note: No officers met this board who were JSOs or were serving in, or had served, on the Joint Staff.

DEFENSE ACQUISITION WORKFORCE IMPLEMENTATION REPORT

INTRODUCTION

FY 1996 was the Department of Defense's sixth year of fully implementing the Defense Acquisition Workforce Improvement Act (DAWIA), with continued aggressive management of the acquisition workforce. As reported previously, numerous changes and improvements are providing significant benefits in statutory and policy initiative implementation, as well as overall management improvements. The professionalism and development of the acquisition workforce are steadily improving. The combined benefits of new and ongoing acquisition reform initiatives with active acquisition workforce management enable the Services and components to achieve rightsized organizations, efficiency, and process improvements. The bottom-line benefit is better worldwide support to U.S. warfighters — now and for the future. FY 1996 proved to be as highly dynamic and ever-changing an environment for the professional acquisition workforce as was FY 1995.

MANAGEMENT OF THE ACQUISITION WORKFORCE

During FY 1996, the Department continued building on the extremely positive results of previous years' efforts. The well-planned and executed managerial actions by the military departments and components develop a highly diverse acquisition workforce which has a wide spectrum of acquisition responsibilities. The Department's efforts entailed overcoming multiple challenges from directed and previously planned personnel reductions, reorganization studies, acquisition program and process changes, coupled with reduced budgets, while executing increased training demands, student loads and other DAWIA requirements.

The Services provided equally important initiatives and improvements in their respective workforces. For instance, the Army significantly enhanced its DAWIA implementation by adroit use of Process Action Teams (PAT) and its Acquisition Corps Reengineering Team. It initiated new programs, concepts, and policies with positive impact to all of its acquisition workforce. The Navy effectively utilized its Best Qualified Selection policy, by selecting personnel for ACAT I,II Program Manager (PM) and other Critical Acquisition Positions through its board process headed by the Senior Acquisition Executive. The Navy also successfully implemented an expanded and reengineered acquisition intern program. They reinforced their DAWIA implementation by providing civilian personnel specialists hands-on training worldwide throughout the Department of the Navy.

Acquisition Workforce

In FY 1996, DoD realized a 5.6 percent decrease in the overall reported size of the acquisition workforce. The 108,007 reported acquisition professionals is down 6,372 from FY 1995 (114,380 reported). These positive results are from active efforts to reduce the size of the force and to improve reporting accuracy of the DAWIA Management Information System. This year's results continue the downward path of the workforce from a high of 143,432 at the end of 1989. This is an overall reduction of 35,424, or 25 percent, in seven years.

Equally significant is the Department's accomplishment in reducing the number of personnel assigned to acquisition organizations (those specified in DoD Instruction (DoDI) 5000.58 with a primary mission of acquisition). In Section 906d of the National Defense Authorization Act for FY 1996, Congress mandated a reduction of 15,000 personnel in these organizations in FY 1996. The actual reduction in these organizations, less the congressionally exempted depot personnel in skilled trades, was 23,802 or 6.25 percent. The FY 1997 Authorization Bill contains an additional mandatory reduction of 15,000 (again, less exempted skilled trades in depots). Without the skilled trades exclusion, DoD actually realized a 30,377 person reduction, or 7.2 percent. In these same specific acquisition organizations, the total reduction is 218,224 (35 percent) since 1989.

Additionally, the Department completed the study of Acquisition Organization restructuring and reorganization required by Sections 906a, b, and c of the FY 1996 Authorization Bill. This study evaluates planned and ongoing actions by the Services and components, that could result in a five year (FY 1996 to FY 2000) personnel reduction of 25 percent.

Again this year, the number of encumbered Critical Acquisition Positions (CAPs) declined. At the end of FY 1996, there were only 13,837 encumbered CAPs — down by 1,583 (10 percent) from last year. Through the Services' improved management, the Department

accomplished an overall reduction of 22 percent in this area since FY 1992.

During FY 1996, the Department completed its study of the designation of acquisition positions Department-wide. The study revealed that 90 percent of all position designations across DoD are correct. Recommendations and issues from the study are undergoing review and corrective action is being taken to further improve acquisition position management.

To respond to a growing concern of possibly losing engineering and scientific expertise, with a possible loss of its technical edge, DoD chartered a PAT. The concerns of eroding specialized talent became more prevalent with increased downsizing, force reductions, and required restricted hiring practices. The Scientist and Engineering (S/E) Workforce Enhancement PAT provided a wide range of significant actions to forestall any possible future unfulfilled requirement for S/E talent and expertise, and imbalance in certain age groups. The PAT's 13 recommendations are undergoing further study and preparation for implementation. Collectively they will provide the needed management tools and flexibility to assure a viable, robust, and technically superior S/E workforce.

The Army implemented a truly integrated civilian — military Acquisition Career management structure for proponency and execution of central management requirements. This effort to provide direction and oversight for consolidating central management functions and career development is improving both professional career management and associated data management.

Acquisition Workforce Personnel Demonstration Project

The FY 1996 Authorization Bill provided DoD authorization to conduct a personnel demonstration specifically for the DAWIA defined Acquisition Workforce. The law gives the Department five years to plan and implement the demonstrations. Secretary Perry established a Process Action Team in May 1996, to plan and initiate activities to accomplish this effort. This project will greatly enhance the Department's management flexibility for the professional acquisition workforce.

Acquisition Corps

Effective October 1, 1993, the DAWIA allows only Acquisition Corps members to encumber CAPs. Aggressive efforts by the components and Services in qualifying and managing their respective Corps membership is quite evident. In FY 1996 there were 21,896 Acquisition Corps members (Department-wide), up slightly from FY 1995's 21,626. However, since FY 1994, Corps membership Department-wide is up 5,290 (32 percent).

Major Program Managers

The Department maintained the significant improvement in major PM and Deputy PM (DPM) tenure it realized last year. This provides for both management and program stability. During FY 1996, 29 PMs changed position, up from 15 in FY 1995. Of the reassigned PMs, 66 percent served full-term, with an average PM length of assignment of 43.7 months. Last year, 67 percent of reassigned PMs served full-term, with a 39.1 month overall average length of assignment. These are significant results since FY 1994's full-term PM reassignment of 28 percent and a 31.1 month overall average tenure.

Equally impressive are the improvements in major program DPM assignments. In FY 1996, 46 percent of the DPMs reassigned served full-term. Overall average DPM length of assignment was 52 months. These results improved greatly since FY 1995, when only 30 percent of reassigned DPMs served full-term, and the overall length of DPM assignment was 38.1 months.

Best Qualified Policy

The Department's Best Qualified Program fully embraces the DAWIA objective to foster career-development opportunities for both military and civilian personnel. In FY 1996, DoD had its first year of full implementation. The policies and procedures the Services and components developed and issued during FY 1995 assure that selections for senior positions (Program Executive Officers, Acquisition Category (ACAT) I and II PMs and Deputy PMs) fully incorporate the DAWIA objective. The Army selected two ACAT I PMs using the Best Qualified head-to-head civilian-military competition. The Navy conducted Best Qualified Selections for 11 individuals for ACAT I,II PMs and certain other critical acquisition positions. The Army developed and tested a Potential Evaluation Tool for civilians that will enhance its Best Qualified Selections.

Trends/Improvements

FY 1996 showed tremendous positive improvement in management of the acquisition workforce. All trends indicate positive changes and a thorough, well managed

and executed plan to rightsize the professional acquisition workforce and specific organizations. Overall workforce size is down; encumbered CAPs are down; and employees in specific acquisition organizations are also decreasing significantly. Studies and evaluations provide needed direction and recommendations to further improve the workforce. Program stability is improving as the number of PMs and DPMs serving full terms, and the average length of their assignments are all increasing. The improvements indicate that the Department is benefiting from acquisition reforms and is well-postured for efficiently and effectively executing its missions, now and in the 21st century.

The negative trend in reducing the Department's acquisition training funding continued. FY 1996 again saw a final authorization and appropriation significantly reduced from that required and submitted. The approved FY 1997 budget continues this trend with a significant reduction for the third straight year. These continuous reductions drastically impact the educational offerings provided, the number of students who can obtain mandatory training, and DoD's ability to continue implementing required programs such as a fully developed and mature Continuing Education Program. If allowed to continue, these trends could result in a significant reduction in students trained, course maintenance, professional development of the Defense Acquisition University (DAU) faculty, and continued institutionalizing of acquisition reform. DoD believes these trends are inconsistent with the intent of DAWIA and have a large overall negative impact on the professional development of the workforce. The Department continues actively pursuing all avenues for more cost efficient and cost effect means to satisfy our acquisition workforce training needs.

During FY 1996, the Army held its second centralized civilian selection board for Project Managers (GS-15) and Product Managers (GS-14). The Army selected 13 Project/Product Managers, more than double the number selected in FY 1995, during its first board.

Technology driven changes in course preparation, delivery and communication of training material, and ongoing acquisition reform changes continued in a positive trend. DAU utilized multiple technology capabilities for information dissemination, course offerings, alternative course-delivery methods, and distance learning. The Department and Services effectively integrated electronic media in their worldwide communications with the workforce and in management actions. Each of the Services and many of the components continued aggressively pursuing technology driven improvements in their management efforts. These include use of the Internet to directly communicate and interact with a global workforce. Other initiatives involved hardware and software improvements to increase monitoring of career progression, improved requirements determination, providing career guidance, and an overall quality improvement in data submission.

CAREER DEVELOPMENT

In FY 1996, DoD continued improving and updating appropriate acquisition career policies, procedures, and organizations. All actions strive to better represent and service the workforce's needs. Previous Functional Board consolidations were fully implemented with very positive effects. All boards were actively engaged in competency reviews, specific career field education requirements determination, significant course evaluations, and reviews. Numerous updates and major changes evolved in existing curriculum, with the addition of newly identified classes and elimination of outdated ones. The Department completed a major update of the overall Acquisition Career Management Policy manual. Major updates continue in companion publications and procedural documents. Collectively, these actions further strengthen the significant capabilities of the professional acquisition workforce. The Services provided equally beneficial changes to particular Service oriented policies, procedures, and programs. The Army developed a Civilian Acquisition Leader Development model supported by a newly prepared automated Individual Development Plan. All Services and components initiated reviews of Critical Acquisition Position incumbents who had been in the same position for five or more years.

FY 1996 saw further growth in the Intern Program of the Services and components. Overall participation increased to 1,069 personnel during FY 1996, up from 968 interns in FY 1995. The Navy approved funding that would triple its Acquisition Intern Program. It further expanded the program's scope to encompass interns in all acquisition career fields. In this one Service alone, these outstanding efforts will provide nearly 300 new interns annually to complete a three year career development program.

The Army took other actions that included baselining its existing policies, revitalizing the civilian component of its Acquisition Corps, initiating a Central Career Management Program, and establishing an Acquisition Corps leader development program. Additionally, a pilot program to retrain employees in critical areas was initiated to meet the challenge of work skill changes

brought on by acquisition reform and new technology. This three-year program developed by the Navy, involving training, education, and job rotation, will provide qualified personnel eligible to transition into the acquisition workforce and fill acquisition positions.

EDUCATION

The Department again provided increased availability of higher education opportunities for the acquisition workforce. The Tuition Reimbursement Program and the Defense Acquisition Scholarship program continue their past successes. In FY 1996, 6,493 individuals utilized the Tuition Reimbursement Program and 31 students utilized the scholarship program. Thirteen of the scholarship program students selected in FY 1996 will pursue full-time graduate degrees in business, physical science, engineering, technology management, and public administration. Upon their graduation, these students will join the acquisition workforces of the Navy and Army. There were also 50 students in Cooperative Education during the year.

Continuing Education Program

The Department published an interim Continuing Education policy during FY 1996. The policy provides the Services and components guidance and direction to initiate detailed planning, resource, and requirements identification. During FY 1997, DoD will refine its policy and solidify specific courses, training opportunities, and budgetary requirements. One concern is the continued reduction of acquisition training funds. Indications are that continuing education funding in future (FY 1998 and FY 1999) budgets might be eliminated. This would be fatal to the sorely needed Continuing Education program. The Department's program provides many positive benefits for the acquisition workforce. It equips them to deal with ever-changing organizations, requirements, technology, workplace, and a changing workforce.

Other Service initiatives are providing equally good results and improvements. One Service is pursuing a continuous learning objective added to performance reviews. This objective involves self-study, professional growth activities, research projects, and mentoring, as well as more traditional approaches.

TRAINING

As in previous years, training remains an integral element in achieving objectives to professionalize the acquisition workforce and fully implement the benefits of acquisition reform. In FY 1996, DoD's efforts continued with full utilization of a very wide range of opportunities to update and train the workforce on changes in acquisition, new initiatives, and implementing policies. These methods include electronic and printed newsletters, outreach programs, DAU course changes, seminars, regional conferences, roadshows, and use of multiple delivery mediums and methods. The DoD Acquisition Reform Day provided intense and concentrated updates to all of the workforce in numerous specific areas. During FY 1996, the acquisition community initiated both the printed (Acquisition Today) and electronic (Acquisition Now) newsletters.

Training Courses

During FY 1996, DAU, through its 12 consortium schools, provided a diverse series of updated, improved, and new training opportunities that allowed the Services and components to satisfy their statutory requirements. During this year, the DAU consortium schools provided 1,209 class offerings to 32,433 students. Class offerings are up from 1,145 in FY 1995 and 1,100 in FY 1994. The number of students trained is slightly down from last year's 32,700, primarily because of the government shutdown which impacted all the schools. However, there is a 7 percent increase since FY 1994, when 30,300 students completed courses. Of the 1,209 offerings in FY 1996, 880 (or 72 percent) were resident, while 371 were on-site and the remaining 20 were by satellite. The Services and components continued to improve course utilization. DAU aggressively pursues regional and other on-site course presentations where there is a sufficient workforce concentration to reduce costs and increase training opportunities. During FY 1996, the DAU, its consortium schools, and representatives of the Functional Boards reviewed 70 percent (55) of the 79 acquisition courses. There were three new courses initiated in FY 1996 not requiring review, and the others will be reviewed in the next year. This massive training requirement greatly supports the acquisition professional's needs in achieving certification, obtaining functional expertise, and job specific training.

Equally important are the Service initiatives and training they provide to their respective acquisition workforce. During FY 1996, one service had over 10 percent of the acquisition personnel receive acquisition training from Service schools. The Services, components, and DAU are aggressively searching out opportunities for

acquisition training efficiency improvements, cooperative efforts, and maximizing use of dwindling resources. For instance, the Navy and DAU obtained course equivalency approval for the Fundamentals in Acquisition (ACQ 101) to be taught at the Navy's Engineering Officer School. This provides the opportunity for all Navy Engineering officers to obtain Level I DAWIA training for Program Management and systems planning, research, development, engineering, and testing.

Acquisition Reform

The Services and components recognized for a long time that acquisition reform training for the workforce is fundamental to streamlining acquisition management. Again, the Department used a wide variety of methods to keep the workforce current and informed. The Acquisition Reform Communications Center (ARCC), established at the DAU, widely disseminates acquisition reform information, training, and support material using various communication media. The ARCC's three major initiatives remain providing satellite broadcasts, developing detailed acquisition-reform training modules, and developing and disseminating interactive CD training modules on simplified acquisition threshold and the Federal Acquisition Computer Network. The ARCC during FY 1996 provided approximately 11,000 printed products, 8,000 compact disks (CD-ROM) and 9,100 video tapes; hosted or supported nine satellite broadcasts; and provided specific facilitator training to over 200 Department, government agency, and civilian representatives. These products covered the 11 Federal Acquisition Streamlining Act (FASA) rules, potential FARA impacts, Legislative Impacts on Acquisition Reform, guiding principles of acquisition reform, Simplified Acquisition, Integrated Product Teams, and Single Process Initiatives. Every media form and delivery method used proved extremely successful in communicating the status of changes to a geographically dispersed audience.

The Navy continued fully utilizing its Acquisition Reform Office, Acquisition Reform Training Group, and its senior level advisory group, the Navy Acquisition Reform Senior Oversight Council, to maximize sharing of information and lessons learned across the infrastructure. The Navy's initiatives included over 41,000 members of its geographically dispersed workforce participating in the Department's Acquisition Reform Acceleration Day. Utilizing a proven survey process, the Navy contributed over 13,000 ideas and recommendations for change involving all aspects of the acquisition system and processes. The Air Force continued developing Service related acquisition reform initiatives stressing professional development. Focus was on near- and long-term training, workforce communications, and acquisition reform updates using its highly successful training roadshow. The Air Force initiated the Acquisition Renaissance Professional Development Program concentrating on a broad, multidisciplinary experience base for future acquisition leaders. The Army again utilized its highly successful series of Roadshows to promote cultural change and continuous process improvement. It trained more than 20,000 government and industry personnel through the Roadshow series in FY 1996.

Improved Opportunities

The Services continue to access reserve component officers into the workforce and respective Acquisition Corps as well as provide additional opportunities to them in achieving certification. The Army initiated an Acquisition Corps Reserve PAT to address improving opportunities in the Reserve components. The Department will also continue building upon FY 1995 accomplishments such as expanding the intern program beyond the fields of logistics and contracting; identifying contracting training requirements beyond directed competencies; and continuing its efforts to reduce training costs.

CONCLUSION

The Department continued in FY 1996, through the DAU, Services, and components, providing increased education, training, and experience opportunities. These significant efforts are achieving a highly qualified, experienced, and professional acquisition workforce that is second to none. These efforts postured the Department to support and implement acquisition-reform initiatives, while developing, managing, and delivering 21st century weapons and information systems vital to dominating and winning on the battlefield.

As DoD continues its reform program with further challenges from ever smaller budgets and rightsizing organizations, the Acquisition Workforce is becoming a better trained, educated, and professionally developed force. The Department steadfastly pursues, actively and aggressively, the four critical elements of the DoD reengineered acquisition system: meeting the warfighter's needs; being the world's smartest buyer; procuring the best-value goods and services; and having the most responsive (timely and flexible) acquisition system.

REPORTS

Tables F-1 through F-21 display the DAWIA-directed reporting requirements as of September 30, 1996. Reporting requirements not included are:

Section 1762(c)(9) — Personnel in critical acquisition positions who were reassigned after three years or longer in a critical position. Three years since enactment of this requirement will not occur until October 1, 1996; therefore, the information should be available in the 1997 report.

Section 1762(c)(11) — Personnel in critical acquisition positions reviewed for reassignment after five years in a critical position. The FY 1993 Authorization Act mandated the start date for five year reviews under Section 1734(e)(2) as October 1, 1995. Reviews were initiated during FY 1996. Specific results with a complete year of data will be included in the FY 1997 report.

Section 1762(c)(13) — Number of personnel paid a bonus under Section 317, 37 U.S. Code: During FY 1996, the Service Secretaries did not request approval from the Secretary of Defense to exercise this authority.

CRITICAL ACQUISITION POSITIONS HELD – FY 1996
{SECTION 1762 (C) (3)}
ALL COMPONENTS

Table F-1

Position Category		GS/ GM-13 or Below	O-4	GS/ GM-14	O-5	GS/ GM-15	O-6	SES	Gen/ Flag Officer	Title 10[c]	Civilian Total	Military Total	Combined Total
Acquisition Management[a]	**Total**	**41**	**197**	**1365**	**864**	**941**	**549**	**145**	**66**	**48**	**2540**	**1676**	**4216**
PEOs		0	0	0	0	0	0	8	16	0	8	16	24
PMs[b]		0	0	0	6	11	115	5	3	0	16	124	140
DPMs[b]		0	0	5	7	83	18	3	0	0	91	25	116
PgmMngt/Pgm Mngt Oversight	**Total**	**23**	**185**	**1141**	**793**	**836**	**533**	**138**	**66**	**46**	**2184**	**1577**	**3761**
Division Heads		3	44	213	273	296	415	98	38	0	610	770	1380
Communication/ Computer Sys	**Total**	**18**	**12**	**224**	**71**	**105**	**16**	**7**	**0**	**2**	**356**	**99**	**455**
Division Heads		11	6	61	24	32	11	3	0	0	107	41	148
Proc. and Contracting	**Total**	**16**	**35**	**1225**	**283**	**397**	**178**	**54**	**13**	**8**	**1700**	**509**	**2209**
Sr. Contracting Officials		0	0	16	2	28	23	19	2	0	63	27	90
Division Heads		7	13	505	125	166	147	33	9	0	711	294	1005
Business, Cost Estimating and Financial Management	**Total**	**18**	**15**	**398**	**46**	**141**	**14**	**8**	**1**	**18**	**583**	**76**	**659**
Division Heads		10	4	79	23	80	14	6	1	0	175	42	217
Auditing	**Total**	**0**	**0**	**168**	**0**	**39**	**0**	**15**	**0**	**0**	**222**	**0**	**222**
Division Heads		0	0	129	0	38	0	15	0	0	182	0	182
Production/ Quality	**Total**	**1**	**1**	**213**	**18**	**63**	**51**	**3**	**9**	**4**	**284**	**79**	**363**
Division Heads		0	0	56	0	34	51	3	9	0	93	60	153
Acquisition Logistics	**Total**	**17**	**7**	**411**	**80**	**162**	**58**	**15**	**2**	**3**	**608**	**147**	**755**
Division Heads		9	2	135	39	79	58	13	2	0	236	101	337
Sys. Plng. Rsch. Dev. & Eng	**Total**	**23**	**28**	**3569**	**186**	**1306**	**89**	**139**	**7**	**7**	**5044**	**310**	**5354**
Division Heads		4	10	517	46	461	74	102	5	0	1084	135	1219
Test and Evaluation	**Total**	**3**	**24**	**551**	**118**	**163**	**36**	**20**	**4**	**2**	**739**	**182**	**921**
Division Heads		0	13	153	65	89	36	15	4	0	257	118	375
Education, Training, and Career Development	**Total**	**0**	**13**	**3**	**64**	**6**	**8**	**3**	**0**	**0**	**12**	**85**	**97**
Division Heads		0	5	1	2	0	4	2	0	0	3	11	14
	Total	**119**	**320**	**7903**	**1659**	**3218**	**983**	**402**	**102**	**90**	**11732**	**3064**	**14796**

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
[c] Civilian Excepted Service Employees

CRITICAL ACQUISITION POSITIONS HELD – FY 1996
(SECTION 1762 (C) (3))
COMPONENTS: ARMY

Table F-2

Position Category		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**	**425**	**311**	**284**	**127**	**31**	**12**	**740**	**450**	**1190**
PEOs		0	0	0	0	0	0	2	6	2	6	8
PMs[b]		0	0	0	6	1	30	1	2	2	38	40
DPMs[b]		0	0	0	1	31	1	0	0	31	2	33
PgmMngt/Pgm Mngt Oversight	**Total**	**0**	**0**	**367**	**278**	**269**	**122**	**31**	**12**	**667**	**412**	**1079**
Division Heads		0	0	62	111	131	96	15	0	208	207	415
Communication/ Computer Sys	**Total**	**0**	**0**	**58**	**33**	**15**	**5**	**0**	**0**	**73**	**38**	**111**
Division Heads		0	0	4	7	5	2	0	0	9	9	18
Proc. and Contracting	**Total**	**0**	**0**	**342**	**84**	**82**	**44**	**13**	**1**	**437**	**129**	**566**
Sr. Contracting Officials		0	0	16	2	22	7	5	0	43	9	52
Division Heads		0	0	111	41	45	37	8	0	164	78	242
Business, Cost Estimating and Financial Management	**Total**	**0**	**0**	**154**	**0**	**36**	**0**	**0**	**0**	**190**	**0**	**190**
Division Heads		0	0	27	0	25	0	0	0	52	0	52
Auditing	**Total**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Division Heads		0	0	0	0	0	0	0	0	0	0	0
Production/Quality	**Total**	**0**	**0**	**71**	**0**	**17**	**0**	**1**	**0**	**89**	**0**	**89**
Division Heads		0	0	10	0	11	0	1	0	22	0	22
Acquisition Logistics	**Total**	**0**	**0**	**98**	**11**	**24**	**0**	**0**	**0**	**122**	**11**	**133**
Division Heads		0	0	28	2	16	0	0	0	44	2	46
Sys. Plng. Rsch. Dev. and Eng	**Total**	**0**	**0**	**1596**	**51**	**655**	**7**	**65**	**0**	**2316**	**58**	**2374**
Division Heads		0	0	124	7	230	6	47	0	401	13	414
Test and Evaluation	**Total**	**0**	**0**	**267**	**26**	**96**	**8**	**8**	**0**	**371**	**34**	**405**
Division Heads		0	0	42	11	53	8	5	0	100	19	119
Education, Training, and Career Development	**Total**	**0**	**0**	**1**	**30**	**2**	**6**	**0**	**0**	**3**	**36**	**39**
Division Heads		0	0	1	1	0	2	0	0	1	3	4
	Total	**0**	**0**	**2954**	**513**	**1196**	**192**	**118**	**13**	**4268**	**718**	**4986**

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 1996

{SECTION 1762 (C) (3)}
COMPONENTS: NAVY

Table F-3

Position Category		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**	**563**	**52**	**361**	**163**	**52**	**28**	**976**	**243**	**1219**
PEOs		0	0	0	0	0	0	2	7	2	7	9
PMs[b]		0	0	0	0	3	37	2	1	5	38	43
DPMs[b]		0	0	1	2	31	3	3	0	35	5	40
PgmMngt/Pgm Mngt Oversight	**Total**	**0**	**0**	**525**	**51**	**348**	**161**	**52**	**28**	**925**	**240**	**1165**
Division Heads		0	0	51	0	78	126	44	18	173	144	317
Communication/ Computer Sys	**Total**	**0**	**0**	**38**	**1**	**13**	**2**	**0**	**0**	**51**	**3**	**54**
Division Heads		0	0	5	0	2	2	0	0	7	2	9
Proc. and Contracting	**Total**	**0**	**0**	**268**	**48**	**110**	**80**	**15**	**10**	**393**	**138**	**531**
Sr. Contracting Officials		0	0	0	0	4	8	7	0	11	8	19
Division Heads		0	0	57	0	30	76	8	7	95	83	178
Business, Cost Estimating and Financial Management	**Total**	**0**	**0**	**146**	**4**	**56**	**3**	**2**	**0**	**204**	**7**	**211**
Division Heads		0	0	23	0	22	3	2	0	47	3	50
Auditing	**Total**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Division Heads		0	0	0	0	0	0	0	0	0	0	0
Production/Quality	**Total**	**0**	**0**	**53**	**12**	**17**	**47**	**1**	**9**	**71**	**68**	**139**
Division Heads		0	0	14	0	9	47	1	9	24	56	80
Acquisition Logistics	**Total**	**0**	**0**	**163**	**7**	**63**	**18**	**10**	**1**	**236**	**26**	**262**
Division Heads		0	0	33	0	24	18	10	1	67	19	86
Sys. Plng. Rsch. Dev. & Eng	**Total**	**0**	**0**	**1159**	**37**	**267**	**41**	**32**	**5**	**1458**	**83**	**1541**
Division Heads		0	0	272	0	87	40	30	5	389	45	434
Test and Evaluation	**Total**	**0**	**0**	**167**	**13**	**28**	**7**	**2**	**1**	**197**	**21**	**218**
Division Heads		0	0	52	0	10	7	2	1	64	8	72
Education, Training, and Career Development	**Total**	**0**	**0**	**1**	**1**	**2**	**1**	**1**	**0**	**4**	**2**	**6**
Division Heads		0	0	0	0	0	1	1	0	1	1	2
	Total	**0**	**0**	**2520**	**174**	**904**	**360**	**115**	**54**	**3539**	**588**	**4127**

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 1996
{SECTION 1762 (C) (3)}
COMPONENTS: MARINE CORPS

Table F-4

Position Category		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**	**9**	**65**	**8**	**29**	**1**	**2**	**18**	**96**	**114**
PEOs		0	0	0	0	0	0	0	0	0	0	0
PMs[b]		0	0	0	0	0	5	0	0	0	5	5
DPMs[b]		0	0	0	0	0	0	0	0	0	0	0
PgmMngt/Pgm Mngt Oversight	**Total**	**0**	**0**	**7**	**65**	**8**	**29**	**1**	**2**	**16**	**96**	**112**
Division Heads		0	0	7	0	7	24	0	2	14	26	40
Communication/ Computer Sys	**Total**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**
Division Heads		0	0	0	0	0	0	0	0	0	0	0
Proc. and Contracting	**Total**	**0**	**0**	**12**	**0**	**3**	**0**	**1**	**0**	**16**	**0**	**16**
Sr. Contracting Officials		0	0	0	0	1	0	1	0	2	0	2
Division Heads		0	0	2	0	2	0	0	0	4	0	4
Business, Cost Estimating and Financial Management	**Total**	**0**	**0**	**1**	**4**	**2**	**1**	**0**	**0**	**3**	**5**	**8**
Division Heads		0	0	0	0	1	1	0	0	1	1	2
Auditing	**Total**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Division Heads		0	0	0	0	0	0	0	0	0	0	0
Production/Quality	**Total**	**0**	**0**	**0**	**4**	**0**	**1**	**0**	**0**	**0**	**5**	**5**
Division Heads		0	0	0	0	0	1	0	0	0	1	1
Acquisition Logistics	**Total**	**0**	**0**	**9**	**12**	**3**	**1**	**0**	**0**	**12**	**13**	**25**
Division Heads		0	0	5	0	2	1	0	0	7	1	8
Sys. Plng. Rsch. Dev. & Eng	**Total**	**0**	**0**	**22**	**4**	**3**	**0**	**0**	**0**	**25**	**4**	**29**
Division Heads		0	0	10	0	1	0	0	0	11	0	11
Test and Evaluation	**Total**	**0**	**0**	**2**	**5**	**0**	**0**	**0**	**0**	**2**	**5**	**7**
Division Heads		0	0	2	0	0	0	0	0	2	0	2
Education, Training, and Career Development	**Total**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**1**	**2**	**3**
Division Heads		0	0	0	0	0	0	0	0	0	0	0
	Total	**0**	**0**	**55**	**96**	**20**	**32**	**2**	**2**	**77**	**130**	**207**

[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 1996
{SECTION 1762 (C) (3)}
COMPONENTS: AIR FORCE

Table F-5

Position Category		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**	**41**	**197**	**216**	**436**	**111**	**230**	**27**	**24**	**395**	**887**	**1282**
PEOs		0	0	0	0	0	0	4	3	4	3	7
PMs[b]		0	0	0	0	7	43	2	0	9	43	52
DPMs[b]		0	0	4	4	21	14	0	0	25	18	43
PgmMngt/Pgm Mngt Oversight	**Total**	**23**	**185**	**155**	**399**	**94**	**221**	**25**	**24**	**297**	**829**	**1126**
Division Heads		3	44	55	162	55	169	19	18	132	393	525
Communication/ Computer Sys	**Total**	**18**	**12**	**61**	**37**	**17**	**9**	**2**	**0**	**98**	**58**	**156**
Division Heads		11	6	32	17	8	7	0	0	51	30	81
Proc. and Contracting	**Total**	**16**	**35**	**217**	**151**	**72**	**54**	**7**	**2**	**312**	**242**	**554**
Sr. Contracting Officials		0	0	0	0	1	8	6	2	7	10	17
Division Heads		7	13	75	84	45	34	2	2	129	133	262
Business, Cost Estimating and Financial Management	**Total**	**18**	**15**	**86**	**38**	**36**	**10**	**6**	**1**	**146**	**64**	**210**
Division Heads		10	4	28	23	30	10	4	1	72	38	110
Auditing	**Total**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Division Heads		0	0	0	0	0	0	0	0	0	0	0
Production/Quality	**Total**	**1**	**1**	**21**	**2**	**6**	**3**	**1**	**0**	**29**	**6**	**35**
Division Heads		0	0	7	0	3	3	1	0	11	3	14
Acquisition Logistics	**Total**	**17**	**7**	**128**	**50**	**58**	**39**	**4**	**1**	**207**	**97**	**304**
Division Heads		9	2	68	37	35	39	2	1	114	79	193
Sys. Plng. Rsch. Dev. & Eng	**Total**	**23**	**28**	**708**	**94**	**332**	**41**	**39**	**2**	**1102**	**165**	**1267**
Division Heads		4	10	101	39	125	28	22	0	252	77	329
Test and Evaluation	**Total**	**3**	**24**	**108**	**74**	**32**	**21**	**8**	**3**	**151**	**122**	**273**
Division Heads		0	13	57	54	25	21	6	3	88	91	179
Education, Training, and Career Development	**Total**	**0**	**13**	**1**	**31**	**0**	**1**	**0**	**0**	**1**	**45**	**46**
Division Heads		0	5	0	1	0	1	0	0	0	7	7
	Total	**119**	**320**	**1485**	**876**	**647**	**399**	**92**	**33**	**2343**	**1628**	**3971**

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 1996
(SECTION 1762 (C) (3))
COMPONENTS: OSD, DoD AGENCIES, AND OTHER COMPONENTS[a]

(Numbers for military members assigned OSD/DoD Agencies and other components reflected in individual services totals) **Table F-6**

Position Category		GS/ GM-13 or Below	GS/ GM-14	GS/ GM-15	SES	Title 10[d]	Civilian Total	Military Total	Combined Total
Acquisition Management[b]	**Total**	**0**	**152**	**177**	**34**	**48**	**411**	**0**	**411**
PEOs		0	0	0	0	0	0	0	0
PMs[c]		0	0	0	0	0	0	0	0
DPMs[c]		0	0	0	0	0	0	0	0
PgmMngt/Pgm Mngt Oversight	**Total**	**0**	**87**	**117**	**29**	**46**	**279**	**0**	**279**
Division Heads		0	38	25	20	0	83	0	83
Communication/Computer Sys	**Total**	**0**	**65**	**60**	**5**	**2**	**132**	**0**	**132**
Division Heads		0	20	17	3	0	40	0	40
Proc. and Contracting	**Total**	**0**	**386**	**130**	**18**	**8**	**542**	**0**	**542**
Sr. Contracting Officials		0	0	0	0	0	0	0	0
Division Heads		0	260	44	15	0	319	0	319
Business, Cost Estimating and Financial Management	**Total**	**0**	**11**	**11**	**0**	**18**	**40**	**0**	**40**
Division Heads		0	1	2	0	0	3	0	3
Auditing	**Total**	**0**	**168**	**39**	**15**	**0**	**222**	**0**	**222**
Division Heads		0	129	38	15	0	182	0	182
Production/Quality	**Total**	**0**	**68**	**23**	**0**	**4**	**95**	**0**	**95**
Division Heads		0	25	11	0	0	36	0	36
Acquisition Logistics	**Total**	**0**	**13**	**14**	**1**	**3**	**31**	**0**	**31**
Division Heads		0	1	2	1	0	4	0	4
Sys. Plng. Rsch. Dev. & Eng	**Total**	**0**	**84**	**49**	**3**	**7**	**143**	**0**	**143**
Division Heads		0	10	18	3	0	31	0	31
Test and Evaluation	**Total**	**0**	**7**	**7**	**2**	**2**	**18**	**0**	**18**
Division Heads		0	0	1	2	0	3	0	3
Education, Training, and Career Development	**Total**	**0**	0	**1**	**2**	**0**	**3**	**0**	**3**
Division Heads		0	0	0	1	0	1	0	1
	Total	**0**	**889**	**451**	**75**	**90**	**1505**	**0**	**1505**

Source: DMDC data verified by Component Records

[a] NSA/DIA not included

[b] Acquisition Management includes Program Management, PM Oversight, and Communications/Computer Systems position categories.

[c] ACAT I and ACAT II only

[d] Civilian Excepted Service Employees

ARMY ACQUISITION CORPS MEMBERS – FY 1996
{SECTION 1762 (C) (2)}

Table F-7

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	26	128	329	299	193	117	11	22	1125
Communications, Computer Systems	3	27	30	46	13	8	0	0	127
Contracting	14	62	267	106	81	49	7	1	587
Industrial Property Management	0	0	1	0	0	0	0	0	1
Manufacturing and Production/ Quality Assurance	1	0	112	0	30	0	2	0	145
Business, Cost Estimating, and Financial Management	22	2	114	1	31	0	1	0	171
Acquisition Logistics	18	10	77	10	23	0	0	0	138
Systems Planning, Research, Development, and Engineering	40	33	1242	66	596	14	54	0	2045
Test and Evaluation	2	31	232	41	94	10	6	0	416
Total	126	293	2404	569	1061	198	81	23	4755

Source: Component Records

NAVY ACQUISITION CORPS MEMBERS – FY 1996
{SECTION 1762 (C) (2)}

Table F-8

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	546	58	444	252	342	238	49	22	1951
Communications, Computer Systems	47	1	29	6	7	4	0	0	94
Contracting	397	180	231	303	105	153	14	7	1390
Industrial Property Management	0	0	0	0	0	0	0	0	0
Manufacturing and Production/ Quality Assurance	50	60	41	129	11	74	0	3	368
Business, Cost Estimating, and Financial Management	246	14	124	46	51	13	2	1	497
Acquisition Logistics	254	10	133	56	50	28	4	2	537
Systems Planning, Research, Development, and Engineering	1299	37	1096	114	244	62	26	0	2878
Test and Evaluation	195	9	156	39	27	11	1	0	438
Total	3034	369	2254	945	837	583	96	35	8153

Source: Component Records

MARINE CORPS ACQUISITION CORPS MEMBERS - FY 1996
{SECTION 1762 (C) (2)}
Table F-9

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	9	51	7	79	9	40	1	8	204
Communications, Computer Systems	0	3	1	1	0	0	0	0	5
Contracting	14	13	12	1	3	0	1	0	44
Industrial Property Management	0	0	0	0	0	0	0	0	0
Manufacturing and Production/ Quality Assurance	3	0	0	2	0	1	0	0	6
Business, Cost Estimating, and Financial Management	5	3	0	5	2	2	0	0	17
Acquisition Logistics	13	5	7	8	2	2	0	0	37
Systems Planning, Research, Development, and Engineering	22	5	21	4	3	2	0	0	57
Test and Evaluation	2	7	2	6	0	2	0	0	19
Total	68	87	50	106	19	49	2	8	389

Source: Component Records

AIR FORCE ACQUISITION CORPS MEMBERS - FY 1996
{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	13	237	134	607	86	261	22	20	1380
Communications, Computer Systems	6	18	63	65	18	10	1	0	181
Contracting	12	60	215	192	72	58	8	3	620
Industrial Property Management	0	0	0	0	0	0	0	0	0
Manufacturing and Production/ Quality Assurance	1	0	22	6	6	4	1	0	40
Business, Cost Estimating, and Financial Management	9	24	102	59	39	19	6	3	261
Acquisition Logistics	4	16	205	125	89	57	9	3	508
Systems Planning, Research, Development, and Engineering	11	52	715	237	343	58	42	1	1459
Test and Evaluation	2	37	106	172	30	32	5	4	388
Total	58	444	1562	1463	683	499	94	34	4837

Source: Component Records

OSD, DoD AGENCIES, OTHER COMPONENTS ACQUISITION CORPS MEMBERS[a] – FY 1996
{SECTION 1762 (C) (2)}

Table F-11

Career Field	GS/ GM-13 or Below	GS/ GM-14	GS/ GM-15	SES	Total
Program Management	70	116	105	30	321
Communications, Computer Systems	31	47	40	6	124
Contracting	774	395	145	16	1330
Industrial Property Management	26	5	2	0	33
Manufacturing and Production/Quality Assurance	361	138	26	0	525
Business, Cost Estimating, and Financial Management	7	26	9	0	42
Auditing	787	208	52	14	1061
Acquisition Logistics	4	18	12	1	35
Systems Planning, Research, Development, and Engineering	140	100	27	6	273
Test and Evaluation	1	6	7	4	18
Total	2201	1059	425	77	3762

Source: Component Records

[a] NSA/DIA not included

ACQUISITION CORPS EXCEPTIONS FROM EDUCATIONAL REQUIREMENTS IN EFFECT END OF FY 1996
{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	613	0	613
Navy	1577	143	1720
Marine Corps	41	1	42
Air Force	1176	0	1176
OSD, DoD agencies, and other components	15	2	17
Total	3422	146	3568

Source: Component Records

PERSONNEL PARTICIPATING IN ACQUISITION INTERN, COOPERATIVE EDUCATION, SCHOLARSHIP, AND TUITION REIMBURSEMENT PROGRAMS DURING FY 1996
{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	282	0	5	2027	0
Navy	328	47	23	1472	0
Marine Corps	13	2	0	234	0
Air Force	337	1	3	1261	0
OSD, DoD agencies, and other components	109	0	0	1499	0
Total	1069	50	31	6493	0

Source: OSD and Component Records

PERSONNEL CERTIFIED BY ACQUISITION CAREER *PROGRAM BOARDS IN LIEU OF A BACCALAUREATE DEGREE IN FY 1996 {SECTIONS 1762 (C) (7) AND 1732 (B) (2) (A) (II)}*
Table F-14

Component	Military	Civilian
Army	0	0
Navy	0	0
Marine Corps	0	0
Air Force	0	0
OSD, DoD agencies, and other components	N/A	0
Total	*0*	*0*

Source: Component Records

MAJOR DEFENSE ACQUISITION PROGRAM MANAGER REASSIGNMENTS *DURING FY 1996 {SECTION 1762 (C) (8) AND 1734 (B) (1) (A)}*

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	10	0	10	100%	50.5	0	50.5
Navy	4	3	7	57%	72.0	39.0	58.0
Marine Corps	0	0	0	N/A	0	0	0
Air Force	5	7	12	42%	45.4	18.6	29.8
OSD, DoD agencies, and other components	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	19	10	29	66%	53.7	24.7	43.7

Source: Verified by OUSD(A&T)/AET&CD Records

MAJOR DEFENSE ACQUISITION DEPUTY PROGRAM MANAGER REASSIGNMENTS *DURING FY 1996 {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	N/A	N/A	N/A	N/A
Navy	3	2	5	60%	96.00	28.00	69.00
Marine Corps	0	0	0	N/A	0	0	0
Air Force	3	5	8	38%	80.00	18.20	41.35
OSD, DoD agencies, and other components	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	6	7	13	46%	88.00	21.00	51.98

Source: Verified by OUSD(A&T)/AET&CD Records

ACQUISITION WORK FORCE WAIVERS/EXCEPTIONS
GRANTED DURING FY 1996 {SECTION 1762 (C) (10)} **Table F-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			A	16	B, C, D, F	1, 27, 41, 2				87
Navy	A	3	A	15	B, C, D	5, 77, 11	F,H	1,1		113
Marine Corps	A	2	A	6	N/A	N/A	N/A	N/A	N/A	8
Air Force					B, C, D F,G,H & J	15, 133, 47 3, 7, 10 & 1				216
OSD, DoD agencies, and other components *				2		9				11
Total		5		39		389		2		435

Source: OUSD(A&T)/AET&CD Records

* NSA / DIA 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
(I) Demonstrated analytical and decision making capability
(J) Job performance
(K) Qualifying experience

OFFICER PROMOTION RATE COMPARISONS FY 1996

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]	28	45.2	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officer	32	46.4	N/A	N/A
O-7	Acquisition Corps	5	3.0	N/A	N/A
	Non-Acquisition Equivalent/Line Officers[a]	40	2.4	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officer	45	2.4	N/A	N/A
O-6	Acquisition Corps	34	47.2	0	0
	Non-Acquisition Equivalent/Line Officers[a]	331	44.1	1.6	3.5
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officer	365	44.4	1.4	3.3
O-5	Acquisition Corps	123	58.5	0.5	3.1
	Non-Acquisition Equivalent/Line Officers[a]	1087	60.1	5.0	2.4
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officer	1210	60.0	4.5	2.5

Source: Service Selection Board Results

[a] Army PERSCOM Officer Personnel Management Directorate-Managed Officers

OFFICER PROMOTION RATE COMPARISONS FY 1996

COMPONENT: NAVY

Table F-19

TO GRADE	CATEGORIES	TOTAL NUMBER-PROMOTED	% PROMOTION RATES		
			IN ZONE	BELOW ZONE	ABOVE ZONE
O-8	Acquisition Corps	5	35.7	N/A	N/A
	Non-Acquisition Equivalent/Line Officers	17	48.6	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	22	44.9	N/A	N/A
O-7	Acquisition Corps	7	2.0	N/A	N/A
	Non-Acquisition Equivalent/Line Officers	26	2.8	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	33	2.6	N/A	N/A
O-6	Acquisition Corps	81	46.7	1.7	8.7
	Non-Acquisition Equivalent/Line Officers	255	47.9	0.6	2.1
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	336	47.6	0.9	4.3
O-5	Acquisition Corps	74	72.2	2.5	15.2
	Non-Acquisition Equivalent/Line Officers	572	61.3	3.1	3.6
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	646	62.4	3.0	4.8

Source: Service Selection Board Results

OFFICER PROMOTION RATE COMPARISONS FY 1996

COMPONENT: MARINE CORPS

Table F-20

TO GRADE	CATEGORIES	TOTAL NUMBER-PROMOTED	% PROMOTION RATES		
			IN ZONE	BELOW ZONE	ABOVE ZONE
O-8	Acquisition Corps	0	0	N/A	N/A
	Non-Acquisition Equivalent/Line Officers	6	30.0	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officer	6	30.0	N/A	N/A
O-7	Acquisition Corps	1	2.4	N/A	N/A
	Non-Acquisition Equivalent/Line Officers	7	1.5	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	8	1.4	N/A	N/A
O-6	Acquisition Corps	8	43.8	0	7.1
	Non-Acquisition Equivalent/Line Officers	87	45.0	0	0.9
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officer	95	44.9	0	0.9
O-5	Acquisition Corps	15	59.1	0	11.1
	Non-Acquisition Equivalent/Line Officers	335	65.7	0	5.3
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officer	350	65.5	0	5.6

Source: Service Selection Board Results

OFFICER PROMOTION RATE COMPARISONS FY 1996

COMPONENT: AIR FORCE

Table F-21

TO GRADE	CATEGORIES	TOTAL NUMBER-PROMOTED	% PROMOTION RATES		
			IN ZONE	BELOW ZONE	ABOVE ZONE
O-8	Acquisition Corps	3	25.0	N/A	N/A
	Non-Acquisition Equivalent/Line Officers	24	29.3	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	27	28.7	N/A	N/A
O-7	Acquisition Corps	11	3.9	N/A	N/A
	Non-Acquisition Equivalent/Line Officers	40	2.6	N/A	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	51	2.8	N/A	N/A
O-6	Acquisition Corps	88	41.9	4.3	N/A
	Non-Acquisition Equivalent/Line Officers	503	41.9	3.5	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	591	41.9	3.7	NA
O-5	Acquisition Corps	108	69.4	4.5	N/A
	Non-Acquisition Equivalent/Line Officers	1394	62.5	2.7	N/A
	TOTAL: Acquisition and Non-Acquisition Equivalent/Line Officers	1502	63.0	2.8	N/A

Source: Service Selection Board Results

PERSONNEL READINESS FACTORS BY RACE AND GENDER

The National Defense Authorization Act FY 1995 (Public Law 103-337, Section 533) requires that the Department submit this report of readiness factors by race and gender as part of its annual report. This appendix responds to that reporting requirement.

INDISCIPLINE TRENDS

Over the years, the Department of Defense has been unable to provide standardized and complete data on criminal activities and disciplinary infractions in the Services. To remedy this shortcoming, the Department is now implementing the Defense Incident-Based Reporting System (DIBRS). On October 15, 1996, DoD Directive 7730.47, DIBRS, was issued; and on November 29, a DoD manual containing specific guidance on the reporting procedures for DIBRS was issued. The target date for full DIBRS reporting is May 1, 1997.

DIBRS incorporates 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 Services will also report sexual harassment and race-bias motivated offenses through DIBRS. The DIBRS system will produce automated reports of criminal activity and disciplinary infractions that include case dispositions in administrative, nonjudicial, court-martial, and civilian court proceedings. It will provide a central repository for tracking complaints resulting in disciplinary actions so that DoD will be able to provide reliable information on disposition of discrimination and harassment cases.

SEXUAL HARASSMENT AND DISCRIMINATION COMPLAINT TRENDS, FY 1987 TO 1996

Military Complaint Trends — Sexual Harassment

Since FY 1987, the Services have reported to DoD the number of resolved formal complaints of sexual harassment and all other discrimination (e.g., complaints based on race, sex, national origin, and religion) filed by military personnel. Complaints informally presented and resolved are not reported. The number of formal complaints of sexual harassment reported for FY 1996 was 916. This compares to a high of 1,599 formal cases reported for FY 1993. The percent of sexual harassment complaints which were substantiated has risen over the past decade, from 38 percent in FY 1987 to a high of 61 percent in FY 1996. Note that in 1990, the Army changed its reporting criteria for sexual harassment complaints, resulting in a substantial increase in the statistics. In 1992, the Navy formalized its system of reporting these complaints.

Military Complaint Trends — All Other Discrimination Complaints

There were 1,098 formal discrimination complaints in FY 1996 in this category. This compares to a high of 2,103 in FY 1992. The percentage of these complaints which were substantiated has fluctuated over the past decade, with no discernible pattern. Note that in 1990, the Army changed its reporting criteria for discrimination complaints, resulting in a substantial increase in the statistics.

NONDEPLOYABILITY TRENDS

The Department, in conjunction with the Services, has continued to review permanent and temporary limitations on the deployability of service members and to address the issue of nondeployability in relation to readiness. The Services assign individuals and deploy units. When a unit deploys, the individuals assigned to that unit are expected to participate in that deployment, and the overwhelming majority do, regardless of personal circumstances. That was an important finding of the Department's December 1993 study titled *Family Status and Initial Term of Service*. When a unit is called upon to deploy, however, it is inevitable that some of its members may not be able to accompany the unit. A temporary medical condition or a family emergency, for example, may temporarily prevent a member from accompanying his or her unit. Each problem is unique to the service member and to the circumstances of his/her unit and is properly managed at the unit level. 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. Accident, illness, and family emergencies are inherently unplanned and pose the greatest challenges to commanders of units about to deploy.

The definition of a nondeployable service member is one who is unable to deploy to a specified area of operation as an individual or as part of a unit. Nondeployability is measured in three permanent condition categories: HIV-positive, other Medical Permanent, and Hazardous Duty Restriction. The six temporary condition categories are AWOL/Deserter, Legal Processing, Pregnancy, Medical Temporary, Administrative, and PANOREX (dental panoral radiographs). A hierarchy of categories exists so that 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 the 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 medical problem. The actual number of members with permanent limitations is small — around three-tenths of 1 percent of the active force — and is far too small to exert a significant impact on readiness. This small number is manageable through the assignment process. Since only a very small number of service members have medical conditions that preclude them from taking certain assignments, when such a medical condition is diagnosed, the service member is given an assignment limitation. These individuals are not assigned to deploying units. If an assigned member becomes permanently restricted, he or she is reassigned and replaced. If that individual's medical condition affects duty performance, he or she is referred to a Physical Evaluation Board to determine retainability.

In developing a system to collect data on nondeployability rates, DoD's focus has been to capture the nondeployability of unit personnel who directly contribute to unit readiness and whose availability for duty is controllable by a unit, installation, or senior local commander. Non-unit personnel (i.e., transients, trainees/students, long-term patients, prisoners, and personnel awaiting separation) are treated separately and not counted against readiness billets. Therefore, DoD does not include them in data reported here.

Tables G-22 to G-31 present the data for all of DoD and each of the Services as of the end of FY 1996. The nondeployable category totals and rates reflect only the quantities associated with service members assigned to units (i.e., that portion of each Service's active end strength that is applied against the manpower requirements of their programmed force structure, also known as the operating strength).

RETENTION TRENDS

The Department of Defense has been able to increase overall retention rates and maintain a quality force despite the personnel turbulence which resulted from the drawdown. This achievement can be attributed to the skillful execution and management of the Services' programmed retention strategies.

The Army's retention rates for FY 1994, 1995, and 1996 have remained consistent and at historical levels in the mid-career and career categories. Initial term rates have remained about 10 percent above historic levels. Enhanced advertising efforts, reduced drawdown impact on younger soldiers, and concerned command involvement had a positive impact on initial term retention rates during FY 1995 and FY 1996.

Navy retention rates have steadily increased during the past three years, while Marine Corps retention rates have remained fairly consistent for FY 1995 and 1996. After years of focus on drawing down the force, the Air Force is giving priority to issues of retention in order to ensure the right number of quality people are retained to successfully meet its mission well into the next century. Although the Air Force retained 89 percent of its total inventory in FY 1996 (up 3 percent from FY 1995), more discrete retention indicators are being closely monitored for any negative trends due to slight fluctuations in officer and enlisted retention rates between FY 1994 and FY 1996.

Lower retention in certain aviation communities has forced the Air Force, Navy, and Marines to expand the Aviation Continuation Pay (ACP) program to increase pilot retention.

In summary, the Department continues to improve the quality of U.S. forces and its readiness while maintaining its full commitment to treat people fairly. This ensures the country's best people, regardless of gender, are continuously encouraged to remain in the force. The Department of Defense is pleased with the success attained this year and is ready to meet upcoming retention challenges.

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 enlist 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 1996 YATS show young men's propensity for military service has not changed significantly in the last three years (see Tables G-19 to G-21). In 1996, 27 percent of 16-21 year-old men expressed positive propensity for at least one active-duty Service, about the same as in 1995 (28 percent) and 1994 (26 percent). Propensity for each of the Services remained the same in 1996 as in 1995.

Propensity of 16-21 year-old women for active military service in 1996 was also approximately the same as in 1995. However, while men's propensity remained substantially below pre-drawdown levels, young women's propensity has increased gradually over the past five years and is now the same as in 1989.

In 1996, 20 percent of 16-21 year-old White men, 34 percent of 16-21 year-old Black men, and 43 percent of 16-21 year-old Hispanic men expressed propensity for at least one Service. In 1995, the comparable percentages were 23 percent for Whites, 32 percent for Blacks, and 44 percent for Hispanics.

Over the past several years, the drop in propensity was commensurate with Service cuts in recruiting resources. In 1994, 1995, and 1996, recruitment advertising was increased, and the 1995 and 1996 results indicate that the previous decline in propensity has stabilized. FY 1995 was the bottom of the drawdown for recruiting objectives. Today, recruiting objectives are going back up. These YATS results (considerably lower than during the pre-drawdown years) are not surprising and suggest that recruiting will continue to be challenging.

Factors Influencing Propensity

YATS respondents are asked to provide, in their own words, reasons for joining and not joining the military. The attached tables provide the most common reasons offered by 16-21 year-olds.

The most frequently mentioned reasons for joining are funds for college, job training and/or experience, duty to country, pay, travel, and self-discipline. Most young men see postsecondary education as the key to prosperity and job security, and the availability of money for college from the military is well known. One in three men mentioned educational funding as a reason to join the military. The importance of educational funding was even more pronounced for women, with two in five citing it as a reason to join. Moreover, the number of women associating college funds with military service is increasing. About one in four young men, and one in six women, suggest military service would provide them job training and experience. Women more frequently mentioned training and experience in 1996 than in previous years. The percent of youth mentioning duty to country as a reason for joining has not changed significantly in the past few years, although an unusually high percentage of Hispanic women mentioned duty to country in 1994. Pay is mentioned about as frequently as duty to country. Black youth are more likely to mention pay and less likely to mention duty to country as a reason for joining.

Reasons most frequently cited for not wanting to join the military are that respondents do not like the military lifestyle, have other career interests, think the commitment is too long, see military service as threat to life, have family obligations, and find military service against their beliefs.

In 1996, 16 percent of young men and 21 percent of young women mentioned military lifestyle as a reason for not joining. Qualitative studies show youth perceive military life as disciplined and highly regimented; many identify military life with the basic training regime of early morning rising, strenuous physical exercise, and verbal harassment. YATS shows the percent of youth reporting military lifestyle as a reason for not joining increased in the past three years. Nine percent of both men and women mentioned the length of commitment as a reason for not joining. Length of commitment is mentioned less frequently by Blacks than Whites. In 1996, 9 percent mentioned the danger associated with military service as a reason for not joining; this is a significant increase over 1995 for both men and women. Five percent of youth indicated military service was against their beliefs. More Blacks than Whites mentioned the danger of military service and said it was against their beliefs.

Nine percent of young men and 7 percent of young women mentioned other career interests as a reason for not joining the military. Other career interests were more frequently mentioned by Whites than minorities, reflecting, perhaps, perceived greater opportunities in the civilian workforce. Seven percent of men and 13 percent of women mentioned family obligations as a reason for not joining. Familial obligations were more frequently mentioned by Hispanics than Whites or Blacks.

In-Depth Interviews

In order for DoD to develop reliable statistical trends, YATS interviews must be strictly standardized — from year-to-year, interviewers must ask exactly the same questions, in the same context. This discipline does not allow extended in-depth discussions. To get a better sense of the stories behind YATS responses, DoD reinterviewed 120 16-21 year-old male high school seniors and high school graduates after the 1995 YATS administration. DoD interviewed approximately equal numbers of Whites, Blacks, and Hispanics, and selected (1) Joiners, who appeared most likely to enter military service, (2) Shifters, who seemed unlikely to enlist, but had previously considered military service, (3) Non-Joiners, who had never considered joining, and (4) Fence-Sitters, who seemed undecided in their considerations. Social scientists conducted the interviews, following a protocol that allowed the young men to tell their stories in their own words. Interviews were taped (with permission), and verbatim transcripts were qualitatively analyzed.

The results confirmed the appeal of educational funding as a reason to enlist. Most young men want to go to college and, for many, officer commissioning programs (Reserve Officer Training Corps and Service academies) and enlistment provide ways to meet rising college costs. However, for affluent youth, acquiring funding for college was never a concern, and military service was never a consideration. Many other college-bound youth seriously considered military service as a means for paying for college, but ceased to consider military service if other sources of funds became available. Thus, college funding appeals specifically to a limited segment of the youth population — college-bound youth who need money for college.

Military service evokes images of discipline and regimentation for most young men, regardless of current or past propensity. These images tend to deter many college-bound youth from interest in military service. They believe they have the self-discipline to achieve their goals, and see regimentation as stifling. Many others, however, see externally imposed discipline as beneficial. Several Joiners noted that learning how to take discipline served an important maturing role in their lives; others look forward to learning this critical life lesson in military service. The military would provide a guiding structure within which to get their priorities straight. These include many young men who feel they are not ready for college, or have dropped out of college because of poor study habits.

The interviews also confirmed many young men seek job training and experience in military service, but relatively few mentioned serving their country as a major motivation for joining the military. Few youth, regardless of gender or race, look forward to engaging in combat. However, danger did not seem to be a major concern; many perceived the civilian world to be equally dangerous.

As other studies have shown, Joiners tend to have family members who are veterans; they tend to have extensive contact with people serving in the military. However, the majority of youth, regardless of propensity, have had some direct contact with others who have served or are serving in the military. YATS statistics show that more youth are influenced, either positively or negatively, by conversations with people who are, or have been, in military service, than by recruiters or advertising.

The young men perceived that movies and television shows do not present a factually accurate portrayal of military life. Although several youth mentioned particular movies that portray their visions of military life, it seemed these movies merely reinforce a mental picture being already formed on the basis of firsthand information from friends, relatives, and acquaintances, as well as newspapers, books, and other more objective media sources. Any notion that these youth are hapless victims of media manipulations seems fairly unsubstantiated, at least for the youth interviewed.

These young men's views of recruiters were almost uniformly negative. Although Joiners were a bit more charitable than others, even they complained of recruiters being both pushy and unresponsive to their needs and concerns. Several Shifters reported that distasteful experiences with recruiters who gave them misleading information clinched the decision not to join. Although these perceptions may imperfectly mirror these youth's actual interactions with recruiters, they deserve to be taken seriously, if for no other reason than they importantly influence and help justify behavior.

Timing is a critical factor influencing military propensity. Whether a particular youth will be favorably inclined to join the military can depend on reaching him at just the right time in his life. For many youth, this corresponds to the junior or senior year in high school. For others, the timing is more variable. One youth who planned to join reversed his decision when he discovered his estranged father would send him to college. Another, who a year before would not have given more than a passing thought to joining the military, did a complete about-face after spending time in the work force. Others developed familial obligations shortly after high

school graduation, and acknowledged that the option of enlistment is closed to them.

Propensity Implications

While women's propensity for military service is rising slightly, men's propensity remains substantially below pre-drawdown levels and, if past experience is a guide, below the levels needed to meet increased accession requirements while maintaining the high quality required for today's military. This research underscores the need for college funds 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.

As timing is critical, DoD must find appropriate combinations of advertising and recruiter presence to assure young people will consider military service at appropriate decision points in their lives. At the same time, DoD needs to assure military recruiters are seen as available sources for helpful and credible information.

Most young people know someone who is, or has been, in the military. Propensity for military service is strongly influenced by what these people say and how they behave. It will continue to be important for Department of Defense leaders to ensure that the people currently in the military not only believe they are fairly treated, but also derive pride and satisfaction from their experiences. Veterans who have served will always be a powerful influence on the attitudes and perceptions of potential recruits.

Attachments:

Table G-1 to G-2 (Equal Opportunity Discrimination and Sexual Harassment Complaints)
Table G-3 to G-5 (Army Retention Trends)
Table G-6 to G-8 (Navy Retention Trends)
Table G-9 to G-11 (Marine Corps Retention Trends)
Table G-12 to G-14 (Air Force Retention Trends)
Table G-15 to G-17 (Coast Guard Retention Trends)
Table G-18 (Total DoD Retention Trends)
Table G-19 to G-21 (Trends in Enlistment Propensity)
Table G-22 to G-31 (Nondeployable Unit Personnel)

Appendix G
PERSONNEL READINESS FACTORS BY RACE AND GENDER

EQUAL OPPORTUNITY DISCRIMINATION COMPLAINTS									Table G-1
	1987	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**
ARMY									
Complaints Filed	87	79	50	996	1140	1119	943	691	429
Substantiated Complaints	14	17	6	227	196	156	181	165	77
Percent Substantiated	16%	22%	12%	23%	17%	14%	19%	24%	18%
NAVY									
Complaints Filed	90	126	156	168	177	297	75	53	52
Substantiated Complaints	5	4	0	11	9	233	38	38	47
Percent Substantiated	6%	3%	0%	7%	5%	78%	51%	72%	90%
MARINE CORPS									
Complaints Filed	51	27	29	51	28	30	38	32	56
Substantiated Complaints	3	1	3	5	6	9	5	9	21
Percent Substantiated	6%	4%	10%	10%	21%	30%	13%	28%	38%
AIR FORCE									
Complaints Filed	295	363	564	591	489	657	826	452	559
Substantiated Complaints	115	166	272	299	213	318	357	217	299
Percent Substantiated	39%	46%	48%	51%	44%	48%	43%	48%	53%
TOTAL DOD									
Complaints Filed	523	595	799	1806	1834	2103	1882	1228	1096
Substantiated Complaints	137	188	281	542	424	716	581	429	444
Percent Substantiated	26%	32%	35%	30%	23%	34%	31%	35%	41%

SEXUAL HARASSMENT COMPLAINTS									Table G-2
	1987	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**
ARMY									
Complaints Filed	240	197	151	971	432	497	649	512	424
Substantiated Complaints	38	45	46	315	152	184	262	146	165
Percent Substantiated	16%	23%	30%	32%	35%	37%	40%	29%	39%
NAVY									
Complaints Filed	10	38	31	51	45	438	133	200	184
Substantiated Complaints	5	6	10	11	13	318	93	165	178
Percent Substantiated	50%	16%	32%	22%	29%	73%	70%	83%	97%
MARINE CORPS									
Complaints Filed	28	38	46	67	33	116	93	90	96
Substantiated Complaints	14	5	26	26	14	52	36	37	48
Percent Substantiated	50%	13%	57%	39%	42%	45%	39%	41%	50%
AIR FORCE									
Complaints Filed	235	331	315	315	345	451	724	463	329
Substantiated Complaints	137	215	201	219	247	331	507	332	216
Percent Substantiated	58%	65%	64%	70%	72%	73%	70%	72%	66%
TOTAL DoD									
Complaints Filed	513	604	543	1404	855	1502	1599	1265	1033
Substantiated Complaints	194	271	283	571	426	885	898	680	607
Percent Substantiated	38%	45%	52%	41%	50%	59%	56%	54%	59%

RETENTION RATES FY 1994 - FY 1996
ACTIVE DUTY PERCENTAGE CHANGES

Table G-3

ARMY MALE

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-10	90.0	75.0	72.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	81.8	75.0	72.7
O-9	61.0	62.5	79.4	50.0	100.0	100.0	0.0	100.0	0.0	0.0	100.0	100.0	60.5	66.7	79.5
O-8	84.8	70.5	77.6	80.0	72.7	90.0	66.7	100.0	100.0	0.0	100.0	100.0	83.3	71.2	79.4
O-7	92.0	83.9	89.9	100.0	88.9	90.0	0.0	0.0	0.0	75.0	0.0	0.0	92.2	83.1	89.9
O-6	79.5	82.5	84.5	80.0	83.5	87.9	76.0	79.2	88.5	84.1	85.4	90.8	79.6	82.5	84.8
O-5	86.4	87.7	89.7	91.5	88.5	90.7	85.2	89.3	92.2	84.4	93.8	90.5	86.7	88.0	89.9
O-4	88.3	89.0	88.0	89.3	88.9	86.2	88.7	89.1	81.7	88.9	87.9	86.6	88.4	88.9	87.5
O-3	90.5	91.0	90.8	88.8	91.9	90.2	87.6	91.3	91.1	89.7	89.1	89.5	90.2	91.0	90.7
O-2	85.6	89.5	88.3	85.6	91.2	87.7	82.9	88.1	86.9	84.4	88.0	90.5	85.5	89.6	88.3
O-1	98.3	97.9	97.2	97.3	96.2	96.4	97.6	96.2	95.9	98.3	97.4	98.3	98.2	97.7	97.1
UNKNOWN OFFICER	93.8	94.9	96.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	93.8	94.3	96.2
TOTAL OFFICER	89.0	90.2	90.2	89.2	90.9	89.7	87.7	90.6	89.7	89.2	90.3	90.8	89.0	90.3	90.2
W-5	91.7	90.5	82.6	83.3	92.9	91.7	100.0	80.0	80.0	100.0	100.0	100.0	91.4	90.5	83.3
W-4	81.3	76.2	76.7	86.0	84.2	89.0	82.6	84.8	79.5	82.5	77.8	80.0	81.6	77.0	77.9
W-3	87.5	87.1	87.0	90.4	89.4	89.1	83.7	88.4	85.9	88.1	86.9	88.9	87.7	87.4	87.3
W-2	92.2	91.7	91.3	93.5	91.6	91.5	92.1	93.0	89.9	93.1	91.7	91.0	92.4	91.7	91.2
W-1	97.7	95.0	98.7	97.4	98.2	99.7	100.0	92.9	100.0	98.7	96.8	99.1	97.8	95.5	99.0
TOTAL WARRANT	90.1	88.8	88.9	92.6	91.8	92.7	90.7	91.2	89.4	91.7	90.2	91.4	90.4	89.3	89.5
TOTAL WARRANT & OFFICER	89.2	90.0	90.0	89.8	91.1	90.3	88.3	90.7	89.6	89.6	90.3	90.9	89.2	90.1	90.0
E-9	78.9	78.9	78.0	79.8	81.6	84.2	85.2	82.9	80.8	82.9	81.2	84.7	79.6	79.9	80.3
E-8	75.9	74.1	74.9	82.9	80.1	79.3	79.8	77.6	79.2	81.8	76.6	76.7	78.4	76.3	76.7
E-7	83.1	80.0	88.0	87.2	85.5	87.0	87.7	84.5	89.3	85.6	81.5	86.7	84.9	82.3	87.6
E-6	90.7	87.4	91.7	91.3	87.7	92.1	92.1	87.8	92.2	90.6	86.1	92.4	91.0	87.4	91.9
E-5	83.4	84.3	83.3	85.8	88.2	87.2	87.1	86.7	87.0	85.7	87.0	86.7	84.5	85.8	84.9
E-4	72.6	71.3	70.7	76.1	77.7	76.6	73.9	75.2	74.9	75.5	74.2	75.1	73.7	73.2	72.5
E-3	82.2	80.7	78.9	82.5	82.5	80.5	87.7	84.0	81.9	84.0	82.8	80.4	82.6	81.4	79.5
E-2	83.8	83.7	82.7	80.8	83.1	81.8	89.4	88.5	88.6	86.1	84.9	85.5	83.7	83.9	83.1
E-1	81.8	84.5	81.2	80.0	82.2	79.5	88.0	88.1	87.2	81.8	87.6	84.1	81.9	84.4	81.5
UNKNOWN ENLISTED	4.3	63.6	98.1	0.0	50.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	4.1	64.3	98.1
TOTAL ENLISTED	80.7	79.8	79.7	83.8	84.1	84.0	85.2	83.6	84.1	83.3	81.9	83.1	82.0	81.3	81.3
TOTAL	82.4	81.9	81.8	84.1	84.5	84.5	85.5	84.3	84.7	84.1	82.9	84.1	83.1	82.7	82.8

RETENTION RATES FY 1994 - FY 1996
ACTIVE DUTY PERCENTAGE CHANGES **Table G-4**

ARMY FEMALE

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-7	66.7	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7	100.0	100.0
O-6	81.1	78.2	87.3	80.0	93.3	84.2	100.0	83.3	100.0	90.5	94.7	90.5	82.4	81.0	87.6
O-5	82.2	85.0	88.2	89.0	87.6	89.8	91.7	93.3	100.0	94.9	88.1	97.6	83.7	85.7	89.1
O-4	88.7	89.1	86.8	93.5	92.6	90.8	88.3	83.1	79.7	82.9	88.0	84.4	89.4	89.6	87.3
O-3	85.1	86.7	86.8	84.6	85.9	89.2	87.2	86.9	92.4	87.7	85.2	90.2	85.1	86.4	87.7
O-2	80.3	83.7	83.0	84.9	86.7	88.0	78.0	86.4	91.5	79.5	87.2	81.4	81.1	84.6	84.1
O-1	95.8	95.9	95.4	94.0	95.6	97.8	87.9	97.5	93.1	96.5	96.2	94.9	95.4	95.9	95.7
TOTAL OFFICER	86.2	87.8	87.9	87.6	88.8	90.6	86.0	87.7	90.5	87.3	88.9	89.4	86.5	88.1	88.6
W-5	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
W-4	58.3	94.4	80.0	100.0	75.0	66.7	0.0	100.0	100.0	0.0	0.0	100.0	68.8	91.3	80.0
W-3	85.2	88.3	86.8	85.0	90.9	86.2	60.0	100.0	100.0	100.0	100.0	83.3	84.5	89.7	86.8
W-2	92.0	91.7	88.7	94.8	90.8	88.1	100.0	71.4	100.0	100.0	100.0	82.4	93.4	91.4	88.4
W-1	92.9	97.0	100.0	100.0	98.2	98.7	100.0	100.0	100.0	100.0	66.7	100.0	95.3	97.0	99.5
TOTAL WARRANT	89.2	92.6	91.2	94.8	93.0	91.7	86.7	87.5	100.0	100.0	95.7	87.1	91.0	92.7	91.5
TOTAL WARRANT & OFFICER	86.4	88.1	88.0	88.0	89.1	90.7	86.0	87.7	91.1	87.7	89.1	89.3	86.7	88.3	88.8
E-9	72.9	74.1	75.9	86.7	89.7	86.7	66.7	100.0	77.8	0.0	100.0	80.0	77.8	82.2	80.5
E-8	79.9	77.5	77.0	83.6	84.6	84.9	78.3	81.0	72.7	78.8	78.1	78.9	81.1	80.3	80.2
E-7	88.3	81.0	88.0	91.8	86.9	91.6	94.2	84.4	89.4	90.3	84.5	92.6	90.4	84.5	90.3
E-6	88.9	85.9	92.4	92.8	88.8	95.4	93.7	89.1	94.6	90.9	91.0	94.9	91.5	88.1	94.5
E-5	81.5	80.8	80.3	85.8	87.1	87.5	84.8	86.3	85.5	85.6	85.3	86.0	84.3	84.8	84.9
E-4	71.2	71.0	70.7	79.4	80.4	78.7	76.6	79.7	80.3	77.5	77.9	76.1	75.7	76.2	75.2
E-3	78.1	77.6	78.2	85.9	85.0	83.7	82.4	84.5	82.8	86.3	82.1	82.2	81.9	81.1	80.9
E-2	76.5	77.9	76.6	84.0	84.8	84.1	86.3	84.0	87.5	85.4	79.5	85.1	80.0	80.8	80.5
E-1	76.0	78.8	70.4	83.8	84.6	80.4	87.8	89.9	82.9	87.2	89.6	81.7	79.8	82.0	75.2
UNKNOWN ENLISTED	0.0	100.0	0.0	0.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0
TOTAL ENLISTED	77.8	77.1	76.8	85.1	84.8	85.2	84.1	84.2	84.2	83.8	82.5	82.8	81.9	81.4	81.6
TOTAL	79.9	79.7	79.6	85.3	85.1	85.6	84.3	84.6	85.0	84.4	83.5	83.8	82.7	82.5	82.7

Appendix G
PERSONNEL READINESS FACTORS BY RACE AND GENDER

RETENTION RATES FY 1994 – FY 1996
ACTIVE DUTY PERCENTAGE CHANGES **Table G-5**

ARMY TOTAL

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-10	90.0	75.0	72.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	81.8	75.0	72.7
O-9	61.0	62.5	79.4	50.0	100.0	100.0	0.0	100.0	0.0	0.0	100.0	100.0	60.5	66.7	79.5
O-8	84.8	70.5	77.6	80.0	72.7	90.0	66.7	100.0	100.0	0.0	100.0	100.0	83.3	71.2	79.4
O-7	91.6	84.2	90.1	100.0	88.9	90.0	0.0	0.0	0.0	75.0	0.0	0.0	91.8	83.4	90.1
O-6	79.6	82.3	84.6	80.0	84.3	87.5	77.8	79.7	89.3	85.3	87.1	90.7	79.7	82.5	85.0
O-5	86.1	87.5	89.6	91.2	88.3	90.6	85.7	89.7	93.0	85.9	92.9	91.5	86.5	87.8	89.8
O-4	88.3	89.0	87.8	90.2	89.7	87.3	88.6	88.2	81.3	88.0	87.9	86.2	88.5	89.0	87.5
O-3	89.7	90.5	90.3	87.6	90.3	89.9	87.5	90.5	91.3	89.3	88.4	89.6	89.4	90.3	90.2
O-2	84.8	88.6	87.4	85.4	89.8	87.8	82.0	87.8	87.7	83.2	87.8	88.5	84.7	88.7	87.5
O-1	97.9	97.6	96.9	96.3	96.0	96.8	96.3	96.3	95.4	97.9	97.1	97.5	97.7	97.4	96.9
UNKNOWN OFFICER	93.8	94.9	96.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	93.8	94.3	96.2
TOTAL OFFICER	88.6	89.9	89.9	88.8	90.4	89.9	87.5	90.1	89.8	88.9	90.0	90.5	88.6	90.0	89.9
W-5	91.7	90.5	82.6	83.3	92.9	91.7	100.0	80.0	80.0	100.0	100.0	100.0	91.4	90.5	83.3
W-4	81.1	76.4	76.8	86.5	83.9	88.4	82.6	85.3	80.0	82.5	77.8	80.5	81.5	77.2	78.0
W-3	87.4	87.1	87.0	90.1	89.5	88.9	82.5	88.8	86.3	88.4	87.4	88.6	87.6	87.4	87.3
W-2	92.2	91.7	91.2	93.7	91.5	91.1	92.4	92.3	90.2	93.4	92.2	90.5	92.4	91.7	91.1
W-1	97.5	95.2	98.8	97.8	98.2	99.5	100.0	93.3	100.0	98.8	95.9	99.1	97.7	95.6	99.0
TOTAL WARRANT	90.1	89.0	89.0	92.8	91.9	92.6	90.6	91.1	89.9	92.0	90.5	91.1	90.4	89.4	89.6
TOTAL WARRANT & OFFICER	88.8	89.8	89.8	89.4	90.6	90.4	88.0	90.3	89.8	89.3	90.1	90.6	88.9	89.9	89.9
E-9	78.7	78.8	77.9	80.0	81.9	84.4	84.8	83.4	80.6	82.9	81.5	84.6	79.5	80.0	80.3
E-8	76.1	74.3	75.0	83.0	80.4	79.8	79.7	77.7	79.0	81.7	76.7	76.8	78.6	76.6	77.0
E-7	83.5	80.1	88.0	87.8	85.7	87.7	88.0	84.5	89.3	85.9	81.8	87.2	85.4	82.6	87.9
E-6	90.6	87.3	91.8	91.5	87.9	92.7	92.2	87.9	92.4	90.6	86.6	92.6	91.0	87.5	92.2
E-5	83.3	84.0	83.1	85.8	88.0	87.3	86.9	86.6	86.9	85.7	86.8	86.6	84.5	85.7	84.9
E-4	72.5	71.3	70.7	76.8	78.4	77.2	74.2	75.8	75.7	75.8	74.8	75.3	74.0	73.7	72.9
E-3	81.8	80.4	78.8	83.4	83.1	81.3	87.0	84.1	82.0	84.4	82.7	80.7	82.5	81.3	79.7
E-2	82.9	83.0	81.9	81.6	83.5	82.4	89.0	87.8	88.4	86.0	84.0	85.4	83.1	83.4	82.7
E-1	81.2	83.9	79.9	80.8	82.7	79.7	88.0	88.3	86.7	82.7	87.9	83.7	81.6	84.1	80.6
UNKNOWN ENLISTED	4.3	66.7	98.1	0.0	66.7	100.0	0.0	100.0	0.0	0.0	0.0	0.0	4.1	68.8	98.2
TOTAL ENLISTED	80.5	79.6	79.4	84.1	84.2	84.3	85.1	83.7	84.1	83.4	82.0	83.1	82.0	81.3	81.4
TOTAL	82.2	81.7	81.6	84.4	84.6	84.7	85.4	84.3	84.7	84.1	83.0	84.0	83.0	82.7	82.8

RETENTION RATES FY 1994 - FY 1996
ACTIVE DUTY PERCENTAGE CHANGES

Table G-6

NAVY MALE

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-10	72.7	63.6	54.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	72.7	63.6	54.5
O-9	72.0	88.0	57.9	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	70.4	88.5	61.9
O-8	81.6	67.1	69.9	100.0	100.0	0.0	50.0	0.0	0.0	100.0	100.0	0.0	81.3	67.1	68.9
O-7	84.3	86.7	92.8	100.0	50.0	100.0	100.0	100.0	50.0	100.0	100.0	100.0	84.7	86.4	92.2
O-6	81.2	78.8	87.3	88.6	86.3	93.1	96.0	75.9	89.3	92.1	87.2	90.9	81.5	78.9	87.5
O-5	85.8	83.8	91.6	91.1	87.2	95.7	83.3	82.8	91.9	83.0	87.6	90.1	85.8	84.0	91.7
O-4	81.0	88.6	90.0	80.4	89.1	89.5	86.7	92.1	92.4	84.8	88.0	91.0	81.2	88.7	90.1
O-3	85.9	85.5	88.4	87.8	88.8	91.3	86.4	88.2	89.6	86.8	88.3	88.1	86.0	85.8	88.6
O-2	90.5	93.5	95.8	91.4	93.6	96.6	84.1	91.0	95.9	84.8	91.3	94.0	90.1	93.4	95.8
O-1	96.9	98.7	99.3	96.1	97.8	99.3	97.5	97.8	98.7	96.0	98.5	99.3	96.8	98.5	99.3
UNKNOWN OFFICER	0.0	0.0	66.7	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	80.0
TOTAL OFFICER	86.2	87.6	91.0	89.0	91.1	93.9	87.7	90.3	92.9	87.3	90.3	91.5	86.4	87.9	91.2
W-4	60.7	62.8	71.8	65.0	68.6	85.3	63.6	63.6	70.0	83.9	59.0	76.7	62.5	63.0	73.2
W-3	79.1	76.1	89.6	79.1	80.3	94.8	94.4	88.9	94.7	84.5	74.6	88.5	79.9	76.6	90.2
W-2	92.9	92.8	91.8	98.0	97.3	91.3	100.0	92.3	100.0	92.8	97.7	81.8	93.6	93.6	91.4
W-1	94.1	100.0	100.0	100.0	100.0	100.0	100.0	0.0	0.0	100.0	0.0	100.0	95.0	100.0	100.0
TOTAL WARRANT	81.8	81.0	86.9	87.9	88.5	91.8	89.1	83.3	89.7	88.5	77.3	84.0	83.0	81.6	87.4
TOTAL WARRANT & OFFICER	86.0	87.4	90.9	88.9	90.8	93.7	87.7	90.1	92.8	87.4	89.3	91.0	86.2	87.7	91.1
E-9	76.3	74.4	81.5	82.3	79.0	83.7	83.3	76.6	87.9	83.9	78.0	85.1	77.7	75.2	82.3
E-8	76.7	81.5	85.3	80.8	87.3	87.1	76.2	83.5	88.1	76.8	82.7	86.3	77.0	82.2	85.6
E-7	88.9	87.5	88.7	90.9	90.4	92.3	88.6	90.3	93.4	86.6	84.7	86.7	88.8	87.6	89.0
E-6	88.1	86.7	87.3	89.4	90.1	91.0	89.1	89.2	90.8	87.1	85.8	90.7	88.2	87.2	88.3
E-5	84.8	85.3	85.9	91.6	91.2	91.2	88.1	88.3	88.1	93.6	93.2	94.4	86.8	87.1	87.7
E-4	75.4	76.0	78.1	80.4	82.0	83.9	76.0	77.4	79.2	85.4	86.2	87.5	76.9	77.8	79.8
E-3	72.5	77.0	81.1	70.7	77.0	81.3	72.5	78.3	82.1	79.3	83.4	88.5	72.4	77.4	81.6
E-2	74.5	75.8	82.3	70.8	72.2	79.6	73.1	74.9	83.6	78.9	81.2	87.3	73.8	75.3	82.1
E-1	82.3	82.7	80.0	80.3	81.0	79.6	83.9	84.2	84.5	86.4	88.4	88.6	82.2	82.7	80.9
UNKNOWN ENLISTED	0.0	0.0	85.0	0.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	84.0
TOTAL ENLISTED	81.2	81.7	83.7	82.3	84.2	86.3	79.8	81.8	84.5	86.5	86.8	89.8	81.6	82.5	84.6
TOTAL	81.9	82.6	84.9	82.5	84.5	86.6	80.2	82.3	85.0	86.6	87.0	89.9	82.2	83.1	85.4

Appendix G
PERSONNEL READINESS FACTORS BY RACE AND GENDER

RETENTION RATES FY 1994 - FY 1996
ACTIVE DUTY PERCENTAGE CHANGES **Table G-7**

NAVY FEMALE

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-7	50.0	66.7	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	66.7	100.0
O-6	85.2	84.8	93.0	100.0	100.0	72.7	100.0	50.0	100.0	90.9	90.9	100.0	86.2	85.3	92.5
O-5	86.6	86.9	91.1	88.6	93.2	95.7	100.0	80.0	83.3	95.8	92.3	96.7	87.2	87.4	91.4
O-4	84.4	90.7	91.3	83.2	90.4	94.3	92.0	96.9	95.7	90.2	97.7	94.0	84.6	91.0	91.8
O-3	87.3	86.6	89.1	90.7	90.9	89.5	93.1	91.7	89.6	92.2	91.4	87.8	88.0	87.4	89.1
O-2	88.4	87.9	87.4	87.0	88.9	91.5	89.4	96.4	91.0	93.2	93.3	95.0	88.5	88.6	88.3
O-1	96.9	97.6	98.7	95.9	100.0	98.3	96.7	100.0	97.5	98.6	100.0	100.0	96.9	98.1	98.7
UNKNOWN OFFICER	0.0	0.0	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7
TOTAL OFFICER	88.0	88.9	90.8	89.6	92.0	92.3	93.5	94.1	92.1	93.8	94.3	93.4	88.6	89.5	91.1
W-4	75.0	80.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.0	80.0	100.0
W-3	90.9	78.9	92.9	100.0	100.0	100.0	0.0	100.0	100.0	0.0	0.0	0.0	91.7	81.8	91.9
W-2	70.1	84.3	92.4	100.0	90.9	90.0	0.0	50.0	100.0	100.0	100.0	100.0	73.4	84.7	92.6
W-1	96.2	83.3	100.0	100.0	0.0	0.0	100.0	0.0	0.0	66.7	0.0	0.0	93.5	83.3	100.0
TOTAL WARRANT	76.8	83.2	93.0	100.0	92.3	94.1	100.0	66.7	100.0	75.0	100.0	80.0	78.8	84.0	92.7
TOTAL WARRANT & OFFICER	87.8	88.8	90.8	89.8	92.0	92.4	93.5	93.8	92.1	93.5	94.3	93.2	88.4	89.4	91.1
E-9	78.9	67.7	71.4	66.7	71.4	100.0	0.0	100.0	100.0	100.0	100.0	50.0	78.6	68.8	73.3
E-8	77.9	84.4	86.8	68.4	85.7	92.5	80.0	87.5	75.0	66.7	75.0	100.0	76.9	84.4	87.3
E-7	90.1	87.1	88.2	92.2	88.4	94.9	88.7	95.0	87.5	94.0	85.5	86.6	90.4	87.5	89.2
E-6	87.7	85.9	87.3	90.9	90.2	90.6	89.4	89.2	92.8	89.5	92.4	90.1	88.6	87.3	88.5
E-5	82.9	83.1	85.4	90.3	91.7	91.9	82.4	85.4	88.2	89.9	90.3	90.4	85.5	86.5	88.1
E-4	73.1	73.7	75.2	79.8	82.8	82.7	71.9	75.4	78.2	77.5	81.1	81.2	75.3	77.1	78.1
E-3	71.2	78.2	77.4	75.2	84.6	84.2	71.1	79.9	81.0	73.8	85.2	86.4	72.4	80.4	80.1
E-2	76.5	79.0	81.8	81.5	84.8	87.6	75.2	81.7	88.0	80.2	84.1	89.4	77.6	80.8	84.4
E-1	81.1	82.5	83.1	85.0	87.4	89.9	84.6	87.7	91.5	86.2	90.0	84.5	82.5	84.4	86.3
UNKNOWN ENLISTED	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
TOTAL ENLISTED	79.2	80.5	81.4	83.7	86.9	87.5	76.4	81.5	84.7	82.4	86.5	86.6	80.3	82.6	83.7
TOTAL	80.9	82.1	83.3	84.0	87.2	87.8	77.4	82.3	85.2	84.2	87.7	87.6	81.5	83.6	84.8

RETENTION RATES FY 1994 - FY 1996
ACTIVE DUTY PERCENTAGE CHANGES

Table G-8

NAVY TOTAL

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-10	72.7	63.6	54.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	72.7	63.6	54.5
O-9	72.0	88.0	57.9	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	70.4	88.5	61.9
O-8	81.6	67.1	69.9	100.0	100.0	0.0	50.0	0.0	0.0	100.0	100.0	0.0	81.3	67.1	68.9
O-7	83.8	86.1	93.1	100.0	50.0	100.0	100.0	100.0	50.0	100.0	100.0	100.0	84.2	85.8	92.5
O-6	81.4	79.0	87.6	89.6	87.9	89.9	96.3	74.2	90.3	91.8	88.0	93.0	81.7	79.3	87.8
O-5	85.9	84.2	91.6	90.6	88.3	95.7	84.7	82.5	91.4	84.8	88.3	91.2	86.0	84.4	91.7
O-4	81.5	88.9	90.2	81.0	89.4	91.0	87.3	92.7	92.9	85.5	89.4	91.4	81.6	89.0	90.3
O-3	86.0	85.6	88.5	88.6	89.3	90.9	87.2	88.7	89.6	87.7	88.8	88.0	86.2	86.0	88.6
O-2	90.2	92.7	94.5	90.5	92.5	95.6	84.9	92.0	94.8	85.8	91.5	94.2	89.9	92.6	94.6
O-1	96.9	98.5	99.2	96.1	98.2	99.1	97.4	98.1	98.6	96.5	98.8	99.4	96.8	98.5	99.2
UNKNOWN OFFICER	0.0	0.0	66.7	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	0.0	0.0	75.0
TOTAL OFFICER	86.4	87.8	91.0	89.1	91.3	93.5	88.5	90.8	92.8	88.3	91.0	91.9	86.7	88.1	91.2
W-4	60.8	63.1	72.2	65.0	68.6	85.3	63.6	63.6	70.0	83.9	59.0	76.7	62.6	63.1	73.5
W-3	79.3	76.1	89.7	79.4	80.8	95.1	94.4	89.5	95.0	84.5	74.6	87.1	80.0	76.7	90.2
W-2	90.9	92.1	91.8	98.1	96.9	91.2	100.0	86.7	100.0	92.9	97.8	83.8	92.0	92.9	91.5
W-1	95.3	92.3	100.0	100.0	100.0	100.0	100.0	0.0	0.0	75.0	0.0	100.0	94.1	93.3	100.0
TOTAL WARRANT	81.5	81.1	87.2	88.5	88.7	92.0	89.4	82.2	90.2	88.2	77.6	83.8	82.8	81.8	87.6
TOTAL WARRANT & OFFICER	86.2	87.5	90.8	89.1	91.1	93.4	88.5	90.6	92.7	88.3	90.0	91.4	86.5	87.9	91.1
E-9	76.3	74.2	81.2	82.0	78.8	84.1	83.3	76.9	88.1	84.0	78.1	84.9	77.7	75.0	82.0
E-8	76.8	81.7	85.4	80.1	87.2	87.4	76.4	83.6	87.6	76.8	82.7	86.4	77.0	82.3	85.7
E-7	88.9	87.4	88.7	91.0	90.2	92.6	88.6	90.6	93.0	86.8	84.7	86.7	88.9	87.5	89.0
E-6	88.1	86.7	87.3	89.6	90.1	90.9	89.1	89.2	90.9	87.2	86.0	90.6	88.3	87.2	88.3
E-5	84.7	85.1	85.9	91.4	91.3	91.3	87.5	88.0	88.1	93.4	93.0	94.2	86.7	87.0	87.7
E-4	75.2	75.7	77.8	80.3	82.1	83.7	75.5	77.2	79.1	84.7	85.7	86.8	76.8	77.7	79.6
E-3	72.3	77.1	80.5	71.5	78.6	82.1	72.3	78.6	81.9	78.7	83.7	88.1	72.4	77.9	81.3
E-2	74.7	76.2	82.2	72.5	74.4	81.6	73.4	75.8	84.4	79.1	81.6	87.7	74.4	76.1	82.5
E-1	82.1	82.7	80.5	81.0	82.4	82.2	83.9	84.8	85.8	86.4	88.7	87.7	82.2	83.0	81.8
UNKNOWN ENLISTED	0.0	0.0	85.7	0.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	84.6
TOTAL ENLISTED	81.0	81.6	83.4	82.5	84.7	86.5	79.3	81.8	84.5	86.2	86.8	89.5	81.4	82.5	84.5
TOTAL	81.8	82.6	84.7	82.8	84.9	86.8	79.8	82.3	85.0	86.4	87.0	89.7	82.1	83.2	85.4

RETENTION RATES FY 1994 – FY 1996
ACTIVE DUTY PERCENTAGE CHANGES **Table G-9**

USMC MALE

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-10	33.3	50.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	50.0	100.0
O-9	55.6	100.0	44.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.6	100.0	44.4
O-8	77.3	86.4	85.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	77.3	86.4	85.7
O-7	87.5	91.2	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	84.8	91.2	100.0
O-6	86.8	85.3	86.8	100.0	94.4	88.9	100.0	85.7	100.0	100.0	100.0	75.0	87.3	85.6	87.0
O-5	89.7	89.5	88.2	96.0	96.6	94.1	95.0	86.4	100.0	100.0	82.4	93.8	90.1	89.7	88.7
O-4	89.8	93.5	91.7	91.2	88.6	85.8	91.8	91.9	93.1	92.5	95.7	86.8	89.9	93.3	91.4
O-3	85.9	91.0	89.2	82.6	90.7	91.2	85.6	91.0	88.7	82.0	86.1	90.3	85.7	90.8	89.3
O-2	88.5	86.5	87.8	81.5	83.2	86.8	83.3	86.3	90.3	88.8	86.1	87.4	88.0	86.3	87.8
O-1	98.4	99.6	98.6	97.0	97.3	98.0	100.0	98.9	99.2	98.7	98.5	100.0	98.4	99.3	98.6
UNKNOWN OFFICER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL OFFICER	89.1	91.2	90.3	87.5	90.8	91.0	89.1	91.3	92.9	89.4	89.4	90.5	89.0	91.1	90.5
W-5	44.4	100.0	96.6	0.0	0.0	66.7	0.0	0.0	100.0	0.0	0.0	0.0	44.4	100.0	93.9
W-4	82.9	79.8	85.4	87.5	91.7	78.6	100.0	40.0	71.4	83.3	50.0	66.7	83.6	79.5	84.2
W-3	89.3	91.4	90.4	89.1	89.3	95.4	100.0	94.7	100.0	66.7	80.0	80.0	89.2	91.2	91.3
W-2	96.8	98.2	96.1	98.9	97.0	98.9	97.6	95.9	100.0	100.0	100.0	100.0	97.1	97.9	96.8
W-1	99.2	100.0	99.1	100.0	100.0	95.7	100.0	100.0	100.0	100.0	100.0	100.0	99.3	100.0	98.6
TOTAL WARRANT	92.9	93.6	92.8	95.3	94.4	94.3	98.7	92.5	97.8	89.3	85.2	92.6	93.3	93.5	93.2
TOTAL WARRANT & OFFICER	89.5	91.4	90.6	89.1	91.5	91.7	90.5	91.4	93.6	89.4	89.1	90.6	89.5	91.3	90.7
E-9	78.4	78.9	80.6	82.9	83.4	84.0	79.4	87.7	83.9	75.0	93.3	73.0	79.4	80.8	81.4
E-8	77.9	77.0	80.5	81.5	84.7	87.4	83.7	81.1	84.8	84.0	75.2	88.8	79.2	79.0	82.8
E-7	89.3	87.4	87.8	91.3	89.0	90.5	91.9	87.5	89.6	88.1	88.2	86.3	90.0	87.8	88.6
E-6	91.4	94.0	92.8	92.4	94.2	94.1	93.7	95.5	94.6	89.2	95.0	94.9	91.8	94.2	93.3
E-5	82.2	83.2	81.9	87.1	88.7	86.2	83.7	88.2	86.7	86.5	88.7	85.6	83.7	85.0	83.4
E-4	62.2	62.4	63.9	68.9	72.5	72.7	62.3	65.4	67.4	62.0	65.0	69.7	63.3	64.2	65.6
E-3	82.0	84.6	83.0	76.7	81.5	79.4	81.9	87.1	85.9	82.0	85.0	83.0	81.2	84.4	82.9
E-2	85.7	87.4	87.4	81.1	84.6	84.0	90.0	91.3	90.6	87.0	88.3	87.0	85.5	87.5	87.3
E-1	81.3	81.1	82.5	74.7	79.0	80.6	86.0	86.1	87.4	84.7	84.1	85.1	81.0	81.4	82.9
TOTAL ENLISTED	79.8	80.8	80.3	81.2	84.2	83.5	81.4	84.1	84.0	80.6	82.7	82.4	80.2	81.7	81.3
TOTAL	81.0	82.1	81.6	81.4	84.4	83.8	81.7	84.4	84.4	81.2	83.1	83.0	81.2	82.7	82.3

RETENTION RATES FY 1994 - FY 1996
ACTIVE DUTY PERCENTAGE CHANGES **Table G-10**

USMC FEMALE

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-8	0.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0
O-7	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
O-6	50.0	100.0	90.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	100.0	90.9
O-5	91.7	95.1	77.3	100.0	100.0	100.0	0.0	100.0	100.0	0.0	0.0	0.0	92.3	95.6	80.0
O-4	92.3	90.3	90.6	80.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	91.8	91.0	91.2
O-3	80.8	91.7	85.1	86.7	90.9	100.0	66.7	100.0	100.0	66.7	83.3	100.0	80.8	91.5	86.9
O-2	83.3	85.1	91.0	100.0	50.0	87.5	100.0	66.7	75.0	85.7	50.0	66.7	85.2	80.6	89.4
O-1	94.7	96.0	95.0	100.0	100.0	92.3	100.0	100.0	100.0	66.7	100.0	100.0	94.4	96.6	95.2
TOTAL OFFICER	86.3	91.5	89.1	91.9	86.8	95.3	92.9	88.2	93.8	76.9	84.6	90.9	86.7	90.9	89.8
W-5	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
W-4	80.0	100.0	90.0	100.0	100.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	83.3	100.0	92.9
W-3	100.0	95.0	88.9	100.0	100.0	100.0	100.0	100.0	100.0	0.0	100.0	100.0	100.0	96.3	91.2
W-2	92.5	100.0	89.7	100.0	91.7	84.6	100.0	88.9	87.5	100.0	100.0	100.0	94.8	97.0	88.7
W-1	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	0.0	100.0	100.0	100.0	100.0
TOTAL WARRANT	94.4	98.7	90.5	100.0	94.4	88.9	100.0	92.9	94.1	100.0	100.0	100.0	96.2	97.3	91.1
TOTAL WARRANT & OFFICER	87.4	92.6	89.3	94.2	89.3	93.4	96.4	90.3	93.9	81.3	87.5	93.8	88.2	92.1	90.0
E-9	66.7	88.9	77.8	100.0	77.8	77.8	100.0	100.0	100.0	0.0	0.0	0.0	82.4	85.0	80.0
E-8	66.0	86.5	86.1	86.4	78.3	77.4	100.0	80.0	85.7	100.0	100.0	75.0	74.0	84.5	83.5
E-7	93.9	92.1	91.4	91.7	91.2	92.1	93.3	93.9	92.9	100.0	100.0	83.3	93.4	92.2	91.5
E-6	89.1	93.5	92.4	93.0	94.0	91.9	96.2	94.5	93.1	90.0	94.1	100.0	91.1	93.8	92.5
E-5	83.4	82.4	78.7	83.8	86.5	88.1	90.2	84.6	80.5	89.5	91.9	82.3	84.3	84.4	82.3
E-4	64.5	65.9	70.2	72.9	78.3	77.2	75.3	79.9	80.5	67.0	70.5	73.4	68.2	71.0	73.3
E-3	74.7	77.1	81.1	79.1	83.7	86.3	77.8	83.4	87.0	77.5	80.8	86.4	76.1	79.3	83.1
E-2	77.2	80.1	82.3	81.0	82.1	85.3	86.8	83.5	89.6	86.4	84.4	85.9	79.4	81.1	83.9
E-1	72.4	79.5	75.3	81.8	91.5	80.2	92.1	97.4	85.2	73.5	96.0	79.2	75.9	84.7	77.5
TOTAL ENLISTED	76.5	78.8	80.1	81.8	85.4	85.7	83.2	85.0	85.7	78.7	83.1	82.6	78.7	81.4	82.2
TOTAL	77.7	80.4	81.2	82.1	85.5	85.9	83.7	85.2	86.0	78.9	83.2	83.0	79.4	82.3	82.9

RETENTION RATES FY 1994 - FY 1996
ACTIVE DUTY PERCENTAGE CHANGES **Table G-11**

USMC TOTAL

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-10	33.3	50.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	50.0	100.0
O-9	55.6	100.0	44.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.6	100.0	44.4
O-8	77.3	87.0	86.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	77.3	87.0	86.4
O-7	87.9	91.2	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	85.3	91.2	100.0
O-6	86.4	85.5	86.9	100.0	94.4	88.9	100.0	85.7	100.0	100.0	100.0	75.0	86.9	85.8	87.1
O-5	89.7	89.7	87.9	96.2	96.8	94.5	95.0	87.0	100.0	100.0	82.4	93.8	90.1	89.8	88.4
O-4	89.9	93.4	91.7	90.7	89.3	86.6	92.0	91.9	93.1	92.5	95.7	86.8	90.0	93.2	91.4
O-3	85.8	91.0	89.1	82.8	90.7	91.6	85.3	91.2	89.0	81.6	86.0	90.6	85.5	90.9	89.2
O-2	88.3	86.5	87.9	82.3	81.5	86.8	84.1	85.4	89.7	88.6	85.5	86.8	87.9	86.2	87.9
O-1	98.2	99.4	98.3	97.2	97.5	97.6	100.0	99.0	99.2	97.4	98.6	100.0	98.2	99.2	98.4
UNKNOWN OFFICER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL OFFICER	89.0	91.2	90.3	87.7	90.6	91.3	89.2	91.1	92.9	89.0	89.2	90.5	89.0	91.1	90.4
W-5	44.4	100.0	96.6	0.0	0.0	75.0	0.0	0.0	100.0	0.0	0.0	0.0	44.4	100.0	94.1
W-4	82.8	80.3	85.6	88.0	92.0	79.3	100.0	40.0	80.0	83.3	50.0	66.7	83.6	80.0	84.6
W-3	89.7	91.5	90.3	89.6	89.7	95.5	100.0	95.7	100.0	66.7	83.3	83.3	89.6	91.4	91.3
W-2	96.6	98.3	95.8	99.0	96.4	97.1	98.0	94.8	98.4	100.0	100.0	100.0	97.0	97.9	96.2
W-1	99.2	100.0	99.1	100.0	100.0	95.8	100.0	100.0	100.0	100.0	100.0	100.0	99.4	100.0	98.7
TOTAL WARRANT	92.9	93.9	92.7	95.7	94.4	93.9	98.9	92.6	97.2	90.3	86.7	93.8	93.5	93.8	93.1
TOTAL WARRANT & OFFICER	89.4	91.4	90.5	89.4	91.4	91.8	90.8	91.4	93.6	89.1	89.0	90.8	89.4	91.4	90.7
E-9	78.3	79.0	80.6	83.2	83.3	83.8	80.0	88.0	84.3	75.0	93.3	73.0	79.4	80.8	81.4
E-8	77.6	77.2	80.7	81.6	84.5	87.0	84.0	81.0	84.8	84.2	76.1	88.3	79.1	79.1	82.8
E-7	89.5	87.6	88.0	91.4	89.1	90.6	92.0	87.8	89.8	88.5	88.7	86.2	90.1	88.0	88.7
E-6	91.3	94.0	92.7	92.4	94.2	94.0	93.8	95.4	94.5	89.3	95.0	95.2	91.7	94.2	93.3
E-5	82.3	83.2	81.7	86.8	88.6	86.4	84.1	87.9	86.3	86.7	89.0	85.3	83.7	85.0	83.3
E-4	62.3	62.6	64.1	69.3	73.1	73.1	63.1	66.1	68.1	62.4	65.5	70.0	63.5	64.5	65.9
E-3	81.8	84.3	83.0	76.8	81.6	79.8	81.7	87.0	86.0	81.7	84.7	83.2	81.0	84.2	82.9
E-2	85.4	87.1	87.1	81.1	84.5	84.1	89.9	90.8	90.6	87.0	88.0	86.9	85.3	87.2	87.1
E-1	81.0	81.0	82.2	75.0	79.6	80.6	86.2	86.5	87.3	83.8	84.7	84.8	80.8	81.6	82.7
TOTAL ENLISTED	79.7	80.7	80.3	81.2	84.3	83.6	81.5	84.1	84.1	80.5	82.7	82.4	80.1	81.7	81.3
TOTAL	80.9	82.1	81.6	81.5	84.5	83.9	81.8	84.4	84.4	81.1	83.1	83.0	81.1	82.7	82.3

RETENTION RATES FY 1994 - FY 1996
ACTIVE DUTY PERCENTAGE CHANGES

Table G-12

USAF MALE

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-10	72.7	54.5	90.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	72.7	54.5	90.0
O-9	72.7	68.8	80.6	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	73.5	69.7	82.4
O-8	87.4	78.1	85.1	100.0	100.0	0.0	50.0	100.0	100.0	100.0	0.0	0.0	87.1	78.2	84.3
O-7	86.0	87.5	88.6	0.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	60.0	86.5	88.2	88.1
O-6	81.7	82.0	84.5	82.1	81.9	85.0	89.1	90.9	85.4	96.2	90.5	87.4	82.0	82.3	84.6
O-5	82.9	89.7	87.9	88.7	93.7	92.4	86.4	91.7	86.5	86.9	90.4	88.2	83.3	89.9	88.1
O-4	83.7	87.3	89.5	84.7	87.5	89.0	85.4	87.5	89.6	82.0	86.8	88.1	83.8	87.3	89.4
O-3	94.2	91.6	92.0	93.8	89.4	90.8	92.3	88.8	92.9	92.0	89.1	90.3	94.1	91.3	91.9
O-2	98.0	98.3	97.2	97.1	99.0	96.5	98.9	97.1	97.2	98.8	98.3	97.3	98.0	98.3	97.2
O-1	99.2	99.4	99.1	98.7	98.3	99.6	100.0	98.5	98.1	99.4	99.3	98.6	99.2	99.3	99.1
TOTAL OFFICER	90.4	91.0	91.5	91.3	91.0	91.8	90.4	90.2	91.6	91.9	91.7	92.0	90.5	91.0	91.5
TOTAL WARRANT & OFFICER	90.4	91.0	91.5	91.3	91.0	91.8	90.4	90.2	91.6	91.9	91.7	92.0	90.5	91.0	91.5
E-9	78.1	78.1	75.5	80.6	78.9	82.1	78.6	83.3	74.7	76.8	84.8	80.4	78.4	78.5	76.7
E-8	78.5	77.9	82.1	84.1	83.3	84.9	82.6	79.7	84.2	78.8	78.4	75.3	79.6	78.9	82.4
E-7	82.6	79.5	85.1	83.0	79.6	84.9	83.3	81.5	83.2	80.7	78.5	84.6	82.6	79.5	85.0
E-6	90.4	85.4	93.2	89.2	88.7	94.0	88.9	84.8	92.7	87.4	83.3	91.2	90.0	85.9	93.3
E-5	94.6	87.8	95.5	94.4	90.7	96.3	94.0	88.5	96.1	93.6	89.4	96.4	94.5	88.4	95.7
E-4	83.5	81.8	80.8	86.7	83.7	85.1	84.8	83.4	81.9	87.7	84.0	85.0	84.2	82.2	81.5
E-3	90.0	89.0	88.8	89.0	88.5	88.5	91.9	92.0	90.5	91.6	92.9	91.3	90.0	89.1	89.0
E-2	91.8	92.3	91.8	88.1	87.9	88.3	94.3	94.8	94.5	87.9	93.6	93.3	91.4	91.9	91.5
E-1	88.2	86.4	85.9	81.0	80.7	77.5	84.9	83.0	87.2	83.2	84.0	80.3	87.1	85.4	84.6
TOTAL ENLISTED	88.3	85.1	88.3	88.7	86.4	89.9	88.8	86.3	89.3	88.0	85.8	89.6	88.3	85.3	88.6
TOTAL	88.7	86.4	89.0	88.9	86.7	90.0	89.0	86.7	89.6	88.8	87.0	90.1	88.8	86.4	89.2

RETENTION RATES FY 1994 - FY 1996
ACTIVE DUTY PERCENTAGE CHANGES Table G-13

USAF FEMALE

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-8	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
O-7	100.0	50.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	100.0	75.0	100.0
O-6	79.5	84.9	76.6	100.0	85.7	80.0	80.0	100.0	80.0	100.0	95.5	81.8	82.3	86.5	77.5
O-5	87.0	87.4	85.8	90.9	96.8	90.7	100.0	78.6	84.6	84.8	93.9	88.2	87.5	88.2	86.3
O-4	88.8	84.8	88.4	88.2	82.4	91.3	89.1	78.8	91.2	85.3	86.7	93.8	88.6	84.4	89.1
O-3	91.5	86.4	88.5	91.0	87.2	91.5	93.1	90.8	87.6	91.8	88.2	90.2	91.5	86.7	88.9
O-2	92.8	95.0	91.3	93.9	94.0	97.0	93.5	93.1	89.5	90.7	97.4	96.2	92.8	95.0	92.2
O-1	98.0	98.6	98.5	99.0	95.5	97.1	93.3	100.0	100.0	98.7	97.4	96.9	98.1	98.3	98.3
TOTAL OFFICER	91.3	88.6	89.7	91.2	88.0	92.4	92.5	87.4	88.9	91.6	91.6	92.6	91.3	88.7	90.1
TOTAL WARRANT & OFFICER	91.3	88.6	89.7	91.2	88.0	92.4	92.5	87.4	88.9	91.6	91.6	92.6	91.3	88.7	90.1
E-9	81.1	88.6	85.0	86.7	90.6	91.9	90.0	80.0	77.8	66.7	100.0	83.3	82.2	88.7	85.9
E-8	84.9	82.7	86.9	86.7	81.3	87.9	100.0	83.3	90.0	100.0	95.8	88.0	86.1	83.0	87.3
E-7	82.8	80.6	86.2	85.1	83.9	88.1	87.2	78.2	92.2	77.0	82.1	85.0	83.3	81.4	86.9
E-6	90.2	81.7	92.5	90.3	86.7	94.7	87.5	85.4	90.6	88.4	81.3	88.0	90.0	83.2	92.9
E-5	92.2	83.7	93.1	94.0	87.7	96.4	94.1	83.8	93.5	92.6	87.0	94.6	92.8	85.1	94.2
E-4	81.5	78.6	78.7	87.2	84.5	86.1	84.0	82.6	82.4	87.1	84.2	82.9	83.2	80.3	80.6
E-3	88.0	87.5	87.5	92.5	92.7	90.8	92.5	89.7	88.8	92.8	92.6	92.0	89.1	88.7	88.4
E-2	89.1	90.4	90.9	92.1	92.0	92.7	92.3	96.4	94.5	94.1	96.2	91.4	89.9	91.2	91.5
E-1	87.5	84.7	85.2	88.3	85.4	89.1	79.3	88.5	89.1	89.7	92.2	86.5	87.4	85.4	86.3
TOTAL ENLISTED	86.6	83.0	86.1	90.0	87.2	91.2	88.5	85.7	88.6	89.2	87.3	88.6	87.6	84.3	87.6
TOTAL	87.6	84.3	86.9	90.1	87.2	91.3	89.0	85.9	88.7	89.8	88.3	89.5	88.3	85.1	88.0

RETENTION RATES FY 1994 - FY 1996
ACTIVE DUTY PERCENTAGE CHANGES **Table G-14**

USAF TOTAL

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-10	72.7	54.5	90.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	72.7	54.5	90.0
O-9	72.7	68.8	80.6	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	73.5	69.7	82.4
O-8	87.4	78.1	85.1	100.0	100.0	50.0	50.0	100.0	100.0	100.0	0.0	0.0	87.1	78.2	84.4
O-7	86.2	87.0	89.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	66.7	86.8	87.9	88.6
O-6	81.6	82.1	84.2	83.0	82.2	84.4	88.2	91.8	84.9	97.0	91.5	86.2	82.1	82.4	84.3
O-5	83.2	89.5	87.7	89.0	94.2	92.1	87.9	90.1	86.3	86.6	90.8	88.2	83.6	89.7	87.9
O-4	84.4	86.9	89.3	85.7	86.1	89.6	85.9	86.2	89.9	82.6	86.7	89.1	84.5	86.8	89.4
O-3	93.8	90.8	91.5	92.9	88.7	91.0	92.5	89.2	92.0	92.0	88.9	90.3	93.7	90.6	91.4
O-2	97.1	97.7	96.1	96.1	97.6	96.7	97.5	96.2	96.0	96.9	98.1	97.1	97.0	97.7	96.2
O-1	99.0	99.2	99.0	98.8	97.6	99.0	98.9	98.7	98.3	99.3	98.9	98.2	99.0	99.1	98.9
TOTAL OFFICER	90.5	90.7	91.2	91.3	90.1	92.0	90.8	89.7	91.2	91.8	91.7	92.1	90.6	90.7	91.3
TOTAL WARRANT & OFFICER	90.5	90.7	91.2	91.3	90.1	92.0	90.8	89.7	91.2	91.8	91.7	92.1	90.6	90.7	91.3
E-9	78.2	78.6	76.0	80.8	79.6	82.8	79.6	83.0	75.0	76.5	85.3	80.6	78.5	79.0	77.2
E-8	79.0	78.3	82.5	84.4	83.1	85.2	83.7	80.0	84.6	80.0	80.3	76.7	80.1	79.3	82.9
E-7	82.6	79.6	85.2	83.3	80.2	85.4	83.6	81.2	84.0	80.3	78.9	84.6	82.7	79.7	85.2
E-6	90.4	85.0	93.1	89.4	88.3	94.1	88.7	84.9	92.5	87.5	83.0	90.8	90.0	85.6	93.2
E-5	94.3	87.4	95.2	94.3	90.1	96.3	94.1	88.0	95.8	93.5	89.1	96.2	94.3	88.0	95.5
E-4	83.2	81.3	80.4	86.8	83.9	85.4	84.7	83.2	82.0	87.6	84.1	84.5	84.0	81.9	81.3
E-3	89.7	88.7	88.6	90.1	89.8	89.2	92.0	91.5	90.1	91.9	92.8	91.5	89.8	89.0	88.8
E-2	91.3	91.9	91.6	89.3	89.2	89.7	93.9	95.1	94.5	89.5	94.4	92.8	91.1	91.7	91.5
E-1	88.1	86.0	85.8	83.1	82.1	80.9	83.8	84.1	87.6	84.9	86.6	82.1	87.2	85.4	85.0
TOTAL ENLISTED	88.0	84.8	87.9	89.0	86.6	90.2	88.7	86.2	89.2	88.2	86.1	89.4	88.2	85.2	88.4
TOTAL	88.6	86.1	88.7	89.1	86.8	90.3	89.0	86.6	89.4	88.9	87.2	90.0	88.7	86.2	89.0

RETENTION RATES FY 1994 - FY 1996
ACTIVE DUTY PERCENTAGE CHANGES **Table G-15**

USCG MALE

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-10	100.0	50.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	50.0	100.0
O-9	0.0	100.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	75.0
O-8	78.6	85.7	71.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	78.6	85.7	71.4
O-7	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	100.0
O-6	84.2	81.7	78.9	50.0	100.0	100.0	100.0	100.0	100.0	100.0	66.7	100.0	84.1	81.8	79.5
O-5	88.3	94.3	88.0	94.1	100.0	93.3	83.3	85.7	100.0	100.0	100.0	90.0	88.5	94.4	88.3
O-4	94.0	93.8	92.6	94.1	93.8	81.3	94.7	94.7	94.7	83.3	100.0	90.0	93.9	93.9	92.4
O-3	93.8	93.9	93.8	83.9	91.2	90.0	94.3	90.2	96.8	87.8	93.5	96.6	93.4	93.7	93.9
O-2	95.2	93.1	91.6	91.7	86.9	86.2	91.5	93.2	92.9	87.2	96.1	92.0	94.5	92.9	91.3
O-1	99.8	99.3	99.7	100.0	95.8	100.0	100.0	100.0	100.0	96.8	100.0	100.0	99.6	99.2	99.8
TOTAL OFFICER	93.1	93.3	91.6	91.4	91.7	89.8	93.5	93.2	96.1	90.0	95.9	94.9	93.0	93.3	91.7
W-4	83.2	80.9	77.1	66.7	60.0	100.0	100.0	100.0	75.0	80.0	78.9	73.7	82.9	80.7	77.1
W-3	91.2	91.8	88.2	100.0	85.7	90.0	100.0	100.0	88.9	93.3	89.5	86.7	91.6	91.7	88.2
W-2	95.1	92.9	94.3	100.0	100.0	78.3	100.0	100.0	100.0	100.0	100.0	80.0	95.4	93.3	93.7
UNKNOWN WARRANT	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
TOTAL WARRANT	91.1	89.5	87.9	93.9	90.6	83.8	100.0	100.0	92.0	90.2	87.2	79.5	91.3	89.6	87.7
TOTAL WARRANT & OFFICER	92.7	92.4	90.7	91.8	91.5	88.7	94.3	94.1	95.5	90.1	93.8	91.9	92.6	92.5	90.8
E-9	84.0	73.9	82.4	100.0	100.0	86.7	100.0	66.7	100.0	77.8	66.7	85.7	84.2	74.3	83.1
E-8	85.6	85.8	82.3	92.9	89.3	82.1	100.0	100.0	100.0	91.2	69.0	72.7	86.5	85.5	82.4
E-7	92.8	90.7	89.1	95.5	92.5	90.0	98.7	93.7	87.1	88.4	76.6	88.1	93.0	90.6	89.1
E-6	96.4	94.3	93.0	94.8	92.6	90.3	95.9	94.6	94.3	97.0	91.0	95.3	96.3	94.1	92.9
E-5	93.4	92.7	91.4	95.7	94.3	93.1	94.8	95.7	93.4	93.4	94.0	89.9	93.7	93.1	91.6
E-4	79.4	79.9	79.0	85.7	82.6	79.9	84.7	80.8	82.1	80.9	83.0	79.7	80.1	80.3	79.3
E-3	85.0	87.3	81.7	81.6	90.2	83.0	90.8	85.1	81.6	88.9	90.4	85.5	85.5	87.6	82.0
E-2	86.9	90.1	89.5	79.4	91.4	89.6	87.1	89.1	86.2	86.9	87.9	90.2	86.5	89.9	89.2
E-1	86.1	84.8	80.0	61.5	81.3	51.7	76.0	80.0	74.3	86.2	69.6	62.5	84.6	83.0	75.6
UNKNOWN ENLISTED	0.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0
TOTAL ENLISTED	88.5	88.5	86.9	90.4	90.5	87.4	90.5	88.5	87.0	87.9	86.5	85.4	88.7	88.5	86.9
TOTAL	89.4	89.4	87.8	90.5	90.6	87.6	90.8	89.1	87.9	88.2	87.5	86.3	89.5	89.3	87.7

RETENTION RATES FY 1994 - FY 1996
ACTIVE DUTY PERCENTAGE CHANGES **Table G-16**

USCG FEMALE

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-6	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	100.0
O-5	92.3	100.0	90.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	92.3	100.0	90.0
O-4	95.3	91.1	94.9	0.0	0.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	95.6	91.4	95.3
O-3	94.6	93.2	93.9	100.0	83.3	100.0	100.0	100.0	100.0	100.0	72.7	100.0	95.2	91.3	94.6
O-2	91.0	82.7	88.6	100.0	100.0	90.9	100.0	71.4	87.5	100.0	66.7	66.7	92.2	82.4	87.9
O-1	98.6	96.7	97.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	92.3	98.9	97.3	96.9
TOTAL OFFICER	94.2	90.5	92.7	100.0	94.4	95.0	100.0	88.2	95.2	100.0	82.1	89.7	94.8	90.1	92.7
W-4	0.0	100.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	50.0
W-3	100.0	77.8	88.9	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	100.0	100.0	72.7	90.0
W-2	92.3	90.9	90.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	92.3	90.9	90.9
TOTAL WARRANT	95.5	85.7	85.7	0.0	0.0	100.0	0.0	0.0	0.0	100.0	100.0	100.0	95.7	82.6	87.0
TOTAL WARRANT & OFFICER	94.2	90.3	92.4	100.0	89.5	95.2	100.0	88.2	95.2	100.0	82.8	90.0	94.9	89.7	92.5
E-9	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	100.0
E-8	100.0	100.0	80.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	80.0
E-7	97.4	97.6	88.8	92.9	100.0	81.0	100.0	100.0	100.0	0.0	0.0	100.0	96.8	98.1	88.2
E-6	97.1	94.2	91.6	94.9	95.9	96.9	100.0	100.0	90.5	100.0	100.0	85.7	96.7	95.2	92.7
E-5	89.8	87.0	87.9	97.3	96.0	90.7	82.1	95.5	95.0	90.5	100.0	88.0	90.9	89.5	88.8
E-4	78.5	79.3	75.4	90.0	83.2	80.0	77.4	90.3	65.5	68.6	70.6	65.5	79.7	80.1	75.1
E-3	80.5	86.3	82.4	93.9	82.1	82.6	91.3	90.0	89.1	74.3	81.8	89.5	82.2	85.9	83.5
E-2	79.2	88.1	86.0	77.4	85.7	90.0	88.2	96.6	86.5	90.9	88.9	80.5	80.8	88.6	85.8
E-1	76.7	70.9	88.1	75.0	100.0	37.5	0.0	80.0	75.0	60.0	85.7	41.7	74.3	73.5	72.7
TOTAL ENLISTED	84.6	86.4	84.1	92.6	90.5	87.2	86.3	93.7	85.5	80.9	85.4	78.8	85.8	87.4	84.3
TOTAL	86.3	87.1	85.6	92.9	90.4	87.6	87.5	93.1	86.6	83.4	85.0	80.5	87.1	87.8	85.6

Appendix G
PERSONNEL READINESS FACTORS BY RACE AND GENDER

RETENTION RATES FY 1994 – FY 1996
ACTIVE DUTY PERCENTAGE CHANGES **Table G-17**

USCG TOTAL

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-10	100.0	50.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	50.0	100.0
O-9	0.0	100.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	75.0
O-8	78.6	85.7	71.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	78.6	85.7	71.4
O-7	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	100.0
O-6	84.2	81.7	79.0	50.0	100.0	100.0	100.0	100.0	100.0	100.0	66.7	100.0	84.2	81.8	79.6
O-5	88.4	94.4	88.1	94.1	100.0	93.3	83.3	85.7	100.0	100.0	100.0	90.0	88.6	94.5	88.3
O-4	94.0	93.7	92.7	94.1	93.8	82.4	95.0	95.0	95.5	84.6	100.0	90.9	93.9	93.8	92.6
O-3	93.8	93.8	93.8	86.1	90.0	91.1	94.4	90.9	96.9	89.6	89.5	97.1	93.6	93.5	94.0
O-2	94.7	91.8	91.2	92.2	88.2	87.0	92.4	90.9	92.0	89.1	93.0	89.3	94.2	91.6	90.9
O-1	99.6	98.9	99.3	100.0	96.6	100.0	100.0	100.0	100.0	97.2	100.0	97.5	99.5	98.9	99.2
TOTAL OFFICER	93.2	93.1	91.7	92.1	92.0	90.4	94.1	92.7	96.0	91.3	93.6	94.1	93.1	93.0	91.8
W-4	83.2	81.0	76.9	66.7	60.0	100.0	100.0	100.0	75.0	80.0	78.9	73.7	82.9	80.8	77.0
W-3	91.4	91.5	88.2	100.0	75.0	90.0	100.0	100.0	88.9	93.8	90.0	87.5	91.8	91.3	88.2
W-2	95.1	92.8	94.3	100.0	100.0	79.2	100.0	100.0	100.0	100.0	100.0	80.0	95.4	93.3	93.7
UNKNOWN WARRANT	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
TOTAL WARRANT	91.2	89.4	87.9	93.9	87.9	84.2	100.0	100.0	92.0	90.4	87.5	80.0	91.3	89.5	87.6
TOTAL WARRANT & OFFICER	92.8	92.3	90.8	92.4	91.3	89.3	94.8	93.6	95.5	91.1	92.3	91.6	92.7	92.3	90.9
E-9	84.0	74.0	82.6	100.0	100.0	86.7	100.0	66.7	100.0	77.8	66.7	85.7	84.2	74.4	83.2
E-8	85.7	86.1	82.2	92.9	89.3	82.1	100.0	100.0	100.0	91.2	69.0	72.7	86.6	85.7	82.4
E-7	92.9	91.0	89.1	95.3	93.0	89.2	98.7	94.1	88.2	88.4	76.6	88.3	93.2	90.9	89.1
E-6	96.5	94.3	92.9	94.8	93.2	91.6	96.3	95.1	94.0	97.2	91.8	94.4	96.3	94.1	92.9
E-5	93.1	92.3	91.1	96.0	94.6	92.6	93.8	95.7	93.5	93.1	94.8	89.7	93.4	92.8	91.3
E-4	79.3	79.9	78.7	86.5	82.7	79.9	84.2	81.5	81.1	79.6	81.8	78.7	80.1	80.3	78.9
E-3	84.6	87.2	81.8	83.9	88.8	82.9	90.9	85.6	82.8	87.3	89.5	86.0	85.1	87.4	82.3
E-2	85.8	89.7	89.0	79.0	90.0	89.6	87.3	90.1	86.2	87.4	88.1	88.0	85.7	89.6	88.7
E-1	84.6	82.0	81.2	64.7	82.4	48.6	73.1	80.0	74.4	82.4	73.3	55.6	83.0	81.1	75.1
UNKNOWN ENLISTED	0.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0
TOTAL ENLISTED	88.2	88.3	86.7	90.8	90.5	87.4	90.1	88.9	86.9	87.1	86.4	84.6	88.5	88.4	86.7
TOTAL	89.2	89.2	87.6	90.9	90.5	87.6	90.6	89.4	87.7	87.7	87.2	85.6	89.3	89.2	87.5

RETENTION RATES FY 1994 – FY 1996
ACTIVE DUTY PERCENTAGE CHANGES

Table G-18

DOD TOTAL

Grade	White			Black			Hispanic			Other			Total		
	94	95	96	94	95	96	94	95	96	94	95	96	94	95	96
O-10	75.0	63.2	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	73.0	63.2	75.0
O-9	64.9	75.5	72.2	75.0	100.0	100.0	0.0	100.0	0.0	0.0	100.0	100.0	64.7	76.9	73.8
O-8	84.0	73.5	78.3	85.7	80.0	83.3	57.1	66.7	100.0	66.7	66.7	50.0	83.4	73.7	78.5
O-7	88.0	86.4	91.5	93.3	84.6	94.1	100.0	100.0	83.3	87.5	75.0	71.4	88.2	86.4	91.2
O-6	81.3	81.4	85.2	82.7	85.1	87.5	86.3	83.0	88.7	91.2	89.0	89.3	81.6	81.7	85.4
O-5	85.2	87.7	89.3	90.6	90.7	92.0	86.7	88.4	90.5	86.3	90.9	90.3	85.5	87.9	89.5
O-4	85.3	88.7	89.4	87.6	88.5	88.4	87.6	88.7	88.0	85.7	88.2	88.5	85.6	88.6	89.2
O-3	90.3	89.4	90.3	89.2	89.7	90.5	88.9	89.6	90.9	89.6	88.6	89.7	90.1	89.4	90.3
O-2	90.1	92.1	92.0	88.3	91.2	91.4	85.9	90.3	91.9	88.0	91.6	92.4	89.8	91.9	92.0
O-1	98.0	98.5	98.2	96.9	97.0	97.9	97.6	97.7	97.5	98.0	98.3	98.3	97.9	98.3	98.2
UNKNOWN OFFICER	93.8	94.3	95.1	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	93.8	93.7	95.2
TOTAL OFFICER	88.8	89.8	90.7	89.6	90.5	91.2	89.0	90.4	91.4	89.8	90.9	91.5	88.9	89.9	90.8
W-5	87.1	91.0	83.6	83.3	92.9	89.3	100.0	80.0	83.3	100.0	100.0	100.0	87.3	90.9	84.1
W-4	78.1	75.2	77.1	81.1	81.4	86.7	80.5	77.4	78.1	82.5	69.7	77.4	78.5	75.5	77.8
W-3	86.7	86.3	88.0	88.8	87.9	90.9	86.0	90.5	89.8	87.0	83.8	88.0	86.9	86.4	88.4
W-2	92.7	92.6	92.0	95.1	93.2	91.5	94.2	92.9	92.5	93.8	93.7	90.1	93.1	92.7	91.9
W-1	97.7	95.5	98.9	98.1	98.3	99.3	100.0	93.9	100.0	97.8	96.0	99.2	97.8	95.8	99.0
UNKNOWN WARRANT	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
TOTAL WARRANT	89.3	88.4	89.1	92.5	91.7	92.5	92.2	91.0	91.3	90.8	87.5	89.4	89.7	88.8	89.5
TOTAL WARRANT & OFFICER	88.9	89.7	90.6	89.9	90.6	91.4	89.3	90.4	91.4	89.9	90.6	91.3	89.0	89.8	90.7
E-9	77.8	77.0	78.8	81.1	81.2	83.9	82.4	82.8	81.4	82.5	79.9	83.8	78.7	78.1	80.1
E-8	77.4	78.3	81.0	82.8	82.2	82.6	80.7	79.9	82.7	79.3	79.9	81.8	78.7	79.3	81.4
E-7	85.6	82.9	87.3	87.4	85.2	87.9	87.7	85.1	88.6	85.3	82.4	86.5	86.1	83.5	87.5
E-6	89.8	87.1	90.4	90.8	89.0	92.6	90.8	88.6	92.2	88.6	86.1	91.6	90.0	87.6	91.1
E-5	87.3	85.6	88.0	89.1	89.4	90.4	88.5	87.8	89.3	90.3	89.9	91.3	87.9	86.9	88.8
E-4	75.7	74.8	74.7	79.4	80.2	80.0	75.3	76.3	76.8	79.5	78.8	79.3	76.7	76.2	76.1
E-3	81.5	82.7	82.7	79.3	82.5	82.6	80.5	83.7	84.3	83.4	85.2	85.4	81.2	82.9	82.9
E-2	82.5	83.3	85.1	79.1	81.4	83.5	82.0	84.7	88.2	84.4	85.5	87.6	82.0	83.2	85.2
E-1	82.7	83.4	81.7	80.5	82.2	80.8	85.4	86.1	86.5	84.6	87.3	84.6	82.6	83.5	82.1
UNKNOWN ENLISTED	4.3	69.2	96.2	0.0	66.7	80.0	0.0	100.0	0.0	0.0	0.0	100.0	4.0	70.6	95.6
TOTAL ENLISTED	82.8	82.0	83.2	84.4	84.8	85.9	83.1	83.6	85.1	85.1	84.5	86.3	83.3	82.8	84.1
TOTAL	83.9	83.4	84.7	84.7	85.2	86.3	83.5	84.1	85.6	85.6	85.2	87.0	84.1	83.9	85.2

TRENDS IN ENLISTMENT PROPENSITY WILL DEFINITELY OR PROBABLY BE SERVING ON ACTIVE DUTY[1] Table G-19

	MALES				FEMALES			
	White	Black	Hispanic	Total[2]	White	Black	Hispanic	Total[2]
Army								
1994	8	14	18	11	4	12	13	7
1995	10	15	21	12	3	13	13	6
1996	8	18	22	12	3	13	11	6
Navy								
1994	7	11	14	9	2	5	16	5
1995	8	12	15	10	2	10	9	5
1996	7	14	18	10	4	10	11	6
Marine Corps								
1994	9	13	18	11	3	3	10	4
1995	8	14	23	11	2	6	10	4
1996	7	15	22	11	2	8	5	4
Air Force								
1994	9	15	19	12	3	6	9	5
1995	9	16	21	12	3	14	12	7
1996	9	13	22	12	4	13	14	7
Active Composite[3]								
1994	22	32	39	26	9	20	25	13
1995	23	32	44	28	7	24	25	13
1996	20	34	43	27	9	23	25	14

[1] Percent of 16-21 year-olds with no more than two years postsecondary education, by gender and race/ethnicity.

[2] Asians, Pacific Islanders, American Indians, and Alaskan Natives 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.

Source: Youth Attitude Tracking Study, administered fall of 1994, 1995, and 1996.

TRENDS IN ENLISTMENT PROPENSITY COMMON REASONS FOR JOINING THE MILITARY[1]

Table G-20

	MALES				FEMALES			
	White	Black	Hispanic	Total[2]	White	Black	Hispanic	Total[2]
Educational funding								
1994	31	25	34	30	34	22	18	30
1995	34	29	36	33	40	27	30	36
1996	34	26	31	32	41	34	37	39
Job training/ experience								
1994	24	26	18	23	12	16	12	12
1995	24	23	27	24	14	15	11	13
1996	26	21	21	24	16	16	23	17
Duty to country								
1994	11	12	11	11	12	8	16	11
1995	11	9	8	10	8	10	7	8
1996	12	11	13	12	10	10	8	10
Pay								
1994	12	21	8	13	10	17	13	11
1995	11	14	11	12	10	8	7	9
1996	10	16	11	11	8	14	8	9
Travel								
1994	6	8	2	5	4	10	2	4
1995	6	8	5	6	7	12	9	8
1996	7	11	9	8	6	6	6	6
Develop self-discipline								
1994	4	2	3	4	3	3	0	2
1995	5	4	5	5	4	1	4	3
1996	5	4	5	5	4	0	2	3

[1] Percent of 16-21 year-olds with no more than two years postsecondary education, by gender and race/ethnicity.

[2] Asians, Pacific Islanders, American Indians, and Alaskan Natives are included in the total, but not counted as White, Black, or Hispanic.

Source: Youth Attitude Tracking Study, administered fall of 1994, 1995, and 1996.

TRENDS IN ENLISTMENT PROPENSITY
COMMON REASONS FOR NOT JOINING THE MILITARY[1]

Table G-21

	MALES				FEMALES			
	White	Black	Hispanic	Total[2]	White	Black	Hispanic	Total[2]
Do not like military lifestyle								
1994	13	11	10	12	14	11	10	13
1995	13	15	12	13	17	15	18	17
1996	18	18	7	16	19	20	26	21
Have other career interests								
1994	11	6	6	9	8	6	3	7
1995	11	6	7	10	9	5	8	8
1996	11	8	5	9	8	7	2	7
Too long a commitment								
1994	10	5	6	9	9	7	0	7
1995	11	7	7	10	8	7	3	7
1996	11	3	9	9	11	5	8	9
Danger, threat to life								
1994	6	10	10	7	7	17	13	9
1995	5	12	10	7	4	15	5	6
1996	7	16	10	9	7	18	6	9
Family obligations								
1994	5	4	6	5	14	9	19	13
1995	5	2	11	6	13	11	20	13
1996	6	4	12	7	12	13	17	13
Against beliefs								
1994	5	9	6	6	6	8	8	7
1995	4	7	3	4	5	4	3	5
1996	4	9	3	5	5	5	4	5

[1] Percent of 16-21 year-olds with no more than two years postsecondary education, by gender and race/ethnicity.

[2] Asians, Pacific Islanders, American Indians, and Alaskan Natives are included in the total, but not counted as White, Black, or Hispanic.

Source: Youth Attitude Tracking Study, administered fall of 1994, 1995, and 1996.

ARMY NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER) Table G-22

	PERMANENT								TEMPORARY														TOTAL		
	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMIN		PANOREX		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	0	1	0	0	0	2	0	0	1	70	16	43	4	23	2	138	23	139	23	162
O-5	4	0	0	0	0	0	4	0	0	0	2	0	0	6	117	33	75	14	38	6	232	59	236	59	295
O-4	11	1	0	0	0	0	11	1	0	0	10	1	0	31	101	47	106	21	69	11	286	111	297	112	409
O-3	8	0	0	0	0	0	8	0	0	1	15	2	0	111	104	65	152	41	239	91	510	311	518	311	829
O-2	0	0	0	0	0	0	0	0	1	0	5	4	0	64	30	35	52	19	136	37	224	159	224	159	383
O-1	0	0	0	0	1	0	1	0	0	0	8	0	0	38	16	8	13	2	383	114	420	162	421	162	583
TOTAL OFFICER	23	1	0	0	2	0	25	1	1	1	42	7	0	251	438	204	441	101	888	261	1810	825	1835	826	2661
W-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	4	1	2	0	15	1	15	1	16
W-4	0	0	0	0	0	0	0	0	0	0	3	0	0	0	31	3	19	1	7	0	60	4	60	4	64
W-3	0	0	0	0	0	0	0	0	0	0	15	0	0	0	40	5	17	2	11	0	83	7	83	7	90
W-2	2	0	0	0	0	1	2	1	0	1	3	0	0	6	29	4	12	2	16	1	60	14	62	15	77
W-1	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	2	1	1	4	2	11	11	11	11	22
TOTAL WO	2	0	0	0	0	1	2	1	0	1	21	0	0	12	115	14	53	7	40	3	229	37	231	38	269
E-9	3	0	0	0	0	0	3	0	0	0	2	0	0	0	65	2	43	3	16	0	126	5	129	5	134
E-8	7	1	0	0	0	0	7	1	0	0	9	0	0	6	247	63	85	36	138	9	479	114	486	115	601
E-7	40	4	0	0	2	0	42	4	1	0	60	6	0	60	659	172	262	55	336	41	1318	334	1360	338	1698
E-6	61	3	0	0	3	0	64	3	4	0	102	14	0	139	848	234	332	82	187	35	1473	504	1537	507	2044
E-5	83	8	0	0	4	2	87	10	7	1	180	28	0	383	975	304	325	149	211	38	1698	903	1785	913	2698
E-4	51	8	0	0	10	1	61	9	30	2	386	82	0	1159	1298	583	551	227	218	83	2483	2136	2544	2145	4689
E-3	7	0	0	0	0	0	7	0	47	4	281	47	0	758	465	209	229	88	150	64	1172	1170	1179	1170	2349
E-2	0	1	0	0	0	0	0	1	41	6	221	24	0	255	151	59	111	37	97	31	621	412	621	413	1034
E-1	1	0	0	0	0	0	1	0	38	3	828	44	0	46	69	20	84	12	55	22	1074	147	1075	147	1222
TOTAL EN	253	25	0	0	19	3	272	28	168	16	2069	245	0	2806	4777	1646	2022	689	1408	323	10444	5725	10716	5753	16469
COLUMN TOTAL	278	26	0	0	21	4	299	30	169	18	2132	252	0	3069	5330	1864	2516	797	2336	587	12483	6587	12782	6617	19399

NOTES:

1. Army data, less Panorex, is as of September 15, 1996. Army data sources are Army MACOM reports and HQDA HIV+ data base.
2. Panorex data is as of end of month September 1996. Data source is DMDC DEERS file.
3. Army strength data source is DMDC end of month September 1996 Active Duty Master File.
4. The Army estimates approximately 350 personnel included in the medical temporary category are actually medical permanent. However, the Army is unable to provide grade and gender detail.
5. M = Male; F = Female; WO = Warrant Officer; EN = Enlisted.

ARMY NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER) (BY PERCENT)

Table G-23

	PERMANENT								TEMPORARY														TOTAL		
	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMIN		PANOREX		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	0.1	0.0	0.0	0.5	2.2	7.5	1.3	1.9	0.7	0.9	4.3	10.7	4.4	10.7	4.8
O-5	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	0.7	1.6	3.7	1.0	1.6	0.5	0.7	3.2	6.7	3.3	6.7	3.6
O-4	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	1.9	1.0	2.9	1.1	1.3	0.7	0.7	2.9	6.8	3.1	6.9	3.6
O-3	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	3.6	0.6	2.1	0.9	1.3	1.4	3.0	3.1	10.2	3.1	10.2	4.2
O-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	4.5	0.5	2.5	0.8	1.3	2.1	2.6	3.5	11.2	3.5	11.2	4.9
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	0.0	3.3	0.3	0.7	0.2	0.2	7.1	9.8	7.7	13.9	7.8	13.9	8.8
TOTAL OFFICER	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	3.0	0.9	2.4	0.9	1.2	1.8	3.1	3.7	9.9	3.8	9.9	4.7
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	2.7	0.0	1.2	50.0	0.6	0.0	4.5	50.0	4.5	50.0	4.7
W-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	2.7	16.7	1.6	5.6	0.6	0.0	5.2	22.2	5.2	22.2	5.5
W-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	1.6	4.7	0.7	1.9	0.4	0.0	3.2	6.5	3.2	6.5	3.4
W-2	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.4	0.0	0.4	0.1	0.0	0.0	2.2	0.6	1.5	0.3	0.7	0.4	0.4	1.3	5.1	1.4	5.5	1.6
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	3.9	0.5	1.3	0.1	0.7	0.4	1.3	1.0	7.2	1.0	7.2	1.8
TOTAL WO	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.2	0.2	0.0	0.0	2.2	1.2	2.5	0.5	1.3	0.4	0.5	2.4	6.7	2.4	6.9	2.6
E-9	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	2.4	1.7	1.6	2.5	0.6	0.0	4.6	4.2	4.7	4.2	4.7
E-8	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.7	2.7	7.2	0.9	4.1	1.5	1.0	5.2	13.0	5.3	13.1	6.0
E-7	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.1	0.0	1.4	2.0	4.1	0.8	1.3	1.0	1.0	3.9	7.9	4.0	8.0	4.5
E-6	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.0	2.2	1.7	3.7	0.7	1.3	0.4	0.6	3.0	8.0	3.2	8.1	3.7
E-5	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.3	0.0	4.0	1.5	3.2	0.5	1.6	0.3	0.4	2.7	9.4	2.8	9.5	3.7
E-4	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.5	0.5	0.0	7.3	1.6	3.7	0.7	1.4	0.3	0.5	3.0	13.5	3.1	13.6	4.7
E-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.7	0.6	0.0	9.7	1.1	2.7	0.6	1.1	0.4	0.8	2.8	15.0	2.8	15.0	4.8
E-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	1.2	0.7	0.0	7.1	0.8	1.6	0.6	1.0	0.5	0.9	3.3	11.4	3.3	11.4	4.6
E-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.0	31.0	15.0	0.0	15.6	2.6	6.8	3.1	4.1	2.1	7.5	40.3	50.0	40.3	50.0	41.3
TOT EN	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.7	0.5	0.0	5.8	1.6	3.4	0.7	1.4	0.5	0.7	3.4	11.8	3.5	11.8	4.7
COLUMN TOTAL	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.6	0.4	0.0	5.3	1.5	3.2	0.7	1.4	0.6	1.0	3.4	11.4	3.5	11.5	4.6

NOTES:

1. Army data, less Panorex, is as of September 15, 1996. Army data sources are Army MACOM reports and HQDA HIV+ data base.
2. Panorex data is as of end of month September 1996. Data source is DMDC DEERS file.
3. Army strength data source is DMDC end of month September 1996 Active Duty Master File.
4. The Army estimates approximately 350 personnel included in the medical temporary category are actually medical permanent. However, the Army is unable to provide grade and gender detail.
5. M = Male; F = Female; WO = Warrant Officer; EN = Enlisted.

AIR FORCE NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER) Table G-24

	PERMANENT								TEMPORARY														TOTAL		
	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMIN		PANOREX		TOTAL TEMPORARY		AIR FORCE 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	44	5	1	0	46	5	0	0	1	0	0	0	10	1	5	0	-	-	16	1	62	6	68
O-5	3	0	78	18	2	0	83	18	0	0	3	0	0	10	27	7	20	2	-	-	50	19	133	37	170
O-4	1	0	89	21	0	0	90	21	0	0	0	1	0	71	34	18	29	4	-	-	63	94	153	115	268
O-3	2	1	83	22	0	0	85	23	1	0	6	1	0	262	39	28	57	6	-	-	103	297	188	320	508
O-2	0	0	7	2	0	0	7	2	0	0	1	2	0	74	8	2	9	1	-	-	18	79	25	81	106
O-1	0	0	7	1	0	0	7	1	0	0	1	0	0	28	1	2	7	0	-	-	9	30	16	31	47
TOTAL OFFICER	7	1	308	69	3	0	318	70	1	0	12	4	0	445	119	58	127	13	-	-	259	520	577	590	1167
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
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
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
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
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
TOTAL WO	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	45	3	0	0	45	3	0	0	0	0	0	1	8	0	12	0	-	-	20	1	65	4	69
E-8	0	0	74	7	0	0	74	7	0	0	0	0	0	10	39	9	27	5	-	-	66	24	140	31	171
E-7	11	1	305	50	2	0	318	51	0	0	5	0	0	45	121	28	218	28	-	-	344	101	662	152	814
E-6	14	0	376	63	3	0	393	63	0	0	7	0	0	153	147	39	322	39	-	-	476	231	869	294	1163
E-5	34	0	572	116	3	2	609	118	1	0	15	0	0	604	274	71	724	76	-	-	1014	751	1623	869	2492
E-4	11	2	192	64	1	0	204	66	0	1	28	4	0	1446	250	100	733	120	-	-	1011	1671	1215	1737	2952
E-3	0	0	32	8	0	0	32	8	2	0	21	5	0	926	94	43	610	108	-	-	727	1082	759	1090	1849
E-2	0	0	3	0	0	0	3	0	2	0	17	1	0	251	32	6	309	39	-	-	360	297	363	297	660
E-1	0	0	0	0	0	0	0	0	0	0	14	2	0	8	2	2	74	13	-	-	90	25	90	25	115
TOTAL EN	70	3	1599	311	9	2	1678	316	5	1	107	12	0	3444	967	298	3029	428	-	-	4108	4183	5786	4499	10285
COLUMN TOTAL	77	4	1907	380	12	2	1996	386	6	1	119	16	0	3889	1086	356	3156	441	-	-	4367	4703	6363	5089	11452

NOTES:

1 Air Force data is as of September 30, 1996. Air Force source file is the Personnel Data System.

2. Panorex data is not included in the Air Force report.

3. Air Force strength data is as of September 30, 1996.

4. M = Male; F = Female; WO = Warrant Officer; EN = Enlisted.

AIR FORCE NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER) (BY PERCENT)

Table G-25

	PERMANENT								TEMPORARY												TOTAL		
	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMIN		PANOREX		TOTAL TEMPORARY		AIR FORCE 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	2.6	0.0	0.0	1.3	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.1	0.0	-	-	0.4	0.5	1.7	3.1	1.8
O-5	0.0	0.0	0.9	1.7	0.0	0.0	1.0	1.7	0.0	0.0	0.0	0.0	0.0	1.0	0.3	0.7	0.2	0.2	-	-	0.6	1.8	1.5	3.6	1.8
O-4	0.0	0.0	0.7	1.0	0.0	0.0	0.7	1.0	0.0	0.0	0.0	0.0	0.0	3.3	0.3	0.8	0.2	0.2	-	-	0.5	4.4	1.2	5.4	1.9
O-3	0.0	0.0	0.4	0.5	0.0	0.0	0.4	0.5	0.0	0.0	0.0	0.0	0.0	5.6	0.2	0.6	0.3	0.1	-	-	0.5	6.4	0.8	6.9	1.9
O-2	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	4.9	0.2	0.1	0.2	0.1	-	-	0.4	5.2	0.5	5.3	1.6
O-1	0.0	0.0	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.2	0.2	0.0	-	-	0.3	2.9	0.5	3.0	1.0
TOTAL OFFICER	0.0	0.0	0.6	0.7	0.0	0.0	0.6	0.7	0.0	0.0	0.0	0.0	0.0	4.2	0.2	0.5	0.2	0.1	-	-	0.5	4.9	1.0	5.6	1.8
W-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W-3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
W-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL WO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E-9	0.0	0.0	1.7	1.3	0.0	0.0	1.7	1.3	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.0	0.4	0.0	-	-	0.7	0.4	2.4	1.8	2.4
E-8	0.0	0.0	1.4	1.2	0.0	0.0	1.4	1.2	0.0	0.0	0.0	0.0	0.0	1.7	0.7	1.5	0.5	0.8	-	-	1.3	4.0	2.7	5.1	2.9
E-7	0.0	0.0	1.1	1.5	0.0	0.0	1.2	1.5	0.0	0.0	0.0	0.0	0.0	1.3	0.4	0.8	0.8	0.8	-	-	1.3	3.0	2.4	4.5	2.6
E-6	0.0	0.0	1.1	1.4	0.0	0.0	1.2	1.4	0.0	0.0	0.0	0.0	0.0	3.4	0.4	0.9	1.0	0.9	-	-	1.4	5.1	2.6	6.5	3.1
E-5	0.1	0.0	0.9	1.1	0.0	0.0	0.9	1.1	0.0	0.0	0.0	0.0	0.0	5.9	0.4	0.7	1.1	0.7	-	-	1.5	7.3	2.5	8.4	3.3
E-4	0.0	0.0	0.3	0.4	0.0	0.0	0.3	0.4	0.0	0.0	0.0	0.0	0.0	9.7	0.4	0.7	1.2	0.8	-	-	1.7	11.2	2.0	11.6	3.9
E-3	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	10.5	0.3	0.5	2.1	1.2	-	-	2.5	12.3	2.6	12.4	4.8
E-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	7.0	0.3	0.2	2.8	1.1	-	-	3.2	8.3	3.3	8.3	4.5
E-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.4	0.0	1.6	0.2	0.4	7.0	2.5	-	-	8.5	4.9	8.5	4.9	7.3
TOTAL EN	0.0	0.0	0.7	0.7	0.0	0.0	0.7	0.7	0.0	0.0	0.0	0.0	0.0	7.3	0.4	0.6	1.3	0.9	-	-	1.7	8.9	2.4	9.6	3.6
COLUMN TOTAL	0.0	0.0	0.7	0.7	0.0	0.0	0.7	0.7	0.0	0.0	0.0	0.0	0.0	6.8	0.4	0.6	1.1	0.8	-	-	1.5	8.2	2.2	8.9	3.3

NOTES:

1 Air Force data is as of September 30, 1996. Air Force source file is the Personnel Data System.

2. Panorex data is not included in the Air Force report.

3. Air Force strength data is as of September 30, 1996.

4. M = Male; F = Female; WO = Warrant Officer; EN = Enlisted.

NAVY NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER) Table G-26

	PERMANENT								TEMPORARY														TOTAL		
	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMIN		PANOREX		TOTAL TEMPORARY		NAVY 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	2	0	-	-	4	0	-	-	0	0	0	0	4	0	103	8	212	19	319	27	323	27	350
O-5	3	0	4	0	-	-	7	0	-	-	0	0	0	0	17	4	282	30	312	49	611	83	618	83	701
O-4	8	0	4	1	-	-	12	1	-	-	0	0	0	0	20	7	324	43	509	91	853	141	865	142	1007
O-3	6	0	6	0	-	-	12	0	-	-	0	0	0	0	41	14	345	46	2134	552	2520	612	2532	612	3144
O-2	0	0	6	0	-	-	6	0	-	-	0	0	0	0	31	7	48	16	991	203	1070	226	1076	226	1302
O-1	0	0	6	1	-	-	6	1	-	-	0	0	0	0	10	2	26	3	414	171	450	176	456	177	633
TOTAL OFFICER	19	0	28	2	-	-	47	2	-	-	0	0	0	0	123	34	1128	146	4572	1085	5823	1265	5870	1267	7137
W-5	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	14	0	18	0	32	0	32	0	32
W-3	0	0	0	0	-	-	0	0	-	-	0	0	0	0	9	0	38	2	27	2	74	4	74	4	78
W-2	0	0	0	0	-	-	0	0	-	-	0	0	0	0	7	3	21	0	27	2	55	5	55	5	60
W-1	0	0	0	0	-	-	0	0	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL WO	0	0	0	0	-	-	0	0	-	-	0	0	0	0	16	3	73	2	72	4	161	9	161	9	170
E-9	2	0	2	0	-	-	4	0	-	-	0	0	0	0	31	2	112	7	164	4	307	13	311	13	324
E-8	3	0	3	0	-	-	6	0	-	-	0	0	0	0	81	4	362	21	314	19	757	44	763	44	807
E-7	10	0	24	3	-	-	34	3	-	-	0	0	0	3	325	27	1419	111	867	73	2611	214	2645	217	2862
E-6	98	4	36	4	-	-	134	8	-	-	0	0	0	32	865	83	3194	370	1325	173	5384	658	5518	666	6184
E-5	148	8	17	2	-	-	165	10	-	-	0	0	0	82	1088	168	2468	432	949	123	4505	805	4670	815	5485
E-4	64	4	5	2	-	-	69	6	-	-	0	0	0	231	1003	203	671	175	578	113	2252	722	2321	728	3049
E-3	19	1	0	1	-	-	19	2	-	-	0	0	0	318	838	208	128	65	329	159	1295	750	1314	752	2066
E-2	5	0	0	0	-	-	5	0	-	-	0	0	0	102	233	40	16	8	136	24	385	174	390	174	564
E-1	0	0	0	0	-	-	0	0	-	-	0	0	0	7	32	4	1	0	87	12	120	23	120	23	143
TOTAL EN	349	17	87	12	-	-	436	29	-	-	0	0	0	775	4496	739	8371	1189	4749	700	17616	3403	18052	3432	21484
COLUMN TOTAL	368	17	115	14	-	-	483	31	-	-	0	0	0	775	4635	776	9572	1337	9393	1789	23600	4677	24083	4708	28791

NOTES:

1. Navy data is as of end of month September 1996. Navy source files are the Enlisted and Officer Master Files, the Diary Message Reporting System, and HIV+ data base.
2. Panorex data is as of end of month September 1996. Data source is DMDC DEERS file.
3. Navy strength data is DMDC end of month September 1996 Active Duty Master File.
4. Navy did not report Hazardous Duty Restriction or AWOL categories.
5. Navy manages Legal Nondeployables in the individuals account.
6. M = Male; F = Female; WO = Warrant Officer; EN = Enlisted.

NAVY NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER) (BY PERCENT)

Table G-27

	PERMANENT								TEMPORARY														TOTAL		
	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMIN		PANOREX		TOTAL TEMPORARY		NAVY 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	0.1	0.0	0.1	0.0	-	-	0.1	0.0	-	-	0.0	0.0	0.0	0.0	0.1	0.0	3.5	3.3	7.1	7.8	10.8	11.1	10.9	11.1	10.9
O-5	0.1	0.0	0.1	0.0	-	-	0.1	0.0	-	-	0.0	0.0	0.0	0.0	0.3	0.5	4.9	3.4	5.5	5.5	10.7	9.4	10.8	9.4	10.6
O-4	0.1	0.0	0.0	0.1	-	-	0.1	0.1	-	-	0.0	0.0	0.0	0.0	0.2	0.5	3.9	3.1	6.2	6.6	10.3	10.2	10.5	10.3	10.5
O-3	0.0	0.0	0.0	0.0	-	-	0.1	0.0	-	-	0.0	0.0	0.0	0.0	0.3	0.5	2.2	1.8	13.9	21.1	16.4	23.4	16.4	23.4	17.4
O-2	0.0	0.0	0.1	0.0	-	-	0.1	0.0	-	-	0.0	0.0	0.0	0.0	0.8	0.8	1.2	1.9	24.3	24.2	26.2	26.9	26.3	26.9	26.4
O-1	0.0	0.0	0.3	0.1	-	-	0.3	0.1	-	-	0.0	0.0	0.0	0.0	0.5	0.3	1.2	0.4	18.8	25.1	20.4	25.8	20.7	26.0	21.9
TOTAL OFFICER	0.0	0.0	0.1	0.0	-	-	0.1	0.0	-	-	0.0	0.0	0.0	0.0	0.3	0.5	2.9	2.2	11.8	16.3	15.1	19.0	15.2	19.1	15.8
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
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	3.5	0.0	4.5	0.0	8.0	0.0	8.0	0.0	7.8
W-3	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	-	0.0	0.0	0.0	0.0	1.1	0.0	4.7	6.1	3.3	6.1	9.1	12.1	9.1	12.1	9.3
W-2	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	-	0.0	0.0	0.0	0.0	1.1	5.6	3.2	0.0	4.1	3.7	8.3	9.3	8.3	9.3	8.4
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
TOTAL WO	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.9	3.2	3.9	2.1	3.8	4.2	8.6	9.5	8.6	9.5	8.6
E-9	0.1	0.0	0.1	0.0	-	-	0.1	0.0	-	-	0.0	0.0	0.0	0.0	1.0	2.5	3.7	8.8	5.4	5.0	10.2	16.3	10.3	16.3	10.5
E-8	0.0	0.0	0.0	0.0	-	-	0.1	0.0	-	-	0.0	0.0	0.0	0.0	1.1	0.9	4.9	4.8	4.3	4.3	10.3	10.0	10.4	10.0	10.4
E-7	0.0	0.0	0.1	0.2	-	-	0.1	0.2	-	-	0.0	0.0	0.0	0.2	1.3	1.5	5.9	6.2	3.6	4.0	10.8	11.9	11.0	12.0	11.1
E-6	0.2	0.1	0.1	0.1	-	-	0.2	0.2	-	-	0.0	0.0	0.0	0.7	1.6	1.7	5.9	7.7	2.4	3.6	9.9	13.7	10.1	13.8	10.4
E-5	0.2	0.1	0.0	0.0	-	-	0.3	0.1	-	-	0.0	0.0	0.0	1.1	1.7	2.3	3.8	6.0	1.4	1.7	6.8	11.3	7.1	11.4	7.5
E-4	0.1	0.0	0.0	0.0	-	-	0.1	0.1	-	-	0.0	0.0	0.0	2.8	1.8	2.5	1.2	2.2	1.0	1.4	4.0	8.9	4.1	8.9	4.7
E-3	0.1	0.0	0.0	0.0	-	-	0.1	0.0	-	-	0.0	0.0	0.0	3.1	2.2	2.0	0.3	0.6	0.9	1.5	3.5	7.3	3.5	7.3	4.3
E-2	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	-	0.0	0.0	0.0	2.7	1.3	1.1	0.1	0.2	0.8	0.6	2.2	4.7	2.2	4.7	2.7
E-1	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	-	0.0	0.0	0.0	0.8	0.7	0.5	0.0	0.0	1.9	1.4	2.7	2.6	2.7	2.6	2.7
TOTAL EN	0.1	0.0	0.0	0.0	-	-	0.2	0.1	-	-	0.0	0.0	0.0	2.1	1.7	2.0	3.1	3.2	1.8	1.9	6.5	9.1	6.7	9.2	7.0
COLUMN TOTAL	0.1	0.0	0.0	0.0	-	-	0.2	0.1	-	-	0.0	0.0	0.0	1.8	1.5	1.8	3.1	3.0	3.0	4.1	7.6	10.6	7.7	10.7	8.1

NOTES:

1. Navy data is as of end of month September 1996. Navy source files are the Enlisted and Officer Master Files, the Diary Message Reporting System, and HIV+ data base.
2. Panorex data is as of end of month September 1996. Data source is DMDC DEERS file.
3. Navy strength data is DMDC end of month September 1996 Active Duty Master File.
4. Navy did not report Hazardous Duty Restriction or AWOL categories.
5. M = Male; F = Female; WO = Warrant Officer; EN = Enlisted.

MARINE CORPS NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER) Table G-28

	PERMANENT								TEMPORARY														TOTAL		
	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMIN		PANOREX		TOTAL TEMPORARY		MARINE CORPS 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	4	1	0	0	21	0	25	1	25	1	26
O-5	0	0	2	0	1	0	3	0	0	0	0	0	0	0	9	1	0	0	38	3	47	4	50	4	54
O-4	2	0	2	0	2	0	6	0	0	0	0	0	0	1	14	2	0	0	53	1	67	4	73	4	77
O-3	0	0	0	0	5	0	5	0	0	0	0	0	0	5	23	3	1	0	40	2	64	10	69	10	79
O-2	0	0	0	0	3	0	3	0	0	0	0	0	0	5	9	2	0	0	7	1	16	8	19	8	27
O-1	1	0	0	0	0	0	1	0	0	0	0	0	0	2	4	0	0	0	2	3	6	5	7	5	12
TOTAL OFFICER	3	0	4	0	11	0	18	0	0	0	0	0	0	13	63	9	1	0	161	10	225	32	243	32	275
W-5	0	0	0	0	1	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	4	0	4
W-4	0	0	1	0	1	0	2	0	0	0	0	0	0	0	3	0	0	0	6	0	9	0	11	0	11
W-3	0	0	2	1	3	0	5	1	0	0	0	0	0	1	6	0	0	0	8	0	14	1	19	2	21
W-2	0	0	2	0	7	0	9	0	0	0	0	0	0	1	9	0	0	0	12	0	21	1	30	1	31
W-1	0	0	0	0	3	0	3	0	0	0	0	0	0	1	2	0	0	0	2	0	4	1	7	1	8
TOTAL WO	0	0	5	1	15	0	20	1	0	0	0	0	0	3	23	0	0	0	28	0	51	3	71	4	75
E-9	0	0	0	0	1	0	1	0	0	0	0	0	0	0	27	0	1	0	39	1	67	1	68	1	69
E-8	0	0	2	1	3	0	5	1	1	0	2	0	0	0	77	7	2	0	95	7	177	14	182	15	197
E-7	7	0	11	2	31	0	49	2	3	0	0	1	0	5	178	16	5	0	146	8	332	30	381	32	413
E-6	9	0	3	1	38	0	50	1	22	0	5	0	0	43	257	35	6	0	184	19	474	97	524	98	622
E-5	19	1	0	1	4	0	23	2	23	2	9	0	0	79	431	49	12	0	154	6	629	136	652	138	790
E-4	6	0	0	0	5	0	11	0	67	1	40	0	0	183	629	83	15	1	424	16	1175	284	1186	284	1470
E-3	2	0	0	0	6	1	8	1	291	2	112	1	0	240	889	131	43	1	1071	51	2406	426	2414	427	2841
E-2	1	0	0	0	0	0	1	0	321	8	108	2	0	21	111	13	30	0	287	19	857	63	858	63	921
E-1	0	0	0	0	0	0	0	0	338	2	163	4	0	2	41	5	34	0	43	5	619	18	619	18	637
TOTAL EN	44	1	16	5	88	1	148	7	1066	15	439	8	0	573	2640	339	148	2	2443	132	6736	1069	6884	1076	7960
COLUMN TOTAL	47	1	25	6	114	1	186	8	1066	15	439	8	0	589	2726	348	149	2	2632	142	7012	1104	7198	1112	8310

NOTES:

1. Marine Corps data is as of end of month October 1996. Marine Corps source files are the Marine Corps Total Force System and HIV+ data base.
2. Panorex data is as of end of month September 1996. Data source is DMDC DEERS file.
3. Marine Corps strength data source is as of October 31, 1996.
4. M = Male; F = Female; WO = Warrant Officer; EN = Enlisted.

MARINE CORPS NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER) (BY PERCENT)

Table G-29

	PERMANENT								TEMPORARY												TOTAL		
	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMIN		PANOREX		TOTAL TEMPORARY		MARINE CORPS 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	0.7	10.0	0.0	0.0	3.4	0.0	4.1	10.0	4.1	10.0	4.2
O-5	0.0	0.0	0.1	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.1	0.0	0.0	2.5	6.4	3.0	8.5	3.2	8.5	3.4
O-4	0.1	0.0	0.1	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5	2.1	0.0	0.0	1.9	1.0	2.4	4.1	2.6	4.1	2.6
O-3	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.5	2.3	0.0	0.0	0.8	1.6	1.3	7.8	1.5	7.8	1.6
O-2	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.5	1.5	0.0	0.0	0.4	0.7	0.8	6.0	1.0	6.0	1.3
O-1	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	3.6	0.5	0.0	0.0	0.0	0.3	5.5	0.8	9.1	0.9	9.1	1.5
TOTAL OFFICER	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.5	1.9	0.0	0.0	1.3	2.1	1.8	6.8	2.0	6.8	2.1
W-5	0.0	0.0	0.0	0.0	1.5	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	4.5	0.0	6.0	0.0	5.9
W-4	0.0	0.0	0.4	0.0	0.4	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	2.5	0.0	3.8	0.0	4.6	0.0	4.3
W-3	0.0	0.0	0.4	3.4	0.6	0.0	1.0	3.4	0.0	0.0	0.0	0.0	0.0	3.4	1.3	0.0	0.0	0.0	1.7	0.0	2.9	3.4	4.0	6.9	4.2
W-2	0.0	0.0	0.3	0.0	0.9	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.1	0.0	0.0	0.0	1.5	0.0	2.6	1.6	3.8	1.6	3.6
W-1	0.0	0.0	0.0	0.0	1.7	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	6.3	1.1	0.0	0.0	0.0	1.1	0.0	2.3	6.3	4.0	6.3	4.2
TOTAL WO	0.0	0.0	0.3	0.8	0.9	0.0	1.1	0.8	0.0	0.0	0.0	0.0	0.0	2.4	1.3	0.0	0.0	0.0	1.6	0.0	2.9	2.4	4.1	3.2	4.0
E-9	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.1	0.0	3.0	5.3	5.1	5.3	5.2	5.3	5.2
E-8	0.0	0.0	0.1	0.9	0.1	0.0	0.2	0.9	0.0	0.0	0.1	0.0	0.0	0.0	2.4	6.0	0.1	0.0	3.0	6.0	5.6	12.0	5.8	12.8	6.0
E-7	0.1	0.0	0.1	0.4	0.4	0.0	0.6	0.4	0.0	0.0	0.0	0.2	0.0	1.1	2.3	3.4	0.1	0.0	1.9	1.7	4.2	6.4	4.8	6.8	4.9
E-6	0.1	0.0	0.0	0.1	0.3	0.0	0.4	0.1	0.2	0.0	0.0	0.0	0.0	6.4	2.1	5.2	0.0	0.0	1.5	2.8	3.9	14.5	4.3	14.6	4.8
E-5	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.2	0.1	0.2	0.0	0.0	0.0	6.9	2.1	4.3	0.1	0.0	0.8	0.5	3.1	12.0	3.2	12.1	3.7
E-4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.0	13.5	2.3	6.1	0.1	0.1	1.5	1.2	4.2	20.9	4.3	20.9	5.1
E-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	0.3	0.0	0.0	11.9	2.1	6.5	0.1	0.0	2.5	2.5	5.7	21.1	5.7	21.2	6.4
E-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	1.5	1.0	0.4	0.0	4.0	1.1	2.5	0.3	0.0	2.7	3.6	8.2	12.0	8.2	12.0	8.3
E-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.1	4.8	9.7	9.5	0.0	4.8	2.4	11.9	2.0	0.0	2.6	11.9	36.8	42.9	36.8	42.9	36.9
TOTAL ENLISTED	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.8	0.2	0.3	0.1	0.0	9.0	2.1	5.3	0.1	0.0	1.9	2.1	5.3	16.8	5.4	16.9	6.0
COLUMN TOTAL	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.8	0.2	0.3	0.1	0.0	8.5	1.9	5.0	0.1	0.0	1.9	2.0	5.0	15.9	5.1	16.0	5.6

NOTES:

1. Marine Corps data is as of end of month October 1996. Marine Corps source files are the Marine Corps Total Force System and HIV+ data base.
2. Panorex data is as of end of month September 1996. Data source is DMDC DEERS file.
3. Marine Corps strength data source is as of October 31, 1996.
4. M = Male; F = Female; WO = Warrant Officer; EN = Enlisted.

DOD NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER) Table G-30

	PERMANENT								TEMPORARY														TOTAL		
	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMIN		PANOREX		TOTAL TEMPORARY		DOD 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	3	0	46	5	2	0	51	5	0	0	3	0	0	1	88	18	151	12	256	21	498	52	549	57	606
O-5	10	0	84	18	3	0	97	18	0	0	5	0	0	16	170	45	377	46	388	58	940	165	1037	183	1220
O-4	22	1	95	22	2	0	119	23	0	0	10	2	0	103	169	74	459	68	631	103	1269	350	1388	373	1761
O-3	16	1	89	22	5	0	110	23	1	1	21	3	0	378	207	110	555	93	2413	645	3197	1230	3307	1253	4560
O-2	0	0	13	2	3	0	16	2	1	0	6	6	0	143	78	46	109	36	1134	241	1328	472	1344	474	1818
O-1	1	0	13	2	1	0	15	2	0	0	9	0	0	68	31	12	46	5	799	288	885	373	900	375	1275
TOTAL OFFICER	52	2	340	71	16	0	408	73	2	1	54	11	0	709	743	305	1697	260	5621	1356	8117	2642	8525	2715	11240
W-5	0	0	0	0	1	0	1	0	0	0	0	0	0	0	12	0	4	1	2	0	18	1	19	1	20
W-4	0	0	1	0	1	0	2	0	0	0	3	0	0	0	34	3	33	1	31	0	101	4	103	4	107
W-3	0	0	2	1	3	0	5	1	0	0	15	0	0	1	55	5	55	4	46	2	171	12	176	13	189
W-2	2	0	2	0	7	1	11	1	0	1	3	0	0	7	45	7	33	2	55	3	136	20	147	21	168
W-1	0	0	0	0	3	0	3	0	0	0	0	0	0	7	8	2	1	1	6	2	15	12	18	12	30
TOTAL WO	2	0	5	1	15	1	22	2	0	1	21	0	0	15	154	17	126	9	140	7	441	49	463	51	514
E-9	5	0	47	3	1	0	53	3	0	0	2	0	0	1	131	4	168	10	219	5	520	20	573	23	596
E-8	10	1	79	8	3	0	92	9	1	0	11	0	0	16	444	83	476	62	547	35	1479	196	1571	205	1776
E-7	68	5	340	55	35	0	443	60	4	0	65	7	0	113	1283	243	1904	194	1349	122	4605	679	5048	739	5787
E-6	182	7	415	68	44	0	641	75	26	0	114	14	0	367	2117	391	3854	491	1696	227	7807	1490	8448	1565	10013
E-5	284	17	589	119	11	4	884	140	31	3	204	28	0	1148	2768	592	3529	657	1314	167	7846	2595	8730	2735	11465
E-4	132	14	197	66	16	1	345	81	97	4	454	86	0	3019	3180	969	1970	523	1220	212	6921	4813	7266	4894	12160
E-3	28	1	32	9	6	1	66	11	340	6	414	53	0	2242	2286	591	1010	262	1550	274	5600	3428	5666	3439	9105
E-2	6	1	3	0	0	0	9	1	364	14	346	27	0	629	527	118	466	84	520	74	2223	946	2232	947	3179
E-1	1	0	0	0	0	0	1	0	376	5	1005	50	0	63	144	31	193	25	185	39	1903	213	1904	213	2117
TOTAL EN	716	46	1702	328	116	6	2534	380	1239	32	2615	265	0	7598	12880	3022	13570	2308	8600	1155	38904	14380	41438	14760	56198
COLUMN TOTAL	770	48	2047	400	147	7	2964	455	1241	34	2690	276	0	8322	13777	3344	15393	2577	14361	2518	47462	17071	50426	17526	67952

NOTES:
1. DoD data is a composition of Service data.
2. M = Male; F = Female; WO = Warrant Officer; EN = Enlisted.

DOD NONDEPLOYABLE UNIT PERSONNEL (NUMBER BY CATEGORY, GRADE, AND GENDER) (BY PERCENT)

Table G-31

	PERMANENT								TEMPORARY														TOTAL		
	HIV +		MEDICAL PERMANENT		HAZARDOUS DUTY RESTRICTION		TOTAL PERMANENT		AWOL		LEGAL PROCESSING		PREGNANCY		MEDICAL TEMPORARY		ADMIN		PANOREX		TOTAL TEMPORARY		DOD 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	0.4	0.8	0.0	0.0	0.5	0.8	0.0	0.0	0.0	0.0	0.0	0.2	0.8	2.7	1.4	1.8	2.5	3.2	4.8	7.9	5.3	8.6	5.5
O-5	0.0	0.0	0.4	0.6	0.0	0.0	0.4	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.7	1.6	1.6	1.6	1.7	2.0	4.1	5.8	4.5	6.4	4.7
O-4	0.1	0.0	0.3	0.4	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	2.0	0.5	1.4	1.4	1.3	1.9	2.0	3.8	6.7	4.2	7.1	4.6
O-3	0.0	0.0	0.1	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	3.6	0.3	1.1	0.9	0.9	4.1	6.2	5.4	11.8	5.6	12.0	6.5
O-2	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.0	3.7	0.4	1.2	0.6	0.9	6.5	6.2	7.6	12.1	7.7	12.1	8.5
O-1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	2.3	0.3	0.4	0.4	0.2	6.7	9.8	7.5	12.7	7.6	12.8	8.6
TOTAL OFFICER	0.0	0.0	0.2	0.3	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	2.7	0.5	1.2	1.1	1.0	3.6	5.2	5.2	10.1	5.5	10.4	6.2
W-5	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	1.0	33.3	0.5	0.0	4.5	33.3	4.7	33.3	4.9%
W-4	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.9	7.1	1.8	2.4	1.7	0.0	5.6	9.5	5.7	9.5	5.8
W-3	0.0	0.0	0.1	0.6	0.1	0.0	0.1	0.6	0.0	0.0	0.4	0.0	0.0	0.6	1.4	3.0	1.4	2.4	1.2	1.2	4.4	7.1	4.6	7.7	4.7
W-2	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.3	0.0	0.3	0.1	0.0	0.0	1.8	0.8	1.8	0.6	0.5	0.9	0.8	2.3	5.1	2.5	5.4	2.6
W-1	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.6	1.2	0.1	0.6	0.5	1.2	1.2	7.1	1.4	7.1	2.1
TOTAL WO	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.0	0.1	0.2	0.0	0.0	1.9	1.2	2.2	0.9	1.2	1.1	0.9	3.3	6.3	3.5	6.6	3.7
E-9	0.1	0.0	0.5	0.7	0.0	0.0	0.5	0.7	0.0	0.0	0.0	0.0	0.0	0.2	1.3	0.9	1.7	2.2	2.2	1.1	5.3	4.5	5.9	5.2	5.8
E-8	0.0	0.0	0.3	0.4	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.8	1.8	4.1	1.9	3.0	2.2	1.7	5.9	9.6	6.3	10.0	6.6
E-7	0.1	0.1	0.4	0.6	0.0	0.0	0.5	0.6	0.0	0.0	0.1	0.1	0.0	1.1	1.4	2.5	2.0	2.0	1.4	1.2	4.9	6.9	5.4	7.5	5.6
E-6	0.1	0.0	0.3	0.4	0.0	0.0	0.4	0.5	0.0	0.0	0.1	0.1	0.0	2.3	1.4	2.4	2.6	3.0	1.1	1.4	5.3	9.1	5.7	9.6	6.1
E-5	0.1	0.1	0.3	0.4	0.0	0.0	0.4	0.5	0.0	0.0	0.1	0.1	0.0	4.1	1.3	2.1	1.6	2.3	0.6	0.6	3.6	9.2	4.1	9.7	4.7
E-4	0.1	0.0	0.1	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.2	0.2	0.0	7.5	1.4	2.4	0.9	1.3	0.5	0.5	3.0	11.9	3.2	12.1	4.5
E-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.3	0.2	0.0	7.8	1.5	2.0	0.7	0.9	1.0	0.9	3.7	11.9	3.8	11.9	5.1
E-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.6	0.2	0.0	5.5	0.9	1.0	0.8	0.7	0.9	0.6	3.8	8.3	3.8	8.3	4.6
E-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.3	10.1	2.9	0.0	3.6	1.5	1.8	1.9	1.4	1.9	2.3	19.2	12.3	19.2	12.3	18.2
TOTAL EN	0.1	0.0	0.2	0.2	0.0	0.0	0.3	0.3	0.1	0.0	0.3	0.2	0.0	5.5	1.4	2.2	1.4	1.7	0.9	0.8	4.2	10.3	4.4	10.6	5.2
COLUMN TOTAL	0.1	0.0	0.2	0.2	0.0	0.0	0.3	0.3	0.1	0.0	0.2	0.2	0.0	5.0	1.2	2.0	1.4	1.6	1.3	1.5	4.3	10.3	4.6	10.6	5.3

NOTES:
1. DoD data is a composition of Service data.
2. M = Male; F = Female; WO = Warrant Officer; EN = Enlisted.

NATIONAL SECURITY AND THE LAW OF THE SEA CONVENTION

In October 1994, the President transmitted the UN Law of the Sea (LOS) Convention to the Senate for advice and consent. DoD has long supported the United States becoming a party to the Convention, provided U.S. concerns with its deep seabed mining provisions could be adequately addressed. The Deep Seabed Mining Implementing Agreement of July 1994 removed those concerns and cleared the way for widespread acceptance of the entire Convention, which is of major strategic and economic importance to the United States.

The United States is and will continue to be a global power with global interests. Protecting these interests will require U.S. security commitments around the world and, when vital U.S. interests are threatened, a willingness to use American military power. The LOS Convention establishes agreed international rules regarding freedoms of navigation and flight essential for maintaining the global mobility, presence, and readiness of U.S. armed forces. The navigational rights and freedoms in the Convention are used on a daily basis by naval and air forces of the United States, its allies, and coalition partners.

The United States is moving into a new era where the LOS Convention, already having come into force with over 100 parties, is gaining more and more importance in maintaining the balance between coastal and maritime interests. Most key U.S. maritime allies, including Australia, Canada, France, Germany, Italy, Japan, Korea, and the United Kingdom, as well as other Organization for Economic Cooperation Development countries who, like the United States, had previously refused to become a party, have joined or are in the process of joining very soon.

The United States, being both a maritime and a coastal nation with the largest Exclusive Economic Zone in the world, has much to gain by becoming a party. In fact, the United States risks seriously degrading its ability to speak with authority if it fails to join, because the United States will then become the world's most important maritime power outside the Convention. Receiving the Senate's advice and consent at the earliest possible time is the next step for ensuring continued American leadership in this vital area.

FREEDOM OF NAVIGATION

Important U.S. navigation and overflight interests in the world's oceans continue to be challenged by the excessive claims of certain coastal states which assert maritime claims inconsistent with international law. Such excessive claims are contrary to the clear international consensus demonstrated by the entry into force of the UN Law of the Sea (LOS) Convention and the large number of States party to the Convention (107 States as of September 30, 1996). Although not yet a party to the LOS Convention, the United States views the navigational provisions of the Convention as reflective of customary international law and, as such, available for all nations to enjoy.

Despite these positive developments in the law of the sea, it remains necessary for maritime nations, like the United States, to protest excessive claims by coastal states through diplomatic channels and to exercise navigation and overflight rights in disputed areas. The United States Freedom of Navigation program has challenged excessive claims to counter any argument that such claims are valid due to acquiescence over time. Since its inception in 1979, the Freedom of Navigation program has filed over 100 diplomatic protests and conducted over 300 operational assertions against excessive claims.

In FY 1996, the U.S. armed forces conducted operational assertions against the excessive maritime claims of the countries listed in the table below. In addition, military vessels and aircraft frequently conducted routine transits on, over, and under international straits, such as the Straits of Gibraltar, Hormuz, and Malacca. Over 50 air, surface, and subsurface transits through the archipelagic sea lanes of Indonesia and the Philippines were conducted in accordance with the LOS Convention.

FY 1996 DOD OPERATIONAL ASSERTIONS

Country	Excessive Claims Challenged
Bangladesh	Excessive straight baselines; claimed security zone, claimed territorial airspace beyond 12 nautical miles (nm)
Burma	Excessive straight baselines; claimed security zone, claimed territorial airspace beyond 12 nm
Cambodia	Excessive straight baselines; claimed security zone, claimed territorial airspace beyond 12 nm
China	Prior permission for warship to enter the territorial sea
Egypt	Excessive straight baselines, prior permission to enter the territorial sea
India	Prior permission for warship to enter the territorial sea
Iran	Excessive straight baselines; prior permission for warship to enter the territorial sea
Maldives	Excessive straight baselines; prior permission to enter the territorial sea
Oman	Excessive straight baselines; prior permission to enter the territorial sea
Pakistan	Prior permission for warships to enter the territorial sea
Philippines	Excessive straight baselines; claims archipelagic waters as internal waters
Sudan	Prior permission for warship to enter the territorial sea
Vietnam	Excessive straight baselines; claimed security zone
Yemen	Prior permission for warship to enter the territorial sea

MILITARY ASSISTANCE

Military Assistance is a range of programs that enable friends and allies to acquire U.S. equipment, services, and training for legitimate self-defense and for participation in multinational security efforts. The principal components of military assistance are Foreign Military Sales (FMS), Foreign Military Financing (FMF), International Military Education and Training (IMET), and transfers of Excess Defense Articles (EDA). Presidentially directed drawdowns of defense assets may also be used to address urgent requirements for military assistance. The structure of each program provides the capability to respond to the needs of friends and allies by addressing their legitimate security concerns, while promoting U.S. foreign policy and national security interests.

As an integral part of peacetime engagement, military assistance programs contribute to U.S. national security by enhancing deterrence, encouraging defense responsibility sharing among allies and friends, supporting U.S. readiness, and increasing interoperability among potential coalition partners. Military assistance is a critical element of U.S. forward presence, providing visible proof of commitment to U.S. interests and support for friends and allies. Transfers of U.S. defense equipment and training help security partners defend against aggression and strengthen their ability to fight alongside U.S. forces in coalition efforts. Military assistance raises the odds that U.S. armed forces will find effective coalition partners and a relatively favorable situation should a U.S. response be required.

FOREIGN MILITARY SALES

The FMS program is the government-to-government method for selling U.S. defense equipment, services, and training. Sales in FY 1996 were approximately $10.5 billion. Responsible arms sales further national security and foreign policy objectives by strengthening bilateral defense relations, supporting coalition building, and enhancing interoperability between U.S. forces and militaries of friends and allies. National benefits derived from these sales include an improved balance of trade and sustainment of highly skilled jobs. DoD benefits from FMS through extension of production lines and lowering of unit costs for key weapon systems, such as the M1A2 tank, F-16 aircraft, AH-64 helicopter, and F/A-18 aircraft.

FOREIGN MILITARY FINANCING

FMF is the U.S. government program for financing U.S. defense sales to selected friends and allies generally through the FMS program. Congress appropriates funds in the International Affairs budget; the Department of State allocates the funds for eligible friends and allies; the Department of Defense executes the program. FMF grants in FY 1996 totaled $3.294 billion. Of this total, $3.1 billion was provided to Israel and Egypt. Of the remainder, funding was provided to support the Warsaw Initiative, finance the lease of F-16s by Jordan, support worldwide demining efforts, promote regional security in the Caribbean, foster democratic development in Cambodia, and support the Baltic Peacekeeping Battalion. Specifically, countries participating in the Partnership for Peace (PFP) received funding under the Warsaw Initiative to help them take necessary steps toward interoperability with NATO and participation in PFP exercises. Further, Greece and Turkey received market rate loans in FY 1996.

INTERNATIONAL MILITARY EDUCATION AND TRAINING

The IMET program is a low cost grant program ($39 million in FY 1996) that provides professional military education and training to more than 5,000 foreign military and civilian personnel from over 100 countries annually. Over half a million foreign personnel have been trained through IMET sponsorship over the past three decades. By attending IMET-sponsored courses and programs in the United States, future leaders of foreign defense and related establishments are exposed to U.S. values, including regard for human rights, democratic institutions, and the role of a professional military under civilian control.

To meet the challenges posed by recent transitions to democracy in countries throughout the world, IMET has been expanded to include programs focusing on human rights, defense resource management, military justice, and civil-military relations. The IMET program remains one of DoD's highest priority military assistance programs, and its effective implementation is one of the U.S. military departments' most important international missions. It is one of the least costly and most effective programs for maintaining U.S. influence and assisting countries in their transitions to functioning democracies.

DRAWDOWN AUTHORITIES

Section 506, Foreign Assistance Act (FAA) authorizes the President, on a grant basis, to draw down defense articles from DoD inventories and to provide defense services and military education and training to foreign governments and international organizations in response to military emergencies or to provide assistance for international narcotics control, international disaster relief, refugee assistance, and POW/MIA recovery efforts. In FY 1996, Section 506, FAA drawdowns to support narcotics control efforts with Columbia, Venezuela, Peru, and the seven countries of the eastern Caribbean totaled $75 million. Drawdowns to support Israel's counterterrorism efforts totaled $22 million. DoD supported the effort to achieve stability in Bosnia with a $100 million drawdown of military equipment. Emergency assistance for Liberia totaled $15 million in equipment. A drawdown of equipment and training totaling $11.5 million was provided in support of POW/MIA efforts in Indochina. Jordan, Haiti, Eritrea, Ethiopia, and Uganda also received drawdown assistance in FY 1996.

Military Assistance Programs

Program	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997
FMS ($B)	15.1	33.0	13.0	9.1	10.5	10.6[a]
FMF Grants ($B)	3.93	3.27	3.15	3.15	3.3	3.23
FMF Loans ($M)	345	855	770	558	544	540[a]
IMET ($M)	44.6	42.5	22.25	26.35[b]	39	43.48
EDA Grants ($M)[c]	178	290	170	308	615	[d]
EDA Sales ($M)[c]	52	88	97	196	270	[d]

[a] Estimated.

[b] IMET for FY 1995 includes $850K transferred from Voluntary Peacekeeping Account.

[c] EDA figures reflect current value at time of notification.

[d] EDA transfers are not projected for future years.

EXCESS DEFENSE ARTICLES

EDA is the quantity of defense articles, other than construction equipment, in excess of the Approved Force Acquisition Objective and Approved Force Retention Stock levels at the time such articles are dropped from the DoD inventory. Such articles may be sold to eligible countries and international organizations under the FMS program, or transferred on a grant basis under the provisions of Sections 516, 517, 518, and 519 of the FAA. In July 1996, all the grant authorities were consolidated under Section 516 of the FAA by P.L. 104-164. In FY 1996, Congress was notified of EDA transfers totaling $851.2 million, the current value at time of notification. Egypt, Turkey, Great Britain, Australia, and Greece were the largest recipients of EDA.

PEACEKEEPING

The number of situations requiring peacekeeping operations has risen dramatically in the past few years. The elements of military assistance can provide support to peacekeeping operations in a variety of ways. Military equipment and services, including training, may be provided to individual countries or international organizations participating in selected regional peacekeeping operations through security assistance sale and lease programs or grant authorities. During FY 1996, military equipment and services were provided to nations contributing to the Baltic Peacekeeping Battalion using FMS procedures. The United Nations has also obtained a variety of military and support equipment on reimbursable lease and purchase agreements in support of peacekeeping programs in Somalia, Rwanda, Bosnia, and Haiti.

CONCLUSION

Changes in the international security environment will continue to provide challenges for the military assistance program. In many regards, the security assistance mission has grown in scope and complexity with the expanded involvement of DoD in regional policy issues and coalition defense and with the growth of high visibility, nontraditional security assistance efforts in support of peacekeeping and demining. An effective military assistance program, supporting U.S. national security interests and foreign policy objectives, will remain a key part of U.S. security strategy.

GLOSSARY

A&E	Audits and Examinations
A^3I	Accelerated Architecture Acquisition Initiative
AAAV	Advanced Amphibious Assault Vehicle
ABIS	Advanced Battlespace Information System
ABL	Airborne Laser
ABM	Anti-Ballistic Missile
ABS	Automated Battlefield System
AC	Active Component
ACAT	Acquisition Category
ACE	Areas for Capability Enhancements
ACP	Aviation Continuation Pay
ACSC	Armaments Cooperation Steering Committee
ACTD	Advanced Concept Technology Demonstration
AEF	Air Expeditionary Forces
AEMS	Advanced Enclosed Mast System
AFB	Air Force Base
AFPEO	Armed Forces Professional Entertainment Office
AFQT	Armed Forces Qualification Test
AFR	Air Force Reserve
AFSCN	Air Force Satellite Control Network
AIP	Antisurface Warfare Improvement Program
AIS	Automated Information System
AIT	Automatic Identification Technology
ALCM	Air-Launched Cruise Missile
AMC	Army Materiel Command
AMEC	Arctic Military Environmental Cooperation
AMRAAM	Advanced Medium-Range Air-to-Air Missile
ANG	Air National Guard
ANSI	American National Standards Institute
AOR	Area of Responsibility
APAM	Antipersonnel/Antimateriel
API	Application Program Interface
ARCC	Acquisition Reform Communications Center
ARG	Amphibious Ready Group
ARL	Airborne Reconnaissance Low
ARNG	Army National Guard
ASCM	Antiship Cruise Missile
ASD(C^3I)	Assistant Secretary of Defense for Command, Control, Communications, and Intelligence
ASD(RA)	Assistant Secretary of Defense for Reserve Affairs
ASD(SO/LIC)	Assistant Secretary of Defense for Special Operations/Low Intensity Conflict
ASVAB	Armed Services Vocational Aptitude Battery
ASW	Antisubmarine Warfare
ATAC	Advanced Traceability and Control
ATACMS	Army Tactical Missile System
ATCC	Antiterrorism Coordinating Committee
AWACS	Airborne Warning and Control System
BAQ	Basic Allowance for Quarters
BAT	Brilliant Antiarmor Submunition
BC^2A	Bosnia Command and Control Augmentation
BM/C^3	Battle Management/Command, Control, and Communications
BMD	Ballistic Missile Defense
BMDO	Ballistic Missile Defense Organization
BPI	Boost Phase Intercept
BPR	Business Process Reengineering
BRAC	Base Realignment and Closure
BUR	Bottom-Up Review

Appendix K
GLOSSARY

BURU	Bottom-Up Review Update
BW	Biological Weapon
BWC	Biological Weapons Convention
C^2	Command and Control
C^2W	Command and Control Warfare
C^3	Command, Control, and Communications
C^3I	Command, Control, Communications, and Intelligence
C^4I	Command, Control, Communications, Computers, and Intelligence
C^4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
CA	Civil Affairs
CALCM	Conventional Air-Launched Cruise Missile
CALS	Continuous Acquisition and Life-Cycle Support
CAP	Critical Acquisition Position
CAV	Commercial Asset Visibility
CB	Chemical and Biological
CBIRF	Chemical/Biological Incident Response Force
CBT	Combatting Terrorism
CCEP	Comprehensive Clinical Evaluation Program
CCR	Centralized Contractor Registration
CD	Counterdrug
CDL	Common Data Link
CEC	Cooperative Engagement Capability
CFE	Conventional Forces in Europe
CFO	Chief Financial Officer
CHAMPUS	Civilian Health and Medical Program of the Uniformed Services
CINC	Commander in Chief
CIO	Central Imagery Office
CIPWG	Critical Infrastructure Protecting Working Group
CIWS	Close-In Weapon System
CJCS	Chairman of the Joint Chiefs of Staff
CLF	Combat Logistics Force
CLU	Command Launch Unit
CM	Configuration Management
CMA	C^4ISR Mission Assessment
CMD	Cruise Missile Defense
CMTC	Combat Maneuver Training Center
COE	Common Operating Environment
COEA	Cost and Operational Effectiveness Analysis
CONUS	Continental United States
CORM	Commission on Roles and Missions of the Armed Forces
COS	Critical Occupational Specialties
COTS	Commercial Off-the-Shelf
CP	Counterproliferation
CPRC	Counterproliferation Program Review Committee
CRAF	Civil Reserve Air Fleet
CS	Combat Support
CSA	Combat Support Agency
CSAR	Combat Search and Rescue
CSBM	Confidence and Security Building Measure
CSS	Combat Support Service
CTBT	Comprehensive Test Ban Treaty
CTIP	Commercial Technology Insertion Program
CTR	Cooperative Threat Reduction
CVBG	Carrier Battle Group
CW	Chemical Weapon
CWC	Chemical Weapons Convention
D.A.R.E.	Drug Abuse Resistance Education
DA	Direct Action
DACOWITS	Defense Advisory Committee on Women in the Services
DARO	Defense Airborne Reconnaissance Office
DARPA	Defense Advanced Research Projects Agency
DAU	Defense Acquisition University
DAWIA	Defense Acquisition Workforce Improvement Act
DBOF	Defense Business Operations Fund
DCA	Defense Cooperation in Armament
DCAA	Defense Contract Audit Agency

DCI	Director of Central Intelligence
DCPS	Defense Civilian Pay System
DDESB	Department of Defense Explosives Safety Board
DDESS	Domestic Dependent Elementary and Secondary Schools
DDR&E	Director of Defense Research and Engineering
DeCA	Defense Commissary Agency
DEERS	Defense Eligibility Enrollment Reporting System
DFARS	Defense Federal Acquisition Regulation Supplement
DFAS	Defense Finance and Accounting Service
DGP	Defense Group on Proliferation
DHHS	Department of Health and Human Services
DHP	Defense Health Program
DIA	Defense Intelligence Agency
DIBRS	Defense Incident-Based Reporting System
DII	Defense Information Infrastructure
DIS	Defense Investigative Service
DISA	Defense Information Systems Agency
DISN	Defense Information Systems Network
DISN-LES	DISN's Leading Edge Service
DJMS	Defense Joint Military Pay System
DLA	Defense Logistics Agency
DLEA	Drug Law Enforcement Agency
DMA	Defense Mapping Agency
DMDC	Defense Manpower Data Center
DMS	Defense Message System
DMSO	Defense Modeling and Simulation Office
DoD	Department of Defense
DoDDS	Department of Defense Dependents School
DoDEA	Department of Defense Education Activity
DoDI	Department of Defense Instruction
DoL	Department of Labor
DORS	Defense Outplacement Referral System
DPC	Defense Partnership Council
DPM	Deputy Program Manager
DRA	Discontinuous Reinforced Aluminum
DRAM	Dynamic Random Access Memory
DRMS	Defense Reutilization and Marketing Service
DSCS	Defense Satellite Communications System
DSMOA	Department of Defense/State Memorandum of Agreement
DSP	Defense Support Program
DSWA	Defense Special Weapons Agency
DTAP	Defense Technology Area Plan
DTIRP	Defense Treaty Inspection Readiness Program
DTRS	Defense Transportation Payment System
DUSD(Space)	Deputy Under Secretary of Defense for Space
EAM	Emergency Action Message
EC	Electronic Commerce
EC/EDI	Electronic Commerce/Electronic Data Interchange
EDA	Excess Defense Article
EDI	Electronic Data Interchange
EDM	Electronic Document Management
EELV	Evolved Expendable Launch Vehicle
EFOG-M	Enhanced Fiber Optic Guided Missile
EFT	Electronic Funds Transfer
EHF	Extremely High Frequency
EIPC	Enhanced International Peacekeeping Capabilities
ELV	Expendable Launch Vehicle
EMD	Engineering and Manufacturing Development
ENVVEST	Environmental Investment
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
EPIC	Electronic Process Initiatives Committee
ESSM	Evolved Sea Sparrow Missile
ESTCP	Environmental Security Technology Certification Program
EUSC	Effective U.S. Control
FAA	Foreign Assistance Act

FACNET	Federal Acquisition Computer Network
FAMNET	Family Network
FARA	Federal Acquisition Reform Act
FAS	Field Advisory Services
FASA	Federal Acquisition Streamlining Act
FBI	Federal Bureau of Investigation
FBXB	Forward-Based X-Band Radar
FID	Foreign Internal Defense
FM	Financial Management
FMF	Foreign Military Financing
FMS	Foreign Military Sales
FMTV	Family of Medium Tactical Vehicles
FPD	Flat Panel Display
FSC	Family Support Center
FTE	Full-time Equivalent
FWE	Fighter Wing Equivalent
FY	Fiscal Year
FYDP	Future Years Defense Program
GaAs	Gallium Arsenide
GAM	GPS-Aided Munition
GAO	General Accounting Office
GBI	Ground-Based Interceptor
GBS	Global Broadcast Service
GCC	Gulf Cooperation Council
GCCS	Global Command and Control System
GCSS	Global Combat Support System
GDP	Gross Domestic Product
GED	General Equivalency Diploma
GEO	Geosynchronous Orbit
GFRE	Ground Force Readiness Enhancement
GGIS	Global Geospatial Information and Service
GMFP	Global Military Force Policy
GPS	Global Positioning System
GSA	General Services Administration
GTN	Global Transportation Network
HA	Humanitarian Assistance
HAE	High Altitude Endurance
HCFA	Health Care Financing Administration
HD	High Demand
HDO	Humanitarian Demining Operation
HEO	Highly Elliptical Orbit
HLA	High Level Architecture
HPCMP	High Performance Computing Modernization Program
HQDA	Headquarters, Department of the Army
HRSO	Housing Revitalization Support Office
HUMINT	Human Intelligence
IAG	Information Assurance Group
IBUR	Intelligence Bottom-Up Review
ICAP	Intelligence Community Assignment
ICBM	Intercontinental Ballistic Missile
ICOG	International Cooperative Opportunity Group
ICP	Inventory Control Point
IDE	Integrated Data Environment
IFOR	Implementation Force
IMA	Individual Mobilization Augmentee
IMET	International Military Education and Training
INF	Intermediate- and Shorter-Range Nuclear Forces
INS	Inertial Navigation System
IO	Information Operation
IOC	Initial Operational Capability
IPO	Integrated Program Office
IPPD	Integrated Product and Process Development
IPPT	Integrated Product Process Team
IPT	Integrated Product Team
IRR	Individual Ready Reserve
IRST	Infrared Search and Track
ISR	Intelligence, Surveillance, and Reconnaissance
ISTC	International Science and Technology Center
ITMRA	Information Technology Management Reform Act
ITV	Intransit Visibility

IW	Information Warfare
IWS	Information Warfare Squadron
JASA	Joint Airborne Signals Intelligence Architecture
JASSM	Joint Air-to-Surface Standoff Missile
JAST	Joint Advanced Strike Technology
JBS	Joint Broadcast Service
JCALS	Joint Computer Aided Acquisition and Logistics Support
JCIC	Joint Compliance and Inspection Commission
JCMOTF	Joint Civil-Military Operations Task Force
JDA	Joint Duty Assignment
JDAM	Joint Direct Attack Munition
JDAMIS	Joint Duty Assignment Management Information System
JEDMICS	Joint Engineering Document Management Information and Control System
JLOTS	Joint Logistics Over The Shore
JMETL	Joint Mission Essential Task List
JMIP	Joint Military Intelligence Program
JMRR	Joint Monthly Readiness Review
JPATS	Joint Primary Aircraft Training System
JPAV	Joint Personnel Asset Visibility
JPME	Joint Professional Military Education
JPOTF	Joint Psychological Operations Task Force
JROC	Joint Requirements Oversight Council
JRTC	Joint Readiness Training Center
JSAF	Joint Signal Intelligence Avionics Family
JSF	Joint Strike Fighter
JSIMS	Joint Simulation System
JSMB	Joint Space Management Board
JSO	Joint Specialty Officer
JSOTF	Joint Special Operations Task Force
JSOW	Joint Standoff Weapon
JSTARS	Joint Surveillance Target Attack Radar System
JTA	Joint Technical Architecture
JTAV	Joint Total Asset Visibility
JTF	Joint Task Force
JTIDS	Joint Tactical Information Distribution System
JWARS	Joint Warfare System
JWCA	Joint Warfighting Capabilities Assessment
JWCO	Joint Warfighting Capability Objective
JWSTP	Joint Warfighting Science and Technology Plan
LAMPS	Light Airborne Multipurpose System
LD	Low Density
LEA	Law Enforcement Agency
LEO	Low Earth Orbit
LMSR	Large Medium-Speed Roll-On/Roll-Off
LOS	Law of the Sea
LQIP	Laboratory Quality Improvement Program
LRA	Local Redevelopment Authority
LRIP	Low-Rate Initial Production
M&S	Model and Simulation
MACOM	Major Command
MAE	Medium-Altitude Endurance
MAGTF	Marine Air-Ground Task Force
MAISRC	Major AIS Review Council
MAP	Military Assistance Program
MARFORRES	Marine Forces Reserve
MASINT	Measurement and Signature Intelligence
MCS	Mine Countermeasures Ship
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
METL	Mission Essential Task List
MEU	Marine Expeditionary Unit
MEU/SOC	Marine Expeditionary Unit (Special Operations Capable)
MFO	Multinational Force and Observer
MHSS	Military Health Services System
MIDS	Multifunctional Information Distribution System

MilCon	Military Construction
MILSATCOM	Military Satellite Communications
MilSpec	Military Specification
MIRV	Multiple, Independently-Targeted Reentry Vehicle
MLRS	Multiple-Launch Rocket System
MOCAS	Mechanization of Contract Administration System
MOOTW	Military Operations Other Than War
MOUT	Military Operations in Urban Terrain
MPA	Maritime Patrol Aircraft
MPF	Maritime Prepositioning Force
MPF(E)	Maritime Prepositioning Force Enhancement
MRS	Mobility Requirements Study
MRS BURU	Mobility Requirements Study Bottom-Up Review Update
MRSP	Medical Readiness Strategic Plan
MSC	Military Sealift Command
MSI	Multispectral Imagery
MTCR	Missile Technology and Control Regime
MTI	Moving-Target Indicator
MTVR	Medium Tactical Vehicle Remanufacture
MWR	Morale, Welfare, and Recreation
NASA	National Aeronautics and Space Administration
NATO	North Atlantic Treaty Organization
NBC	Nuclear, Biological, and Chemical
NCA	National Command Authorities
NCESGR	National Committee for Employer Support of the Guard and Reserve
NEO	Noncombatant Evacuation Operations
NFIP	National Foreign Intelligence Program
NII	National Information Infrastructure
NIMA	National Imagery and Mapping Agency
NISP	National Industrial Security Program
nm	Nautical Mile
NMD	National Missile Defense
NOAA	National Oceanic and Atmospheric Administration
NORAD	North American Aerospace Defense Command
NPOESS	National Polar-Orbiting Operational Environmental Satellite System
NPR	National Performance Review
NPT	Nuclear Non-Proliferation Treaty
NRO	National Reconnaissance Office
NSA/CSS	National Security Agency/Central Security Service
NSNF	Non-Strategic Nuclear Forces
NSSMP	National Security Space Master Plan
NSTC	National Science and Technology Council
NSW	Naval Special Warfare
NTC	National Training Center
NUDET	Nuclear Detonation
O&M	Operation and Maintenance
ODC	Office of Defense Cooperation
OMB	Office of Management and Budget
OPCW	Organization for the Prohibition of Chemical Weapons
OPM	Office of Personnel Management
OPTEMPO	Operating Tempo
OSD	Office of the Secretary of Defense
OSIA	On-Site Inspection Agency
PAC	Patriot Advanced Capability
PAN	Polyacrylonitrile
PAT	Process Action Team
PBAS	Program Budget Accounting System
PCM	Primary Care Manager
PCS	Permanent Change of Station
PERSTEMPO	Personnel Tempo
PFI	Partnering for Fiscal Integrity
PFP	Partnership for Peace
PGIT	Persian Gulf War Veterans Illnesses Investigation Team
PM	Program Manager
PMAI	Primary Mission Aircraft Inventory

PME	Professional Military Education
POES	Polar-Orbiting Operational Environmental Satellite
PrepCom	Preparatory Commission
PSRC	Presidential Selected Reserve Call-up
PSYOP	Psychological Operations
PTR	Proliferation: Threat and Response
QDR	Quadrennial Defense Review
QoL	Quality of Life
QRMC	Quadrennial Review of Military Compensation
R&D	Research and Development
RAB	Restoration Advisory Board
RAM	Rolling Airframe Missile
RAPIDS	Real-Time Automated Personnel Information System
RBL	Readiness Baseline
RC	Reserve Component
RDT&E	Research, Development, Test, and Evaluation
RF	Radio Frequency
RLV	Reusable Launch Vehicle
RMA	Revolution in Military Affairs
RO/RO	Roll-On/Roll-Off
ROTC	Reserve Officer Training Corps
RRF	Ready Reserve Force
RTB	Regional Training Brigade
S&T	Science and Technology
S/E	Scientist and Engineering
SA	Security Assistance
SADARM	Sense and Destroy Armor
SAP	Simplified Acquisition Procedure
SAT	Simplified Acquisition Threshold
SATCOM	Satellite Communication
SBIR	Small Business Innovation Research
SBIRS	Space-Based Infrared System
SBL	Space Based Laser
SCAPS	Site Characterization and Analysis Penetrometer System
SDAP	Special Duty Assignment Pay
SDB	Small Disadvantaged Business
SDV	SEAL Delivery Vehicle
SEAL	Sea, Air, Land
SF	Special Forces
SFW	Sensor Fuzed Weapon
SGLI	Service Member's Group Life Insurance
SIGINT	Signals Intelligence
SINCGARS	Single Channel Ground and Airborne Radio System
SITES	Standard Installation Topic Exchange Service
SLAM	Standoff Land Attack Missile
SLAM-ER	Standoff Land Attack Missile Expanded Response
SLBM	Submarine-Launched Ballistic Missile
SLEP	Service Life Extension
SMI	Software Management Initiative
SOA	Special Operations Aviation
SOC	Special Operations Command
SOE	Standard Operating Environment
SOF	Special Operations Force
SONET	Synchronous Optical Network
SORTS	Status of Resources and Training System
SoS	Silicon on Sapphire
SPI	Single Process Initiative
SR	Special Reconnaissance
SRAM-A	Short-Range Attack Missile
SRB	Selective Reenlistment Bonus
SRO	Strategic Research Objective
SROC	Senior Readiness Oversight Council
SSBN	Ballistic Missile Submarine
SSN	Attack Submarine
START	Strategic Arms Reduction Treaty
STOW	Synthetic Theater of War
STTR	Small Business Technology Transfer
T&E	Test and Evaluation
TAI	Total Aircraft Inventory
TAV	Total Asset Visibility

TBB	Transition Bulletin Board
TBIP	Tomahawk Baseline Improvement Program
TBM	Theater Ballistic Missile
TBMD	Theater Ballistic Missile Defense
TC AIMS	Transportation Coordinator Automated Information for Movements System
TDY	Temporary Duty
TENCAP	Tactical Exploitation of National Capabilities
THAAD	Theater High Altitude Area Defense
TIARA	Tactical Intelligence and Related Activities
TLAM	Tomahawk Land Attack Missile
TMD	Theater Missile Defense
TRAC2ES	TRANSCOM Regulating and Command and Control Evacuation System
TSRAM	Transistorless Static Random Access Memory
TUAV	Tactical UAV
UAV	Unmanned Aerial Vehicle
UFO	UHF Follow-On
UHF	Ultra High Frequency
UN	United Nations
UN/EDIFACT	United Nations' Rules for Electronic Data Interchange for Administration, Commerce, and Trade
UNSC	UN Security Council
UOES	User Operational Evaluation System
URI	University Research Initiative
USACOM	United States Atlantic Command
USAF	United States Air Force
USAR	United States Army Reserve
USASOC	United States Army Special Operations Command
USD(A&T)	Under Secretary of Defense for Acquisition and Technology
USEUCOM	United States European Command
USIS	U.S. Imagery System
USPACOM	United States Pacific Command
USSOCOM	United States Special Operations Command
USSOUTHCOM	United States Southern Command
USTRANSCOM	United States Transportation Command
UUV	Unmanned Undersea Vehicle
UW	Unconventional Warfare
UXO	Unexploded Ordnance
V/STOL	Vertical/Short Takeoff and Landing
VA	Veterans Affairs
VGAS	Vertical Guns for Advanced Ships
VISA	Voluntary Intermodal Sealift Agreement
VPV	Virtual Prime Vendor
WAM	Wide Area Munition
WCMD	Wind-Corrected Munitions Dispenser
WMD	Weapons of Mass Destruction
WOSB	Women-Owned Small Business
YATS	Youth Attitude Tracking Study

☆ U. S. GOVERNMENT PRINTING OFFICE: 1997-425-570/70239

ISBN 0-16-049045-6