Annual Report
to the
Congress
FISCAL YEAR 1987

Caspar W. Weinberger
Secretary of Defense

Report of the Secretary of Defense Caspar W. Weinberger to the Congress

on the

FY 1987 Budget, Fy 1988 Authorization Request

and

FY 1987-1991 Defense Programs

February 5, 1986

This Report Reflects the FY 1986 Defense Budget as of January 1, 1986

To the Congress of the United States

This past year, Americans paused to note the 40th anniversary of the end of World War II. We remembered those valiant men and women who sacrificed their lives for our freedom. We gave thanks for 40 years without world war -- a period nearly twice as long as the time-span between World War I and World War II. But as the year progressed, national security concerns were overshadowed by efforts to reduce the federal budget deficit. In this light, the lessons of war and peace faded.

The central lesson of World War II and the past four decades of peace is this: American military strength is the prerequisite of peace. Strength is the price for peace.

If peace seems expensive, consider the alternative. By scrimping on strength, we can reduce our security and increase the risks of war. But if we fail to keep the peace, the cost to our standard of living, indeed to our lives and our country, would be incalculable.

In 1981, with broad bipartisan support, this Administration began rebuilding American military strength. As I said in my first Annual Report, the road to recovery of a secure deterrent would be neither short nor easy. To reverse the results of a decade in which U.S. defense efforts declined by 20 percent in the face of a 50 percent increase in Soviet military strength required a long-term program. Our challenge and our urgent need was to regain sufficient military strength to persuade the Soviets that we would allow them no significant exploitable military advantage against our vital interests. This required us to pursue several high priorities simultaneously.

As we look back on the first five years of the rebuilding program, what have been the results? The prime result is that, unquestionably, U.S. military forces are stronger, readier, more capable, and have a higher morale than at any previous time in our peacetime history. The consequences of this are profound.

Our rebuilding of American military strength is redefining the terms of the U.S.-Soviet relationship. Rather than dealing from weakness (and the prospect of greater relative disadvantage), the United States is now beginning to deal from strength and the promise

of greater relative strength. We must persuade the Soviets that this is not a short-term commitment. Nothing could so enhance the prospects for long-term peace as Soviet acceptance of the proposition that they can achieve no significant exploitable military advantage over us.

We are encouraged by the early returns. The sequence of annual Soviet aggression against new targets that began in the mid-1970s with Angola and culminated in the brazen invasion of Afghanistan in 1979 has ceased. After walking out of the Geneva negotiations in protest over NATO's deployment of theater nuclear weapons in 1983, the Soviet delegation has returned to the bargaining table despite their threat never to return until NATO's response to their SS-20s had been removed.

At the recent meeting between President Reagan and Secretary General Gorbachev, the Soviets began for the first time to talk seriously about deep cuts in strategic offensive forces -- an idea they had earlier rejected out of hand. Each of us can ask himself: Is America safer than we were five years ago?

In 1981 the crucial issue was: Should the United States, under any circumstances, or for any reason, acquiesce to the Soviet Union's attempt to achieve a position of global military superiority? Across the political spectrum of conservatives and liberals, Americans answered: "no." And we agreed to pay the price for military strength that could deter war. Denying the Soviet Union exploitable military advantages cannot by itself guarantee peace. But if we allow the Soviet Union such advantages, as they had in 1980, we can be assured that we will be tested in ways that risk war.

The Department of Defense requests for FY 1987 $311.6 billion in budget authority and $274.3 billion in outlays. This FY 1987 budget funds the continuation of the program for reconstructing American military strength that our Administration has proposed and the Congress has authorized in each of the past five years. Specifically, this 3 percent increase in real budget authority for FY 1987 is based on the compromise between the President and the Congress reached in August 1985 for zero real growth in FY 1986, 3 percent in FY 1987, and 3 percent in FY 1988. (In fact, the FY 1986 appropriation failed to meet that level, cutting real defense budget authority by 2.2 percent -- not including the further cuts required by the Gramm-Rudman law.)

The budget proposed for FY 1987 is the minimum I can recommend in good conscience to fund a secure deterrent at a prudent level of risk. Because of the federal deficit, our FY 1986 budget was reduced by $36 billion before that request was submitted to the Congress in January 1985. The Congress cut another $24 billion. And the deficit reduction provisions of the Gramm-Rudman law are now imposing $11 billion of further cuts in our FY 1986 budget authority. Pursuing management reforms to ensure that we get the most strength for every dollar of defense expenditure in such a turbulent budgetary environment is extraordinarily difficult. Through a combination of reductions, efficiencies, and extensions, we believe that it is possible for us to achieve a secure deterrent with the program we now propose.

Wishful thinking, however, cannot meet the growing risk we face from the Soviet's continued and growing military power, nor deter war, nor win the peace. Further cuts in our efforts to regain deterrent military strength will jeopardize our security. Those who

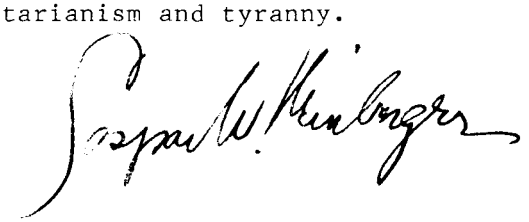
judge that, to reduce the federal budget deficit, the United States should underfund the program previously agreed to by the President and the Congress and run higher risks to our security should acknowledge their priorities. The pretense of favoring strong defense while being unwilling to support strong defense budgets is unsustainable.

The argument that in meeting the current deficit crisis, fairness requires cuts to be divided equally between defense and domestic programs has a superficial plausibility. But consider this proposition. Some of the needs addressed by federal domestic spending can also be met by state governments, local governments, nonprofit enterprises, businesses, and individuals. But if the U.S. government fails to provide for the nation's defense, no one else can fill the gap. Defense now takes about one-quarter of all federal expenditures, one-sixth of all government expenditures (federal, state, and local), and less than 7 percent of the nation's GNP. Do Americans really want to risk our lives, fortunes, and freedom for an increment of current consumption? More important, would it be fair to disregard the sacrifice of those who fought for us and to risk the freedom of future generations, just so that this generation can consume more now?

Seventy-five years ago, Theodore Roosevelt enjoined Americans to "speak softly and carry a big stick." His counsel of caution is as relevant today as then. So is his proposition about a big stick, though it must be extended. In meeting the challenge of a nation with the ambition and the constantly growing military power of the Soviet Union, we must carry a stick at least large enough to deter our adversary from thinking about using his, big as it is.

Strength is the price we must pay for peace. Over the past five years, the Congress has appropriated the funds to restore our strength and to secure the peace. If we persist, we now have the prospect of the most far-reaching agreements ever achieved with the Soviet Union to cut numbers of nuclear weapons, reduce the risks of nuclear war and, ultimately, if we deploy effective strategic defense systems, even to overcome the threat of nuclear annihilation. But such agreements can only be achieved if we negotiate from strength -- and only if the Soviet Union sees that the alternative to meaningful agreement is the likelihood of reaffirmed, not reduced, American strength. Now is the time to strengthen the President's hand in these negotiations -- not to tie one arm behind his back.

This choice is ours: we can buy the forces required to secure freedom and peace for ourselves, our allies, and our descendants; or we can meanly conclude it is too great an effort, falter and thus yield to the forces of totalitarianism and tyranny.



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Part I
Peace with Freedom

A. INTRODUCTION: OVERVIEW

When the Reagan Administration entered office in 1981, a lengthy debate could have been held on the question: "Which was in worse shape -- U.S. military hardware or U.S. strategic concepts?" Consider our B-52 bombers, for example. They entered service before many of the men who fly them were born. The strategic ideas that guided the development of these men and aircraft are older still. Indeed, most of the concepts that shape our thinking about what forces we need and how they would be used were formulated more than a quarter century ago.

In 1981, we could not delay rebuilding American military strength while we conducted a lengthy conceptual debate. There could be but one overriding priority: to reestablish the balance of military power necessary for stable deterrence. But even as we moved decisively to restore military parity with the Soviet Union, we also began to reassess those strategic concepts inherited from past policymakers.

Now, five years later, we have made significant progress both in strengthening our military forces and in updating our defense strategy and policy. Neither task is complete. But as we address the agenda for the remaining three years of the Reagan Administration, it is useful to summarize major changes we have made in our capabilities and in our ideas at the Department of Defense (DoD). These include:

-- Reversing a decade in which American defense spending declined by 20 percent and our military capabilities weakened in the face of a massive Soviet military expansion;

-- Reconstructing American military strength across all crucial dimensions; and

-- Securing an understanding of the challenges we face and of our strategies for countering those challenges, including: the importance of perceptions in effective deterrence; competitive strategies for deterrence; recognition that the reality of nuclear parity means reduced reliance on nuclear weapons; recognition of the premium on robust deterrence required by a democracy; strategies for reducing and controlling arms; and the Strategic Defense Initiative.

The job is not finished. But we have come far enough in the Reagan modernization program to enable supporters and critics to review not just our promises but also our performance. Thus in addition to presenting the FY 1987 budget and the FY 1987-91 five-year program, this year's Annual Report to the Congress presents the need to press on with the programs on which we have made such a good start in the context of the record of the first five years. To what purpose and strategy has the rebuilding of American military strength been aligned? Has our defense program had the hoped-for effect of inhibiting Soviet military aggression? Is our strategy for moving the Soviet Union to serious discussion of arms reductions working? Are we more secure than we were five years ago?

Debate about the defense budget, especially in an era of deficits, rarely focuses on the big picture. Too many of us cannot see the forest for the trees. Even worse, some of us get caught up in the leaves. In an effort to help us all keep some perspective on the forest, let me identify the four central questions each of us should

ask ourself in thinking about U.S. defense programs and budgets. These questions are:

1. What level of security should the United States seek? Or, put another way, what degree of risk to peace, national independence, and freedom is acceptable?

2. What investment in military capabilities is required to ensure an appropriate level of security?

3. Can the United States afford this level of investment?

4. Is our defense budget being spent wisely and effectively?

Let me offer brief answers to each question in turn.

What level of security should the United States seek? What degree of risk to peace, national independence, and freedom is acceptable?

In the 19th century, wide oceans, weak neighbors, and rivalries among large powers abroad provided the United States almost total security with minimal exertion or cost. That era is gone forever, a consequence of a shrinking world. As the leading nation in both the Atlantic and the Pacific, the United States has global interests that can be threatened at many points around the world. The development of nuclear weapons and intercontinental ballistic missiles means that no point on earth lies more than 30 minutes from destruction. Preservation of our lives and our freedoms -- indeed our nation's very survival -- requires that we successfully prevent attack upon the United States and our vital interests. If we fail in this effort, we may have no second chance.

If deterrence failed and the United States were the victim of a nuclear attack, what would be the consequences for our lives, our freedoms, and our nation? President Reagan has repeatedly summarized the heart of the matter: "A nuclear war cannot be won and must never be fought." The imperative -- a nuclear war must never be fought -- follows from the fact that in a nuclear war with the Soviet Union there would be no winner. The President's determination to ensure that a nuclear war will never be fought becomes the mandate for our defense program.

What level of security is the Reagan Administration seeking for the United States and our allies? We, of course, seek to limit the risk to the United States to the minimum feasible level consistent with the values of our society. Our objective is to maintain the safest feasible deterrent.

The question each of us must face squarely, especially in an era of concern about budget deficits, is: If we can buy a significant increase in safety by means of a particular defense expenditure, should we do it? We who advocate maximum affordable security, and minimum feasible risk, say "yes." Those who answer "no" must explain why the United States should settle for less.

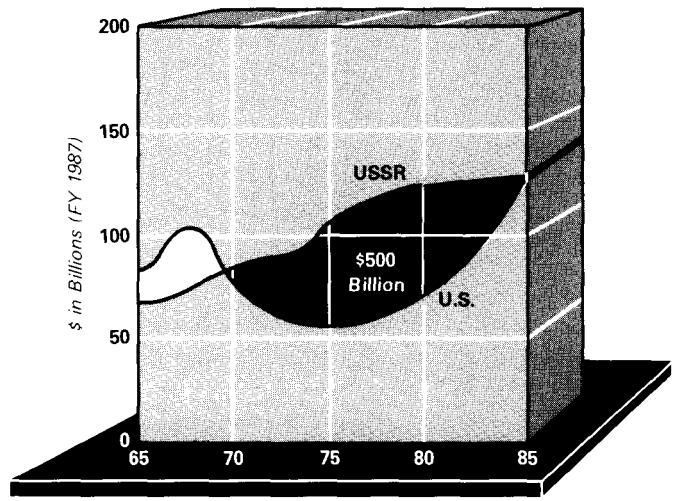
What investment in military capabilities is required to ensure an appropriate level of security?

From 1950 to 1970, we invested about 50 percent more in our military forces than the Soviets did in theirs. In 1970, the tables turned. As Charts I.A.1 through I.A.3 show, over the decade of the

1970s, the Soviets invested about 50 percent more in their forces than we did in our own. (Graphs comparing U.S.-USSR estimated defense resource expenditures are approximations only.)

Chart I.A.1

A Comparison of U.S. Defense Investment Expenditures with the Estimated Dollar Cost of Soviet Investment[a]

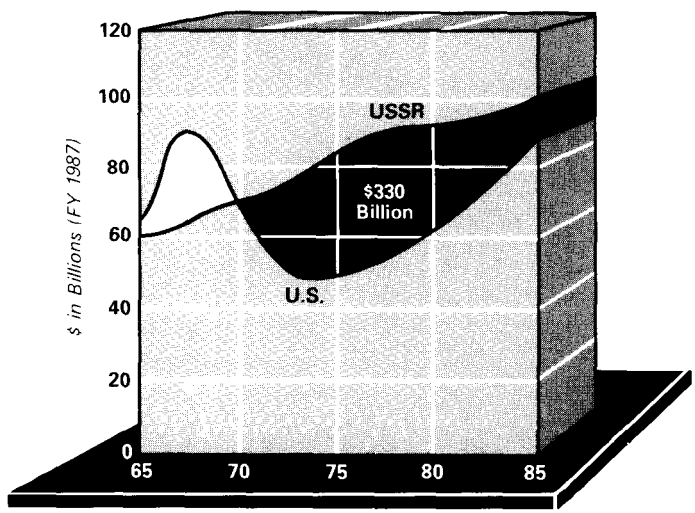


[a]Includes RDT&E, Procurement and Military Construction, and Non-DoD-Funded Programs.

An historical footnote provides some perspective. In 1961, when John F. Kennedy took office, the United States was investing about

Chart I.A.2

A Comparison of U.S. General Purpose Force Expenditures with the Estimated Dollar Cost of Soviet Forces[a]



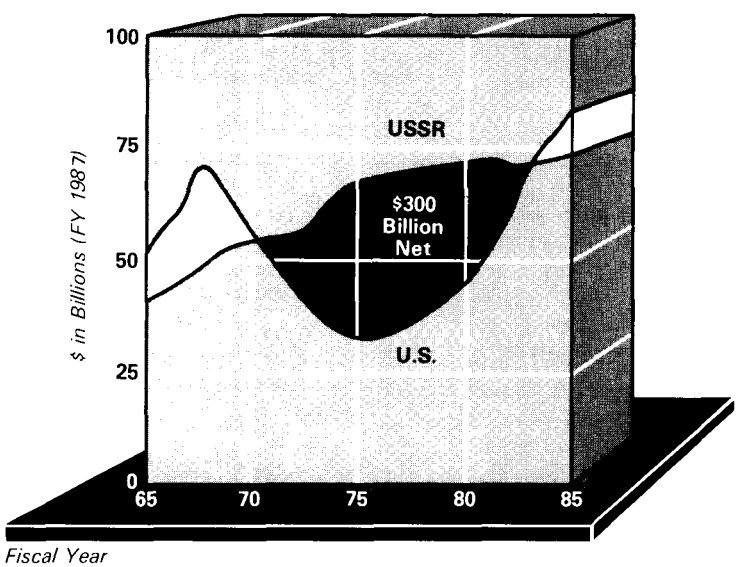
[a]Excludes RDT&E

$1.40 for every dollar's worth of Soviet military investment. President Kennedy and his key advisors judged that amount not enough and proceeded to widen the gap. In 1981, when President Reagan took office, how much was the United States investing for every dollar's worth of Soviet investment? Sixty-five cents. By FY 1984 we had closed the gap to $.92 for each dollar's worth of Soviet investment. By the end of our proposed five-year program -- if our program is fully funded -- the United States will reach approximately equivalent investment levels with the Soviet Union.

Our estimates of Soviet military investment are of course rough approximations. (In fact, because of the nature of the Soviet political and economic system, estimating a United States-style budget for Soviet military efforts neglects a broad range of nominally "civilian" activities that add to Soviet military power -- such as airplanes and merchant ships built to military specifications). But these comparisons give us a useful sense of the scope of the Soviet military program.

Chart I.A.3

A Comparison of U.S. Defense Procurement Expenditures with the Estimated Dollar Cost of Soviet Procurement[a]



[a]Includes Non-DoD-Funded Defense Programs.

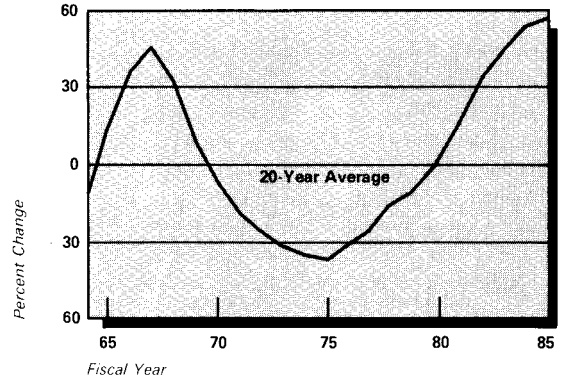
Focusing on annual investments alone, however, misses a larger point. The military capabilities of the United States and Soviet Union in the late 1980s reflect not just current investments, but the sum of investments over previous years. It is necessary, therefore, to compare the stock of capital assets -- airplanes, ships, and tanks -- in the arsenals of the United States and Soviet Union. The fact that for the decade of the 1970s Soviet military investment was 50 percent larger than ours, shapes the reality we confront today.

The Congressional Budget Office has estimated the value of the U.S. stock of military equipment to be $800 billion in FY 1986 dollars. If this equipment has a 15-year life on average, this would require $50 billion of new procurement each year just to maintain our

forces at their current level of capability. From 1972 through 1980, U.S. annual investments in military equipment fell far below the average level of investment over the past 35 years. [1] Because of this underinvestment, we did not keep up with the basic cost of replacement of aged and obsolete equipment, and thus depleted our stock of capital assets. In contrast, Soviet investments have exceeded average investment costs and thus added to their stock of assets for more than a decade.

The growth of Soviet military procurement, measured in dollars, appears to have levelled off after 1976. But note the very high level that Soviet procurement had attained, has since sustained, and thus the large stock of military assets that the Soviet Union continues to accumulate (see Chart I.A.3). In 1984, the first time since 1969, U.S. military procurement appears to have exceeded Soviet military procurement, an important achievement. Our efforts to catch up are paying off. But Chart I.A.5 indicates that the job is not finished. Rebuilding the stock of military assets to forces comparable in value to those of the Soviets will require a sustained effort.

Chart I.A.4
***Percent Variance U.S. Defense Procurement Expenditures from a 20-Year Average** (FY 1965-1985)*



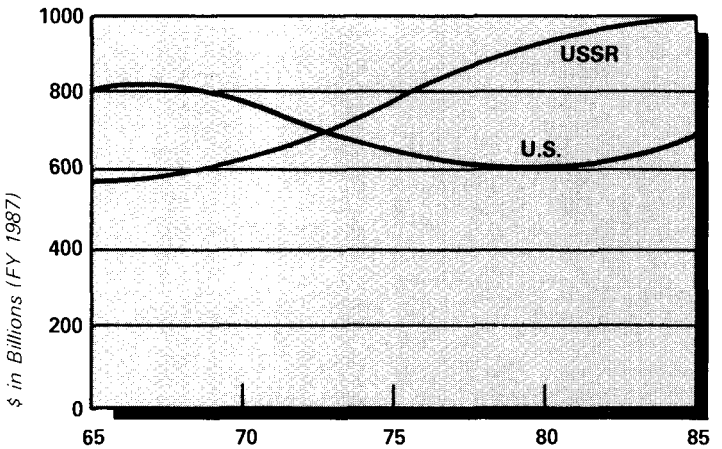
These basic facts, and their essential implications, were as clear to my predecessor as they are to me. As Secretary of Defense Brown said in the FY 1980 Annual Report:

> ***Critical turning points in the histories of nations are difficult to recognize at the time. Usually, they become clear only in retrospect. Nonetheless, the United States may well be at such a turning point today. We face a decision that we have been deferring for too long; we can defer it no longer. We must decide now whether we intend to remain the strongest nation in the world. The alternative is to let ourselves slip into inferiority. . .***

[1] Average investment from FY 1948 through FY 1985 was $49.6 billion measured in FY 1986 constant dollars.

Chart I.A.5.

A Comparison of Accumulated U.S. Defense Procurement with the Estimated Dollar Costs of Accumulated Soviet Procurement[a]



[a]For each year, graph shows total procurement of the previous 15 years.

Can adequate security be ensured with U.S. forces that are in the aggregate inferior to those of the Soviet Union? Does a commitment to maximum feasible safety require U.S. military forces second to none? Whenever these questions have been put to the American people, they have answered them unambiguously. The United States cannot accept a position of overall military inferiority. We must do what is required to guarantee military strength second to none. We do not seek to mimic the Soviet Union in spending or to match them tank for tank, plane for plane, ship for ship. But we recognize that the Soviet Union threatens U.S. vital interests at many points across the globe. We must therefore take account of the global military balance with the Soviet Union. Moreover, because the global military balance affects Soviet perceptions, and the perceptions of allies and others, and even ourselves, it would be foolishly short-sighted for the United States to accept a position of global military inferiority to the Soviet Union. Maintaining the overall military capability we must have over the longer term will require us to invest roughly as much in our defenses as our primary competitor invests in its forces.

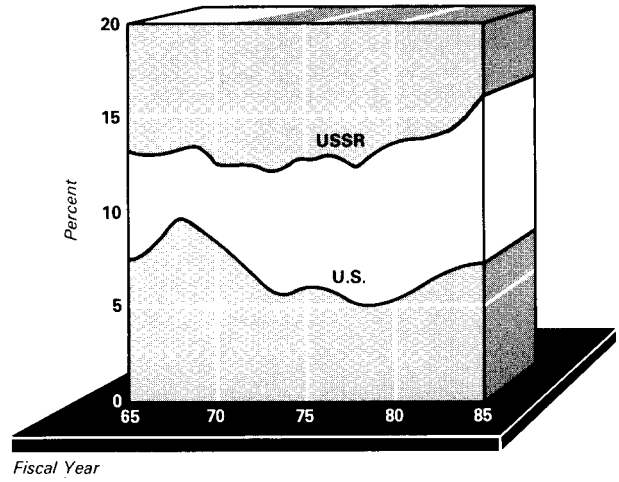
Can the United States afford this level of investment?

The single best measure of the defense burden on a national economy is the fraction of the gross national product (GNP) devoted to defense. In 1961, U.S. defense spending accounted for 8.3 percent of the GNP. When President Reagan took office in 1981, the share had fallen to 5.2 percent. At the end of President Reagan's first term, defense expenditures consumed 6.2 percent of the GNP. By the end of the current five-year plan, if fully funded, that figure would still be less than 7 percent of the GNP.

As Chart I.A.6 shows, the Soviet Union now spends more than twice the percent of its GNP on military arms as we devote to our defense. Fortunately, the United States is approximately twice as

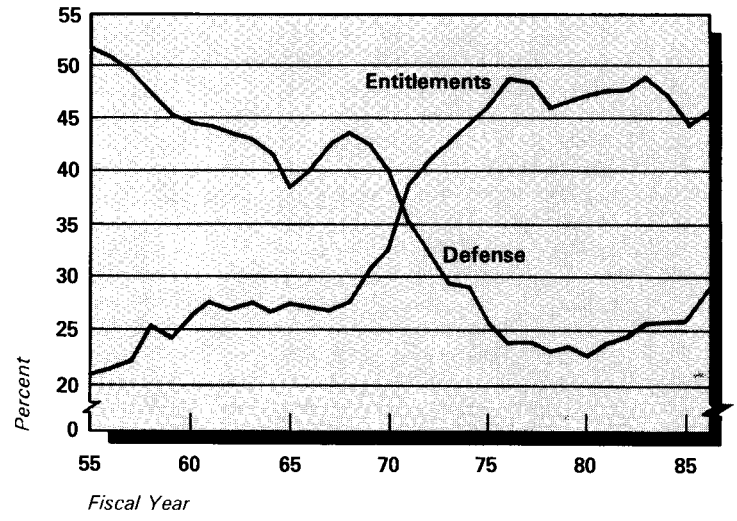
productive as the Soviet Union. If the United States were to devote the same percentage of its GNP to its military as the Soviets do, we would be submitting an FY 1987 defense budget not of $311.6 billion, but of some $700 billion.

Chart I.A.6
A Comparison of the Defense Fraction of U.S. GNP with the Estimated Defense Fraction of Soviet GNP



Moreover, since 1971, federal spending on domestic entitlement programs has far exceeded defense spending. If one compares non-defense entitlements with defense spending over the past 30 years (see Chart I.A.7), the percentages of the total federal budget

Chart I.A.7
Shares of the Budget — Outlays



accounted for by these expenditures have essentially been reversed. Indeed, since 1981, federal spending on entitlement programs has exceeded total defense spending by more than $750 billion.

The answer to this question is therefore inescapable. The United States can afford the level of security we require. Americans can choose not to pay the price of the safest feasible deterrent. But we cannot hide behind the excuse that we could not afford to be secure.

Is our defense budget being spent wisely and effectively?

This is a difficult question -- one that I ask myself every day. It is important to recognize that decisions about what we need and how much is enough involve difficult judgments based on many variables and factors not subject to precise mathematical computation. Just as companies make choices about areas in which to invest, or stockholders make decisions about what to buy and what to sell, the Department of Defense must make judgments about where to invest the United States' scarce defense resources. These judgments are careful and considered. They can also be controversial. Many of them require painful choices, for example, my decision last August to cancel the Army's air defense weapon (Divad) after $2 billion of investment.

This report attempts to explain the framework and principles that guide our judgments about how best to provide for U.S. security. But, we claim no monopoly of wisdom. As with any investment decision, hard choices can be reanalyzed, second-guessed, and debated. The Congress has a responsibility to examine our choices -- always recognizing, however, that while we debate without decision, the Soviets build.

The issue of DoD's efficiency must be addressed at greater length. From my earlier experience at the Office of Management and Budget, and in the private sector, I came to DoD keenly aware of the problems of fraud, waste, and abuse. Within days of taking office as Secretary of Defense, I instituted a sweeping reform of our acquisition process aimed precisely at these problems. As I said in 1981:

> ***Everyone in the Department of Defense — civilian and military alike — must be alert every day for opportunities to save more of the taxpayers' money, and to make efficiencies wherever possible. And I intend to make this effort a successful one!***

In initiating the most sustained attack on fraud, waste, and abuse in the history of the Department of Defense, I was conscious of an underlying irony. That irony has become sharper over time. A thoughtful summary of the matter appears in a case study entitled, "Fraud, Waste, and Abuse at HEW." It examines the efforts of former HEW Secretary Joe Califano to combat this problem in the late 1970s. The point of the case can be stated as the "fraud, waste, and abuse boomerang." When a manager seeks to expose fraud, waste, and abuse in his department as part of his strategy for controlling this problem, at least three results follow inexorably: the issue of fraud, waste, and abuse becomes more visible in his department (since the press will carry many more stories about the issue based on evidence uncovered by the manager's auditors); many people will conclude that the problem must be getting worse rather than better (since they will be hearing more about it); and some people will conclude that the present management of the department that began the search must surely be corrupt, profligate, incompetent, or all three. This case offers a prescient summary of events in the Defense Department.

In spite of these risks and consequences, we will persist in searching for and exposing fraud, waste, and abuse wherever we find them in our determination to give the American public the greatest possible return for every dollar of defense spending. We cannot escape the bad press that inevitably accompanies such an effort. But we continue to hope that, over time, more informed and less prejudicial observers will put sensationalized press reports in perspective.

It is not easy to keep the challenge of management at DoD in perspective:

-- Even if we achieved 99.9 percent purity in our contract actions, 15,000 of them would be defective. In an organization that signs 52,000 contract actions every working day, perfection is unattainable. Nevertheless, DoD is determined to minimize the number of defective actions.

-- DoD employs more than two million active uniformed Service personnel, one million reserve personnel and one million civilians, and another million private employees are under contract with DoD. In many ways, these people mirror American society, with its strengths and weaknesses. Like any population of five million -- even a select population -- DoD will always include a small percentage of people who yield to temptations of criminality, negligence, or simple sloth.

-- DoD buy goods and services from about 300,000 suppliers. Though we make a vigorous effort to avoid firms that fail to perform, the laws of probability make it inevitable that we encounter some bad apples.

Effective management of such a department requires dedicated efforts daily by thousands of people on many fronts. Our management program for getting the most for every dollar of defense spending can be summarized under three key themes: creating a system that demands performance, rejects defects, and punishes offenders; promoting competition wherever possible; and centralizing direction while decentralizing operations.

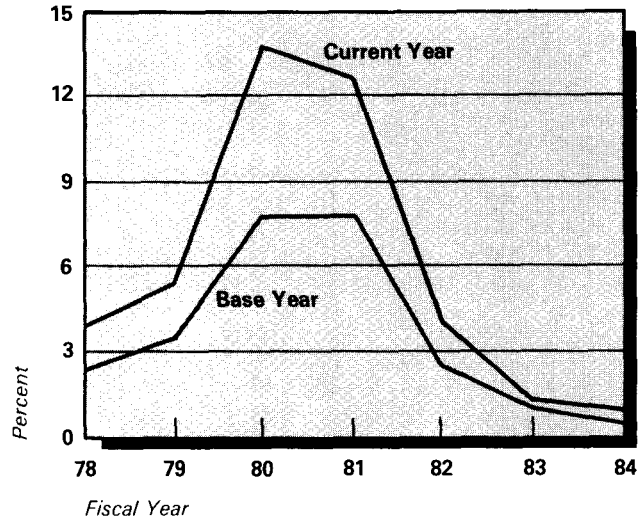
— Creating a System that Demands Performance, Rejects Defects, and Punishes Offenders.

How was this Administration able to get the highly-sophisticated B-1 bomber tested and delivered many months ahead of schedule? How has this Administration been able to procure and deliver to our forces hundreds of new M1 tanks after 20 years of delays, changes, and cost overruns in the main battle tank program? How were we able to get the ground-launched cruise missile (GLCM) and Pershing II ballistic missiles finished on time and deployed in Europe, in some cases within hours after our NATO allies' decisions to go ahead?

How has this Administration brought the spiraling rate of cost growth in our major acquisition programs under control? As Chart I.A.8 shows, the annual rate of growth for major weapons systems has dropped from a high of about 14 percent in 1980 to a low of less than 1 percent in 1984. (In constant dollars, the annual rate of growth dropped from 8 percent in 1981 to 1 percent in 1984.) The drop would be even sharper were it not for congressional reduction in the planned rate of acquisition, which of course increases the unit cost.

Chart I.A.8

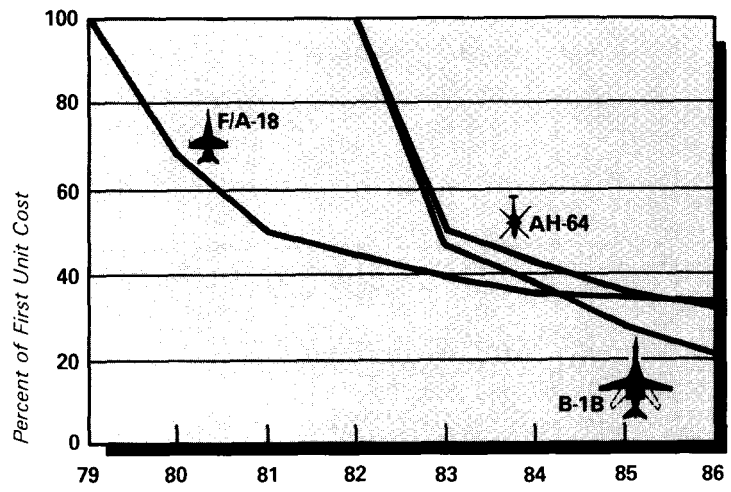
Annual Rates of Program Cost Growth for Major Weapons Systems



These favorable results were achieved by management and motivated leadership that minimized design changes and concentrated on efficient production. Indeed, today we are buying a number of weapons systems for less in real terms than they cost in 1981 and 1982. Chart I.A.9 summarizes the evidence for three of our most effective fighting systems: the B-1 bomber, the AH-64 helicopter, and the F/A-18 aircraft.

Chart I.A.9

Unit Cost Trends of B-1B Bomber, F/A-18 Fighter, AH-64 Helicopter[a]



[a]Costs are shown as a percent of the first unit's cost.

In creating a more responsive system, our first step was to unleash the most comprehensive set of audits and investigations in the history of DoD. Since 1981, more than 74,000 internal audits have been completed, identifying potential savings exceeding $9 billion. Most Americans are familiar with unfavorable procurement and spare parts stories that have surfaced over the past several years. Unfortunately, these stories rarely identify their principal source: namely, our own reports and press releases. Moreover, we have not only ferreted out these problems and exposed them to public scrutiny, we have put programs in place to minimize their recurrence. To monitor and control prices, we are continuing our aggressive audit efforts; we have instituted automated programs to uncover unwarranted price increases; we are buying in larger, more economic quantities whenever the Congress will let us; and we are making greater use of multiyear procurement, whenever the Congress permits.

We have also made it clear to industry that industry is part of the problem and must be part of the solution. I am pleased to report that the private sector has responded well. Some of our major suppliers have established their own spare parts awareness programs to solicit suggestions from their employees on ways to keep costs down and improve quality. They are voluntarily identifying items for improved competition or direct purchase from the actual manufacturer. Indeed, some of our larger manufacturers are now offering us the best refund policies I have ever encountered. If we think any item is, or has been, overpriced, we can return it for a full refund.

But we are not relying solely on the goodwill of industry to prevent abuses. Where we have discovered overpricing, we have sought and obtained refunds. We have not hesitated to suspend or debar contractors for improper performance. We have suspended or debarred more than 1,400 defense contractors since 1981. In cases of serious fraud or illegal activity, we have sought criminal indictments from the Department of Justice not only against the companies involved, but also against individual employees and officials who abused their trust.

We have an obligation to the American people to provide the best defense at the least cost possible. We will not compromise that obligation. We prefer to conduct our business in an atmosphere of mutual trust and respect, but we will be tough and demanding customers and will not tolerate the improper and illegal actions of the greedy few.

— Promoting Competition Wherever Possible

The most powerful force for efficiency in production is competition. In some cases, DoD is the only buyer of an item for which there can be but a single producer. A prime example is the Peacekeeper missile. Even in such cases, it is often possible to structure competition for the supply of components of a system, or of spare parts. By one of the most creative, vigorous, and sustained efforts ever attempted anywhere, we have made competition the hallmark of defense procurement.

How can we be buying B-1 bombers, AH-64 helicopters, and F/A-18 aircraft for less today than DoD was paying for those same planes and helicopters four and five years ago? Since 1980, the number of competitive contract actions has increased by 37 percent. Today, more than two-thirds of all contracts have been awarded on the basis of competitive bids. Only 28 percent of DoD's procurement dollars were awarded by noncompetitive contracts, and a number of those resulted

from congressional restrictions prohibiting competition, for example, the M1 tank engine. In 1981, 26 percent of shipbuilding contracts were awarded competitively; today 90 percent are competitive awards. While several of my predecessors have sounded the theme of competition, this Administration has made substantial progress in implementing programs to increase competition throughout DoD, and we intend to keep at it.

We have assigned more than 600 competition advocates throughout the country to find new ways to bring increased competition to the defense marketplace. In FY 1985, as part of our spare parts reform program, more than 100,000 items were separated out from prime contractors for competition or were bought directly from the manufacturers, saving more than $500 million.

For more than 100 individual weapons systems, DoD has instituted a program of breaking out major components and buying them through competitive procedures. While this approach is not cost-effective for all components, it has resulted in prices at least 25 percent below contracts signed by our predecessors for the same components -- and in some cases, 75 percent below previous prices.

— Centralized Direction with Decentralized Operations

The idea that one secretary of defense, or a secretary and his appointees, can examine each of the 52,000 contract actions the department signs every day is, of course, an illusion. The secretary must give direction to the department, establish policy, and make the hard calls. An attempt to "micro-manage" the activities of more than three million uniformed Service personnel, and over one million civilian employees, would be impossible and self-defeating. The most difficult job for a secretary is to make the hard calls: saying "yes" to some items, and making that "yes" stick; saying "no" to others.

I have said "yes" to strategic modernization (in spite of the preference of some Services and many critics); to emphasizing combat effectiveness (readiness and sustainability) even when this conflicts with modernization and expansion; to making the all-volunteer Armed Services succeed (contrary to the predictions of many critics); and to demanding that the reliability and maintainability of our weapons systems be considered equal to cost, schedule, and performance during the acquisition process.

I have said "no" to delays, overruns, and procurement practices that result in overcharging; to weapons systems that will not work or cost too much, even though in past years we may have invested large sums in their development (for example, the Divad); and to the recurring temptation to acquiesce in, rather than meet the massive Soviet offensive military buildup.

Sustaining the Consensus

There is one group of critics for whom I cannot claim much sympathy, but whom I am beginning to understand. This group always argues that the defense budget should be cut by 10 percent -- whatever the level of spending happens to be. They attach their refrain -- "cut the defense budget" -- to the concern of the day. So when the press is reporting cases of waste, or the deficit, or whatever, that becomes their reason for seeking cuts.

Today, these people argue that by trying to do so much so fast, the Reagan Administration squandered the political consensus supporting the revitalization of our defenses.

But examine the facts. Before President Reagan entered office, what was the longest series of real annual increases in the defense budget since World War II? How many years in a row did the defense budget grow?

The answer is three years. During the war in Vietnam, the series of real annual increases in our defense strength reached three, and then it turned down before the war was over. Moreover, much of that added strength was lost in the Vietnam war. From the mid-1960s until the final years of the previous administration, Soviet defense investment increased about 4 percent every year in real terms. Through the decade of the 1970s, U.S. defense investment fell by more than 20 percent. Almost too late, the previous administration, prodded by the Congress, began to reverse course.

My first budget came after two years of real, albeit inadequate, increases in U.S. defense budgets . The President and I were aware from the historical record that the consensus supporting defense spending had in the past proved short-lived. By all peacetime precedents, the President's first defense budget would have been the third and last defense increase this "consensus" would have sustained. But, rather than losing that consensus, we have maintained it for four years of real additions to our military strength. I am proud to report that with broad bipartisan support from the Congress, the 1985 budget marked the sixth year of sustained, real increases in our defense budget. Of course, I am not pleased that world conditions and the continuing Soviet buildup required those expenditures. But I remain hopeful that as the Soviet leadership sees our determination not to allow them to achieve a military advantage, they will become more realistic about real, verifiable arms reductions.

In FY 1986, the Congress interrupted the long-term restoration of U.S. strength and cut the defense budget. The principal cause of this pause, however, was not some loss of consensus about the need for defense. The cause was alarm about the deficit. In FY 1987, the President and the Congress are required by law to cut the deficit sharply. President Reagan is equally committed to returning to our program of three percent real increases in funding for defense programs. This path of sustained, real growth in our defense effort is necessary to build the programs essential to safeguard our security at a prudent level of risk in an uncertain world.

To conclude, given the stakes and the uncertainties, the United States should accept nothing less than maximum feasible security; that level of national security will require military forces second to none. Fortunately, we can afford adequate security if we make our investments wisely, and manage defense programs to maximize the return for every dollar.

The chapters that follow proceed from this overview to present our defense policies and programs. Our goals, national security objectives, and strategies are summarized in Chapter I.B. Chapter I.C then reviews how far we have come toward these objectives in the first five years. The threats to the United States and its allies are assessed in Chapter I.D. And finally, Chapter I.E states four pillars of our defense policy for the 1990s and beyond.

B. UNITED STATES GOALS, NATIONAL SECURITY OBJECTIVES, AND STRATEGY

1. Overview

The fundamental goals of the United States are stated in the Constitution:

> ***. . . to form a more perfect Union, establish justice, ensure domestic tranquility, provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity.***

To ensure our freedom and our democratic institutions, as the Declaration of Independence states:

> ***. . . we mutually pledge to each other our lives, our fortunes, and our sacred honor.***

As we approach the last decade of the 20th century, the basic goals of our national security policy remain essentially unchanged since the late 1940s:

-- To preserve the independence, free institutions, and territorial integrity of the United States;

-- To preserve U.S. and allied vital interests abroad; and

-- To shape an international order in which our freedoms and democratic institutions can survive and prosper -- an international order in which states coexist without the use of force and in which citizens are free to choose their own governments.

To these ends, after World War II, the United States developed a national strategy combining political, economic, and military elements. At that time, the primary threat to our national security was the Soviet Union. Our national strategy to counter that threat was containment: to contain Soviet overt aggression or subversion against our vital interests, and to contain it for a period long enough for the internal contradictions of Soviet communism to emerge. The basic defense strategy by which we attempted to implement the military component of containment was deterrence. In essence, that meant maintaining military forces and the determination to use them in ways that would make the costs of aggression against our vital interests substantially greater than any benefit the aggressor could hope to achieve.

Our national strategy was, of course, more complex than military deterrence. It included three additional, interrelated strands:

-- Political: to promote democratic institutions, not just by example, but by the reconstruction of our two principal World War II adversaries as political democracies, and by encouragement of democratic institutions around the world;

-- Economic: to create an international economic system for money, trade, and aid, embodied in Bretton Woods, the International Monetary Fund, the General Agreement on Tariffs and Trade, and the World Bank, backed by cooperative arrangements to promote growth in the world economy and to prevent occurrences like the Great Depression that brought Hitler to power; and

-- Geopolitical: not just to prevent domination of other economic-industrial centers by a hostile power, but to create an alliance of industrial democracies joined with the United States in collective security compacts.

With what results? We Americans have a tendency to lose sight of accomplishments in focusing on current problems. Some Americans only feel comfortable if they blame America first and foremost for the ills of the moment. Since international economic order was established in the late 1940s, the world economy has grown faster and for longer than at any previous period in history -- from approximately $1 trillion in 1950 to more than $10 trillion today. This growth was fueled in substantial part by the economic order and the technological progress of the United States.

Even more significant has been the success of our alliance system in securing for each member the most vital of all national interest. For four decades this system has preserved each member's integrity, protected all from external threats and pressure, and provided an environment in which each state has had considerable opportunity to develop along its chosen path. Germany and Japan are now leading members of the community of democratic nations.

Indicators of domestic political development and individual freedom are difficult to formulate. But the past four decades compare quite favorably with the four decades that preceded them, or with any other four decades of the modern period, in the growth of democratic institutions and the extension of individual freedoms. The community of nations who share the commitment to the political values we hold most dear have never been more vigorous in comparison to their adversaries. When have these values -- freedom of individual citizens, democratically chosen governments, market economies, and a lawful international economic and political order -- had greater appeal to large numbers?

It is important to recognize progress as well as challenge. To critics who assert that today's problems are too demanding, today's burden too heavy, my response is: while the challenge is great, the Soviet threat is more focused than at any point in the past 40 years.

In 1946, when Ambassador George Kennan sent his "long telegram" from Moscow proposing a policy of containment, what was the problem? It was the fear that Soviet communism would prove an ideological firestorm -- sweeping key countries in Europe or Japan much like Islam spread in the seventh century. Demoralized by a devastating war, exhausted economically, and threatened by communist parties within, several countries in Europe and Asia seemed especially vulnerable to communist ideology. In the first phase of containment, therefore, the U.S. objective was ideological containment: preventing a combination of ideological appeal and internal subversion from seizing power in nations vital to U.S. interests.

In 1986, as we watch the embers of communist ideology burning low, this threat has been met. Never since 1917 has communist ideology appealed less and to fewer, and for better reasons, than it does today.

The second phase of containment can be labeled geopolitical containment. Though rarely articulated, U.S. behavior in World Wars I and II reflected our fundamental interest in preventing the Eurasian landmass from being dominated by a hostile power. The charter for

this second phase of containment -- a National Security Council memorandum (NSC 68) written in 1950 -- is explicit about this objective. U.S. vital interests would be jeopardized if the Soviet Union succeeded through intimidation, or outright aggression, in dominating either Europe or Japan. The addition of the military-industrial capacity of Europe or Japan to that of the Soviet Union would pose an unacceptable threat to the United States.

Viewed from the mid-1980s, geopolitical containment has also been a striking success -- beyond any expectations of the 1950s. Not only has the Soviet Union failed to dominate Eurasia, but Western Europe and Japan have become partners of the United States in alliances that share the burden of containment.

Today, we face the challenge of the third phase of containment: containment of the Soviets' massive military power. Having failed to achieve its ideological or geopolitical ambitions, the Soviet Union in the early 1960s, launched the largest military buildup in world history. By a truly gargantuan effort -- now consuming more than 15 percent of its gross national product -- the Soviet Union has become a one-dimensional superpower. The issue today is whether the United States and its allies are prepared to permit the Soviet Union to establish military superiority it can use for territorial or political advantage.

The Reagan Administration has said "no." With broad bipartisan support, we are rebuilding American military strength to address precisely this challenge. But success in meeting the challenge of Soviet military growth is not yet assured. Whether a decade hence, it will be written that we succeeded in persuading the Soviet Union that we would never permit it to achieve exploitable military advantage against our vital interests -- or, alternatively, that we flagged and failed and thus encouraged Soviet risk taking -- all that depends on what we do now.

2. Planning U.S. Forces: The Shape of the Problem

The process by which DoD decides which military forces to buy is extraordinarily complex. Literally thousands of individuals spend millions of hours each year making calculations and judgments about the complex chain of means and ends for achieving U.S. security objectives.

The complexity of this process should not obscure its basic logic. How should we decide how many divisions of troops or how many strategic nuclear forces we should have? The problem is one of matching means and ends with an eye to budget constraints. The ends are our national security objectives and foreign policy interests. The means for achieving these objectives are military forces capable of performing specific actions in particular contingencies. Thus, we should buy the requisite military forces, choosing among alternatives to purchase the capabilities vital to us at the lowest cost -- or to provide the greatest capability for any given budget.

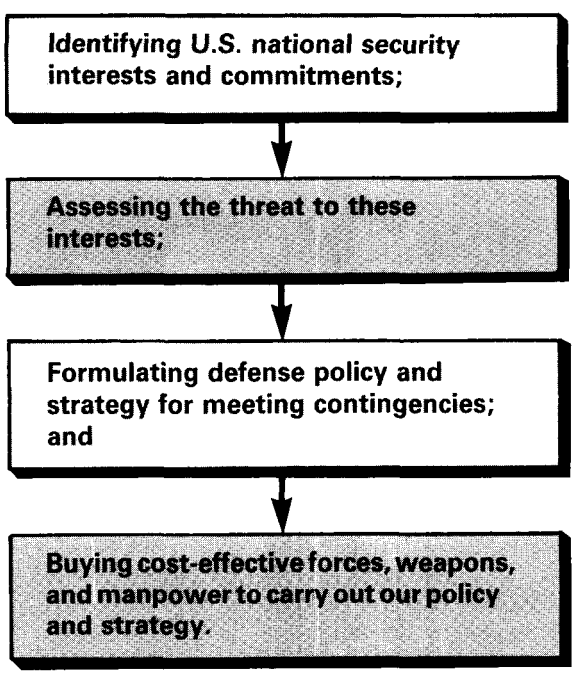
An example will illustrate this process. U.S. vital interests in Europe are recognized in the NATO treaty, which states that an armed attack against one of the parties "shall be considered an attack against them all." The primary threat to Europe comes from the Soviet Union and its Warsaw Pact allies. The Warsaw Pact confronts NATO with massive conventional forces, a sophisticated array of theater nuclear forces (including the new SS-20), and strategic nuclear forces. In designing U.S. forces, it is not enough to identify the general threat.

One must consider specific contingencies. Toward that end, the NATO allies examine a broad array of possible Warsaw Pact attacks against Western Europe, from a limited effort to cut off Berlin to a full-scale offensive.

The logic of the process is summarized in Chart I.B.1.

Chart I.B.1

Planning U.S. Forces: The Logic of the Problem



At the third step, the task grows even more difficult. Defense policy consists of complex judgments about a large number of interrelated issues, including enemy capabilities; the capabilities of U.S. allies; pre-attack warning; deployment strategy; performance against enemy forces; length of war; possible escalation to nuclear warfare; and the likelihood of additional contingencies occurring simultaneously. The NATO alliance's current judgments about these issues are embodied in a classified document, MC 14/3, adopted by the NATO Defense Planning Committee in December 1967.

The fourth step is to determine the numbers and types of weapons and troops required to fulfill the chosen strategy. To pursue the NATO example, our strategy of flexible response implemented through defense policies covering the array of issues sketched in step three has led NATO to bolster its forward defense. To stop a massive conventional attack without escalating quickly to nuclear weapons, NATO forces require more timely intelligence, greater mobility in order to shift to the area of the attack, and increased conventional firepower,

especially against Warsaw Pact tanks. The M1 tank, Bradley Fighting Vehicle, improved TOW vehicle, and A-10 aircraft give the battlefield commander some of the combat systems needed to implement the "air-land battle" concept.

Today, NATO is taking advantage of emerging technologies such as smart tank-killing artillery rounds, the multiple-launch rocket system (MLRS), and enhanced command and control capabilities to enable the commander to destroy second echelon Warsaw Pact forces before they are committed to the battle. The commitment of NATO allies to real increases in defense spending, including acquisition of technologically advanced conventional systems, reflects NATO's determination to improve the conventional deterrent, thereby reducing reliance on the use of nuclear weapons. At the same time, the alliance's deployment of ground-launched cruise missiles and Pershing IIs in response to the threat created by the Soviet deployment of SS-20s also fulfills NATO's commitment to maintain a stable deterrent -- not permitting the Soviets a decisive advantage at any important point on the spectrum of conflict.

The logic of defense planning should be clear. The need for military forces arises from U.S. security interests and commitments. These interests are threatened by adversaries in ways that create contingencies that U.S. forces must be able to meet. Defense policy judgments about the manner and method of U.S. responses are translated into requirements for specific forces that are designed to provide the necessary capability at the lowest cost.

It is a mistake, however, to imagine that there exists some precise numerical standard in the calculus of deterrence. Pretension to false precision in calculating the forces we need not only fuels confusion, it promotes a dangerous arrogance. The attempt to select the means that will best achieve our goals is complicated by five additional factors.

The first is inherent uncertainty about the future. The weapons we are buying today will provide the backbone of U.S. military forces well into the 21st century. Against which potential adversaries may these weapons be used? How strong will our enemies be? What weapons will they use? If the future resembles the past, the assumptions our planners make about which contingencies we will face, how specific weapons will perform in wartime, and what exchange calculations can be anticipated may prove to be inaccurate. Prior to the fact, most planners' calculations showed that France would successfully resist the German attack in 1940, and that the British would lose the air battle in a month. France fell in seven weeks, and the British won the Battle of Britain. Thus, while we attempt to analyze numbers and capabilities of opposing divisions, aircraft, tanks, and antitank munitions, such calculations are only approximations -- not infallible guides to our real needs. In the face of uncertainty, prudence requires that one hedge against the risk of being wrong.

Second, if the United States' only purpose were to protect its interests by the use of force, the problem would be simpler, since weapons and numbers could be chosen with exclusive attention to defeating the enemy. In fact, we seek to achieve our objectives not by the use of force, but rather by preventing an adversary from using its forces against us. We do this by the threat of our response. Our deterrent strategy must therefore address our adversaries' perceptions and calculations. In a world in which the elements of military power are ever changing, and the mechanisms of threat and deterrence are

not well understood, the United States must nonetheless attempt to choose forces that will deter its adversaries.

Third, the United States cannot solve its weapons riddle without considering the possible responses of its adversaries. Our weapons acquisition and force structure decisions also affect our opponents' decisions about their military forces -- by suggesting possible technologies, by encouraging emulation, and by provoking reactions. We must recognize that our adversaries' reactions could pose problems for us that would require further responses and take this into consideration as we formulate our defense decisions. Thus arms reduction agreements that verifiably constrain Soviet armed forces can advance our interests, and we strongly support such agreements.

Fourth, in acquiring weapons, we do not select from a fixed menu. The extraordinary pace of technology generates new weapons each decade, but their design, testing, and acquisition take from 7 to 12 years. Since new weapons can be developed by our adversaries as well (frequently much more rapidly because there is no public debate involved in their development), prudence requires that we invest across the spectrum in research and development to limit surprise. We thus regularly face the difficult problem of tradeoffs between today's capability and tomorrow's possibilities, uncertainties, risks, and costs.

Finally, the question of "how much is enough" cannot be answered independently of the first four factors, but neither can it be answered with reference to these factors alone. We recognize the inevitable tradeoffs among defense, domestic programs, and private consumption.

This outline of the problem underlines one clear conclusion: defense planning is extraordinarily complex -- so complex that reasonable individuals can reach different conclusions about the right solution. There are so many variables to be weighed, and hard judgments to be made, that unanimity is unattainable. Disagreement and debate is a source of strength in our democracy. Members of the Congress, especially members of the committees most concerned with defense, should act as an informed board of directors for the nation's shareholders -- reviewing DoD's plans, programs, and performance. But boards of directors reach conclusions and either authorize management to proceed, or demand presentation of new proposals for quick decision. Endless debate is not a strength. It can be a weakness that totalitarian adversaries exploit.

3. United States Defense Strategy: Deterrence

To what strategy is the ongoing reconstruction of American military strength aligned? In a word, our basic defense strategy is deterrence. This word has been repeated so often that we frequently fail to consider what it actually means. It means that we seek to protect our vital interests by being strong, not to enable us to resort to aggression or war, but to prevent war by our very strength. We seek to prevent war by persuading potential adversaries that the costs of attacking us will exceed any gain they could hope to achieve. This is the core of our defense strategy today, as it has been for most of the postwar period.

Too often the concept of strategy is misunderstood. The term emerged in a military context in which strategy is distinguished from tactics. Military strategy is the art of projecting and directing the larger military movements and operations of a campaign to secure

objectives of national policy. It reminds us that it is possible to win the battle and lose the war.

More recently, this concept has been adopted by the American business community and has been enlarged to incorporate the broad formula that defines what business the firm is in, its basic goals, and its major policies for achieving those goals. Strategy combines the ends (goals) toward which a firm is striving and the means (policies and programs) by which it is seeking to get there. The essential notion of strategy is captured in the relationship of means to ends -- the combination of purpose and policies that guide the enterprise.

The use of this concept by American business recognizes that strategy, like policy, is an accordion word. It stretches from plans that define what business a firm is in to the plan of action for penetrating a new market. In addition to the broad goals of the firm, strategy encompasses key operating policies by which the firm seeks to achieve its goals in each functional area: finance, research and development, manufacturing, and distribution. Effective corporate strategy must balance the goals of the organization with its internal operating capabilities on the one hand, and its external opportunities and threats on the other. A sustainable corporate strategy must match the particular strengths of the corporation with competitive forces in its markets.

Management of America's defenses requires an enlarged conception of strategy that includes connections between ends and means at every level, from an army division in the Republic of Korea, or a carrier task force in the Mediterranean, all the way to the President of the United States. For example, to meet the threat of Soviet aggression against Europe, the NATO alliance has a strategy adopted by the governments of its 16 member nations. Labeled "flexible response," this strategy encompasses a triad of conventional, theater nuclear, and strategic nuclear forces in a posture of forward defense. Similarly, each of our unified and specified commands has a strategy for achieving its assigned missions. Each is but a component of our larger defense strategy. Thus, in considering the question, "What is our strategy?" it is necessary to analyze the strategic coherence of successive layers of linked means to ends.

We begin with the question: What are we trying to do? The mission of the Department of Defense is to preserve U.S. and allied independence, integrity, and freedom, and our vital interests. We seek to achieve these objectives first without war, but if deterrence fails, by fighting to restore the peace. Our basic strategy is to maintain ready, mobile, and expandable forces that persuade potential adversaries that the costs of aggression against us will substantially exceed any benefits they could hope to gain.

Effective deterrence must meet four tests:

-- Survivability: our forces must be able to survive a preemptive attack with sufficient strength to threaten losses that outweigh gains;

-- Credibility: our threatened response to an attack must be credible; that is, of a form that the potential aggressor believes we could and would carry out;

-- Clarity: the action to be deterred must be sufficiently clear to our adversaries that the potential aggressor knows what is prohibited; and

-- Safety: the risk of failure through accident, unauthorized use, or miscalculation must be minimized.

This basic strategy has been implemented through four major operating policies that constitute the cornerstones of defense policy: balance of forces adequate for each mission; alliances for collective defense; forward-deployed forces; and flexibility.

a. Balance of Forces Adequate for Each Mission

The Department of Defense must maintain the capabilities to perform an array of key missions: nuclear deterrence; defense of vital interests in NATO, Northeast Asia, and Southwest Asia; protection of the sea lines of communications; and power projection. Deterrence is inherently dynamic, since the capabilities of our adversaries' offensive forces pose the threat we must be able to meet. As Soviet forces have expanded, the challenge of maintaining a balance of forces adequate for each mission grows more severe. For example, for most of the postwar period, the Soviet navy concentrated primarily on coastal defense and posed little threat to U.S. lines of communications with Europe and Japan. In the past decade, however, the Soviets have acquired a "blue water navy" capable of threatening U.S. sea lines of communications. Had the United States failed to respond by strengthening our own naval forces, we would no longer have the capability to achieve this vital mission.

Nowhere is the challenge of maintaining an adequate balance of forces clearer than in the area of U.S. conventional forces. As the Soviet Union acquired nuclear capabilities equal to our own, the credibility and prudence of relying on nuclear threats to respond to conventional attacks weakened. Secure deterrence requires that the United States and our allies maintain a balance of conventional forces able to meet and fight for a sustained period against a conventional Soviet attack in Western Europe, Northeast Asia, and Southwest Asia.

An adequate balance of conventional forces does not require equal numbers of tanks, aircraft, or infantry. A defensive posture has inherent strengths vis-a-vis the aggressor. Moreover, we and our allies have a number of advantages that can serve as force multipliers including the quality of our manpower, emerging technologies that make possible new conventional weapons systems, and flexibility in organization and tactics. Together these ingredients are producing a less heralded but vitally important revolution in conventional defense.

The effect of our ongoing revolution in conventional defense capabilities and operational doctrine can best be seen in recent developments in NATO. Its strategy of flexible response has sought first to deter war, and if deterrence should fail, to bring the conflict to a satisfactory resolution with a minimum number of casualties and without the loss of NATO territory. Currently, the Warsaw Pact would enjoy a very favorable balance of conventional forces at the beginning of a conflict. The key to a successful alliance defense, therefore, is to deny the Pact the momentum needed to create a major breakthrough of the forward defensive positions by destroying their follow-on forces. NATO military commanders have always sought to target these follow-on forces, but have lacked adequate target acquisition resources and conventional weapons systems with sufficient range and accuracy. Emerging technologies and recent conventional defense improvements are making it possible to locate and attack the enemy follow-on forces at greater depths with precision munitions, thus destroying their momentum and defeating the attack without resorting to nuclear weapons.

In the area of low-intensity conflict, these same new conventional defense initiatives and emerging technologies are creating light combat forces with much greater mobility and lethality. The Army's five new light-infantry divisions will provide the President with a small hard-hitting force that can be deployed anywhere in the world to prevent limited war from becoming a major conflict.

Our goal, therefore, is to achieve a credible conventional deterrent. This is the first line of defense in a secure spectrum of deterrence that encompasses conventional, intermediate nuclear, and strategic nuclear systems. The closer we come to a credible conventional deterrent, the closer we are toward achieving President Reagan's more secure and safer world.

b. Alliances for Collective Security

U.S. alliances, treaties, and agreements serve not only to define clear lines against aggression. By combining the resources of many nations, collective security arrangements also share the common burden. Our alliances with the nations of Europe, Asia, and our own hemisphere, together with other important security relationships in those regions and in the Middle East and Southwest Asia are critical strands in U.S. strategy.

Our commitment to alliances stems from motivations fundamentally different from the classic 19th century concept of alliance or the Soviet satellite system. Earlier alliance structures were built on temporary calculations of interests to preserve a balance of power. The present Soviet system is driven by imperial domination. The United States has sought permanent alliances among nations sharing similar democratic values. While there are areas of disagreement with our allies, these are differences among friends who together promote each other's security and preserve their common democratic values.

We have vital interests in Western Europe. Moreover, the cohesiveness of the Atlantic alliance contributes to the deterrence of Soviet aggression throughout the world. Similarly, U.S. and allied strength and determination in other regions affect the security of NATO. Assured access to the critical raw materials and energy resources in Africa, Latin America, and the Middle East; secure transit over the critical sea lanes that link the free industrial economies with these resources and with each other; and the confidence that each ally will do its part in deterring Soviet global ambitions are fundamental to free world security.

No less than in Europe, the United States has vital interests in Asia and the Pacific. We are actively encouraging our allies there to take more responsibility for defending themselves, thus providing greater regional security. We continue to strengthen our relations with nations in the Middle East and Southwest Asia in an effort to deter Soviet aggression and maintain access to the region's resources, while promoting the search for a lasting Arab-Israeli peace. Although we have no formal alliances in the Middle East, we are expanding our security relationships with regional states in pursuit of mutual interests.

Perhaps our most significant efforts to promote security, stability, and democracy in the near-term have been in Central America and the Caribbean. Despite the efforts of the Soviet Union and its proxies to take advantage of the region's social, political, and economic problems, we have been able to assist in the movement toward peace

and democracy. El Salvador is a good example. There, in the face of determined internal subversion and external aggression, the brave people of El Salvador have democratically elected a government that is fighting for Salvadoran independence. Judiciously spent dollars for security assistance can often produce a larger return than those same dollars spent for our own forces. If we fail to provide the assistance necessary for local forces to prevail against these threats, the risk of regional destabilization will correspondingly increase.

c. Forward-Deployed Forces

Deterrence of aggression is strengthened by our strategy of forward defense. To that end, we deploy ground and air forces in Europe, Japan, and Korea, and naval carrier battle groups and amphibious forces in the western Pacific, the Mediterranean Sea, and the Indian Ocean.

Forward deployment of our forces makes them immediately available for combat in coalition with our allies, permits their integration with allied forces in peacetime, and represents a clear manifestation of the U.S. commitment to the common defense. In essence, forward deployment gives unmistakable credibility as well as increased capability to U.S. participation in the first line of our common defense. It is sometimes suggested that we should bring the troops home to save money. Every study of this issue, however, has found that it is more expensive to bring our forces home and keep them here than it is to maintain them abroad.

Our conventional deterrent posture is strengthened by the integration of allied command structures in NATO and Korea; by the U.S.-based strategic reserve of general purpose forces; and by periodic exercises that demonstrate our rapid deployment capability and help to coordinate U.S. and allied forces. For these reasons, forward deployment has been a consistent and substantial component of our deterrent strategy for more than three decades.

d. Flexibility

Few illusions are more resilient, alluring, and dangerous than the idea that we can forecast with confidence all the threats we will face. Technicians seek certainty. But if the past is any guide to the future, it will be the unanticipated conflict in an unexpected place or form that poses the most difficult challenge. In structuring an adequate deterrent, we must prepare to cope with threats across the entire spectrum of conflict.

No one can adequately prepare for the unknown or unexpected. But we can attend to issues of warning and of learning. If we are to make use of intelligence warnings of enemy attack, we must expand our options for prudent and effective responses. For example, many of the preparations for reinforcing our forces in Europe had been based exclusively on a rigid timetable that assumes a certain period of advance warning, prompt political decisions to initiate reinforcement, and a sufficient number of days before the outbreak of hostilities to complete the reinforcement. For some of the most likely contingencies, however, this timetable may not be realistic. This Administration therefore initiated a NATO study and is now implementing follow-up measures to ensure that our planning recognizes that warning is usually ambiguous, and that this would impede the difficult political decisions to assemble and move large forces. For regions other than

Europe, we also need effective responses to ambiguous warnings -- responses whose costs and consequences make it acceptable to carry them out repeatedly, if necessary.

Learning is another key element of flexibility. An important lesson derived from past wars is that actual military engagements develop quite differently from what had been expected. Forces therefore need to be built with a capacity for learning. And since a future war may not be of sufficient duration to permit much learning, we must study carefully the lessons of those armed conflicts that do occur, such as Grenada or the Falklands, or the air war between Israel and Syria, for clues about tactics and operations.

A final element of flexibility is mobility. New Soviet outposts in many regions of the world make it possible for the Soviet Union to threaten friendly nations, directly and through surrogates, in places where we have no shield of land-based forward deployment. The spread of Soviet military outposts is aggravated by improved Soviet capabilities for projecting power, particularly in regions close to the Soviet Union. In the Persian Gulf, for example, the Soviet military now has an encircling ring of bases in Ethiopia, Aden, and Afghanistan. In addition, the reach of Soviet airlift and the Backfire bomber permit the Soviets to project military power to every part of the Middle East and to critical regions of the Pacific. The Reagan Administration has therefore accelerated efforts to improve support facilities, access arrangements for deploying U.S. forces, and prepositioning of essential equipment, while expanding U.S. airlift and sealift capabilities. The addition of three carrier task forces and two new Army light divisions underscores our commitment to mobility and flexibility.

4. U.S. Defense Strategies: Reagan Administration Revisions and Additions

To the basic defense policies that have guided defense planning since the 1950s, the Reagan Administration has made several revisions and additions. The principal difference between the Reagan Administration's defense program and its immediate predecessor's is our determination to ensure a balance of forces adequate for credible deterrence. The largest problem with the defense posture and strategy we inherited arose from a 20-year Soviet arms buildup that had been accompanied in the decade of the 1970s by a 20 percent reduction in the U.S. defense effort. The global military balance was shifting in favor of the Soviet Union. Through an investment nearly 50 percent larger than our own, the Soviets were buying advantages in virtually every area of comparison -- in nuclear forces, in the NATO-Warsaw Pact balance, and in Southwest Asia.

The most important truth about the recent buildup is that we have been buying and fielding forces to implement policies and strategies over which there was little disagreement between this Administration and its predecessor. Our principal difference arose from our judgment about the importance of funding these programs at levels adequate to achieve our stated objectives as quickly as possible.

The differences between the basic strategy, the missions, and the operating policies stated in my predecessor's last Annual Report and our current plans are much narrower than the gap between the Carter Administration's reluctance, and this Administration's determination, to fund our defense strategy to achieve a secure deterrent. In the face of major Soviet advantages in capital assets purchased since the 1970s and a continuing Soviet military buildup, and in light of

U.S. congressional demands for deficit reduction, maintaining balances of forces adequate for the missions essential to our vital interests remains our largest challenge.

As we continue to strive to meet that test, we are doing so in ways that reflect a more complex concept of deterrence. The basic concept has been extended to give greater emphasis to three interrelated ideas. First, effective deterrence must address not just the objective facts of the military balance sheet, but also Soviet leaders' perceptions of the facts. It is not sufficient for us to believe that the costs we will impose in response to an attack will exceed the benefits the Soviet leadership hopes to achieve. Interpreting the facts within their own frameworks, the Soviet leaders must conclude they cannot advance their objectives by attacking us.

Second, risk is the key issue in defense planning. How much should we pay for an "insurance policy" to reduce the risks of a catastrophe? How much risk can we afford?

Third, deterrence is multilayered. The layers include defense, escalation, and retaliation.

a. Perceptions

Recognition that an adversary's perceptions are an essential dimension of deterrence is not a new idea. As the Scowcroft Commission stated:

Deterrence is the set of beliefs in the minds of the Soviet leaders, given their own values and attitudes about capabilities and will. It requires us to determine, as best we can, what would deter them from considering aggression, even in a crisis.

Incorporation of this insight in operational defense planning for deterrence presents formidable intellectual and institutional problems we have not yet fully resolved. Because of our relative ignorance of Soviet perceptions, U.S. planners tend to rely on their own calculations of expected exchange ratios as an adequate surrogate. But all the evidence we have suggests that preparing to deter an attack only by assembling forces adequate to deter us under similar conditions could provide too little to deter the Soviets. For example, many strategic analysts have opposed this Administration's modernization of strategic nuclear forces with the argument that such investments are "sterile," since the marginal gain in attack and retaliation calculations is relatively small for the level of investment. The issue for a strategy of deterrence that takes perception seriously, however, is whether the Soviet leadership shares the judgment that additional expenditures are pointless. The fact that for the past decade Soviet investment in strategic forces (as measured in dollars), has been two to three times the size of our own investment, would suggest that they do not. Moreover, our forces must be adequate not only to deter Soviet aggression, but also to be seen by our allies and ourselves as sufficient.

By making additional investments in our intelligence capabilities, the Reagan Administration is improving our ability to understand how the Soviets assess the military balance. One of the most useful threads in our research, development, and deployment decisions has been the increasing emphasis given to analyzing and understanding perceptions of the Soviet leadership.

b. Risk

Risk is the key issue in defense planning. Unfortunately, many discussions of deterrence are led astray by a misunderstanding of this concept. For example, consider the argument that because our current capabilities are insufficient to meet all our commitments, we must cut back our commitments. Our commitments are based on our interests. But we can never afford to buy capabilities sufficient to meet all of our commitments with 100 percent confidence. The critical questions are: What risk of failure are we prepared to accept in our plans for meeting particular contingencies? How much are we prepared to pay to reduce this risk?

c. Multilayered Deterrence

Deterrence is a multilayered concept. The way in which we persuade the Soviet leaders that the costs of an attack would exceed any benefits they might hope to achieve includes three layered components: defense, escalation, and retaliation.

-- Defense: if the adversary calculates his aggression is likely to fail in its own terms, he will not attack;

-- Escalation: the adversary must know that even if his aggression should succeed in achieving its immediate objectives, he faces the threat of escalation to hostilities that would exact a higher cost than he is willing to pay; and

-- Retaliation: if the adversary confronts a credible threat that aggression will trigger attacks by a surviving U.S. retaliatory capability against the attacker's vital interests that result in losses exceeding any possible gains, he will not attack.

Of the three layers, the safest and most reassuring is defense. Our "warfighting capability" to defeat an attack and restore the peace is therefore not something separate from our strategy of deterrence. In fact, it forms the foundation of effective deterrence. If an adversary believes that his attack could be defeated at a low level of violence, and at low risks, why would he attack? We understand that the costs of maintaining the capability to meet every contingency effectively on its own terms can be prohibitive. Thus the United States must maintain a credible threat both of escalation and of retaliation to secure deterrence across the spectrum of potential conflict.

d. Pillars of Defense Policy

The Reagan Administration has reaffirmed the basic U.S. defense strategy of deterrence and the four cornerstones of defense policy: balances of forces adequate for each mission, alliances for collective defense, forward-deployed forces, and flexibility. In challenging ourselves, our colleagues in the Administration, and the broader strategic community to reassess the conceptual arsenal of the 1960s and reach out for new ideas, our aim is to find ways to make this strategy of deterrence more effective. To this foundation, we have added four pillars of defense policy for the 1990s that attempt to address the most important changes in the strategic environment that have occurred since the 1960s. These four pillars are:

-- Secure nuclear deterrence and the Strategic Defense Initiative;

-- Secure conventional deterrence and uses of military force;

-- A strategy for reducing and controlling arms; and

-- Competitive strategies.

Each pillar is discussed at greater length in the final chapter of Part I. Here, a brief paragraph summary of each will suffice.

Secure Nuclear Deterrence and the Strategic Defense Initiative (SDI)

The United States' conception of the role of nuclear weapons in defense strategy emerged in an era of American nuclear superiority. Now that Soviet nuclear forces are at least equal to our own, and in many dimensions superior, some earlier ideas are outmoded. The Reagan Administration has therefore given highest priority to reducing the threat of nuclear war, reducing reliance upon nuclear weapons, and continuing the development of options that provide the President a range of choices other than surrender in response to a Soviet attack.

The President's SDI is not only a natural extension of the search for alternative ways to ensure deterrence; it is the logical culmination of that search. This research program is going well enough now to make it seem unlikely that our security in the 21st century will depend on benign acceptance of mutual vulnerability.

Secure Conventional Deterrence and Uses of Military Force

Recognizing that without public support we cannot sustain any actions necessary to keep the peace, we therefore must develop realistic criteria for the use of force. The realities of our democratic system impel us beyond earlier doctrines of limited war. A democracy is naturally cautious and reluctant to use force as a ready adjunct of diplomacy. This puts a premium on forces adequate to deter aggression, at all levels.

A Strategy for Reducing and Controlling Arms

This Administration's strategy for reaching agreements with the Soviet Union that reduce arms, not legitimize increases in weapons, focuses on Soviet incentives. Why are the Soviets now beginning to think about real reductions in their own strategic offensive forces? We believe it is because of their knowledge of our renewed military strength, and their judgment about what we will do in the absence of such agreements. In addition to negotiated treaties to reduce numbers of weapons, this Administration is committed to a further array of initiatives that control nuclear arms and reduce the risks that they might ever be used -- initiatives aimed at removing ambiguities, misperceptions, and misunderstandings.

Competitive Strategies

How can the United States hope to achieve its objectives while making an approximately equal level of effort as the Soviet Union? This Administration has promoted the search for competitive strategies at every level in our defense program. Competitive strategies capitalize on our long-term strengths in ways that exploit Soviet long-term weaknesses. The hallmark of this Administration's defense program in the second term will be the search to identify and implement competitive strategies for deterrence.

5. How Much Is Enough?

Finally, how much is enough? Having strengthened our defense capabilities during the first term, can we not now turn to other priorities?

The real question is: How safe is enough? I will not pretend that there is a simple answer to this question. Conclusions about risk, credibility, and deterrence rest on many difficult judgments. Some people would prefer to evade this issue by imagining that there exists some definitive calculus of deterrence. There does not. Others take the position that whatever the Administration proposes is too much. This view is also based on the wishful thinking that the Soviet threat is not as great as the facts demonstrate it is.

When building a house in an area vulnerable to hurricanes or earthquakes, contractors can take greater precautions, or fewer -- spending more or less on what they call the "safety premium." Consider an individual who builds his family home in the path of recurring hurricanes with no attention to that threat, and who would then keep his family in the house during a hurricane rather than evacuate to a safer area. Most Americans would judge such an individual negligent and reckless. The question for the American people in planning for our defense is how prudent -- or risky -- we want to be with our nation's security.

The issue is even more pointed. The analogy of a "safety premium" in the construction of a house is passive. In fact, our preventive actions affect potential aggressors' decisions to threaten our interests. Military strength is better than repairing the damage, since it reduces the likelihood of attack as well as the level of destruction.

Consider another simple analogy. Our national security can be compared with protecting our safety from criminals at home. By making our businesses and houses more secure against crime, and by maintaining police and courts that assure swift and certain punishment of criminals, we present disincentives to crime. In a similar manner, when U.S. defense capabilities are sufficient to persuade the Soviet Union that its aggression will fail, we dissuade Soviet challenges.

In equipping and manning U.S. forces, the Department of Defense cannot and does not spend a dime that the Congress does not appropriate. I recognize that many in the Congress, and many citizens, believe that our defense revitalization should stop, or even be reversed, Many cite the trillion dollar cost of the military's rebuilding program thus far, as if that is a conclusion against continuing, without recognizing that non-defense programs have cost far in excess of two trillion dollars during the same period. Of course, the United States can cut its defense spending -- but not without weakening its military forces. The United States can weaken its military forces -- but not without weakening its deterrent. We can, of course, choose to weaken our deterrent -- but not without increasing the risks of Soviet aggression.

Some Americans seem to be prepared to accept a higher risk of Soviet aggression. But I continue to believe that if the American people look squarely at this choice, the majority will decide against weakening our deterrent and, thereby, increasing the risks of war. I can assure you that as long as I serve as Secretary of Defense, I will do all I can to explain the risks as clearly as I can. Even

though I know well that this is not the road to universal acclaim, I will continue to remind anyone who will listen of the potentially catastrophic consequences of an inadequate "safety premium" and accepting less than the safest feasible deterrent.

C. THE FIRST FIVE YEARS: WHAT HAS BEEN ACCOMPLISHED

Five years ago, the Reagan Administration embarked on a program to rebuild the United States' Armed Forces and restore the military balance of power necessary to deter war and maintain peace. With the help and support of the Congress and the American people, we have made steady progress toward our goal of acquiring sufficient military strength to deter aggression, both conventional and nuclear, against the United States, its allies, and its vital interests.

Because of the multiyear lag between financial commitment and military payoffs, much of the last five-years' investment remains in the pipeline. Nonetheless, it is useful to compare the effectiveness of today's military forces with those we inherited when this Administration came into office. In absolute terms, we now possess the most effective American military force we have ever had in peacetime. According to General John Vessey, the recently retired Chairman of the Joint Chiefs of Staff, and a veteran of 46 years of military service, our military is "...in every meaningful sense far better than at any time in my long service....with better people, armed with more and better equipment."

At the beginning of this Administration, I established four priorities for rebuilding the military strength essential for stable deterrence. Those priorities were and remain:

-- To regain an effective high-confidence deterrent to nuclear war by modernizing America's strategic nuclear forces. That required upgrading and strengthening all three legs of the strategic triad and improving our ability to command and conrol those strengthened forces; funding and deploying the Peacekeeper ICBM, the air-launched cruise missile, the B-1 bomber, and additional Trident ballistic missile submarines (SSBNs); completing development and deployment of the D-5 missile in our Trident submarines; and proceeding with the development of the new Advanced Technology Bomber (ATB) and Small ICBM.

-- To rebuild our capability to deter conventional war by increasing the combat-effectiveness of our general purpose forces, specifically their readiness and sustainability, and by adding to our capability to deploy forces rapidly to distant theaters of operation.

-- To recruit and retain quality people. President Reagan and I were determined to restore our military Services to their rightful place in our society, attracting and retaining first-class people with high morale in an all-volunteer force.

-- To maintain and revitalize our alliances and add new friends as a major source of U.S. and free world strength in the long-term competition with our Soviet adversary.

In assessing the accomplishments of this Administration, it is easy to get bogged down in debate about particular achievements or failures and miss the overall effect on our nation's security of our expenditures and policies over the past five years. The central issue is what has happened to our overall defense posture, specifically our ability to deter war, under this Administration's stewardship.

1. A Safer America

During the last campaign, President Reagan asked the American public: "Are Americans safer than we were four years ago?" In the last Presidential election, most Americans thought so. It is interesting to reflect that even in the course of their call for sweeping DoD reorganization, Senators Goldwater and Nunn also agree that America is indeed safer. As Senator Goldwater has stated:

> ***Beginning in 1979, we began an unprecedented peacetime buildup of our armed forces . . . . I am proud to report that our investment has paid off. In many ways, we have never had finer soldiers, sailors, airmen, or marines. They are better educated, better trained, better equipped, and better led than at any time in the past.***

Why do Americans feel safer today than they did in 1980? Because we are safer. Recall the situation we inherited in 1981. Two decades of steady Soviet increases in military spending, matched by a decade in which U.S. defense spending declined, was beginning to tilt the military balance. Could Soviet leaders perceive this growing imbalance as providing them an exploitable advantage? If so, might they be tempted to seek political or territorial gain? Indeed, was not this precisely what they were doing in transporting Cuban proxies to Angola, or invading Afghanistan?

This Administration recognized the need to move decisively to reverse the decline. President Reagan and I saw that continued Soviet growth in contrast to our decline had created a real danger. Recognizing that the delicate balance of deterrence hinges not only on actual military capabilities, but also on leaders' perceptions of advantage, we moved to do everything we could, as quickly as we could, to ensure that under no circumstances might the Soviet leaders have any illusion that their forces could be used to advantage against our vital interests.

With what results? Since President Reagan took office and we accelerated the rebuilding of American military strength, the sequence of Soviet aggression against one country after another, stretching from Angola to Afghanistan has ceased; the Soviets have returned to the negotiating tables to which they vowed never to return; and they have, for the first time, begun discussing major reductions in nuclear weapons. While there are many reasons for these changes in Soviet behavior, no one can seriously maintain that American actions did not play an important role.

2. People

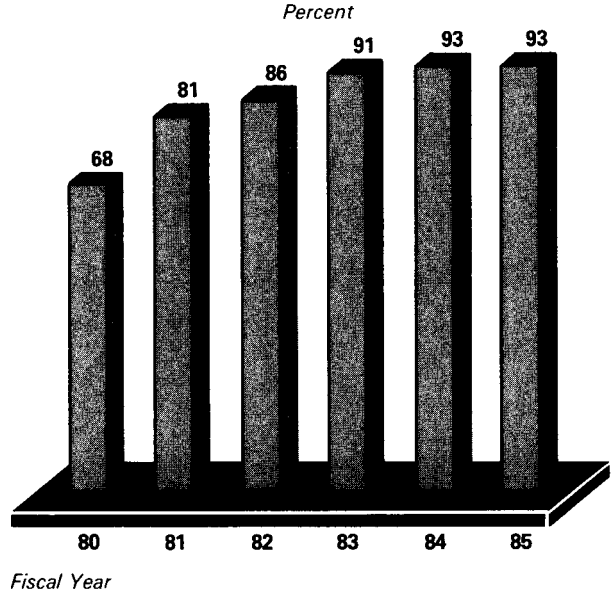
The single most important indicator of the strength of any organization is its people -- their competence, commitment, and morale. It is these professionals in our military Services who constitute the core of our military strength.

Why is the All-Volunteer Armed Force succeeding -- contrary to the expectation of many critics in 1981? How can we continue to exceed our recruitment goals and entrance standards?

No turnaround in these past five years has been more remarkable than the improvement in personnel quality and retention throughout all components of the military Services. We currently have 2.15 million people in uniform, up from 2.05 million five years ago. Last

year, 91 percent of the Army's recruits were high school graduates, in contrast to 54 percent in 1980.

Chart I.C.1
Recruits with High School Diplomas (All Services)



The retention of these skilled Servicemembers has also improved over the past five years. The first-term reenlistment rate rose from 38 percent in 1980 to 48 percent in 1985, enabling the Services to retain people with critical skills for an additional term of duty. The career retention rate jumped from 71 percent to 84 percent over the same period -- permitting us to keep the skilled, dedicated, technical people and noncommissioned leaders required for an effective military force.

These personnel are better trained, better led, better prepared, better equipped, and better disciplined than ever before. We are confident that we currently maintain a higher peacetime readiness level than at any time in the past. In spite of budget constraints, we are working hard to preserve realistic, high-quality training and exercises and the material support required to maintain these quality forces. In the long run, this will save us money, and it could save lives.

In the late 1970s, military compensation was allowed to fall far behind pay in the private sector. As the Congress debated, both enlisted personnel and officers left, taking with them valuable experience and expensive training. For example, an F-15 fighter pilot with seven years' experience and 1,300 flying hours, represents an investment of more than one million dollars. We cannot hire another fighter pilot "off the street" or from a competitor, as might be done in private industry. And 1,300 hours of flying experience are lost. The short-term savings realized by neglecting military compensation and quality of life in the 1970s became very expensive for the taxpayer and very dangerous for us all in the 1980s. This is a mistake we cannot afford to repeat.

Maintaining quality manpower is not simply a matter of dollars and cents. The commitment and devotion required to accept 24-hour-a-day duty, frequent and sudden moves to far corners of the world, family separations, and the ever-present risks inherent in serving in combat, are commonplace in the Services. This kind of devotion cannot be bought with money. If it could, we could not afford it.

Such devotion also cannot be secured, especially in peacetime, if the basic needs of our military members and their families are not met. We must attend to these needs in special ways, consistent with the special demands we place on them. Their morale and our peace and freedom depend on it. Fortunately, Americans believe in our ideals, and are devoted to protecting them. President Reagan has helped revive the nation's pride in those who wear a uniform. Continued respect for our Service men and women is a vital ingredient in our nation's future security.

3. Strategic Nuclear Forces

Our strategic nuclear posture is based upon the Triad, a combination of land-based ICBMs, sea-based SLBMs, and long-range bombers. Over the last five years, we have begun the modernization of all three legs of the Triad. That modernization was necessary because the capabilities of our Triad vis-a-vis the Soviets had declined seriously during the 1970s. Our objective has been to give U.S. strategic forces a better capability to execute our strategy, which calls for a highly effective and survivable second-strike force that could retaliate flexibly against an array of targets. This modernization effort is far from complete. But we are making major strides toward the goal of building a modern force that will meet our needs, in the face of the Soviet threat, for many years to come. Each leg of the Triad is being improved, but what matters most is the combined impact of all these improvements: they are mutually reinforcing, thereby making our posture significantly more secure.

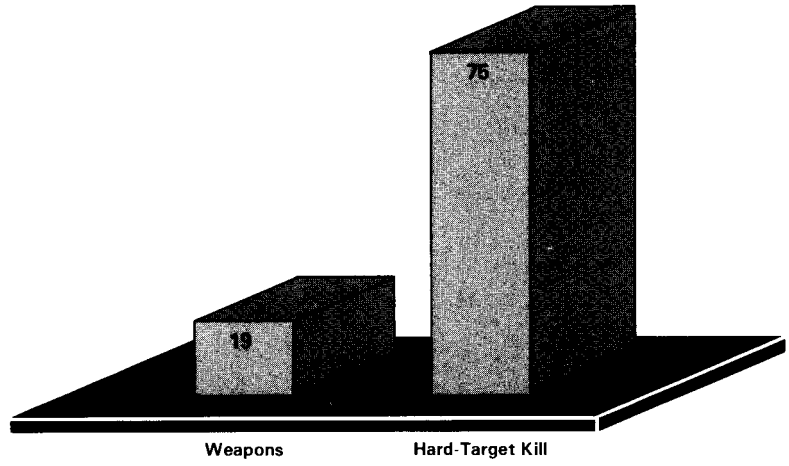
Over the past five years, five squadrons (90 aircraft) of B-52G aircraft have been modified to carry 12 air-launched cruise missiles (ALCM) each. An additional 95 B-52Hs also will be modified to carry ALCMs. The sea-based leg of the Triad has been strengthened by the deployment of seven new Trident SSBNs, each armed with 24 Trident I (C-4) SLBMs. The effect of the deployments of the B-1B bomber, Peacekeeper ICBM, and Trident II (D-5) SLBM, and of improvements in our command, control, and communications (C^3) systems will be to reinforce in the minds of the Soviet leaders the knowledge that aggression at any level against the United States and its allies can never succeed.

Chart I.C.2 shows the impact modernization has already made on our surviving strategic nuclear capability. In FY 1985, primarily as a result of the deployment of C-4 missiles on Ohio-class SSBNs, we had almost 20 percent more weapons able to retaliate after absorbing a Soviet first strike than in FY 1980. Over the same time period, and largely resulting from the deployment of ALCMs on B-52s, we achieved almost a 75 percent increase over FY 1980 in surviving "hard-target-kill" capability -- after a Soviet first strike -- a capability we must have to threaten a credible response against hardened Soviet targets. Additionally, we have reduced and eliminated many older weapons, a total of more than 8,000 since 1967.

Thus, our forces are now far more capable of absorbing a Soviet strike and retaliating in a flexible and controlled way. As funded improvements in our command, control, communications, and intelligence (C^3I) system become operational, our strategic forces will be

capable of striking back against a wide range of Soviet targets, thus enabling us to respond to any form of Soviet aggression against the United States or our allies. By eliminating any possible Soviet incentive to attack, our force improvements strengthen deterrence.

Chart I.C.2
Percent Increase Since FY 1980 in Surviving Strategic Nuclear Capability (Day-to-Day)



4. Ground and Tactical Air Forces

With the emergence of nuclear parity between the United States and the Soviet Union, our general purpose forces have become even more critical in maintaining a secure deterrent. Our strategy requires conventional forces that are capable of conducting a forward defense of critical theaters where the Soviets threaten our interests, without recourse to nuclear weapons. Our ground and tactical air force modernization programs are helping to provide the strong forward defense forces we need in Europe, Southwest Asia, and Korea.

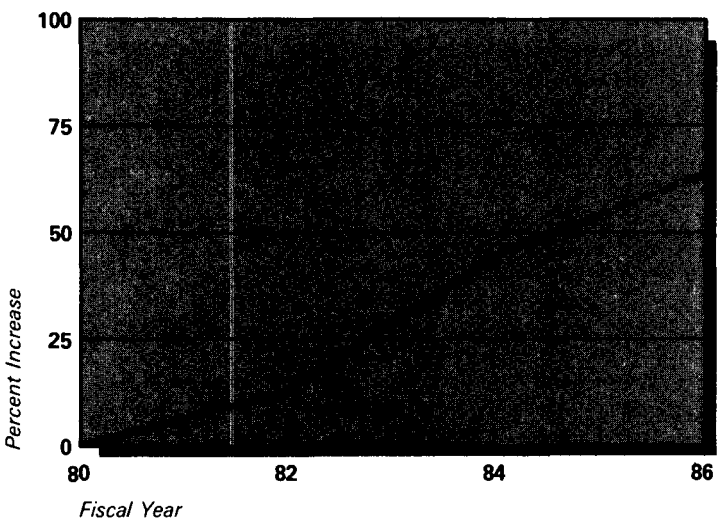
For example, the Army's modernization program, which is based on the new AirLand Battle doctrine, is providing a combined-arms capability that will enable our divisions to maintain a qualitative edge over the much larger Soviet force. We estimate that replacement of a mechanized division's M60 tanks with M1s, and substitution of Bradley Fighting Vehicles for half of its complement of M113 APCs, should increase the division's armored vehicle capability by about 55 percent. Divisional attack helicopter capability is calculated to go up by the same amount with fielding of the AH-64 Apache helicopter in lieu of the Cobra. The addition of the Multiple Launch Rocket System, in conjunction with other artillery changes, is estimated to increase divisional fire support capability by about 50 percent. Improvements in C^3I and support forces further strengthen the force's ability to employ these highly effective weapons to full capacity.

In addition, new systems such as the Blackhawk helicopter and the new jeep are improving the mobility and support capabilities of our land forces. The full impact of these major modernization

programs will be felt over the decade ahead. When they are fully deployed, our conventional deterrent capability will be greatly increased. There is no single index of warfighting capability. The

Chart I.C.3

Improved Warfighting Capability of an Army Mechanized Infantry Division[a]

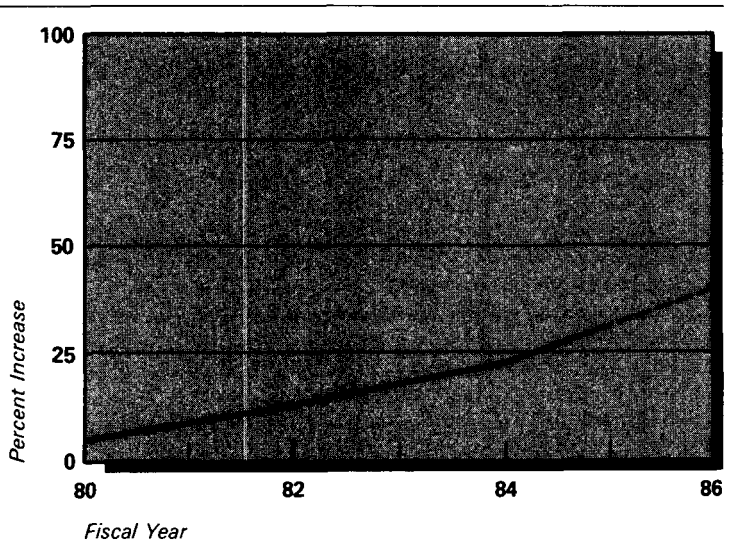


[a]Cumulative increase in warfighting capability of U.S. division compared to FY 1980 capability.

Department of Defense and the Services therefore use a combination of measures to assess net effects. One such measure that we consider

Chart I.C.4

Increase in Warfighting Capability of Army National Guard Divisions[a]



[a]Cumulative increase in warfighting capability of U.S. Army National Guard divisions compared to FY 1980 capability. Includes RC units.

reasonably sound assesses the synergistic effects of the various weapons assigned to an Army mechanized infantry division. By this measure, the warfighting capability for the lead division in the modernization effort increased by 53 percent between FY 1980 and FY 1985, and is projected to rise as much as 60 percent by the end of FY 1986 (see Chart I.C.3).

The overall warfighting capabilities of the National Guard divisions have also improved markedly over the same period, as Chart I.C.4 shows.

Together with force improvements by our allies, these modernization programs have significantly strengthened our combat capabilities in Europe and other key theaters. In Central Europe, U.S. forces are better able both to defend the V and VII Corps sectors in Southern Germany, which guard such critical attack corridors as the Fulda Gap, and to provide the mobile operational reserves, especially in NORTHAG, that NATO's posture requires to contain Warsaw Pact breakthroughs. Likewise, our ground forces not only will be able to reach the critical and distant Southwest Asian region more quickly than before (due to our mobility programs), but will also confront the Soviets with a vastly stronger, more flexible, and more durable defense posture. Our forces in South Korea, and our ability to reinforce them quickly, have improved similarly. The net improvement in our forward defense posture in these theaters is not marginal. It is fundamental.

Chart I.C.5.
Land Force Modernization

	On Hand		Procured But Not Delivered Yet in FY 85
	FY 80	FY 85	
Close Combat			
M1 Tanks	34	3,021	1,116
Bradley Fighting Vehicles	0	1,936	1,019
Hellfire Missiles	0	111	14,533
Helicopters			
AH-64 Apache	0	45	264
AH-1S Cobra	538	990	11
UH-60 Blackhawk	0	584	15
Air Defense Missiles			
Patriot	0	612	978
Stinger	0	6,554	5,096
Artillery			
Multiple Launch Rocket System	0	204	100
Copperhead	0	8,541	6,349

Ongoing modernization programs for our tactical air forces supplement our ground force programs. Here again, an array of measures demonstrate steady improvement in the capability of our tactical aircraft. One of the most reliable measures relates to the number of sorties the tactical air forces can fly, and the availability and effectiveness of munitions. Since 1980, we have increased our ability to generate fighter sorties by about 80 percent, and to

conduct them with better, more lethal munitions. As a result, the ability of our tactical air forces to destroy enemy air forces both in the air and on the ground has improved substantially. In addition, immediate readiness for combat has gone up in the past three years. The mission-capable rates of Air Force fighter/attack aircraft rose from 62 percent to 67 percent. This is especially notable in view of the increase from 15 to 19 hours in monthly flying time per aircrew and the larger inventory of aircraft to be operated and maintained.

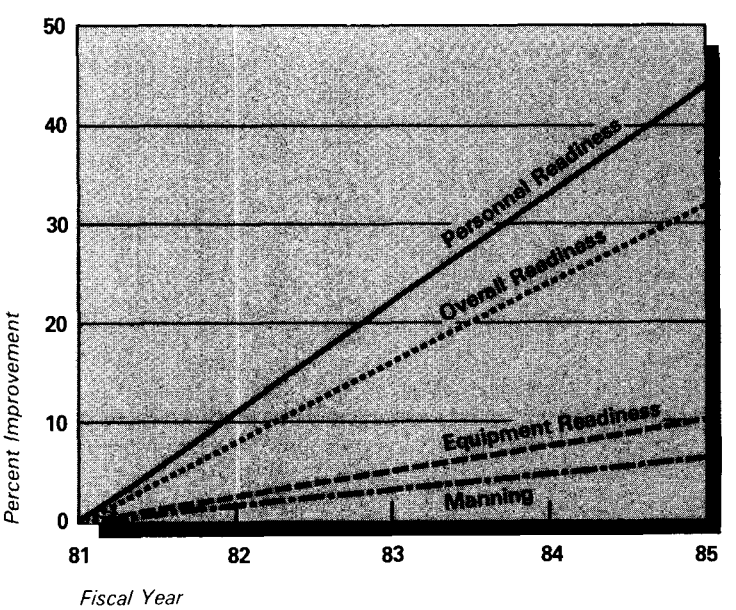
Our tactical air forces are becoming significantly more capable of destroying Soviet armored ground forces. Since World War II, our air forces have faced the demanding problem of aiding our outnumbered ground forces in deterring a Soviet attack on Western Europe and elsewhere. While we always have had substantial tactical air forces to perform this mission, we have faced major constraints in improving the accuracy and lethality of their munitions to the point that they could efficiently destroy Soviet ground targets, especially armored vehicles. With progress in aircraft avionics and munitions, this problem is now being overcome. Over the next few years, our aircraft will improve their capability to perform this difficult mission.

5. Naval Forces

The warfighting capability of our naval forces is improving markedly with the increase in the quantity and quality of our ships. In October 1985, the deployable battle force stood at 541 ships, well along the way to our goal of 600. In addition, readiness has risen sharply, as noted in Chart I.C.6.

Chart I.C.6

The 600-Ship Navy: Fleet Manning and Readiness Up

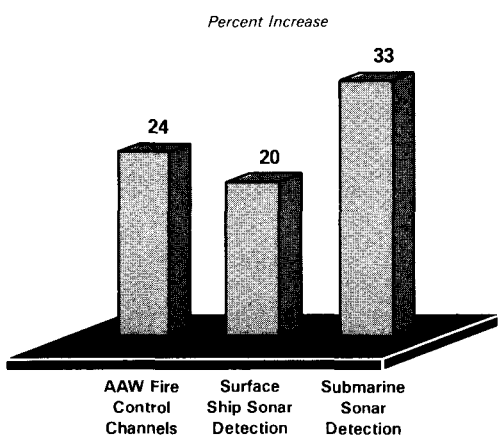


Improved target-acquisition and tracking systems, like the Aegis, have boosted the capability of our forces to conduct antiair warfare (AAW) operations. Similar improvements in antisubmarine warfare (ASW) capabilities have followed from the development of advanced detection and tracking systems and the addition of the high-technology Light Airborne Multipurpose System (LAMPS) MK III helicopter. And finally, new attack submarines, far quieter and outfitted with advanced sonar systems, are rapidly replacing older, less capable units. The Tomahawk cruise missile gives these submarines not only a surface-to-surface attack weapon, but also the ability to strike land targets at extended ranges. Several of the principal changes in our AAW and ASW force capability are summarized in Chart I.C.7.

The status of naval aviation is equally positive, marked by steady increases in the number of F-14, F/A-18, P-3C Update III, SH-60B, and A-6E aircraft entering the fleet. Design emphasis on maintainability and reliability has increased aircraft utilization and reduced down time for all of our new aircraft. Mission capable rates for Navy fighter/attack aircraft -- the teeth of our carrier battle groups -- jumped from 53 percent in FY 1980 to 66 percent in FY 1985, with further increases expected in future years.

The net effect of these improvements has been to strengthen our maritime defenses around the globe. In the European theater, for example, U.S. and allied forces are becoming more capable of defending the critical North Atlantic sea lines of communications (SLOCs), reinforcing our allies along the flanks, and containing Soviet naval forces in northern waters. Concurrently, our naval forces are acquiring a better capability to secure our Pacific SLOCs and to contain Soviet naval forces in their home ports. Finally, a stronger naval posture enables us to project maritime power into the Indian Ocean and Persian Gulf, even while meeting our wartime requirements in the Atlantic and the Pacific. This worldwide naval capability helps our forces secure control of the oceans, thereby allowing the United States to project military power to any area where the Soviets might contest our vital interests.

Chart I.C.7
Increase in Selected Naval Capabilities[a]
(FY 1985)



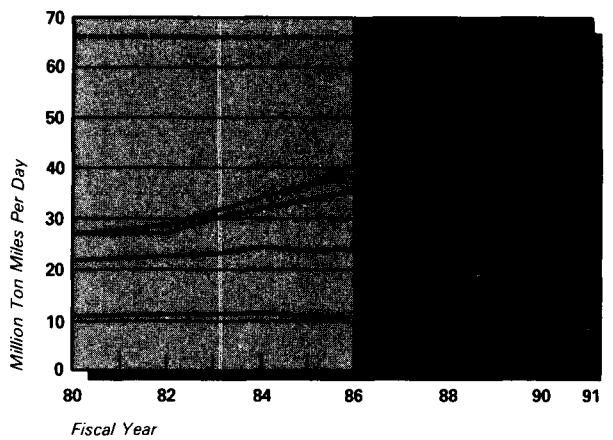
[a]Compared to FY 1980 capability.

6. Strategic Mobility Forces

These forces include our very large intertheater transport aircraft (such as the C-5 and C-141), the air-to-air tankers that refuel them, and our sealift forces. The C-5A aircraft are being equipped with replacement wings, and the C-141Bs have been stretched and given an in-flight refueling capability.

Very significant increases in lift capacity have been achieved since 1980, as indicated in Charts I.C.8 and I.C.9. Airlift capability has increased by about 35 percent, and by the end of the program, the increase will be almost 90 percent. Included are purchases of 50 new C-5Bs and 44 additional KC-10s (for a total of 60). (The latter aircraft increase aerial-refueling support for tactical aircraft as well as for the airlift fleet.)

Chart I.C.8
Strategic Airlift Capability[a]

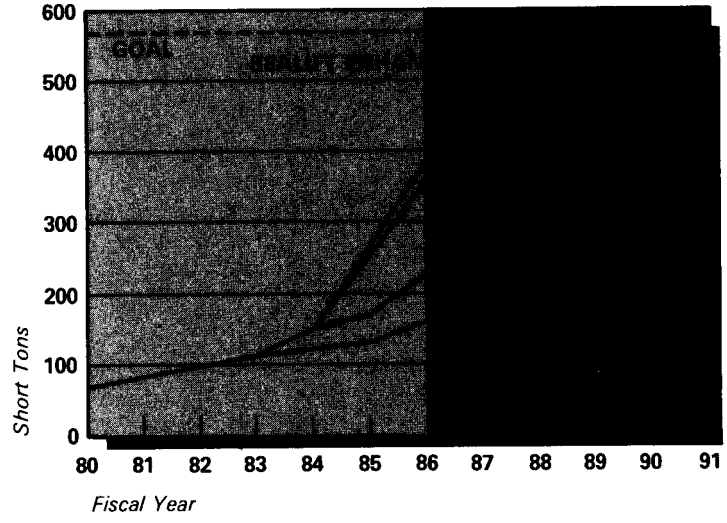


[a]The C-17 does not achieve initial operational capability until FY 1992 and is not included.

Improvements in sealift have been even more dramatic. By the end of 1986, all eight Fast Sealift Ships (FSS) will have been modified to a roll-on/roll-off configuration, providing the ability to deploy rapidly an entire heavy division and its associated support. In addition, all three Maritime Prepositioning Ship (MPS) squadrons will be on station, providing for the rapid deployment of an entire Marine Amphibious Force (MAF). Total growth in government-controlled sealift since 1980 has been nearly 300 percent and by the end of the program will be nearly 700 percent.

These improvements in strategic mobility significantly increase our ability to respond to threats to our interests, especially in distant areas, that demand a fast U.S. response. In Europe, for example, our mobility programs are building toward a capability to deploy six combat divisions and 60 tactical fighter squadrons by ten days after mobilization, thereby enhancing NATO's posture. The effect in Southwest Asia is even more dramatic. Prior to these programs, we could have deployed only one division to the Persian Gulf in the first month. Once these programs are complete, we will be able to deploy seven divisions in Southwest Asia.

Chart I.C.9
Dedicated Strategic Sealift Capacity



7. Special Operations Forces

When this Administration took office in 1981, one of the most urgent tasks we confronted was the revitalization of our Special Operations Forces (SOF). We have made substantial progress toward achieving our goals in this area, and we continue to assign a high priority to completion of the effort.

In 1981, funding for SOF totaled about $440 million. The state of readiness was not consistent with heavy peacetime utilization, the key role of SOF in contingency response, or the early employment of SOF in wartime. Moreover, following the deep cuts of the 1970s, the force structure was substantially short of meeting requirements at all levels of conflict.

Chart I.C.10
Special Operations Expansion

	FY 1981	FY 1987	FY 1991
Total Funding (millions)	$441	$1,693	$1,822
Special Forces Groups[a]	7	8	9
Ranger Battalions	2	3	3
Psychological Operations Battalions	3	4	4
SEAL Teams	2	5[b]	6[b]
SEAL Delivery Vehicle (SDV) Teams	0	2[b]	2[b]
Seafox (Special Warfare Craft, Light)	8	36	36
Sea Viking (Special Warfare Craft, Medium)	0	0	18
MC-130 Combat Talon	14	14	29
AC-130 Spectre Gunship[c]	20	20	32
HH-53H Pave Low	9	9	19
MH-60X Helicopter	0	0	12
MH-47E Helicopter	0	0	15

[a]Includes four Reserve Component groups.
[b]Includes two Underwater Demolition Teams redesignated in 1983.
[c]Includes ten AC-130A Air Force Reserve gunships. FY 1991 number reflects addition of AC-130H aircraft replacing the AC-130As in the Air Force Reserve.

Chart I.C.10 displays the expansion of SOF to date and the initiatives contained in the FY 1987-91 program.

8. Command and Control

Effective command and control of U.S. forces depends on reliable and survivable equipment. At the strategic level, computer capacity and throughput rates have improved significantly, along with the coverage provided by defense satellites. Strategic command, control, and communications also have been made far more secure and survivable since 1981, and we are well on the way to developing the robust C^3 capability we need for effective nuclear deterrence.

At the tactical level, the Army is adding new field communications systems and improving the efficiency of its signal battalions. One such example is the Mobile Subscriber Equipment (MSE) program, which will provide military commanders with a survivable, secure, mobile capability to communicate throughout the battlefield. For the first time in the history of the Army, this will allow units to have fully interoperable, encrypted, jam-resistant, mobile, tactical communications equipment. The MSE program uses an innovative, competitive non-developmental acquisition strategy that will save in excess of $500 million in RDT&E funds and over $1.5 billion in acquisition costs. Acquisition of off-the-shelf equipment will allow the Army to begin fielding this new capability in less than three years and complete conversion of the Army five years later. The Air Force has added both command and control aircraft and centers; the Navy has more than tripled the number of ship satellite communications systems and increased shore satellite terminals five-fold since 1981.

D. THREATS, MILITARY BALANCES, AND NET ASSESSMENT

We have made considerable progress over the last five years in restoring our military strength. In conjunction with efforts of our friends and allies, renewed American strength has contributed to world peace. Yet the threats to our vital interests also have grown and pose a continuing challenge both to our capabilities and our resolve.

The Soviet Union remains the major military threat to the United States and its interests. They persist in an unrelenting arms build-up that has continued for more than 20 years. The magnitude of that effort is so great that it consumes 15 to 17 percent of their gross national product (GNP). Even more worrisome is the magnitude of their effort relative to ours. Over the last 20 years, the estimated dollar cost of the Soviet military program has been more than 30 percent greater than our own.

Comparisons of military power in various functional and regional areas in which we compete are termed military balances. Net assessment seeks to weigh not only the threat posed by military forces but also U.S. capabilities to meet that threat, and thus the net effect. Such assessments assist in identifying adverse trends before they become too severe, and enable us to focus our efforts to redress them.

1. The Nature of the Soviet Threat

The Soviet Union has long relied on military power as its primary instrument for expanding control and influence throughout the world. Consequently, its military forces are structured and designed as offensive forces, ever growing in size and sophistication, meant to intimidate and, if necessary, to impose the will of the Soviet Union on other nations. The Soviet military deploys more than 30 divisions throughout Eastern Europe. They maintain a large naval and air base at Cam Ranh Bay, Vietnam; a brigade in Cuba; and large numbers of military advisors throughout the Third World. Today, 115,000 Soviet troops are at war in Afghanistan. And the continuous flow of increasingly sophisticated weapons to Marxist regimes like the Sandinistas in Nicaragua and revolutionary groups testifies to their commitment to fostering instability in the Third World.

While Soviet leaders regard military power as their primary strength, they view the struggle with the West as multidimensional, combining political, economic, scientific, ideological, and military factors into what they characterize as the "correlation of forces." The Soviets constantly work to modify and exploit this correlation to their benefit through subversion, propaganda, covert activities, the use of proxies, and the threat of intervention. Brezhnev declared in 1973: "A decisive shift in the correlation of forces will be such that by 1985 we will be able to exert our will whenever we need to." Although the efforts of the Western world prevented the Soviets from reaching their 1985 goal, we must continue our efforts to ensure that they never reach it.

Soviet ambitions are global. Lenin wrote: "We aim at the firm union and full fusion of the workers and peasants of all nations of the world into a single, worldwide Soviet Republic." This goal remains unchanged. Attempting to achieve it requires extraordinary efforts to build and maintain armed forces. The totalitarian nature of the Soviet Union, and the closed and secretive nature of its society, permit the leadership to direct huge resources to military expenditures at the expense of the quality of life of the Russian people. And make no mistake, these military efforts have indeed

come at such an expense. Soviet real GNP growth has been slowing since 1970. Civilian investment and consumer goods have been constrained in order to fund the huge military buildup. The rate of growth of per capita consumption in the Soviet Union has declined consistently since the 1960s -- over 4 percent in the late 1960s, less than 3 percent in the first half of the 1970s, less than 2 percent in the last half of the 1970s, and barely 1 percent in the first half of the 1980s. Among industrial nations, only in the USSR has life expectancy declined during the past two decades, death rates (including infant mortality) increased, and control of major communicable diseases deteriorated dangerously. Clearly the Soviet leadership has been willing to sacrifice the very people it ostensibly represents in order to fund, beyond any reasonable level, its military programs.

The "alliances" the Soviet Union maintains are built on coercion and Soviet military power. The Warsaw Pact is not a free and voluntary association of sovereign nations like NATO. Rather, it is an empire based on intimidation and fear. When the people or governments of those nations attempt to make choices for themselves, the Soviet Union has not hesitated to use either its military power to crush them, as it did in Hungary in 1956 and Czechoslovakia in 1968, or covert action backed by a threat of intervention to undermine them, as it did with Solidarity in Poland. According to the Brezhnev Doctrine, proclaimed in 1968 and reaffirmed regularly thereafter: "The sovereignty of individual Socialist countries cannot be counterposed to the interests of world socialism and the world revolutionary movement."

A prudent American defense policy must respond to Soviet programs and to the character of the Soviet system. In framing our defense policy, we must consider the nature of the threat to our vital interests, the trends in the various military balances, and our net assessment of how well we are doing relative to our adversary in each arena.

We must also attend to longer-run strengths and weaknesses. Their totalitarian system gives the Soviet leaders command and control of the Soviet Union's population and resources with minimal constraints of a constitution, competing authorities, or public opinion. This allows them to direct political, military, economic, and ideological instruments at will and in secret. They exercise considerable control over their allies. Their geopolitical situation allows them to probe and exploit opportunities for expansion both in Europe and Asia. And by an unparalleled effort, they have in one dimension become a superpower with a military might of extraordinary proportions.

But in the longer run, Soviet weaknesses become even more impressive. The heart of their long-term weakness is the source of their short-term strength: their political system's command and control of every area of Soviet life. Such control risks sclerosis. An economy coordinated by politicized command rather than market forces has seen its rate of growth steadily decline. Such control inhibits adaptive experimentation especially in an era of rapid technological change led by independent centers of initiative. The revolution spearheaded by micro-electronics and computers depends upon widespread access to information and communication, and thus poses for the Soviet systems a threat of terminal decline. Geography bequeaths them no warm water ports, thereby limiting ocean access. Short-term advantages of empire are falling victim to the inevitable strains inherent in an attempt to dominate nations with the histories and traditions of the Eastern Europeans. Geopolitically, it has been

quipped that the Soviet Union is the only nation to be entirely surrounded by hostile communist countries. They face the threat of adversaries on two fronts, NATO to the West and the People's Republic of China (PRC) and Japan to the East. Trends in demography, health statistics (especially alcoholism), and the growth of non-Russian nationalities challenge the Soviet leaderships' conception of their regime. The political and cultural values enshrined in Soviet communism are falling behind the march of history.

In sum, the Soviet Union is a formidable adversary today, and will remain so for the foreseeable future. But the longer-term prospects for the forces of freedom and democracy are bright -- if we have the fortitude to deny them exploitable military options.

2. Assessing Military Balances

Net assessments of military balances help us to determine whether we and our allies can achieve our security objectives despite opposition from adversaries. By comparing not just numbers of weapons or troops, but the capabilities of their forces against ours over time, net assessment allows us to judge the severity of threats to our interests and to identify areas of emerging concern.

Assessing military balances is not an exact science. Judgments must be made in defining the framework for analysis and identifying the countries whose forces are to be compared, the types of forces, their locations, the time frame, and the measures by which comparisons are to be made. For some purposes, such as assessing the strategic nuclear balance between the United States and the Soviet Union, only the forces of those two nations need be considered. Other assessments, such as the conventional military balance in Europe, require consideration of the forces of NATO and the Warsaw Pact nations.

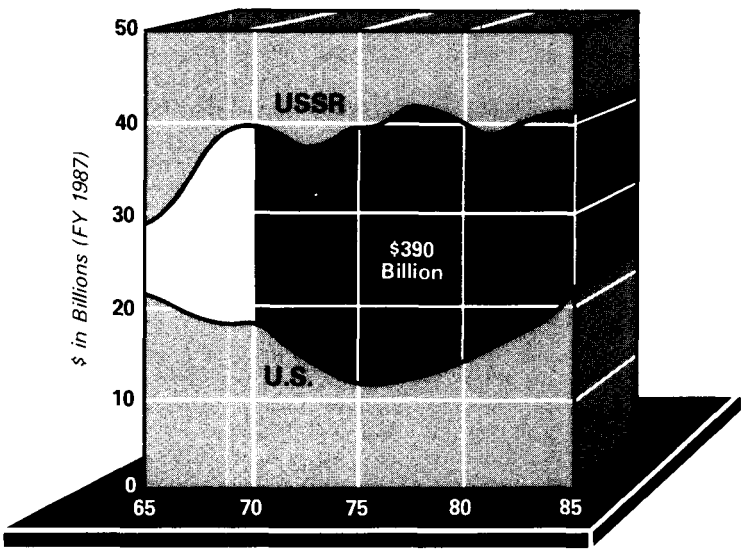
The choice of what is to be compared is more difficult. A particular assessment may involve consideration of one, several, or all kinds of military forces (e.g., strategic nuclear, theater nuclear, conventional, or maritime). Straightforward quantitative comparisons require decisions on whether they should be regional or global, and on whether to include total inventories or only those items in operational units. Dual-use systems, such as artillery capable of firing both nuclear and conventional munitions, also present counting problems. One could compare the weapons systems of each side (e.g., tanks versus tanks, or attack aircraft versus attack aircraft), or with the counter-systems of the other side (e.g., tanks versus antitank weapons, or attack aircraft versus air defenses). Recognizing that numbers of people and equipment do not accurately reflect military capabilities, most assessments take into account some qualitative aspects of the forces. But we have only imprecise knowledge of the performance characteristics of many Soviet weapons, and the data available for many of our own systems are rarely obtained under conditions of actual combat. Moreover, some of the most important variables such as military leadership, troop training, organizational structures, and alliance cohesion are less tangible.

In addition to quantitative and qualitative aspects of the forces themselves, economic measures serve as useful standards for comparison. Because the forces of the two sides differ in size and nature, comparisons are difficult, but some indication of their perceived utilities is provided by their costs. A highly aggregated measure of particular interest is overall military investment (that is, expenditures for research, development, test, and evaluation; procurement; and construction). In this category, the Soviets have led the United

States for about two decades, by very large margins in the mid-1970s and by somewhat smaller margins in the early 1980s (see Chart I.A.1).

Chart I.D.1

A Comparison of U.S. Strategic Force Expenditures with the Estimated Dollar Cost of Soviet Forces[a]



[a]Excludes RDT&E

After the information for a particular net assessment has been gathered, it must be analyzed and presented in ways that permit meaningful comparison. Analysis can range from categorization and aggregation, to calculations of outcomes of hypothetical armed conflicts in a range of scenarios and "war games" involving skilled and experienced participants. Each method involves judgments and interpretations; each has inherent strengths and weaknesses; and each can provide meaningful approximations and insights. While no single net assessment can accurately and confidently determine whether our security objectives can be met, the net assessment process makes a valuable analytical contribution in evaluating how we are doing and identifying ways in which we can do better.

3. The Strategic Balance

As a result of President Reagan's strategic modernization program, the strategic balance is adequate to deter Soviet nuclear aggression against the United States and its allies today. If the Congress permits us to complete this modernization program, we believe the United States will have a secure nuclear deterrent for the decade ahead. But the Soviet Union is not standing still.

In the past year, the Soviet modernization program has continued with the development and deployment of new generations of more capable land, sea, and air forces. Having just completed an extensive deployment of a new generation of intercontinental ballistic missiles (ICBMs), they have begun deployment of yet another new generation of

ICBMs. The new single-warhead, road-mobile SS-25 is now being deployed (in violation of their stated policy to adhere to SALT II), and the multiple-warhead SS-X-24 will be deployed soon, in both a silo-based version and a rail-based version. At least three new Soviet ICBMs are being prepared for flight-testing within the next five years: a new silo-based heavy ICBM follow-on to the SS-18, a new version of the SS-X-24, and a new version of the SS-25, potentially with a MIRVed payload.

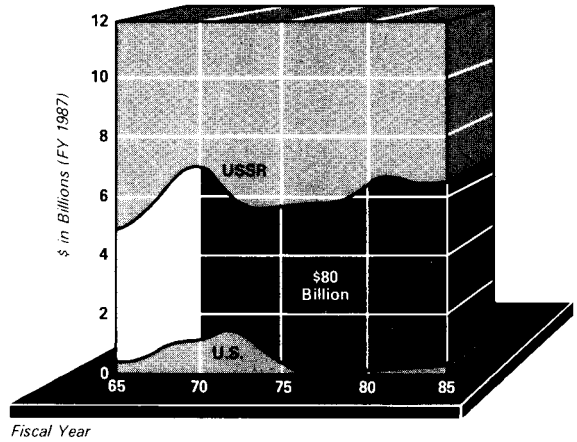
The capability of the large fleet of 62 modern Soviet ballistic missile submarines (SSBNs) is being enhanced by the construction of more advanced and quieter vessels. The longer range SS-N-20 sea-launched ballistic missile (SLBM), deployed aboard Typhoon SSBNs, and the SS-NX-23, destined for the Delta III and IV class submarines, allow this more sophisticated Soviet SSBN force, with more accurate missiles, to conduct patrols in waters protected by Soviet air and sea forces. The Soviets have also added the long-range SS-NX-21 sea-launched cruise missile to their already deployed arsenal of shorter range nuclear SLCMs. Another new long-range cruise missile, the SS-NX-24, is also being tested. We expect a replacement for the SS-N-20 SLBM to be flight-tested soon, and one for the SS-NX-23 SLBM later in this decade.

Furthermore, the Soviets are continuing to diversify their offensive strategic capabilities. They have begun deploying the new Bear-H bomber, armed with modern, long-range, air-launched cruise missiles, and are developing another intercontinental bomber, the Blackjack. These programs will complicate the tasks of U.S. continental strategic air defense and significantly increase the Soviets' ability to augment their worldwide ballistic missile attack potential with highly flexible manned bomber systems.

In conjunction with this offensive buildup, the Soviets continue to increase their passive and active defenses in a clear and determined attempt to blunt the effects of U.S. retaliation. Their expenditures for strategic defenses are far greater than ours (see Chart I.D.2). The passive measures include both the hardening of ICBM

Chart I.D.2

A Comparison of U.S. Strategic Defense Procurement Expenditures with the Estimated Dollar Cost of Soviet Strategic Defense



silos and launch facilities to an unprecedented degree (far above the strength of our Minuteman silos), the proliferation of hardened leadership and command, control, and communications (C^3) bunkers, and an extensive civil defense effort.

Soviet advantages in active strategic defense are substantial and increasing. These forces include air defense, missile defense, and since the 1960s, antisatellite defense. The Soviet Union has an ever-expanding strategic defense research and development program. It has the world's only operational antisatellite (ASAT) weapon capable of destroying satellites in low-earth orbit. It has developed and deployed the world's only operational antiballistic missile (ABM) system around Moscow that is being expanded to limits allowed by the 1972 ABM treaty. Additional advances include construction of an interlocking network of new large phased-array radars. So committed is the Soviet Union to ABM defense that in order to complete their phased-array radar network, they constructed a major radar at Krasnoyarsk, Siberia in clear violation of the ABM treaty. A new system of missiles and radars could be fully operational by 1987.

The Soviet defense research program addresses many of the technologies being examined in the U.S. Strategic Defense Initiative (SDI), but represents a far greater investment in terms of plant space, capital, and manpower. Considerable effort has been dedicated to laser weapons, and the Soviet Union has gone beyond research in some cases. They already have ground-based lasers that could interfere with U.S. satellites. Prototype space-based antisatellite laser weapons and ground-based lasers for defense against ballistic missiles are possible by the end of the 1980s. Testing for a large-scale system could begin in the early 1990s. Finally, the Soviets continue strategic defense research in particle beam, radio frequency, and kinetic energy weapons, and could field selected prototypes of these weapons by the mid- to late 1990s.

The net result of these Soviet efforts is to create an overall military posture designed to fight and win a nuclear war. Indeed, the magnitude of Soviet expenditures on offensive and defensive forces, combined with evidence from their military exercises and writings, underlines our strong conviction that the Soviets continue to believe that a nuclear war could be fought and won. Our strategic modernization program is designed to convince the Soviets of the impossibility of such an outcome.

Over the past five years, we have begun to reverse the negative trend evident in the 1980 strategic balance. Even though strategic modernization is a long-term enterprise, we are already benefitting from this Administration's efforts. Specifically, we are completing one Trident submarine annually, deploying air-launched cruise missiles (ALCM) on selected B-52s, introducing the new B-1B bomber into operational units, and outfitting surface and subsurface ships with nuclear armed sea-launched cruise missiles. The on-going modernization of our sea-based and bomber forces provides us with more survivable delivery vehicles with greater effectiveness against better defended Soviet targets.

A less heralded but equally important strand of our strategic modernization has concentrated on our command, control, communications, and intelligence (C^3I) systems. The command and control systems we inherited included many serious vulnerabilities. Most of these shortcomings had been recognized by prior administrations, but none had paid the price to overcome them. The Reagan Administration has devoted more than 16 billion dollars to this effort to date

-- with notable results. If the Soviet Union had been tempted by any sliver of hope that a nuclear attack could "decapitate" our political leadership and destroy our capacity to command and control a response, we believe that temptation has now been discouraged. Thus, our command, control, and communications improvements make it less attractive for the Soviets to consider a preemptive attack directed against our command system.

While U.S. modernization programs have maintained our ability to deter Soviet aggression, the magnitude and rapidity of Soviet strategic force enhancements underscore the need to sustain our efforts if we are to preserve the strategic balance and thus ensure the viability of our deterrence. The Soviet threat to the United States and its allies is projected to grow into the 1990s. The Soviet ballistic missile systems will be even more effective against hardened targets, and the new SSBNs and mobile ICBMs will be more survivable against U.S. retaliation.

Our strategic modernization program is designed to meet the challenges of this evolving threat and maintain strategic stability. The full weight of the President's strategic modernization program will be felt in the late 1980s and early 1990s as the Peacekeeper and Small ICBM, Trident II SLBM, advanced technology bomber, and advanced cruise missiles begin to enter the force. By the mid-1990s, Congress permitting, our land, sea, and airborne strategic deterrent forces will be almost totally modernized. Our command, control, communications, and intelligence systems will be able to manage our forces more effectively during demanding contingencies. Thus, our strategic forces will be more survivable and more effective against the full range of Soviet targets.

Our retaliatory force modernization program is not designed to achieve strategic superiority. The Strategic Defense Initiative is designed to enhance stability and deterrence by providing a shield against Soviet ballistic missiles and thus further reducing any Soviet incentive to initiate an attack against the United States or its allies. That is why we pursue strategic defense so vigorously and why we will continue to do so. Until the strategic defense system is deployed, our strategic offensive programs are intended to, and will, strengthen deterrence by preventing the Soviets from substantially tilting the strategic balance in their favor. In this way, we continue to deny them the opportunity to use, or threaten to use, their military forces as an instrument of aggression or coercion.

4. The NATO-Warsaw Pact Balance

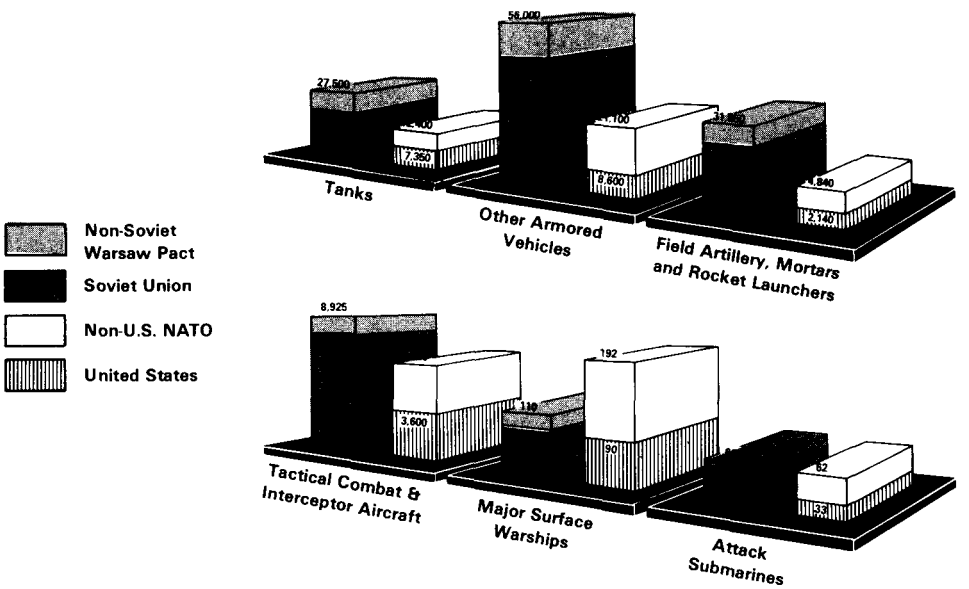
The array of deployed Soviet and Warsaw Pact ground forces, supported by massive Soviet nuclear missile forces, heightens both the likelihood of war and the consequences that would follow from a conflict in Europe. These forces demand that we and our allies continue to devote our attention to maintaining a credible deterrent against Warsaw Pact aggression across the entire spectrum of potential conflict. It is our judgment that NATO currently maintains a credible capability to deter any Warsaw Pact attack, since it is not likely that Soviet assessments of the current balance of forces would give Soviet leaders high confidence of attaining their wartime objectives at acceptable costs.

Nevertheless, in Europe the Soviets maintain an overall quantitative advantage in conventional forces. Since the mid-1970s, they have widened their advantage by producing major weapons at rates exceeding the combined rates of the United States and its NATO allies,

particularly in the area of ground forces (see Chart I.D.3). The general quality of Soviet weaponry and equipment has also improved markedly -- aided by the purchase or theft of Western technology. By any measure, the Soviets and their Warsaw Pact allies have built a military force far exceeding that required for the defense of their territory.

Chart I.D.3

Production of Selected Weapons for NATO and Warsaw Pact Forces (1975-1985)



The Warsaw Pact continues to hold a quantitative advantage in forces on-line in Europe, with a 2-to-1 lead in major combat items, such as tanks, attack helicopters, and combat aircraft. In ground combat power alone -- a measure that includes the number and quality of armor, antiarmor, and fire support weapons -- the Warsaw Pact has widened its advantage across the Central European theater from about 1.9-to-1 in 1970 to more than 2.2-to-1 in 1985.

The maneuver elements of these forces are being expanded and are supported by an impressive array of missile forces including Scaleboards, Scuds, and Frogs. The Soviets continue to replace their older missiles with newer, more capable SS-21s and SS-23s. These new missiles are more mobile and more accurate than previous versions, and can deliver conventional and chemical munitions as well as nuclear warheads. The Soviets also have maintained the momentum in development and deployment of their shorter-range and intermediate-range nuclear forces (INF). As a result, they have a greater than 7-to-1 advantage in warheads on shorter-range missiles and at least a 6-to-1 lead in warheads on longer-range INF forces. They continue to test, produce, and stockpile chemical weapons and have a substantial advantage over NATO in chemical warfare capability.

Qualitative improvements in the Warsaw Pact forces compound their quantitative advantages. Their T80 tank is one of the best in the world, and they continue to improve their attack helicopters. New

self-propelled artillery increases the maneuverability and rate of advance of their offensive operations. An increasingly diverse and sophisticated array of air defense systems protect their air bases and ground forces from NATO's air forces. These protection systems include sophisticated electronic countermeasures and short-range missiles that pose a growing threat to the survivability of NATO's operating systems, bases, and air defenses.

While NATO's traditional qualitative edge in weaponry and equipment and its better theater air forces have eroded in the face of Soviet improvements in artillery, tanks, fighting vehicles, and aircraft, NATO continues to enjoy some distinct advantages. The military application of emerging technologies, competence of NATO aircrews and support personnel, and superiority of NATO's latest front-line aircraft are examples of those advantages. But the Soviets have continued to modernize their air forces, while expanding the Pact's tactical aircraft inventory. Two new Soviet all-weather fighter/interceptor aircraft with look-down/shoot-down weapons systems, the Su-27 Flanker and MiG-29 Fulcrum, are expected to be operational in significant numbers in Eastern Europe by the late 1980s. To take full advantage of the increased range, weapons loads, and better maneuverability of these aircraft, the Soviets have begun to experiment with new tactics that place greater emphasis on pilot initiative and independence.

The quantitative advantages and qualitative improvements that the Soviets continue to make are even more troublesome in light of the Pact's obvious offensive warfighting orientation. Their offensive doctrine and the creation of operational maneuver groups of up to corps-size imply an intention to move rapidly across Western European soil. Their growing stockpiles of ammunition and fuel are clear manifestations of their desire to sustain such a conflict long enough to achieve their military objectives. And by streamlining the command structure for their strategic air, tactical air, and air defense forces, the Soviets have significantly improved their capability to launch simultaneous large-scale offensives in widely separated theaters.

NATO has taken a number of steps to bolster deterrence by countering Pact developments. The modernization of ground and air forces, and the deployment of Pershing II missiles and ground-launched cruise missiles are necessary steps to meet the evolving threat. Although NATO's deterrent posture remains credible for the present, the overall trends in combat potential are adverse and demand continued major commitments on the part of the United States and its allies. Without such investments, the risks of conflict will increase rapidly.

5. The Southwest Asian Balance

Southwest Asia's vast energy resources and its geostrategic position make it a target of Soviet ambition, and thus potentially a primary theater of military operations. The Soviets maintain major ground and tactical air forces in their military districts contiguous to Southwest Asia. For the last six years, they have attempted to subjugate Afghanistan. Since the early 1970s, they have been developing bases and maintaining a naval presence in the Indian Ocean.

As in Europe, our objective in this region is to deter Soviet aggression by making the potential costs incommensurate with expected gains. On entering office in 1981, we found U.S. force projection capability for Southwest Asia to be inadequate -- about two ground

divisions and several hundred aircraft -- with serious deficiencies in strategic mobility and other types of support. We moved to improve the regional balance and have organized a new unified command, CENTCOM; built its potential force allocation to more than five divisions and more than 600 tactical aircraft; created a rapid deployment capability for about four divisions (largely through U.S.-based fast sealift and maritime prepositioning in the Indian Ocean); and added significantly to our support capability, particularly with respect to operations in desert or mountainous terrain.

The primary Soviet threat to Southwest Asia during a global conflict would be some 25 ground divisions and about 900 tactical aircraft now based in the Caucasus and Turkestan areas of the southern USSR. Selected Soviet long-range bomber and naval forces could also be employed to disrupt our projection efforts. While their proximity to the region provides an advantage in the balance, in any attempt to secure Southwest Asia's oil fields, the Soviets would still have to maintain lengthy lines of communications that would be subject to interdiction by our air and unconventional warfare forces. It is likely that a substantial portion of their ground forces would be needed for local security, and difficult terrain would limit their ability to bring additional forces to bear. Consequently, we believe that we could conduct a successful defense of Southwest Asia with substantially fewer ground forces than the Soviets, provided that our forces are heavily supported by tactical air.

If we are to furnish effective help to the many countries in the Middle East that could be threatened by Soviet attacks, we need forces in or near the area. Yet, political problems and limitations concerning facilities and access rights in peacetime continue to restrict our Southwest Asia force improvements. We are gradually overcoming these difficulties. The emphasis we have placed on CENTCOM and its associated forces will help to convince our friends in the region to join more fully with us in collective security efforts. Their cooperation is essential to keeping the peace in this volatile and valuable region. In any case, the Soviets will have to take account of our growing capabilities to combat any aggression they might attempt against the free world's vital interests in Southwest Asia.

6. The East Asian Balance

The Soviets have continued to expand and modernize their forces in East Asia. They maintain more than 50 Soviet divisions in the Far East, supported by more than 40 regiments of tactical aircraft. Fencer and Backfire aircraft are deployed in areas from which they can support Far East operations. The Soviet Pacific Ocean fleet is the largest in the Soviet navy. It contains two of the Soviet Union's three vertical/short takeoff and landing (V/STOL) aircraft carriers, about 80 principal surface combatants, and more than 110 submarines. These conventional forces are supported by a growing number of nonstrategic nuclear forces. Prominent among them is the expanded SS-20 force.

The Sino-Soviet military balance continues to favor the Soviet Union. China's long-term modernization program emphasizes economic growth at the expense of immediate improvements in conventional defenses, and its forces will not be able to match Soviet firepower or mobility during this century. Rather, China will continue to make incremental progress in improving its military equipment while relying on its large population base and geographical size as elements of conventional deterrence.

The Soviets maintain a substantial strategic nuclear superiority over the Chinese. Although China's strategic missile force remains small in numbers, the use of camouflage, concealment, and mobility is likely to preclude a disarming Soviet first strike. Furthermore, the Chinese force may be augmented by a few submarine-launched missile systems within the next decade. China's strategic strength will diminish if the Soviets deploy a nationwide missile defense system.

The second significant regional balance in East Asia is that between North and South Korea. The Korean peninsula remains an area of key interest. The military preparedness of the Republic of Korea (ROK), and North Korea's perception of U.S. resolve to protect the ROK, have been instrumental in keeping the peace for the past 33 years.

The North Koreans persist in their effort to shift the military balance. North Korea's force modernization programs, which have placed a tremendous burden on its weak economy, include the reorganization of its army and the forward deployment of nearly two-thirds of its active army forces. In this forward deployment, supported by the second largest special operations force in the world, North Korean forces have the capability to attack in ways that offer minimal warning. Again, like the Soviets, the weakness of their economy does not stop them from expanding their military effort. Their political system permits a small group of rulers to pursue military advantage at the expense of the quality of life for their citizens.

In an effort to counter this continued buildup, the ROK, with U.S. assistance, has also modernized its armed forces, but without overburdening its economy. Given the strong performance of the ROK economy, the long-term prospect for the Korean balance is favorable. But we must not become complacent, or else the situation could change for the worse.

A third significant regional balance is that in Southeast Asia. Vietnam fields the world's third largest army. Directly financed by the Soviets in return for base rights, the Vietnamese army now occupies Cambodia, threatens Thailand, and even challenges China. Maintaining a regional balance that will contain the threat will continue to demand attention.

Despite any aspects of the regional balances that may favor them, there are important theater-wide considerations that must concern the Soviets. Japan plays a significant role in bolstering Western defenses in the region by virtue of its key location, its improved antisubmarine and mine warfare capabilities, its modernized Self-Defense Forces, and its assumption of new missions (e.g., protecting sea lines of communications at distances up to 1,000 nautical miles). The Soviet decision to deploy their SSBNs in bastions close to the Soviet Union magnifies the strategic importance of islands that dominate the entrances to the Sea of Japan and Sea of Okhotsk, makes obvious the Soviet threat to Japan, and emphasizes the key importance of the defense of Japan to the security of Northeast Asia and the Pacific sea-lanes. Japan is improving its capability to provide for its own self defense and to provide essential infrastructure support to U.S. forward-deployed forces. The restrictions imposed by the limitations on Japan's defense budget have affected some critical modernization measures, and sustainability remains a major shortfall, but the strong security tie with the United States and the slowly improving force structure weigh positively in the balance.

The rapid economic development of Japan and the newly industrialized countries of the East Asian rim, together with the growth of the Chinese economy, broaden the economic basis for developing the self-defense capabilities of friendly regional countries. The United States is pursuing economic and security policies that tie these countries more closely to the free world community of nations. It is clear, however, that technology transfer and security issues warrant continued attention if we are to prevent our own weapons from falling into the hands of regional or superpower rivals.

Thus from the Soviet perspective, the long-term trends in East Asia are negative, especially in the context of the worldwide competition with the West.

7. The Maritime Balance

Maritime capability to protect our sea lines of communications remains crucial to Western security. As a result of our substantial shipbuilding program and more effective strategies to take advantage of Soviet concepts of operations, the overall maritime balance is improving.

The Soviet navy concentrates on the protection of their SSBN forces and the destruction of opposition SSBN forces. This focus is, of necessity, being expanded in light of U.S. deployment of SLCMs on both surface ships and submarines. In finding and attacking U.S. and Western SSBNs and SLCM platforms, Soviet capability is most likely declining, as Western platforms become more numerous, capable, and dispersed.

The Soviets continue to expand their modern SSBN force and upgrade the quality of their attack and ballistic missile submarines. By the early 1990s, these improved platforms will be the majority of the Soviet submarine inventory. Furthermore, they are producing large numbers of capable surface combatants. The newer Soviet surface ships -- Kirov, Slava, Udaloy, and Sovremennyy for example -- are all larger and much more capable than their predecessors. The land-based contingent of Soviet naval aviation continues to receive new Backfire bombers, and older Soviet air force Bear aircraft are being reconfigured to expand their at-sea strike capability. Meanwhile, the sea-based leg of naval aviation continues to explore Vertical/Short Takeoff and Landing (V/STOL) aircraft development. The Soviets are also working on a follow-on aircraft carrier that will probably come into active inventory by 1990. It may eventually be configured to support conventional takeoff and landing aircraft. The continuing deployment of high-performance antiship cruise missiles on submarines, surface ships, and particularly on aircraft will make fleet defense more demanding for us. Of course, the West is also deploying such weapons in its navies, severely complicating the Soviet defensive problem.

U.S. programs enhance our maritime capabilities in several key areas. The 600-ship Navy program will result in 15 deployable aircraft carriers; the addition of substantial numbers of Aegis air-defense cruisers and destroyers; more, and more capable, Los Angeles-class submarines (with a follow-on attack submarine in the early 1990s); more amphibious lift in newer and more capable ships; and new mine warfare ships. We are also modernizing our naval aircraft both sea-based and land-based. In addition to its own improvement programs, arrangements between the Navy and other Services enhance maritime operations, particularly by providing AWACS surveillance

and airborne tanker support. Together these additions will greatly improve our ability to meet the evolving Soviet maritime threat.

In sum, the maritime balance, while favorable, is becoming progressively more complex. We estimate that the Soviet navy will remain predominately a submarine force into the next decade but will have enhanced surface and air/missile forces. It will continue to outnumber the U.S. Navy, particularly in submarine forces. The Soviets will take another small step toward improved sea-based tactical air capability when their large, new carrier goes to sea, but the United States will retain an overwhelming advantage in such forces. The antisubmarine warfare picture will be complicated by the improved platforms on both sides, but the United States will retain an advantage. The focus of the Soviet navy on the mission of SSBN protection has limited the forces available for other tasks. The U.S. Navy also continues to hold a substantial lead in sustainability at sea and in its ability to support and operate the new and more complex ships entering the inventory.

8. The Power Projection Balance

While the United States retains superior overall power projection forces, Soviet improvements in this area are disturbing. Several developments could have a significant impact on the power projection balance over the next decade. These include the deployment of the Condor aircraft that greatly increases Soviet cargo airlift capacity, and the ongoing replacement of Cub airlift aircraft with new Candid models. A second development is the near-term operational deployment of wing-in-ground-effect (WIG) vehicles in an amphibious role. The speed and range of these vehicles would enable the Soviets to deploy a significant force quickly into crisis areas on the Soviet periphery. A third lift-related program is the development of air-cushioned vehicles (ACVs) for Soviet amphibious forces. The Soviets lead the world in developing ACVs for amphibious use. Such platforms could add considerable assault flexibility when used with merchant ships during amphibious operations.

In terms of sea-based airpower, the Soviets, as previously noted, are building a large aircraft carrier that is expected to be operational by 1990. Though this vessel will not have the power projection capability of similarly sized U.S. carriers, there are many indications the Soviets will develop larger carriers that copy U.S. carriers in size and capability. The Soviets have also been experimenting with employing V/STOL aircraft from reconfigured roll-on/roll-off (RO/RO) ships. Collectively, these developments have expanded the Soviets' capability to provide air support for their forces in areas where land-based tactical air support cannot be brought to bear. The inventory of Soviet V/STOL aircraft is relatively limited however, and it may be the next century before any significant number of conventional takeoff and landing units might be available. Until then, Soviet air superiority for support of power projection forces will be available only on the Soviet periphery or against Third World countries with limited air forces.

The continued expansion and modernization of the Soviet merchant marine contrasts starkly with the declining U.S. merchant marine. The Soviet fleet is a large, flexible, and readily available asset for strategic lift. Moreover, it is being equipped with vessels that will support amphibious forces. The current Soviet inventory of RO/RO and roll-on/float-off (RO/FLO) ships, for example, consists of 84 units with 28 additional ships on order. This represents an addition of seven to eight ships per year since they first entered the

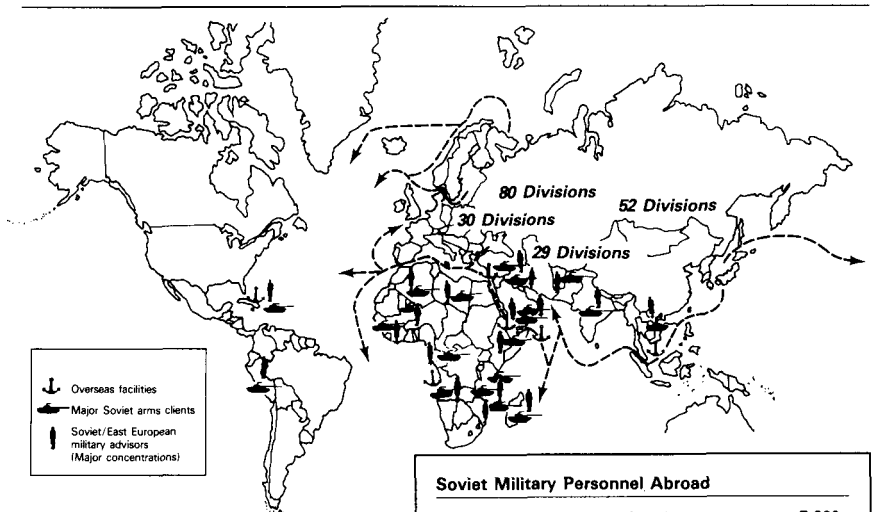
inventory in 1974. The average RO/RO ship in the Soviet force can carry 125 T72-sized tanks, and 84 RO/RO ships can transport the unit gear and equipment for more than four Soviet motorized rifle divisions in a one-time lift. Most of the remainder of the merchant force has also been configured for military uses.

At the lower end of the power projection spectrum, the Soviets use arms transfers as one element of a comprehensive effort that includes military and security advisors, proxy troops, covert action, and finally Soviet troops (as in Angola, Afghanistan, and Ethiopia) if U.S. intervention seems unlikely. This is an old business for the Soviet Union, but one in which it has a significant advantage over the United States. This advantage grew in the 1970s with the imposition of constraints on various countries that could receive U.S. arms transfers, and on the use of military advisors and covert operations -- none of which hamper equivalent Soviet activities.

Soviet power projection capabilities and the geographic expansion of Soviet presence are mutually reinforcing. As illustrated in Chart I.D.4, these activities have provided the Soviets with access to facilities and ports near the world's major trade routes and energy resources, threatening U.S. interests as well as those of its friends and allies. In a major NATO/Warsaw Pact or global conflict, for example, Soviet forces currently deployed abroad could, at the onset of hostilities, attack Western naval forces and impede the flow of forces and supplies to the theater of conflict.

Chart I.D.4

Soviet Global Military Reach



Soviet Military Personnel Abroad	
Latin America (Including Cuba)	7,900
Sub-Sahara Africa	3,600/4,000
Middle East & North Africa	8,000
Asia (Including Vietnam)	2,500
Afghanistan	115,000

Soviet military assistance to Third World countries remains one of Moscow's major instruments for gaining access and influence around the world. Since 1980, as shown in Chart I.D.5, the Soviet Union has delivered far more major weapons systems to the Third World than has the United States. In contrast, U.S. economic assistance to promote development in these regions has far exceeded that of the Soviet Union.

Chart I.D.5
Comparison of Major U.S. and Soviet Equipment Delivered to the Third World (1981 — Mid-1985)

	Total		Near East and South Asia		Sub-Saharan Africa		Latin America		East Asia and Pacific	
	U.S.	*USSR*	*U.S.*	*USSR*	*U.S.*	*USSR*	*U.S.*	*USSR*	*U.S.*	*USSR*
Tanks/Self-Propelled Guns	2,711	3,815	2,256	2,750	20	580	23	400	412	85
Field Artillery	1,965	5,365	917	2,825	177	1,530	344	770	527	240
Supersonic Fighter Aircraft	457	1,550	277	985	6	290	33	100	141	175
Helicopters	181	775	26	530	0	125	113	80	42	40
Surface-to-Air Missiles	3,441	8,860	1,857	7,095	30	645	0	860	1,554	250

The nature of the two countries' military assistance programs is quite different. While the Soviets emphasize major weapons systems, the United States provides more spares, follow-up support, and technical and training services. While the Soviets seek to foster military dependency, we try to stimulate greater self-reliance. The Soviets flood recipient countries with more than 20 times the number of permanent military technicians the United States assigns abroad to manage its military assistance program.

The United States has made substantial improvements in its power projection capabilities over the last five years, both in lift and in the forces to be lifted. About ten times the size of the equivalent Soviet force, the U.S. Marine Corps is substantially upgrading its assault lift capability. The Army is fielding light, more rapidly deployable divisions. Finally, a substantial prepositioning effort has been undertaken to facilitate rapid response in crises.

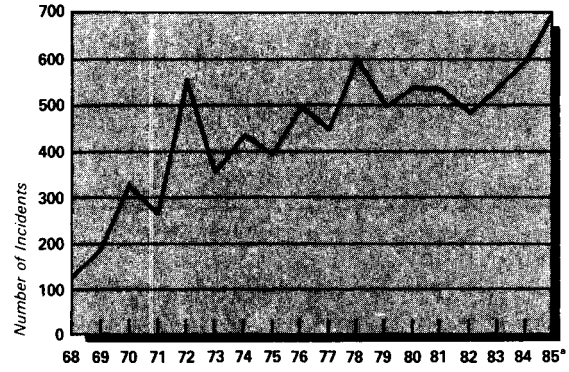
Thus, while the overall balance continues to favor the United States, and while programs in place will enhance our ability to move and support our forward-deployed forces, we will remain at a disadvantage at the lower end of the power projection spectrum. The military capabilities of the Soviet merchant marine, the impending expansion of the Soviet airlift force, the expansion of Soviet sea-based air forces, and the advent of new platforms are expanding Soviet options in areas of U.S. concern.

9. Other Threats to U.S. National Interests

Terrorism, local warfare disrupting world resource supplies, Marxist-sponsored insurgencies, and regional conflicts all pose challenges to our security. In 1985, the military forces of 29 countries were involved in conflicts in five major areas of the world: Europe, Latin America, the Middle East, Africa, and Asia. Each of those areas and many of the countries involved are of importance to the United States. Hence, instability in these areas creates new opportunities for exploitation disadvantageous to the West.

Moreover, the proliferation of advanced conventional armaments and nuclear weapons, coupled with the increasing threat posed by chemical and biological weapons, portend even more ominous challenges in the years ahead. Eleven nations outside the NATO and Warsaw Pact alliances currently have chemical weapons in their arsenals, and at least two more nations are in the process of acquiring them. More nations now have such weapons than at any other time in history. Our military and security forces must be prepared for the possible use of these weapons by other military forces and terrorists.

Chart I.D.6
International Terrorist Incidents
(1968-1985)



[a]Preliminary estimate as of 30 November.

Terrorism has become an unfortunate and ever increasing fact of international life. Americans have been attacked in 72 countries since 1968, and American citizens and property are now targets of about 30 percent of all international terrorist incidents. Attacks in 1985 left 22 Americans dead and 185 wounded. Recent major terrorist attacks such as the June 1985 killing of U.S. Marines in El Salvador, the August 1985 bombing at Rhein-Main, the November 1985 bombing at Frankfurt, West Germany, and the Christmas massacres in Rome and Vienna, demonstrate vividly the increasing threat to U.S. citizens and facilities worldwide. Nor is the United States alone as a target. The mining of the Red Sea is an example of a terrorist threat directed against the shipping of all nations. The United States will continue to seek a more active defense against terrorist attacks throughout the world. We are urging each nation to provide appropriate safeguards against terrorism. At the same time, we are consolidating key intelligence assets and seeking the help of other nations in containing the further spread of terrorism.

Low-level terrorist threats to our security generally lend themselves to responses short of direct intervention by American armed forces. But we cannot exclude the possibility of threats to our citizens or interests, or to those of our friends, that might require the employment of our military forces. In such instances, the flexibility, mobility, and special training of U.S. forces will be important in meeting whatever threat may arise, as demonstrated last October when we captured the terrorists who hijacked the Achille Lauro.

10. Overall Assessment

Despite some notable deficiencies, the strategic balance today is essentially stable. Our strategic modernization programs will ensure that this remains the case, provided that the Congress allows these programs to be completed. In Europe, NATO continues to maintain a credible capability to deter a Warsaw Pact attack. In Southwest Asia the balance favors the Soviets, but the long-term trends may shift this balance to our advantage. In East Asia, the balance favors the Soviets, but with our current modernization programs the long-term trends favor us and our Asian allies and friends. The maritime balance favors us, but is becoming increasingly complex and difficult to assess. The power projection balance still favors us, but this is one of the most dynamic areas of Soviet activity. We must, therefore, continue to monitor carefully Soviet programs aimed at enhancing their force projection capability. And finally, terrorism is a growing, shadowy threat that we must combat with the other civilized nations of the world.

E. REASSESSING OUR CONCEPTUAL ARSENAL: PILLARS IN A DEFENSE POLICY FOR THE 1990s AND BEYOND

Most of the conceptual apparatus that shapes our thinking about what forces we need and how they would be used was formulated in the 1950s and early 1960s. Consider the list: nuclear deterrence, extended deterrence, escalation control, strategic stability, offense dominance, flexible response, counterinsurgency, limited war, and escalation ladders. These concepts have not only shaped the main lines of forces, doctrines, and plans we manage today, but they continue to shape our thinking about the uses of these forces and about what forces we need for the future.

What was the dominant feature of the 1950s in which these ideas were first formulated and applied? It can be summarized in two phrases: American nuclear preeminence, and American military superiority. In the nuclear arena we had a decisive advantage. Across the board in military forces, we invested more than the Soviets and had a margin of superiority in most military dimensions.

That era has vanished. Through an effort that consumes more than twice as large a percentage of their GNP as U.S. defense spending, the Soviet Union has become a military superpower. Whether the United States should be willing to accept a position of parity in military power with the Soviet Union over the longer run can be debated. But about our current defense programs, there should be no illusions. We are not trying to regain the earlier margin of advantage. Rather, we are struggling to win the resources to ensure parity in military power.

What does this transformation of the military balance imply for the relevance of our basic strategic concepts? Should ideas formulated in an era of American military predominance apply with equal validity in an era of parity?

The world has changed profoundly since the 1950s and early 1960s, when most of our conceptual arsenal was formulated -- so profoundly that some of these concepts are now obsolete. Thus as we reaffirm the central concepts of postwar American policy, we are reformulating others and reaching out for new ideas in a search for ways to make our deterrent more effective.

This Administration's boldest strategic departure is the Strategic Defense Initiative (SDI), a radical rejection of benign acquiescence in reliance upon the threat of mutual destruction. The Administration's position on uses of American military force represents an analogous rejection of previously accepted wisdom about limited war. Nor are these two ideas the sum of the matter. On arms control, this Administration came into office with a very different approach from those who had negotiated and proposed to accept SALT II. We insist on actual, major reductions, not a license for the Soviets to expand their forces. We believe that it is essential to persist in the continuing reassessment of the inherited conceptual arsenal -- a task that will challenge the strategic community for many years to come.

In what follows, I outline four pillars in the defense policy by which we seek to achieve a more stable deterrence for the 1990s and beyond. These four pillars are: SDI and secure nuclear deterrence; uses of force and secure conventional deterrence; a strategy for reducing and controlling arms; and competitive strategies for deterrence.

1. Strategic Defense Initiative and Secure Nuclear Deterrence

The President's Strategic Defense Initiative stuns many traditional thinkers who seem incapable of thinking beyond the conventional and accepted wisdom. In fact, strategic defense represents a natural extension, the capstone of an array of changes in our strategic nuclear forces, motivated by the search for a more secure deterrent. It offers a far safer way to keep the peace.

Critics of strategic defense are often proponents of mutual assured destruction (MAD). MAD describes a condition in which after suffering an all-out nuclear first-strike by an adversary, either superpower would retain the nuclear capability to destroy its opponent as a modern society. That is why I call it a mutual suicide pact. Currently, both the United States and the Soviet Union have the capacity to destroy each other. According to advocates of MAD, this mutual suicide pact is the bedrock of strategic stability. Because each has the capability to destroy the other's society, it is argued, neither can contemplate war, and war is therefore deterred. Indeed, some MAD proponents advocate actions to make nuclear war as horrible as possible, since that makes it as unthinkable as possible. Many oppose all defense, from civil defense to strategic defense. Some even attempt to rewrite the history of U.S. policy to claim that the United States embraced MAD and based its deterrent in the 1960s and early 1970s on retaliating against Soviet cities. This, of course, was never the case, and for good reason.

This MAD logic ignores three fundamental questions. First, would what amounts to a suicidal response have sufficient credibility to deter all Soviet attacks? Second, what form of deterrent retaliatory threat would be most moral and effective? And third, while secure retaliatory deterrence is necessary today, can we not move to a safer world in the future?

Is a nuclear deterrent that simply threatens the end of modern society credible? If the Soviet leadership believed that in response to a nuclear attack by them, we would be forced to choose between suicide and surrender, might they believe that we would not respond to an attack at all? Would deterrence not be weakened? To avoid that dilemma, every president and every secretary of defense since the early 1960s has maintained the capability to respond to a range of possible Soviet attacks with a range of appropriate options. This Administration has continued, indeed accelerated the development of more selective, discriminate, and controlled responses. Such limited options both pose a more credible threat to meet any level of Soviet attack and increase the likelihood that escalation could be controlled and collateral damaged minimized.

Misguided critics have sometimes confused our efforts to create credible response options for the purpose of deterring Soviet aggression with a malign intention to fight limited nuclear wars. Some have even gone so far as to confuse prudent planning for deterrence with insensitivity to the horrors of nuclear war. Nothing could be further from the truth. No one who has received as many briefings on nuclear weapons, or has participated in crisis exercises, as I have, could hold any doubts about the absolute necessity of avoiding nuclear war. It is precisely because of this necessity that the United States must have a secure deterrent.

Moreover, the policy of developing selective, discriminate responses is manifestly moral. It is not in our interest to inform

the Soviets precisely how we would respond to every possible contingency. Nor is it possible to be certain that our efforts to limit escalation and terminate a conflict once begun would succeed. But it is imperative that we take every step possible both to deter war and to limit the destruction of any conflict, despite all our efforts to prevent it. Without credible limited options, our critics' view that any response to a Soviet attack would automatically lead to mutual suicide could become a tragic self-fulfilling prophecy. In short, while our policy cannot guarantee success, our critics' policy can only guarantee failure.

The knowledge that any conflict between the United States and the Soviet Union might escalate to nuclear catastrophe is certainly part of deterrence today. But that knowledge also impels us to ask whether there is not a better way to provide for the defense of the West. Because nuclear deterrence is necessary today, we must seek to make it secure, yet because it poses dangers, we must seek better alternatives for the future. The President and I believe that the answer lies in the Strategic Defense Initiative.

We hope that strategic defense will eventually render nuclear missiles obsolete. That is our long-range vision. But we have already rendered obsolete one of the concepts of the MAD logic: the belief that deterrence must rest on the threat to destroy a certain high percentage of the Soviet population. We do not, in fact, plan our retaliatory options to maximize Soviet casualties or to attack deliberately the Soviet population. Indeed, we believe such a doctrine would be neither moral nor prudent. It is not moral because the Soviet people should not deliberately be made the victims of any U.S. retaliation to an attack launched by the Soviet leadership. It is not prudent because secure deterrence should be based on the threat to destroy what the Soviet leadership values most highly: itself, its military power and political control capabilities, and its industrial ability to wage war. The United States government knows that a nuclear war cannot be won. Our nuclear doctrine is designed to ensure that the Soviet Union's leadership also believes that a nuclear war can never be won -- however, they define victory -- and, therefore, must never be fought.

It seems to me there are three irrefutable arguments for President Reagan's SDI -- any one of which would be sufficient for the research program we have undertaken, and all three of which are, in fact, valid. They can be summarized as: Soviet breakthrough, Soviet breakout, and the very real possibility that American science and technology will achieve what appears to some to be an impossible dream. Let me address each in turn.

a. Soviet Breakthrough

Since the ABM treaty of 1972, the Soviet Union has spent at least as much on strategic defenses as on its extraordinary strategic nuclear offensive buildup. Soviet air defenses now include nearly 12,000 launchers for surface-to-air missiles, and a formidable array of radars and interceptors. The Soviet Union has exploited the one ABM system permitted by the ABM treaty -- the system around Moscow -- to upgrade, test, and gain experience in the operation of an effective full-scale defense against ballistic missiles. Moreover, for more than two decades, the Soviets have been investing heavily in precisely those technologies encompassed by our own strategic defense research program. While the Congress funded only 74 percent of our FY 1986 budget for SDI research, the Soviet Union continued spending ten times our level of effort on strategic defense.

Soviet hypocrisy on this issue reaches Orwellian proportion. Ten days after President Reagan outlined his plans for research aimed at establishing whether a strategic defense is feasible, Pravda printed a statement deploring the devotion of scientific talent to the development of such defensive systems. Among its key signers were: the man in charge of the Soviet strategic defense program, the designer of the most lethal Soviet strategic missiles, the head of the Soviet military laser program, the architect of the ABM system now deployed around Moscow, and dozens of their collaborators. In 1985, the Soviets have in place large phased-array radars on which a nationwide ABM system could be based. And among these, there is the radar now under construction near Krasnoyarsk, a radar that blatantly violates the ABM treaty.

This evidence leads us to conclude that the Soviet leaders have never accepted the theory of mutual assured vulnerability so favored by many Americans, a theory that served as the foundation of the ABM treaty. Indeed, the Soviet leaders have made a vigorous, sustained effort to reduce the vulnerability of their country, and especially of themselves. Not only are the Soviets ahead of us today in the development and deployment of strategic defenses, but they have invested so much more on these technologies and in so many different areas, that our SDI research program would be justified alone as a prudent hedge against a Soviet breakthrough -- if that were the only consideration.

b. Soviet Breakout

The argument about Soviet breakout follows directly. The Soviet commitment to strategic defense is so unswerving that we must consider the possibility of a real breakout from the ABM treaty. If they could deploy today a strategic defense that significantly advanced their interests, who doubts that they would do so, despite the treaty and their hypocritical criticism of our program? What prevents the Soviets from abrogating the ABM treaty is their calculation of what each of us would do in its absence. A vigorous American strategic defense program is thus essential to ensure that we do not awake some day to find the Soviets rushing to full-scale deployment.

c. An Effective Deployed U.S. Strategic Defense System

A third and most conclusive argument for our strategic defense research program is the very real possibility that science and technology can create a future in which nuclear missiles become less capable of their awful mission. This journey to a safer world will not be easy, or short. Our research program is the necessary first step. But given the record of experts' declarations about what could not be done in our future, I am dismayed by the arrogance with which some distinguished American scientists and others declare the President's dream impossible. Recall that Albert Einstein predicted in 1932: "There is not the slightest indication that (nuclear) energy will ever be obtainable. It would mean that the atom would have to be shattered at will." Such distinguished errors only strengthen my belief that we should continue a vigorous research program. The President's purpose and resolve is quite simply to do all we can to help create a much safer world for generations to come.

If we could defend our people, who would prefer to avenge them? If we could live secure in the knowledge that our survival did not rest upon the threat of retaliation to deter a Soviet attack, would this not be a preferable moral position? The search for something beyond reliance on retaliation is neither cynical nor naive. From

the outset, we have insisted that progress toward an effective SDI will have to proceed hand in hand with arms reduction. A persistent and patient dialogue with the Soviet Union is a necessary condition for life beyond the shadow of the nuclear sword of Damocles.

Indeed, in pursuing SDI, we are not naive about the possibility of alternative modes of delivering nuclear weapons. Even a thoroughly reliable shield against ballistic missiles would still leave us vulnerable to other modes of delivery, or perhaps even to other devices of mass destruction. Despite an essentially leakproof missile defense, we might still be vulnerable to terrorist attacks against our cities. Our vision of SDI thus calls for a transition to effective defenses, including deep reductions in offensive nuclear weapons.

As the President has insisted from the outset, but his critics have refused to recognize, SDI is part of his larger goal to reduce reliance on nuclear weapons and the role of nuclear weapons in international politics. For the foreseeable future, nuclear weapons will be part of the inescapable backdrop of U.S.-Soviet relations. Even if at some future point the United States and the Soviet Union were to abolish all nuclear weapons, we cannot eradicate the knowledge of how to make them, nor the fact that other nations and terrorist organizations have that capability. This inescapable nuclear backdrop makes it absolutely essential that we should undertake every feasible effort to reduce to the lowest possible level the risk of nuclear war.

2. Uses of Military Power and Secure Conventional Deterrence

In November 1984 in a speech entitled "Uses of Military Power," I outlined six major tests that should be applied by the United States in deciding to commit U.S. conventional military forces to combat. I argued that U.S. military forces have an essential, but circumscribed and necessarily limited role in the larger framework of national power. That speech spawned a continuing debate both inside and outside the government. In light of that continuing commentary, let me now restate the key points I made.

a. The Limits of Earlier Theories of Controlled Escalation and Limited War

According to theories developed in the 1950s and early 1960s, limited war was essentially a diplomatic instrument -- a tool for bargaining with the enemy. As such, it had to be centrally directed by the political leadership, and applied with precise control. The gradual application of American conventional power, combined with the threat of increased and wider application of that power, would, according to the theorists, persuade America's opponents to accept a settlement while they avoided strategic defeat.

The fatal flaw of these theories of the 1950s was their neglect of the domestic political realities of American democracy. Both the theories, and the actual experience of Lyndon Johnson in Vietnam in the 1960s applied an 18th century approach to war. In that period, as Clausewitz noted: "War was still an affair for governments alone, and the people's role was simply that of an instrument."

The framers of the American Constitution rejected this concept of war. Our Constitution reserves for the Congress alone, as representative of the people, the right to declare war. In fact, prior to

Korea and Vietnam, except for occasional short excursions, presidents worked hard to build a public consensus before taking America to war. From 1939 to 1941, Franklin Roosevelt worked and waited to build a consensus, even as Europe was under siege. He had no other feasible option. Though he would have preferred to do so, President Roosevelt never considered sending American forces into combat without the approval of the Congress, and the assurance of support of the American people. In Korea, and then Vietnam, America went to war without a strong consensus or support for our basic purposes. Indeed, as one of my predecessors, Secretary Robert McNamara once observed:

The greatest contribution Vietnam is making — right or wrong is beside the point — is that it is developing an ability in the United States to fight a limited war, to go to war without the necessity of arousing the public ire.

As successive Administrations discovered, the American people had the final word. The "public ire" was "aroused" as perhaps never before -- and never again should the imperative of public support be ignored.

b. Six Major Tests to be Applied When the United States Is Considering Committing U.S. Forces to Combat

Despite our best efforts to deter or prevent such developments, situations will arise in which it may be appropriate to commit U.S. military forces to combat. This Administration's reading of the post-war period derives several lessons that can be stated as tests to be applied in facing such choices. These tests cannot be applied mechanically or deductively. Weighing the evidence in specific cases will always require judgment. But applying these tests to the evidence will make it clear that while there are situations in which U.S. troops are required, there are even more situations in which U.S. combat forces should not be used. These tests are:

-- The United States should not commit forces to combat unless our vital interests are at stake. Our interests, of course, include interests of our allies.

-- If the United States decides that it is necessary to commit its troops to combat in a specific situation, we must commit them in sufficient numbers and with sufficient support to win. If we are unwilling to commit the forces or resources necessary to achieve our objectives, or if the objective is not important enough, we should not commit our forces.

-- If we do decide to commit forces to combat, we must have clearly defined political and military objectives. Unless we know precisely what we intend to achieve by fighting, and how our forces can accomplish those clearly defined objectives, we cannot formulate or size forces properly, and we should not commit our forces at all.

-- The relationship between our objectives and the forces we have committed -- their size, composition, and disposition -- must be continually reassessed and adjusted as necessary. In the course of a conflict, conditions and objectives inevitably change. When they do, so must our combat requirements. We must continuously keep as a beacon light before us the basic questions: Is a vital U.S. interest at stake? Have we committed forces and resources sufficient for victory? Are our objectives clearly defined? If the answers are "yes," then

we should continue to fight. If the answers are "no," then we should not be in combat. We must never again commit U.S. forces to a war we do not intend to win.

-- Before the United States commits combat forces abroad, the U.S. government should have some reasonable assurance of the support of the American people and their elected representatives in the Congress. Such assurance cannot be provided by a public opinion poll. The public elects a President as a leader, not a follower. He takes an oath to protect and defend the Constitution. The people also expect a Congress sworn to the same principles and duties. To that end, the President and the leadership of the Congress must build the public consensus necessary to protect our vital interests. Sustainability of public support cannot be achieved unless the government is candid in making clear why our vital interests are threatened, and how, by the use of American military troops, we can achieve a clear, worthy goal. U.S. troops cannot be asked to fight a battle with the Congress at home, while attempting to win a war overseas. Nor will the American people sit by and watch U.S. troops committed as expendable pawns on some grand diplomatic chessboard.

-- Finally, the commitment of U.S. forces to combat should be a last resort -- only after diplomatic, political, economic and other efforts have been made to protect our vital interests.

Each of these tests deserves lengthy discussion. For present purposes, several limited comments must suffice. American interests are nowhere etched in stone. We should never succumb to the temptation to define a perimeter of vital interests, as Dean Acheson did in early 1950, in effect announcing that certain areas are "beyond our strategic perimeter." This virtually, albeit inadvertently, invited North Korea, with Stalin's approval, to invade South Korea. Judgments about our vital interests will sometimes depend on the circumstances of the specific case and trends, as well as intrinsic values. Our vital interests can only be determined by ourselves and our definition of the threat.

In his discussion of "the common defense" in The Federalist Papers, Alexander Hamilton argued that, "it is impossible to foresee or define the extent and variety of national exigencies, or the correspondent extent and variety of the means which may be necessary to satisfy them. The circumstances that endanger the safety of nations are infinite...." For this reason, we can not only never say never; we can never think never.

The necessity to win requires a clearly defined, achievable objective -- not unlimited objectives. Leaving the objective undefined invites an escalation of ambitions in response to battlefield successes. In Korea, we paid the full cost of this lesson -- though this lesson still eludes many. There, our original purpose had been to defeat North Korean aggression and restore South Korea's territorial integrity. But as we accomplished that objective, our failure to be entirely clear about what we were fighting for left us vulnerable to the entreaties of those who wanted more. Without adequate assessment of the risks and costs, we crossed the 38th Parallel and pushed forward to the Chinese border, provoking Chinese intervention, multiplying our losses, and eventually leading to stalemate at the 38th Parallel. Again in Vietnam, failure to define a clear, achievable goal led to confusion, p ublic frustration, and eventual withdrawal.

When we define a clear objective, we must commit the forces necessary to achieve it. Gradualism is inherently attractive to some almost always mistaken. It exaggerates the illusion of control, violates the strategic principle of concentration of force, and encourages underestimation of the domestic political costs entailed by any use of American military forces abroad. If combat forces are required, they should be introduced rapidly and in the strength necessary to achieve our objective at the least possible cost. Where force has been committed to a peacekeeping, buffer role, as in Lebanon, and circumstances change, some will always discover some further objective that could be served by a continued American presence. Such forces cannot always achieve evolving objectives quickly, if at all. If, for example, a peacekeeping force, sized accordingly, cannot fulfill its mission because there is no peace, then it should be withdrawn.

No aspect of the doctrine I have enunciated for the use of force has received more comment and criticism than the requirement that we have reasonable assurance of the support of the American people. There can be no such assurance, the critics say. A government forced to wait for the people will be paralyzed in international politics. Recognizing this handicap, our adversary will be emboldened. Even if Secretary Weinberger had a favorable public opinion poll for use of force, as one critic puts it, who can guarantee that the public will not change its mind?

My purpose is not to wish away the frustrations of leadership in a democracy. Perhaps if President Roosevelt had been willing to act on his own authority in 1939, 1940, or 1941, the enormous losses of World War II could have been reduced. But perhaps, only by waiting until the full force of American public opinion was clearly mobilized behind the necessity of winning an all-out war was President Roosevelt able, with our allies, to secure the unconditional surrender of both the Nazis and the Japanese.

It is not necessary for me to argue that the considered judgment of the American people is always correct. My thesis is more modest, but more important. It is that American democracy is constructed on the principle not that the American people will always be right, but that there exists no better guide to wise policy. Our government, therefore, constructs a process that forces the President and the Congress to lead and argue, to seek and win the support of the American people in order to sustain a course of action. The inherent assumption here is that this will, in the long run, produce wiser choices than any other mechanism yet discovered. Our Constitution does not say that this process will be easy. As Churchill once remarked: "Democracy is the worst form of government known to man -- except for all the others." But our government is founded on the proposition that the informed judgment of the people will be a wiser guide than the view of the President alone, or of the President and his advisors, or of any self-appointed elite.

Taken together, these tests remind us of our most important and precious political feature: We are a democracy. Nothing distinguishes us more sharply from our Soviet adversary than the fact that whether at home or abroad, our government policy can be challenged and vindicated or reversed by a majority of the citizens. Any U.S. government that attempts to fight where our vital interests are not at stake, when we have no good reason to suppose there will be continuing public support, committing military forces merely as a regular and customary adjunct to our diplomatic efforts, invites the sort of domestic

turmoil we experienced during the Vietnam war. Such a government has no grounds for expecting any less disastrous result.

The single most critical element of a successful democracy is a strong consensus of support and agreement on its basic purposes. While this makes the formulation and execution of foreign and military policy inherently more difficult than for governments not dependent on the consent of the governed, this difficulty stems from the source of our democracy's ultimate strength -- that we truly have a government of the people and by the people.

c. The Primacy of Effective Deterrence

The caution sounded by these six tests for the use of military force is intended. The world consists of an endless succession of hotspots in which some U.S. forces could play, or could at least be imagined by some to play, a useful role. The belief that the mere presence of U.S. troops in Lebanon or Central America or Africa or elsewhere could be useful in some way is not sufficient for our government to ask our troops to risk their lives. We remain ready to commit our lives, fortunes, and sacred honor when the cause warrants it. But the hope that a limited U.S. presence might provide diplomatic leverage is not sufficient.

It has been said that I am relentless in building up our military strength on the one hand, but reluctant to use our military forces on the other. I have noticed that our commanders who would lead our men into battle and have to order them sometimes to their deaths, are equally determined that the need for such final sacrifices must be fully warranted. Some critics will judge these dual commitments to strength and caution inconsistent. I believe that together they express both a vital truth and a profound paradox. Recognition of our democracy's inherent reluctance about asking our troops to die for their country places an even larger premium on the need to have the military power required to deter opponents. The central thread in the Reagan Administration's policy is to combine sufficient military strength with such a clear determination to resist aggression that we discourage challenges. By preventing the attack that would make necessary an American commitment of forces in response, we achieve our objectives without war. Peace through strength is more than a motto -- it is a fact.

What fires this Administration's determination to build up our conventional military capabilities, emphasize readiness and sustainability, and reduce reliance upon nuclear weapons is our commitment to make conventional deterrence work. The stronger our conventional deterrent, the less likelihood of an attack, and the lower the risk of war. The more vigorous our conventional deterrent, the less we must rely on the threat of nuclear retaliation.

d. The Premium on Other Currencies of Power

National power has many components, some more tangible -- like economic wealth, technological skills, and human capital -- others less so, such as moral force or national will. Military forces are but one of these multiple currencies of power. A democratic nation that will commit military forces to combat only as a last resort, must rely even more heavily on these other instruments of power in protecting our values and promoting our interests. Many in American politics have misread the lesson of Vietnam. They say that to avoid the risk of mistaken involvement of U.S. military forces, the United States should abstain altogether from the use of other instruments of

American power in the Third World. They regard any involvement as a slippery slope that may result in war. Thus, they oppose economic aid, political support, military aid, sales and training, and covert action in support of American interests in Central America and elsewhere.

My conclusion is just the opposite. These critics, it seems to me, have turned the problem precisely upside down. The United States has important interests in many Third World nations. We must therefore make more intelligent use of our various instruments of power on behalf of our interests -- to avoid the necessity of direct military combat. Because we do not mean to allow our military forces to creep -- or be drawn gradually -- into a combat role in Central America or elsewhere, we must have a policy designed to prevent the conditions that might create the necessity of committing American troops. This Administration has moved sharply to increase economic and military aid, sales and training, covert action, and political support -- all against some congressional opposition that does not yet see that by opposing those necessary measures, they may make it more likely that American troops will have to be used to prevent another Cuba or protect other vital interests.

Moreover, we stand up unashamedly for our central political values. We have no illusion that the road is short or easy. But we have no doubt that the forces of history are marching in the direction of democracy, personal freedom, market economies, and peace, and we proclaim proudly both our belief in precious human values, and our certainty that they offer far more to each individual than any other system yet devised.

3. A Strategy for Reducing and Controlling Arms

Reviewing the results of the SALT I interim agreement and the ABM and SALT II treaties, we can see why President Reagan has labeled this "pseudo arms control." The two premises behind the ABM treaty were that both sides would keep only permitted defenses, and that both would sharply reduce offensive forces. Neither of these premises proved true. While the United States chose not to deploy the full ABM system permitted by the 1972 ABM treaty and the 1974 Protocol -- and in fact dismantled its one ABM site in 1975 -- the Soviets not only have improved and upgraded significantly their Moscow ABM system over the past several years, but have invested as heavily in their strategic defense programs since 1972 as they have in their offensive buildup. In the mid-1960s, the United States ceased building silos for land-based ICBMs. In contrast, the Soviets leaped ahead in numbers and far ahead in throw-weight. In submarine-launched ballistic missiles, we stopped; again they raced ahead. Only in the area of total strategic nuclear warheads did the United States maintain an advantage, but Soviet programs could soon overtake that. In any event, merely counting numbers and warheads tells us little about relative strength because total numbers do not measure modernization, effectiveness, accuracy, throw-weight, or the advantages of various launching sysems. Harold Brown once summarized the phenomenon of constant Soviet additions: "When we build, they build. When we stop, they build."

Misinformed arms control advocates continue to talk about a spiraling arms race between the United States and the Soviet Union. Yet the facts are significantly different. Today, the U.S. stockpile of strategic offensive, defensive, and theater nuclear weapons has some 25 percent fewer weapons than it did in 1967. The megatonnage of this diminished stockpile is approximately 70 percent lower than it

was in 1967. Moreover, in October 1983, the NATO alliance agreed to reduce by 1,400 the number of nuclear weapons deployed in Europe. These reductions are under way and, together with the 1,000 warheads previously withdrawn, will reduce the number of nuclear weapons in the alliance stockpile to the lowest level in 20 years.

While we cannot give similar precise estimates for the Soviet nuclear stockpile, we do know that the Soviets have added more than 7,000 new warheads to their strategic offensive systems since 1967 -- 6,500 of them since 1972, when the SALT I treaty was signed. Even with the SALT II restraints, the Soviet Union has built more warheads capable of destroying our missile silos than we had initially predicted they would build without any SALT agreement.

Treaty compliance -- or noncompliance -- is another verse in the same song. It was assumed that while the Soviets might exploit ambiguities, they would avoid blatant cheating. But even in the case of the ABM treaty, the Soviets have engaged in gross violations. Ignoring Soviet violations of arms control agreements will not make them go away. Indeed, reluctance on our part to respond can only encourage further Soviet noncompliance. The United States will continue to inform the Soviet Union of discoveries of its violations and give it the opportunity to discuss any ambiguous violations. But when we have determined that the treaty violations are deliberate and dangerous, we must respond. Arms control treaties are not like domestic laws, which can be enforced by civil authorities. Instead, arms control violations must be met by firm American reactions. The United States responses should be proportionate (though not necessarily identical in nature), and clearly in the United States' interests. The Soviet leadership must understand that the United States has no intention of accepting one-sided compliance with arms control agreements. Progress on this issue is essential if arms control is to remain a useful component of our national security policy.

Without exaggerating past mistakes, we must nevertheless learn from this experience of USSR violations of past treaties. The Reagan Administration's approach to arms control is quite different from that of his predecessors. Let me emphasize four key points.

First, President Reagan has insisted that we focus steadily on the goal: How to prevent nuclear war and build a more secure world so that this generation, and future generations, will live in peace with freedom. The President's proposition -- "A nuclear war cannot be won and must never be fought" -- bears repetition and contemplation.

The President's determination to ensure that a nuclear war will never be fought is the mandate for our defense program and arms reduction initiatives. Our goal can be stated simply: to ensure that the defense of America's vital interests never requires the United States to fight a nuclear war. In our approach to arms reductions, as in our overall defense programs, we seek to protect and defend vital U.S. interests by reducing the risk of nuclear war to the lowest possible level.

Second, arms reduction is a component of our larger national security policy -- not an isolated objective or independent instrument. Arms reduction is one of the ways in which we pursue our national security objectives. Recognition that arms negotiations and agreements are but a strand in the overall relationship between the United States and the Soviet Union brings into sharp focus a major dimension of any effective strategy for achieving arms reductions.

This dimension -- Soviet incentives -- was entirely neglected in the previous approach. What are the Soviets' incentives to agree to useful, effective agreements for real reductions? Even more vital, what are the Soviets' incentives to comply with what they have agreed to? In planning U.S. forces and acquiring arms, while simultaneously negotiating with the Soviet Union, it is necessary for us to create incentives for them to reach agreements that meet our interests. Why should the Soviets agree to reductions, if we reduce voluntarily without any corresponding Soviet reduction? Why should they comply, if we previously accepted their violations? Ask yourself: Why is General Secretary Gorbachev now proposing total elimination of nuclear weapons by the year 2000? Why indeed are they back at the negotiating tables they promised to boycott? Quite simply, it is the new strength and resolve we have demonstrated. Not only must we negotiate from strength -- this is in fact the only way we can negotiate effectively. It is not Soviet goodwill, but our strength that is bringing about their changes.

Third, negotiated, structural arms agreements must reduce arms, not legitimize increases. President Reagan has identified the primary criteria for acceptable, negotiated arms reduction agreements. They must significantly reduce the number of offensive systems, bring us to parity (measured not just by numbers of warheads but by effectiveness) at much lower levels than each side has now, be effectively verifiable, and contribute to a broad policy of strengthening peace and stability.

In view of past and current Soviet violations of arms control agreements, it is essential that future arms control agreements establish comprehensive verification regimes that reverse the current Soviet pattern of denial of information essential to verification, facilitate U.S. monitoring and deter Soviet cheating. Without such an effective verification regime, an arms control agreement will serve only to limit U.S. options and programs without providing assurance that other parties have been similarly constrained.

Fourth, beyond negotiated treaties about structures and numbers of weapons there lies an equally important array of initiatives that seek to control nuclear arms and reduce the risks that they might ever be used. These initiatives focus on factors that affect accidents, unauthorized escalation, communication capabilities, and the removal of ambiguities, misperceptions, and misunderstandings. This part of our arms negotiation agenda includes a large number of actions that the United States can take independently -- without Soviet concurrence or agreement -- but in ways that will actually reduce the risk of accidents, unauthorized use, or inadvertent escalation. Continuing improvements in our C^3 and warning systems will even further reduce the already low risk that the Soviets might somehow come to believe that a surprise attack might succeed and the equally low risk that our weapons could be used accidentally or in an unauthorized fashion. As we modernize our arsenal, we seek to improve weapons safety and command and control procedures.

Operational arms control also includes a number of bilateral and multilateral actions -- sometimes referred to as confidence-building measures -- that seek to reduce the possibility of conflict through accident, miscalculation, or failure of communications. During its first term, the Reagan Administration proposed several new initiatives to the Soviet Union. Some of them have met with success. In June 1985, both countries agreed to clarify their obligations under the 1971 "Accidents Measures" agreement to consult in the event of a nuclear incident involving terrorists. In October 1985, technical

testing of the upgraded Moscow-Washington hotline was successfully conducted, and operational testing of the new facsimile capability is scheduled to commence in January 1986. In November in Geneva, President Reagan and Secretary Gorbachev agreed that both governments will examine the possibility of creating risk reduction centers to lessen the chances of miscalculation or accidental conflicts. We also have conducted a series of policy-level discussions on regional issues.

The Administration would like to do more. We would like to move forward with President Reagan's May 1985 proposal before the European Parliament to institute regular, high-level contacts between Soviet and U.S. military leaders and to exchange information on defense budgets and plans. We also will seek a positive Soviet response to proposals made by the United States and our allies at the Conference on Security and Confidence Building Measures and Disarmament in Europe (CDE) and the negotiations on Mutual and Balanced Force Reductions (MBFR) in Central Europe. The CDE proposals would provide for mandatory invitations to observe various military activities, including on-site inspection, as well as improved communications among Conference members. The MBFR proposals are a bold attempt to break the impasse existing in these talks for more than 12 years. NATO has postponed its long-time efforts to reach agreement on comprehensive reductions to parity of NATO and Warsaw Pact forces in Central Europe and has agreed to the basic framework proposed by the Soviet Union and its allies, for "first stage" limited reductions and a freeze on forces at existing levels for three years. In return, NATO asks only inclusion of reciprocal on-site measures sufficient to verify compliance with the agreement.

4. Competitive Strategies

Implementation of our overarching strategy of secure deterrence requires an array of competitive strategies that capitalize on our advantages and exploit our adversaries' weaknesses. In the long-term military competition with the Soviet Union, we must become more competitive. Even when U.S. military investment was substantially larger than that of the Soviets, it would have been advantageous to have more explicit strategies for competing. After a decade in which the cumulative Soviet investment was 50 percent greater than our own, it is essential that we rebuild our forces in ways that emphasize our comparative advantages.

We are not likely to regain the position we had in the 1950s. Even now, we are just matching the Soviet levels of weapons procurement (measured in dollars), and it will be the mid-1990s before the "dollar cost" of our weapons stock roughly matches that of the Soviets. Soviet research, development, test, and evaluation and military construction programs remain substantially larger than ours, as do a wide variety of nominally "civilian" programs designed to create a stock of militarily useful assets. In these circumstances, well-thought-out strategies for competing effectively with the Soviets are no longer something that it would be nice to have; they have become a clear necessity.

Competitive strategies require directing research and development (R&D) and procurement programs, adapting doctrine and concepts of operation, and changing organizations to exploit our comparative advantages. They mean a greater attention to the timing and phasing of U.S. initiatives, for example, introduction of new weapons or major modifications of weapons or tactics. A management strategy for competing in a particular area will have to provide for flexibility

and adaptation to rapid changes in the environment and future Soviet actions.

An intelligent and sensible use of competitive strategies will allow us to maintain an effective force within budget constraints through the efficient use of resources. It will enable us to retain a secure deterrent without matching the Soviets plane for plane, ship for ship, and tank for tank. Even without much systematic effort, we have been able to benefit from such an approach in the past. For example, our shift to low-level bomber penetration operations exploited the Soviet concern about homeland defense, and thus contributed to large Soviet resources being diverted into air defense. Such a result was certainly preferable to allowing Soviet investment of those resources in offensive forces.

Another area where competitive strategy has produced benefical results is in antisubmarine warfare (ASW). Our ASW capability has reinforced the Soviet navy's defensive orientation, keeping them close to their homeland in order to protect their ballistic missile submarine fleet. This limits the Soviet navy's threat to our sea lines of communications with our European and Asian allies in the early period of war.

We must vigorously expand the number of areas in which we compete. We must develop thoughtful strategies based on areas of natural, sustainable U.S. advantage. Where possible, we should adopt strategies that make obsolete past Soviet defense investments. We should devise programs for which an effective Soviet response would be far more costly than the programs we undertake. If possible, we should try to move the competition into areas in which we have natural advantages and to channel Soviet defense efforts into areas that are less threatening to us and less destabilizing to the overall military balance.

a. Opportunities

There are a number of reasons for believing we can successfully develop strategies for competing more effectively in selected areas. We are entering into a period of rapid technological change that can work to our advantage. We have superior skills in the development of military systems embodying some of the leading technologies and superior manufacturing techniques and skills. Other opportunities can be uncovered by a closer look at Soviet military thinking, tactics, doctrine, and the character of their operational concepts. Such analyses should provide us with specific opportunities to counter their concepts of operation and thereby affect the Soviet military's own assessment of the prospects for successful military operations. While more difficult to assess, we may also be in a period in which the constraints on increased Soviet military expenditures are more substantial than they have been in the past, especially in certain technological areas.

b. Enhanced Intelligence

In order to capitalize on these opportunities and implement competitive strategies more effectively, we must fully understand our adversary and have a clear idea of his future programs and policies. This Administration has already committed significant funds to rebuilding our intelligence capabilities. In some areas, we have made remarkable advances. But we must do more. We must make concerted efforts to improve our understanding of Soviet perceptions, to identify Soviet weaknesses, and to assess trends in the military balances. By examining their military organization, their leadership,

the morale of their troops, and even broader trends in their society such as alcoholism, illness, and demographics, we will not only know our enemy better, we will be able to attend to his weaknesses more effectively.

c. Building Competitive Strategies Into DoD Planning

Not surprisingly, this is the most difficult step of all. Adopting a new way of thinking is never easy for an individual. For organizations, it is even more difficult. We are exploring a variety of new ways to make competitive thinking part of our ongoing planning processes. Effective integration of this way of thinking into our processes, however, must engage all our military Services, their subunits, and their respective research and development organizations. We have strengthened and integrated planning as defined within the PPB (Planning, Programming and Budgeting) process by giving a Deputy Under Secretary oversight for this role. Nevertheless, people and organizations throughout DoD must search for feasible strategies of intelligent competition.

I have decided to make competitive strategies a major theme of the Department of Defense during the remainder of this Administration. I will include more of the key technologies and systems that embody significant competitive advantages in my Secretary's Performance Review -- which has proved our most effective mechanism for speeding acquisition and ensuring realistic budgeting. In the Services' proposals for new systems and in presentations about ongoing systems, they will be required to provide an analysis of how these programs exploit natural U.S. strengths and Soviet weaknesses. This will require that the Services fully utilize the products of the intelligence community in developing strategy. Effective integration of this way of thinking must engage not only the military Services and their subordinate elements, but also those individuals in my office and the Joint Chiefs of Staff who must look across all the Services to determine the most efficient and effective mix of forces and the joint strategy by which they are employed. Because of the important role new technology may have in these strategies, the Under Secretary of Defense for Research and Engineering will have a major responsibility, as will others concerned with the use of these new technologies.

Our basic plan for developing strategies of competition will include a number of steps. First, it will proceed at many levels: national, Service, mission, and by specific technology. Second, we will analyze carefully Soviet strengths and weaknesses, and attend to U.S. strengths and weaknesses. Third, we will be inventive about alternative and robust strategies. Perhaps most important in the next few years, specific areas will be selected for development of competitive strategies. Emphasis will be placed upon development of robust strategies that are based on natural areas of U.S. competence and strength, and on those Soviet concepts of military operations, tactics, and doctrine that present enduring vulnerabilities. Where strategically advantageous, development of new technologies and associated concepts of operation and tactics will be accelerated.

d. The Impact of Competitive Substrategies

The potential impact of competitive substrategies is illustrated by the decisive advantage achieved by American technology and Israeli tactics in the 1983 air war between Israel and Syria. The "score" in that air war was 86-to-1 against Soviet MiGs. Our new low observables

technology provides a suggestive current example. If American technology were able to create airplanes, ballistic missiles, and cruise missiles essentially invisible to current Soviet radar technology, massive Soviet investments in defense against aircraft over the battlefield in Europe would be leap-frogged and rendered ineffective. If the United States had a capability to reach into the Soviet Union and destroy selective highly valued targets, Soviet confidence in any nuclear warfighting plan of theirs would be greatly reduced. While specific details of stealth technology are appropriately classified, publicly available evidence should suggest that these possibilities are not fanciful.

e. Conclusion

Where will our defense strategy of secure deterrence lead? If we persist in maintaining a balance of forces that permits the Soviet Union no easy territorial or political gain against our vital interests, to what end?

No one can say with assurance. But our hope is that over time, our determination to deny the Soviet Union any exploitable military advantage against our vital interests will persuade it to consider more attractive uses of its resources and its talents. We have no illusion that Soviet leaders will be persuaded by our words, or by any short-term demonstration of our commitment. But we do believe that in time, if we maintain a vigorous and effective deterrent, we not only can keep the peace, but we can move the Soviet Union toward peaceful competition.

Part II
Defense Resources

A. THE DEFENSE BUDGET

1. Introduction

a. Strategy, Requirements, and Resources

In the reality of today's world, the fulfillment of our national interests requires military strength to protect and keep the peace. Increasing uncertainty in the political stability of the world places a premium on a rational evaluation of the threats to our present and future security. We must develop a sound military strategy consistent with, and supportive of, our foreign policy goals. This strategy guides the development, acquisition, and deployment of U.S. forces in peace and, if need be, in war. The doctrine, manpower, logistics, and materiel requirements necessary to carry out that strategy must be sufficient to provide security against existing threats and also against future increases or changes in those threats.

The resources provided in the defense budget are the vital link between our military strategy and the forces we must develop and field to implement that strategy. Insufficient defense resources jeopardize our national security goals, not only by supporting lower force levels than necessary, but also by denying the proper mix of these defense resources to implement our military strategy. When this Administration took office in 1981, we found that such a situation existed. America's military posture had eroded to the point where its ability and capacity to fulfill its military commitments or to carry out its deterrent strategy were severely questioned.

b. Stewardship of the Nation's Security

The limited resources provided to defense through most of the 1970s resulted in a force structure that was insufficient to meet the requirements of our military strategy. The combat readiness of our troops had deteriorated, critical modernization programs had been deferred, and investment in future defense capabilities was seriously restrained. In response to that situation, this Administration made a commitment, endorsed by the American people, to restore our defense capabilities. We proposed a long-term investment of substantial financial resources to back up this commitment.

This program was a well-balanced plan to redress our existing shortcomings and ensure our long-term security. It did not propose an extended period of excessive real growth in defense funding. It included funding to provide real growth of more than 12 percent in 1981 and 1982, to restore neglected capabilities, and to begin the long-term modernization program of both active and reserve forces. This was to be followed by a few years of more moderate, but still historically high, growth to sustain the modernization program and support expanding forces. Then there was to be a continuing period of low but sufficient growth to support necessary expansions in the force and initiatives to meet future threats to our security. To be sure, significant financial resources would be required. But this measured and well-planned program would be more cost-effective than periods of neglect followed by necessary periods of crash spending on defense to catch up, precisely the situation that this Administration encountered upon entering office five years ago.

The Congress became a full partner in this effort, approving over 95 percent of our requests for FY 1981 through FY 1983. In FY 1984 and FY 1985, defense budgets continued to increase, but at a lower rate, as congressional commitment waned. Nevertheless, we were able

to achieve significant accomplishments with the resources provided as inflation dropped and we continued to make more efficient use of defense resources. Despite well-publicized procurement horror stories, the vast majority of our programs are sound, have been properly funded, and are being effectively executed.

The American people can take great pride in the progress our military forces have made since 1981. Today, we have a stronger, prouder, and better-equipped military force than we have had in over 20 years. Bonuses, education assistance, better medical benefits, housing and quarters allowances, and other compensation initiatives have played a significant part in the success of rebuilding our manpower force. Fairer and competitive levels of pay have been achieved through annual pay raises granted to our military personnel, and this emphasis has been a major factor in accomplishing the qualitative and quantitative improvements in all Services. Recruiting goals have been achieved in each of the last four years, and reenlistment rates of first-term and career personnel have improved dramatically.

Improvements to the support and readiness of the force structure have been a primary objective of our defense program. Air Force tactical aircrews now fly 19 hours per month, up from 16 hours in 1980, while Navy aircrews experience nearly 24 hours a month flying time. Another area of emphasis has been logistics support, which is crucial to the day-to-day operations of our forces. Increased efforts have been placed on improving our ability to provide the supplies required in support of our forces; the transportation of materiel and equipment to our forces on a timely basis; the engineering, technical, and administrative support necessary for operational success; and the lift assets (both sea- and airlift) to support our worldwide contingencies.

We have developed and begun to implement a plan for maintaining a vigorous deterrence by modernizing our nation's aging forces, both conventional and strategic.

We have made major improvements in each component of our nuclear force structure -- the bomber force, the fleet ballistic missile force, and land-based intercontinental ballistic missiles. One hundred B-1B bombers will have been funded through FY 1986, and every one will be operational by the end of the decade. We have deployed air-launched cruise missiles (ALCM) on 100 B-52 aircraft, an advanced cruise missile is being developed, and development continues on the Advanced Technology Bomber (ATB) and Small Intercontinental Ballistic Missile (ICBM). We continue to build Trident submarines at a rate of one per year. The Trident II (D-5) missile, which will have greater accuracy and a larger payload than the Trident I missile, is under development and will be deployed in FY 1989. The modernization program for the strategic missile force was based on the President's Commission on Strategic Forces recommendation to deploy the Peacekeeper (MX) missile and to develop and deploy a Small ICBM. Ten successful flight tests of the MX have been completed, and initial production was authorized in FY 1984.

We have also expanded the size and striking power of our maritime forces. From FY 1982 to FY 1986, we funded the construction of 15 more warships than had been previously planned. During this period, a total of 88 major nonstrategic warships were approved for construction, including two nuclear-powered aircraft carriers and 15 CG-47 class cruisers. Four Iowa-class battleship reactivations have also been funded.

In addition, we have embarked on a broad program to improve the combat-effectiveness of our tactical air forces with increased purchases of F-14, F-15, F-16, F/A-18, and AV-8B aircraft, as well as with improved air-to-air and air-to-ground weapons. The Army is rebuilding its land forces capability with improvements in firepower, tactical mobility, and survivability by investing in such weaponry as the Abrams Tank, the Bradley Fighting Vehicle, and the Multiple Launch Rocket System.

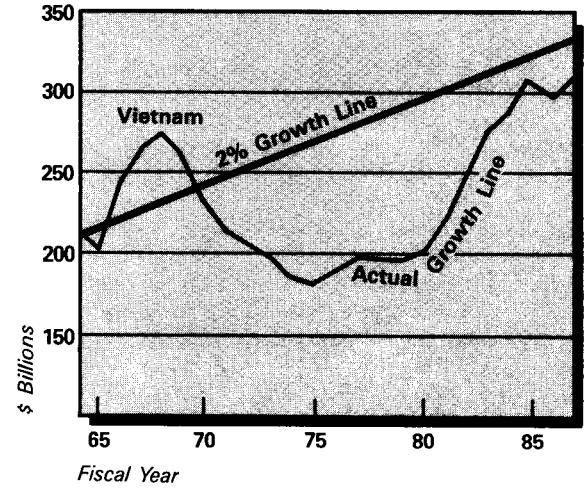
We have also reversed the historic practice of equipping Reserve Components with outmoded and excess hardware. Selected Army National Guard units have received the Abrams Tank and Bradley Fighting Vehicle; Army Reserve Component units are flying the UH-60A Blackhawk helicopter; Naval Air Reserve squadrons are flying the F-14, F/A-18, and E-2C aircraft; the Naval Reserve Surface Force is operating Perry-class guided missile frigates; Air Force Reserve and National Guard squadrons have been flying F-16s since FY 1985 and the Air National Guard will fly F-15s by FY 1986.

The technological superiority that we enjoy over our adversaries today is a direct result of investments in research and development and the continued search for advanced technologies by industry, universities, and in-house laboratories. We have realized significant improvements in materials, optics, lasers, integrated circuits, software, computers, aeronautical propulsion, sensors, and other technologies that provide the foundation for future defense systems. Most important, however, has been the establishment of the President's Strategic Defense Initiative (SDI) to examine the feasibility of a concept that would enable us to move from a deterrence strategy based on nuclear retaliation to one based on defense against offensive weapons.

These improvements and successes notwithstanding, the lower levels of approved resources in FY 1984 and FY 1985 began to generate problems that we had hoped to avoid when we developed our long-term program.

Chart II.A.1.

Department of Defense Budget Authority (FY 1987 Dollars in Billions)



It has become more difficult to finance support for the expanding force and continue to meet the requirements of our modernization program. We have had to delay some of our modernization objectives, and there is no doubt that the cost of our long-term program will increase. The result of this deviation from our original plan is that the level of real defense resources is still below that which would have been provided by a commitment in 1964 (prior to Vietnam) to an even modest 2 percent annual real growth rate (see Chart II.A.1).

2. Security Requirements and Fiscal Concerns

Reduced funding in FY 1984 and FY 1985 reflects for the most part congressional concerns about the federal deficit. Unfortunately, these concerns appear to have replaced security concerns as the basis for determining the necessary level of defense resources. Defense reductions have become a congressional tool for dealing with fiscal problems. However, just as we had cautioned, defense reductions did not have the desired effect on the deficit. Therefore, those who felt lower defense spending was the answer to a stronger economy proposed another solution to the budget deficit problem -- a defense budget freeze. As a result, last year the Congress would not provide even a modest 3 percent real growth in defense requirements, and the President reluctantly agreed to zero real growth for the FY 1986 defense budget. However, final congressional action on our request has produced the first negative growth in the defense budget since President Reagan took office. The steady, well-planned program for upgrading our current and future security based on a realistic evaluation of the threats to that security is being undermined by the prospect of the return to a period of insufficient resources caused by fiscal concerns.

This situation confronted us with a very real dilemma in the formulation of the FY 1987 defense budget. While fiscal concerns are forcing a reduction in approved defense resources and threatening the achievement of our security goals, the threat to our security continues to grow both in size and complexity.

One thing is certain -- defense budgets that consistently provide little or no real growth only exacerbate this dilemma, forcing decisions on the allocation of resources to which there are few right answers. Just as they cannot be expected to provide the necessary level of resources to meet our requirements, zero-growth budgets cannot be expected to reduce the threat.

Even though the Soviets face economic dilemmas more critical than ours, they are not contemplating a freeze or a slowing of the momentum in their current or future defense modernization. There are no reliable indicators that the Soviet arms buildup will slow or be frozen if we slow our own defense efforts.

Furthermore, zero-growth undercuts our effort to lead NATO to a stronger conventional defense. Our NATO allies have increased their financial commitment to the modernization and improvement of conventional defenses. Likewise, Japanese budgets are slowly increasing. By strengthening conventional forces, the United States and its allies have sought to restore a balanced and secure deterrent. However, just as our allies are increasing their commitment, we are seen as reducing ours.

No-growth defense budgets seriously undermine the improvements we have already made and delay indefinitely, with greatly added cost, the

achievement of our long-term goals. Stretching out procurement of needed items postpones the expenditures, adds to the total cost, and jeopardizes key acquisition management reforms.

These funding constraints notwithstanding, our priorities remain quite clear. We must continue the investment program to meet future challenges, while providing sufficient resources to support the existing force structure and approved expansions in that structure. Therefore, the FY 1987 DoD budget reflects a major reevaluation of our requirements. We conducted intensive reviews to determine an effective mix of manpower and materiel resources to meet our requirements. The decisions we made were critical to the rational and orderly accomplishment of our short- and long-term security goals and objectives. They were not made without risk. But we believe this program will enable us to maintain today's wartime capability, while continuing the steady progress to improve our future capabilities. More importantly, it begins to regain the momentum we had lost.

3. Components of the FY 1987 Department of Defense Budget

a. Overview

The President's defense budget, shown in Table II.A.1, proposes budget authority (BA) of $311.6 billion for FY 1987, an increase of $22.2 billion over FY 1986. The tables in Appendix A provide budget data by appropriation title and by component.

Table II.A.1
Department of Defense Budget
(Dollars in Billions)

	FY 1985	FY 1986	FY 1987
Current-Year Dollars			
Total Obligational Authority (TOA)[a]	280.1	296.4	312.3
Budget Authority (BA)[b]	286.8	289.4	311.6
Outlays[c]	245.4	258.4	274.3
FY 1987 Dollars			
Total Obligational Authority (TOA)[a]	298.8	306.6	312.3
Budget Authority (BA)[b]	305.9	299.3	311.6
Outlays[c]	261.4	267.8	274.3

[a] **Total Obligational Authority (TOA)** represents the value of the direct defense program for each fiscal year, regardless of the method of financing.

[b] **Budget Authority (BA)** permits the obligation of funds for immediate and future disbursement and is associated with the year the authority takes effect. Generally the difference between TOA and BA stems from the application of receipts that offset total budget authority.

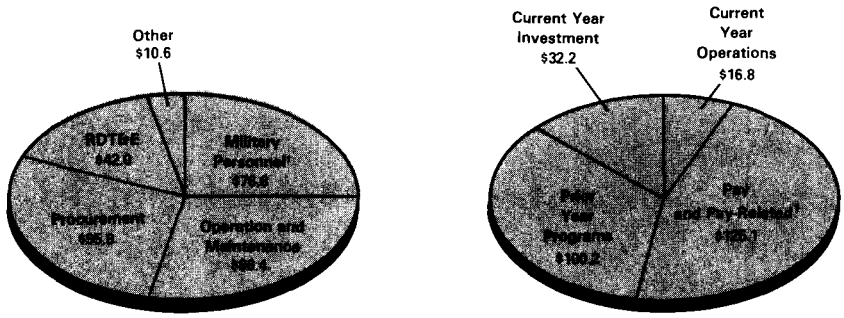
[c] **Outlays** represent actual expenditures. Less than 64 percent of FY 1987 outlays will result from FY 1987 budget authority; the remainder will come from budget authority provided in earlier years.

The distribution of FY 1987 budget authority by major appropriation title and FY 1987 outlays by source of spending are shown in Chart II.A.2. Military Personnel (MP) and Operations and Maintenance (O&M) represent 52 percent of the DoD budget authority. This category includes payments to military and civilian personnel and the accrued retirement cost of the current military force; allocations for maintenance and repair of equipment; and for utilities, medical costs,

training, petroleum and lubricants, and spare parts. The remainder of the budget contains funds for investment in research and development (R&D), procurement of weapons systems, and military construction and family housing.

Chart II.A.2

FY 1987 Department of Defense Budget
(Dollars in Billions)



Total 311.6
Budget Authority
by Title

Total 274.3
Outlays by Source
of Spending

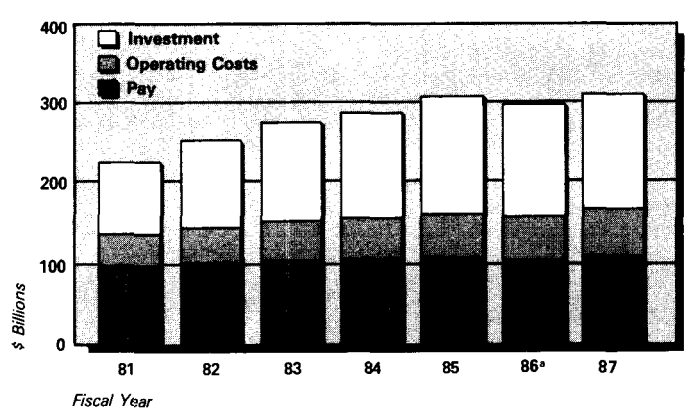
[1]Includes Retired Pay Accrual Costs

Outlays in FY 1987 again will go primarily for current year operations (6.1 percent), pay and pay-related costs (45.6 percent), and prior year investment requirements (36.5 percent). Current year operations relate to the base structure and support costs. Outlays from prior year programs represent amounts already on contract and are largely a function of procurement and R&D investments made in previous years. Only 11.8 percent will be spent on new investment programs.

The FY 1987 budget reflects a balanced approach to funding personnel, operations, and investment (Chart II.A.3).

Chart II.A.3.

Department of Defense Budget Shares
(Budget Authority in FY 87 Dollars)



[a]Lower Budget Authority in the Military Personnel Accounts in FY 1986 reflects the congressional direction to finance $4.5 billion for the military pay raise and retirement accrual costs by transfers from prior year unobligated balances.

b. Personnel

The FY 1987 budget includes $109.2 billion to pay our military and civilian personnel. An Active Component military strength increase of 13,730 during FY 1986 enables us to meet the manning requirements of an expanded naval fleet and tactical air forces, and to maintain the necessary level of readiness and sustainability of our existing forces. National Guard and Reserve Component strength will increase by 4.5 percent providing additional depth and balance to the responsiveness and flexibility of the active force. Civilian end strength will be relatively unchanged from FY 1986.

After we had made significant progress in achieving pay comparability for the men and women serving in our Armed Forces, recent budgets have contained pay raises lower than those needed to maintain that comparability. This budget reaffirms our commitment to pay comparability by including a pay raise of 4 percent.

c. Operating Costs

The combat capability of our land, air, and sea forces is dependent, to a large degree, on the funds provided for support of those forces. These funds are used to train people, buy fuel and supplies to support their missions, provide communications for strategic and tactical command and control, perform depot maintenance on weapons systems and their components, and maintain facilities. Financial requirements of support activities are driven primarily by force levels and activity rates. These include the number and types of aircraft and squadrons, the number of aircraft missions and flying hours, the number of missiles and squadrons, readiness objectives, personnel strengths, the number of installations, and the quantity and complexity of equipment to be maintained. Once the force and activity levels have been set, support requirements are to a large degree fixed and cannot be reduced without decreasing the effectiveness of those forces.

The FY 1987 budget contains a balanced mix of programs necessary to support our growing forces. Continued improvement is expected in materiel readiness as a result of sustained progress in the operational availability of our equipment and the systematic training of our forces. Spares and repair parts procurement, equipment maintenance, and other logistical support requirements all receive high priority. Increases are provided for ship modernization, fleet outfitting, and aviation depot level repairables programs.

Other areas will also receive priority funding. Medical readiness will be improved by upgrading combat hospital facilities. Increased physical security will be provided at many installations both in the United States and abroad. The buildup of major and secondary item war reserves in Europe and Korea will continue. Our Reserve and National Guard Components will receive increased training and logistical support to continue their expansion and materiel upgrading.

d. Investment

A major goal of the FY 1987 budget is to sustain the force modernization program we commenced in 1981. The overall objectives of this program are to increase the survivability and endurance of our strategic forces and to make our conventional forces more responsive and flexible by improving their striking power and mobility.

This budget continues the President's commitment to modernize and improve all aspects of our strategic forces. This includes purchasing and deploying the Peacekeeper missile within congressional limitations and continued development of the Small ICBM; production of Trident nuclear submarines and procurement of the Trident II (D-5) missile; continued production of the B-1B bomber and development of the Advanced Technology Bomber; and development of the advanced cruise missile and short-range attack missile. Funding is also requested to improve our space surveillance and defensive capabilities, including the antisatellite program, and to upgrade and protect the survivability of our strategic command, control, and communications systems.

The Army intends to procure 840 M1 tanks and 870 Bradley Fighting Vehicle Systems to upgrade the firepower of our ground forces while providing them with greater tactical mobility and protection from enemy fire. The aviation component of the Army's combined arms team will be improved with the purchase of 144 AH-64 Apache helicopters. To provide added lift capability to assault-support troops and to improve the survivability of our ground forces, the Army will purchase 78 UH-60A Blackhawk helicopters and continue modification of its existing fleet of CH-47s, while the Marine Corps will add 14 CH-53s. Purchase of short-range missile systems such as the Army's Stinger and long-range missiles such as the Patriot, linked together by a network of radar, command and control, and electronic warfare systems, will measurably improve the defensive capabilities of our ground forces.

Our tactical air forces must be capable of maintaining air superiority and defending and supporting our ground and naval forces. In support of our modernization plans, we are requesting funding for 531 additional tactical aircraft for the Air Force, the Navy, and the Marine Corps. This will include 48 F-15 and 216 F-16 fighter aircraft for the Air Force, 15 F-14As for the Navy, and 120 F/A-18s and 42 AV-8Bs for the Marine Corps. Complementing these aircraft purchases are proposed buys of the Imaging Infrared Maverick antiarmor air-to-surface missile and the AIM-9M Sidewinder, AIM-7M Sparrow, and the Phoenix air-to-air missiles (see Part III-B-3 for specific information).

The substantial improvement in our naval forces toward its 600-ship goal is continued. By the end of FY 1987, we will have a total deployable battle force of 566 ships. Funding is requested for 24 ships, including 5 ballistic missile and attack submarines, 2 cruisers, 3 destroyers, 4 mine warfare ships, and 10 support ships. To improve our naval units' firepower, we are requesting 324 Tomahawk cruise missiles and 94 versatile Harpoon missiles.

The FY 1987 budget request for research, development, testing, and evaluation (RDT&E) continues investment in advanced defense technologies. Of particular importance is continuing research on the Strategic Defense Initiative (SDI) and developmental work on a small single-warhead intercontinental ballistic missile and the Advanced Technology Bomber to ensure the credibility of our deterrent strength into the 1990s. Expanded funding is requested for critical tactical programs that lay the groundwork needed to field affordable and reliable weapons and support equipment capable of meeting the threat today and in the future.

The Military Construction Appropriation request will continue the progress we have made in overcoming prior years' inadequate funding. Of special importance are programs to continue the modernization of our physical plant and improvements to working and living conditions

for our Service personnel. Significant increases are scheduled for major and minor construction programs for the Reserve Components.

4. Budget Trends

In spite of significant improvements in our defense capabilities and our success in improving the management of defense resources, there are some who think that we have spent too much on national defense since 1981. A brief historical review of federal spending (Chart II.A.4) over the last 40 years demonstrates very clearly that this has not been the case. From 1950 to 1970, nondefense spending grew steadily while defense spending, except during the Korean and Vietnam war periods, showed little growth. The precipitous rise in real federal spending since 1970 was principally the result of the continuous rising trend in nondefense spending. On the other hand, defense spending declined during most of the 1970s and has only experienced sustained growth since 1981.

Chart II.A.4
Total Federal Outlays

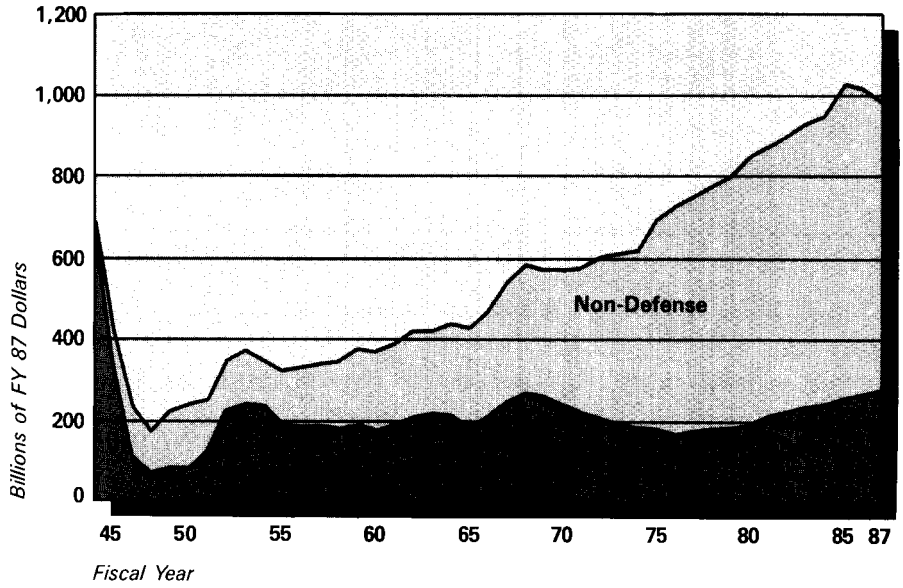


Chart II.A.5 further dramatizes this long-term trend in shifting federal spending patterns. Even after rising significantly since 1981, real defense spending in FY 1987 as a percent of total federal spending will still be less than it was from 1951 to 1972.

It is also instructive that increased levels of defense spending since 1981 have not taken a disproportionate share of our nation's wealth. The defense share of the nation's output of goods and services (GNP), based on the current estimates for defense outlays and economic growth, will still be below that experienced during the peacetime 1950s and 1960s (Chart II.A.6). Defense shares of the federal budget and economic aggregates are shown in Appendix A.

Chart II.A.5

Federal Budget Trends

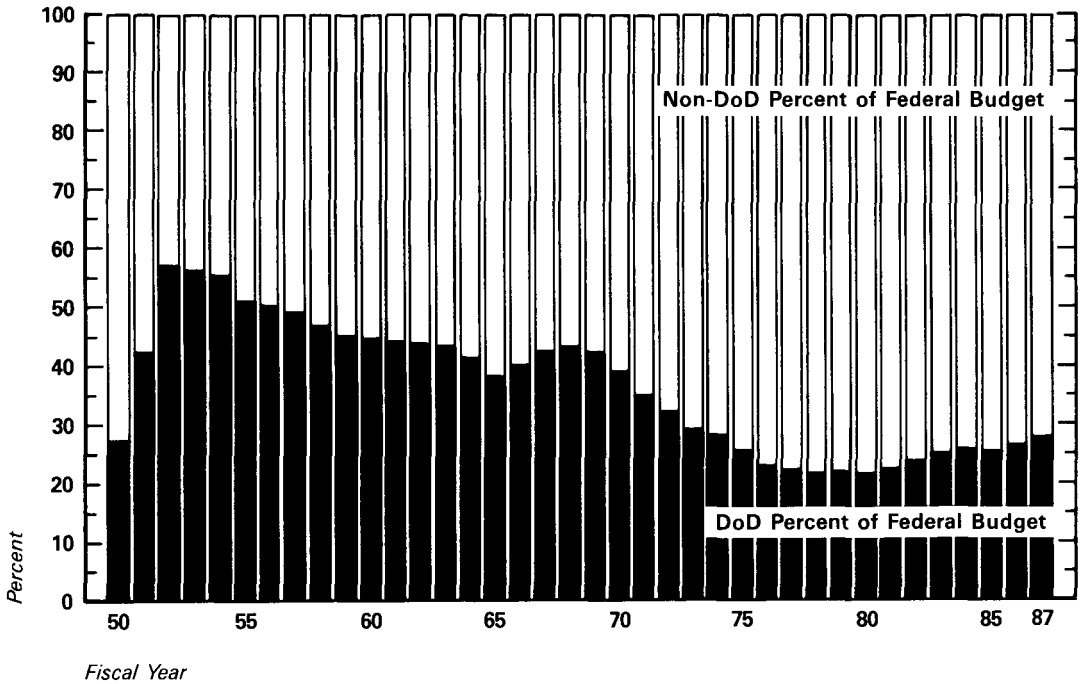
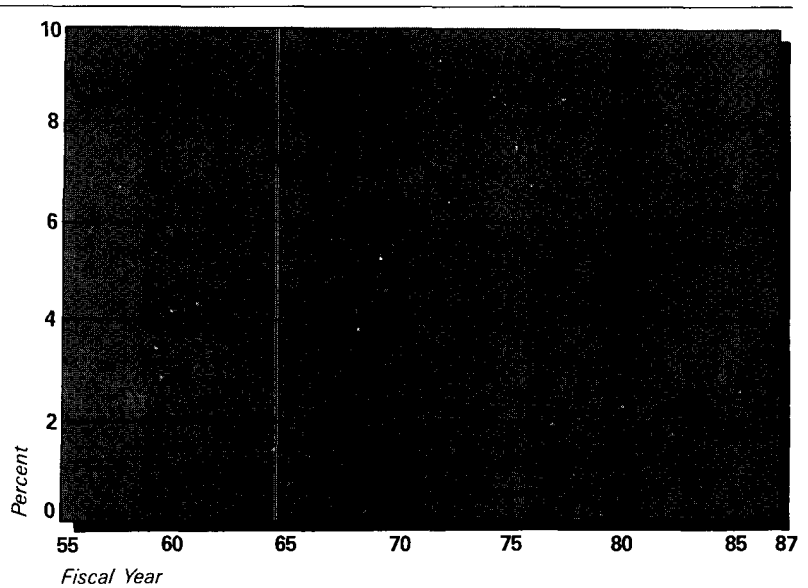


Chart II.A.6

Defense Outlays as a Share of the Gross National Product



5. Conclusion

It is the collective responsibility of this Administration and the Congress to ensure that we do not return to a period of neglect for defense requirements that could produce a serious deterioration in our capabilities and erode our defense industrial base. We must recognize that the FY 1986 budget takes us a step in that direction. If we allow fiscal concerns to outweigh security concerns, sooner or later we will be confronted with a situation, similar to that in 1981, in which we must again drastically increase our financial commitment to defense. Therefore, it is imperative that, beginning with the FY 1987 budget, we regain the momentum toward achievement of our long-term security goals.

Table II.A.2
FY 1987 Department of Defense Budget
(Dollars in Billions)

Budget Authority	FY 1987	FY 1988	FY 1989	FY 1990	FY 1991
Total, Current Dollars	311.6	332.4	353.5	374.7	395.5
Total, Constant (FY 1987) Dollars	311.6	321.1	330.4	339.8	348.9

The President's FY 1987-91 defense program reestablishes such a long-term commitment (see Table II.A.2). It provides moderate but consistent real growth to support our expanding force structure while continuing our long-term investment program. It supports our commitments throughout the world.

The defense budget cannot be regarded as a tool of fiscal policy at the expense of our national security goals. We cannot have a strong economy and a weak defense, nor can we have a stronger defense and continue to make large defense cuts. Therefore, this long-term program places the determination of national defense resources in the proper perspective -- based on security concerns rather than fiscal constraints.

We know that achievement of our long-term goals is going to take longer than we would like and is going to cost more than we had planned. We know that it is not without certain risks, although they have been minimized through prudent funding of a well-balanced program. But, most importantly, we know that regardless of the current economic situation, we cannot afford to abandon our security goals. Every day incidents throughout the world remind us that there has not been a reduction in the threats facing the United States, our allies, and other freedom-seeking people of the world. If we are to pass on a more secure legacy than we inherited, we -- this Administration, the Congress, and the American people -- are going to have to be firm in our resolve to achieve world peace.

B. MANAGEMENT REFORMS

1. Introduction

In the early 1980s, this Administration made a commitment to restore our defense and ensure our future security. We met this difficult requirement with the support of the Congress. Although congressional support has declined recently, we continue to persist in our efforts to ensure that defense dollars are spent wisely, and that management initiatives are given our complete support.

DoD has made significant progress in improving the management of defense resources. We are making a concerted effort to eliminate waste, fraud, and mismanagement through our Internal Management Control Program and Inspector General audits, inspections, and investigations. In addition, we support external management initiatives including Reform '88, the Grace Commission, and the newly created Packard Commission. In all of these areas, we have achieved management improvements that have reduced the total cost of national security to the American taxpayer.

2. Resource Management

DoD oversees vast resources. We employ 4.3 million personnel, including uniformed Servicemembers and civilian employees throughout the world. We manage approximately 1,240 major military installations and properties. Notwithstanding the complexity of managing these widespread resources, our priority is clear -- rebuilding American military strength as rapidly and efficiently as possible at the least possible cost.

a. Acquisition Initiatives

(1) Defense Acquisition Improvement Program

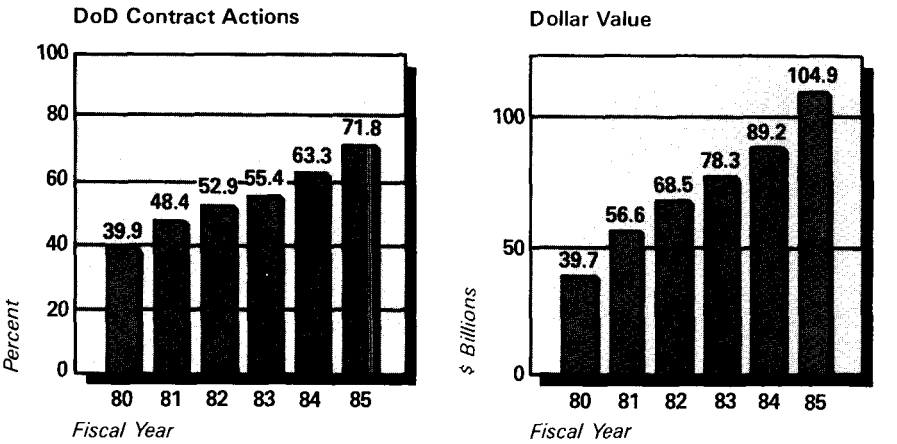
Most of the original 32 initiatives implemented under the Defense Acquisition Improvement Program (DAIP) have been fully integrated into the acquisition process. The Defense Council on Integrity and Management Improvement is focusing on implementing the remaining initiatives. Among our major improvements have been increased competition, more multiyear procurements, better economic production rates, improved readiness and support, more realistic budgeting, and greater program stability.

(a) Competition

Although perhaps the most challenging of the DAIP initiatives, competition has also been the most rewarding. The benefits of competition are evident -- competition encourages innovation and helps reduce costs and improve quality. During the past five years, we have taken a number of steps to increase competition and have achieved significant savings. The amount of dollars awarded competitively in the procurement of new ships alone has increased from 26 percent in FY 1981 to about 90 percent at the end of FY 1985. The number of annual competitive contracts has increased by 37 percent to over six million contracts since FY 1980. Chart II.B.1 shows the increase in the rate of competitive contracts, as well as the dollar value of these contracts, since FY 1980. In FY 1985, nearly 72 percent of all contract actions, amounting to $105 billion, were awarded under competitive contracting.

Chart II.B.1

Competitive Contracting[a]



[a] Includes competitive and follow-on to competitive contract actions.

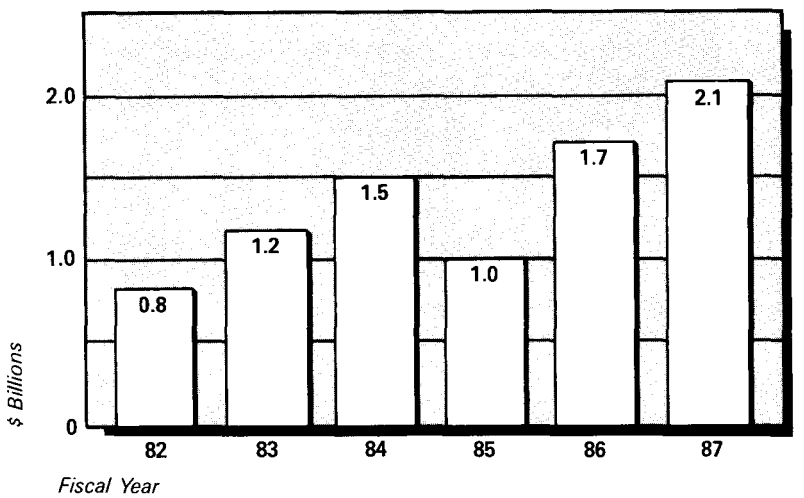
We also promote competition among prime contractors in procuring major weapons systems by carefully reviewing all systems and subsystems for dual-sourcing (allowing for two producers) prior to entry into full-scale development and during the program budget review. Currently, there are 44 major systems and subsystems being dual-sourced, including the air-launched cruise missile (ALCM) guidance system and motor, the alternative fighter engine, and the Sidewinder and Hellfire missiles.

(b) Multiyear Procurements

As consumers, we all know that it is often less expensive to buy products in bulk than in a piecemeal fashion. The same is true for defense procurements. The principal objective of our multiyear procurement initiative is to achieve savings through economical lot buys. Since FY 1982, when DoD first began using multiyear contracting for major weapons systems procurement, the Congress has approved 40 multiyear procurement contracts estimated to save about $6.2 billion over annual contracting methods. The multiyear programs that have provided the most significant savings include the B-1B ($1.2 billion), the KC-10 aircraft ($658 million), and the F-16 airframe ($256 million). In the FY 1987 budget, we propose seven programs for multiyear funding including F/A-18, Patriot missile system, and Stinger missile system, which we estimate will save approximately $2.1 billion overall. Chart II.B.2 shows our annual savings from multiyear contracts.

Chart II.B.2

Multiyear Procurement Savings



FY 82-86 Programs Requested: 60 **Programs Approved: 40** **Estimated Savings: $6.2 Billion**

FY 87 Programs Requested: 7 **Estimated Savings: $2.1 Billion**

(c) Economic Production Rates

It is more efficient to produce at higher production rates since equipment and manpower are not allowed to stand idle. In turn, higher production rates mean lower unit costs. More economic production rates for high-priority programs such as the AH-64 helicopter, Stinger missile, M1 Tank, AC/MC-130H aircraft, and KC-135 modifications have achieved valuable savings. Cost-avoidance savings for these five programs alone are approximately $1 billion.

(d) Readiness and Integrated Logistics Support

One of the principal objectives of our Defense Acquisition Improvement Program is to reduce program costs and improve the readiness of weapons systems by planning for life-cycle support during the early phases of the acquisition process. Support includes the purchase and management of spare parts and test equipment based upon historical usage rates. Toward this end, we have established a special research fund to provide continued improvements in integrated logistics support. In addition, we annually review logistics support requirements for weapons systems in order to provide the necessary funding. In FY 1985, we reviewed the logistics support requirements and funding for 30 major systems compared with 27 in FY 1984.

(e) Realistic Budgeting

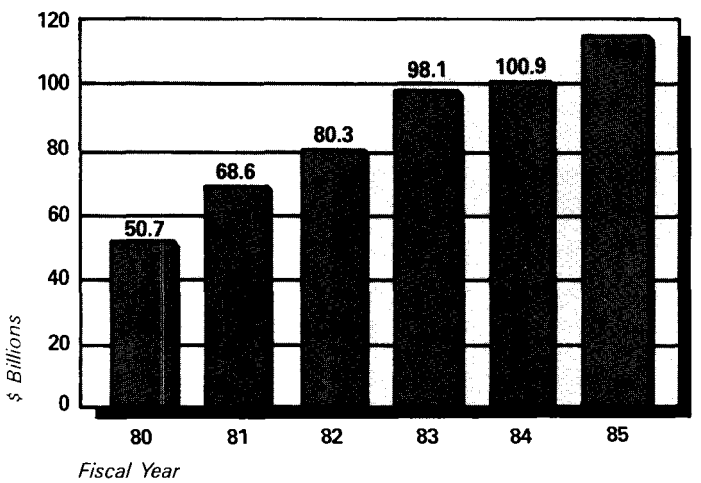
Weapons systems take a long time to design and produce with many changes occurring during this process. This makes it extremely difficult to estimate and budget the correct amount of resources necessary to acquire a major weapon system. With more accurate estimates, we can avoid unanticipated costs.

We have introduced a variety of initiatives to provide more accurate estimates of major weapons systems. For example, we are applying more realistic inflation factors to cost estimates. During FY 1985, we conducted independent cost estimate reviews for 25 programs and adjusted funding as appropriate. We plan to continue these independent cost reviews for all major programs.

We also promote the use of fixed price contracts to discourage "buy ins" (where contractors bid unrealistically low to get a contract) and reduce cost overruns. As Chart II.B.3 illustrates, in FY 1985 nearly 40 percent of the defense budget, or $115 billion, was spent on fixed price contracts, representing a doubling of fixed price dollars since 1980.

Chart II.B.3

Funding Under Fixed Price Contracts



(f) Program Stability

Improving program stability can lead to even greater defense savings. While some program instability is unavoidable, stretch-outs and interruptions add millions of dollars to the taxpayers' burden with no concomitant increase in our security. As a result of budgetary constraints, we have been forced to stretch out our purchase of many systems. In turn, this has increased the cost of these systems. For example, by having to reduce the AH-64 program below the FY 1986 budget plan, the total program cost has increased by $125 million, because the price of the helicopter will be higher in the future.

We are improving program stability by controlling and reducing the number of programs that claim scarce defense resources. From FY 1983 to FY 1987, we reduced the number of new programs from fifteen to three. The new programs for FY 1987 are the Naval Airship, a long-endurance radar surveillance system for fleet units; and the Surface Ship Advanced Tactical Sonar (SSATS), an essential component for the next generation Surface Ship ASW Combat System.

(2) Joint Program Management

Making joint programs succeed requires the concerted effort of the Congress, OSD, OJCS, and the Services. Toward this end, DoD employs a number of high-level management bodies, such as the Joint Requirements and Management Board (JRMB), to address the opportunities and challenges of joint program development and management. DoD's objective is to enhance affordability while meeting interoperability requirements and improving logistical efficiency. Our search for joint program opportunities includes: surveying multi-Service mission requirements for common functions or related threats; resolving unnecessary differences in requirements and specifications; integrating requirements to get more economical production rates and more competition; and developing common, simplified training and logistic support bases.

Currently, there are more than 135 joint programs with a combined value of more than $20 billion in some stage of development or procurement. In addition, resolution this past year of inter-Service issues regarding the Joint Surveillance and Target Attack Radar System (JSTARS) and the Joint Service Advanced Vertical Lift Aircraft (V-22) are two examples of DoD's commitment to effective joint program management.

(3) Spare Parts Management

Economical spare parts procurement is essential to sound management of defense resources and to improved force readiness. DoD's 10-point program for ending spare parts abuse introduced in July 1983 provided the foundation for our current Spares Management Improvement Program. This program is making fundamental changes in the spare parts acquisition, management, and disposal process. To oversee this effort, we established the new position of Deputy Assistant Secretary of Defense for Spares Program Management. This marks the first time we have had a single office with responsibility for all aspects of spare parts management.

The Spares Management Improvement Program consists of more than 500 separate initiatives. Collectively, these initiatives form a comprehensive and detailed action plan. Some of the actions taken to reform spare parts management include:

-- Increasing spare parts competition. One technique for increasing competition is called "breakout," which allows DoD to purchase spare parts directly from the manufacturer or to open them up to new competition. In FY 1985, we reviewed 250,000 items and designated 54,000 for full and open competition. We identified another 51,000 items for purchase from the manufacturer, thereby eliminating "middle man" charges.

-- Exercising customer leverage. As a prime customer, DoD uses its leverage to obtain industry's cooperation in reducing prices. As a result, industry has voluntarily dropped many claims of exclusive rights to parts, established voluntary refund policies and refunded over $17 million to DoD, established their own employee awareness programs, and provided extensive data to help find cheaper sources for spare parts.

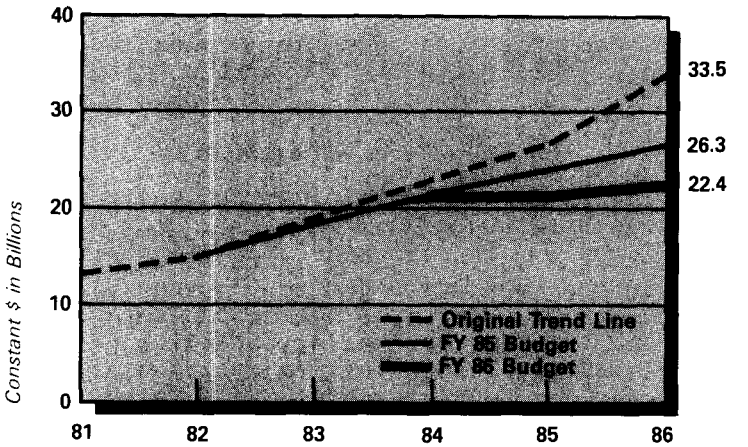
-- Improving price surveillance and control. To control prices, DoD established employee awareness programs; set up programs to flag price increases automatically over a preset threshold;

instituted programs to buy spare parts in larger, more economical quantities; made greater use of contractor "value engineering" proposals to save money; and performed more detailed analyses of what an item "should cost." Of the 3.6 million items that had a price change during FY 1985, 3.3 million (91 percent) showed a price decrease while only 300,000 (9 percent) had a price increase.

Our spare parts initiatives are working. As evidence of their success, DoD documented savings in excess of $2.5 billion in FY 1984 and FY 1985. As Chart II.B.4 shows, these initiatives have helped reduce the trend in spare parts spending by $11.1 billion from our projection made in FY 1984.

Chart II.B.4

Spare Parts Procurement[a]



[a]This chart represents a fully funded budget request that provides for significant increases in force levels, equipment modernization, and operating tempo.

(4) Unpriced Contractual Actions

Unpriced contractual orders identify those contractual actions authorizing contractors to begin work prior to a final agreement on price. Each unpriced order includes a ceiling limiting the government's liability. Unpriced orders are used: for urgent requirements such as safety of personnel or equipment, when it is in the government's interest to avoid a break in production, and to meet obligation schedules. During FY 1985, the Army was able to reduce its outstanding unpriced orders by approximately 35 percent. On November 12, 1985, the Assistant Secretary of Defense for Acquisition and Logistics directed the Secretaries of the Navy and the Air Force to reduce their backlog of unpriced orders by 32 percent from the FY 1985 level. The Army was directed to decrease its backlog by another 10 percent from the FY 1985 level. This will result in a significant improvement in this area in FY 1986.

b. Force Management and Personnel

A fundamental objective of management is to improve mission capabilities through more efficient use of available resources. This output-oriented management technique focuses on quality, technology,

and the creative management of people in the work place. Over the last ten years, we have sponsored a series of manpower management initiatives including the identification of mission objectives and sizing of mission inputs, judicious investment in technology, safe use of available resources, and capitalization of the creative skills of our people.

One of DoD's manpower management initiatives, the Efficiency Review Program, focuses on using industrial engineering techniques to improve work methods and to achieve a better internal allocation of personnel. Resources released by this program are then available to meet increasing workloads elsewhere. For example, the Air Force completed 15 reviews of 8,119 of its military and civilian staff and realigned 784 positions to do other priority Air Force work.

We seek to achieve a higher level of output across DoD through the selective investment of funds in technology. DoD's Productivity Enhancing Capital Investment (PECI) program specifically targets funds for quick return and long-range, high-payoff investment initiatives. For instance, through FY 1985, the productivity investment fund element of PECI has returned $20 for every dollar invested and promises to save over $2.5 billion by FY 1990. We estimate that FY 1986 investments of $138 million will return lifetime savings of $2 billion.

The Safety and Occupational Health Program contributes to the improved productivity of our work force by providing for employee safety through preventive measures and safety training. We estimate that about $1 billion in direct costs are saved annually by avoiding accidents, injuries, and illness as a result of this program.

DoD has achieved additional savings and enhanced individual and organizational productivity by promoting participative management techniques and encouraging DoD employees to exercise their expertise and imagination in designing new and more efficient ways to get the job done. These personnel are then rewarded for their contributions. Four current programs are the Suggestion Program, Productivity Excellence Award Program, Quality Circles Program, and the Productivity Gain Sharing Program. Collectively, these programs have realized substantial savings since their inception.

We plan to use these already established programs to support the President's initiative for a government-wide productivity improvement program announced in July 1985. In keeping with the spirit of the President's initiative, we plan to accelerate and institutionalize an already active productivity improvement process.

c. Information Technology

Better use of information means more efficient use of DoD resources. Increasing reliance on microcomputers in the work place, significant improvements in computer technology, and reduced hardware costs have vastly expanded the role and uses of information technology throughout DoD.

(1) Microcomputer Initiatives

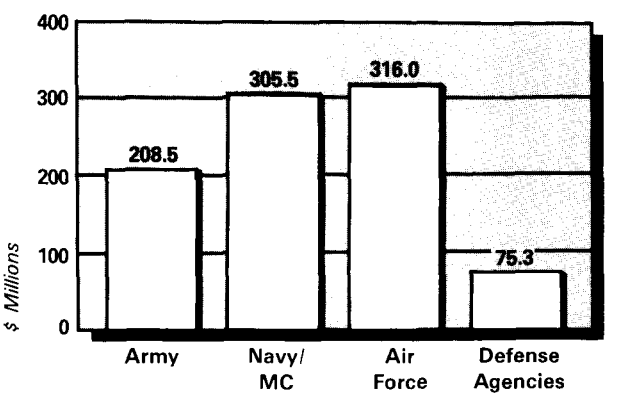
Advancements in microcomputers have made them more attractive and accessible to organizations within DoD. Microcomputers improve decisionmaking and accelerate the performance of administrative tasks. Toward this end, we are educating and training defense managers and employees on computer usage.

Knowledge of how to make the best use of microcomputers is key to increasing employee productivity. In fact, increasing use of microcomputers and office automation systems to support organizational missions has resulted in substantial improvements in products generated services provided, worker efficiency, and unit morale. For example, an office automation pilot program in a Navy research and development laboratory revealed initial productivity gains of 8 to 12 percent, with expected gains of 16 to 25 percent when full implementation is achieved.

(2) Lease Versus Buy Tradeoffs

DoD has implemented programs to acquire ADP resources competitively at the minimum cost. Through a rigorous review, we have identified instances where it would be more economical to buy the equipment rather than continue to lease it. As a result, our budget request for leased ADP systems was reduced by over 40 percent from FY 1984 to FY 1987. By purchasing the equipment, we will avoid additional payments of about $905 million for equipment leases. Chart II.B.5 shows each Services' and the defense agencies' share of the estimated savings.

Chart II.B.5
Net Cost Avoidances in ADP Equipment Leases



d. Financial Management Reforms

Through financial management reforms, DoD has achieved better control and accountability over its resources. Each DoD component is developing a financial management plan to implement an integrated financial management accounting system within five years.

Within DoD, several actions are under way to upgrade our existing accounting systems and subsystems to meet GAO and OMB requirements. New guidelines have been issued for the development, evaluation, and maintenance of accounting systems. As a result, we have achieved a net reduction of five accounting systems that had not previously been in compliance with the prescribed requirements. In addition, DoD is continuing to evaluate financial systems to determine if they can be eliminated or consolidated into fewer, but more encompassing, accounting systems. Finally, DoD developed a uniform chart of general ledger accounts that provides detailed accounting requirements to support budget execution and proprietary accounting necessary to prepare financial reports to the Congress, OMB, and the Treasury.

e. Logistics Management Initiatives

The primary purpose of the logistics community is to support the combat elements so they can accomplish their mission in peace and war. Improvements in our logistics management accountability procedures include:

-- Improved inventory record accuracy. The difference between the actual inventory and the inventory reflected in our automated data base has decreased from 4 percent in FY 1980 to 2.5 percent of the value of the inventory in FY 1985. By improving our accuracy, we avoided $160 million in unnecessary procurements in FY 1985.

-- Defense Reutilization and Marketing System. Materiel valued at more than $6 billion is processed through the DoD Reutilization and Marketing System each year. Approximately $1 billion of this is transferred from organizations that have excess quantities to those requiring these items. These transfers reduce procurement and repair costs. Modernization of our computerized items screening process is expected to increase transfers by $124 million annually.

-- Logistic Applications of Automated Marking and Reading Symbols (LOGMARS). DoD has initiated a defensewide program to use bar codes similar to the coding on all consumer product packaging. We project productivity savings from this program in excess of $100 million annually.

-- Automated memory cards. This program employs advances from the private sector in the packaging of microchips to capture, transport, and make readily available a wide range of logistics data. Ultimately, this program will save labor costs and greatly improve our response time during mobilization.

-- Enhanced use of commercial transportation to move forces and supplies in both peace and war. In an effort to make more efficient use of this relatively untapped resource, DoD is equipping and training its traffic managers to operate economically and efficiently in a highly competitive environment. This includes automating the freight rating, routing, and audit functions to reduce significantly the paperwork that normally amounts to about 40,000 items per day.

-- Commercial travel offices to improve the management of DoD travel. These travel offices enable DoD employees to take advantage of transportation and travel discounts. For instance, we are expanding the GSA-DoD City Pair Program, which provides fares about 40 to 50 percent below standard coach and now covers more than 900 routes with 27 carriers. Overall, we have been able to save $70 million each year in official travel costs by using discount fares.

-- An expanded energy conservation program. Our $1.2 billion expenditure since FY 1976 on conservation projects for existing buildings has resulted in savings in excess of $3.5 billion in defense energy costs, with over $500 million realized in FY 1985 alone.

f. Installations Management Reforms

DoD manages about 1,240 major military installations worldwide. Installations management initiatives have gained the enthusiastic support of military commanders throughout the Armed Services. These initiatives are keyed to the primary objective of ensuring that we have excellent installations to carry out defense missions.

The Model Installations Program (MIP) is an experimental effort to give local commanders and their personnel the opportunity to experiment with new ways of doing their jobs better. Commanders may seek waivers to regulations in order to test new ideas. As an incentive, savings are retained by the installation to improve the quality of life. For example, at Camp Lejuene, a Marine in a transportation squadron noticed that newly purchased vehicles arrived with a complete set of shop manuals costing approximately $70. The suggestion to reduce the number of manuals to the two sets required by the maintenance shops to service the vehicles resulted in an estimated annual savings of $1.3 million.

Contract competitions between private businesses and our own in-house organizations have generated significant savings each year. At Randolph Air Force Base, a word processing center was contracted out to a civilian company with a savings of $163,000 -- a 51 percent savings over in-house costs. These competitions have cut the cost of operations and have produced significant savings each year.

3. Eliminating Waste, Fraud, and Mismanagement

DoD management efforts have been increasingly successful in detecting and curbing waste, fraud, and mismanagement. Our successes reflect the increased resources and attention being applied to internal management review, audit, inspection, and investigative functions.

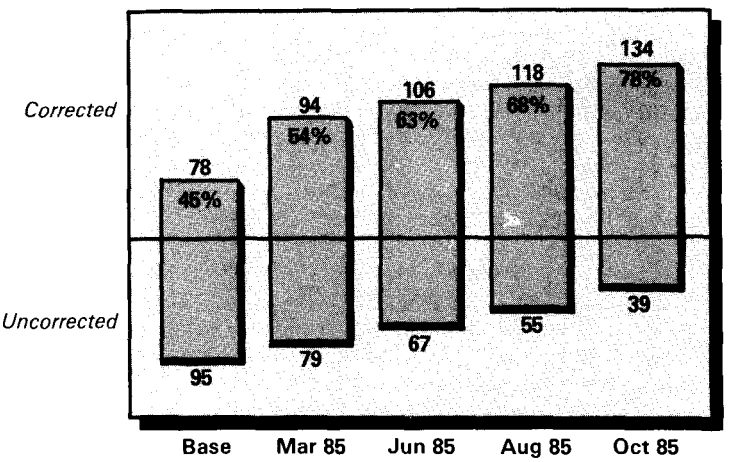
a. Internal Management Control Program

The Internal Management Control (IMC) program encourages managers to scrutinize their organizations and identify and correct weaknesses before they cause problems. Under this program, DoD managers make a formal evaluation of administrative and accounting controls in their operations. When they find weaknesses that could lead to waste, fraud, or mismanagement, they identify the cause and develop strategies for corrective actions.

During FY 1983 and FY 1984, a total of 173 weaknesses were discovered through the IMC program. Of those, 78 were corrected the same year they were discovered. Chart II.B.6 depicts our progress. As of the end of FY 1985, a total of 134 weaknesses (78 percent) had been corrected, while the majority of the remainder will be corrected in FY 1986. Examples of corrections include real property maintenance aircraft flight schedules, and foreign military sales; these corrections alone saved $8.5 million.

In 1985, DoD instituted a more comprehensive process to identify weaknesses. In addition to IMC reviews, all components expanded their efforts to include findings resulting from internal and external audits, and management studies. Consequently, senior management attention and plans for corrective action are being focused on such areas as procurement and property management.

Chart II.B.6
Progress on Correction of Management Weaknesses



b. DoD(IG) Initiatives

The Office of the Inspector General (IG) was established by law and performs, supervises, and coordinates audits, inspections, and investigations of DoD programs and operations.

(1) Audit Operations

The IG performs audits, establishes audit policy, reviews and oversees operations of DoD contract and internal audit organizations, and evaluates the implementation of auditing standards, policies, and procedures. During FY 1985, the IG issued 125 audit reports that identified $1.1 billion in potential monetary benefits. Potential monetary benefits from all other DoD audits/reviews, including Service audit agencies and internal reviews, totalled $1.5 billion.

Audits are performed within the Office of the Secretary of Defense, the Organization of the Joint Chiefs of Staff, the unified commands, the defense agencies, and the military departments. Audit efforts result in significant and continuous improvements in DoD's operations. For example, auditors found that by consolidating two supersonic sled track testing facilities, estimated repair and replacement costs of $51.8 million could be saved, and annual operating costs could be reduced by $1.2 million. Another audit found that contractor progress payment rates established in 1981 are too high under current economic conditions. Cuts in these payment rates should reduce the FY 1985 cash outlay by $1.9 billion and interest costs by about $230 million. In addition, efforts such as the publication of the Handbook on Labor Fraud Indicators, designed to assist contract auditors identify fraud, have enhanced the quality of work performed by DoD audit organizations.

Our aggressive audit follow-up program has led to prompt resolution of disputed findings and completion of corrective actions. This system covers DoD internal audits, General Accounting Office (GAO) reports, Defense Contract Audit Agency (DCAA) reports, IG inspections, fraud prevention surveys, and oversight reviews. Corrective actions

have been completed on 62,299 DoD internal and GAO audit recommendations resulting in savings of $2.2 billion for FY 1985. Currently, an additional 18,876 DoD and GAO reports are being tracked with potential savings of over $3 billion.

(2) Criminal Investigations

The IG oversees and establishes policy for DoD criminal investigative organizations. To improve cooperation and increase prosecutions, a special DoD/Justice Department procurement unit was established. We now have ten DoD employees assigned to this unit. To help DoD employees identify procurement fraud, we published Indicators of Fraud in Department of Defense Procurement. This publication, along with 78 seminars presented for federal investigators and other government personnel, greatly expanded the level of fraud awareness within DoD and increased the detection and reporting of fraud activities.

As the criminal investigator for DoD, the IG detects and investigates fraud in DoD programs and organizations. In FY 1985, IG investigative activities resulted in $92.9 million in recoveries and $33 million in fines, penalties, and restitutions. Administrative actions in FY 1985 included 225 suspensions and 357 debarments. The IG has zeroed in on procurement fraud involving major DoD contractors. For example, one investigation revealed that a contractor had falsely certified the testing results of certain microchips purchased by government agencies. The corporation agreed to pay $1.6 million in criminal fines, damages, and civil penalties, and $105,000 for the cost of prosecution.

The DoD Hotline is an avenue for reporting fraud, waste, and mismanagement within the department. Since its inception in 1979, over 37,000 contacts have been processed with over $6 million in savings reported. To illustrate, an inquiry into the replacement costs of parts used in a ship's weapons control console showed that one part had a "should cost" value of $1,700, which was $8,400 less than the price reflected in the military pricing list. As a result DoD should realize a savings of over $100,000 in the procurement of these parts.

(3) Inspection Activities

The IG conducts general inspections of DoD agencies worldwide. During FY 1985, ten organization-wide inspections at 308 locations were completed. On one inspection, inspectors found that the Department of Defense Dependent Schools was shipping employee baggage by military channels rather than postal channels. Changes in regulations were introduced requiring the least expensive method of baggage shipment, thereby resulting in a potential annual cost-avoidance of $400,000.

c. Defense Contract Audit Agency

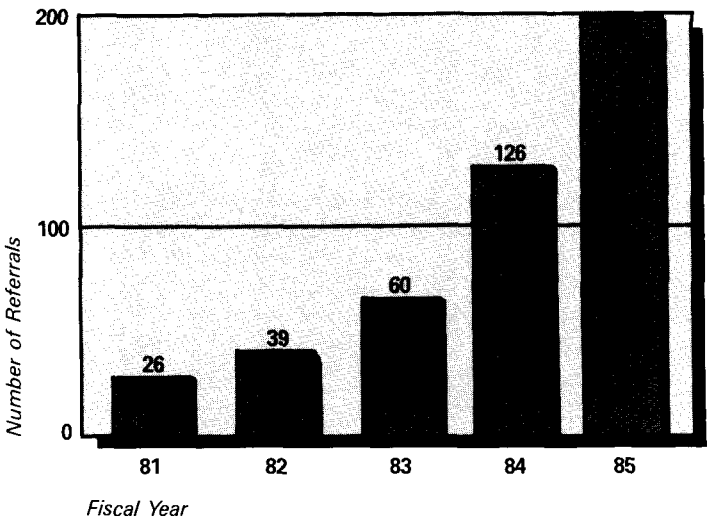
DoD's worldwide contract audit activities are conducted by the Defense Contract Audit Agency (DCAA). DCAA's mission is to perform all necessary contract audits for DoD and to provide accounting and financial advisory services on contracts and subcontracts. DCAA audit services result in over 60,000 audit reports annually. These audits have produced an estimated savings of $10 billion over the past two years.

(1) Suspected Fraud Cases Reported by DCAA

Improved fraud detection training for auditors has turned out to be a worthwhile investment. From FY 1981 through FY 1985, 450

suspected contractor fraud cases were referred for investigation. As shown on Chart II.B.7, there were 199 referrals in FY 1985 alone. One recent referral has resulted in a proposed settlement, including fines and restitution, of $1.9 million. The contractor had fraudulently transferred labor costs resulting in an overcharge to the government. Two contractor employees were charged with 108 counts of making false claims and statements.

Chart II.B.7
Defense Contract Audit Agency
Referrals for Investigation



(2) Cost Savings Realized from DCAA Audits

DCAA audits have resulted in significant savings. For example, one review of a contractor's $34.7 million claim resulted in government savings of $23.6 million. The contractor claimed the additional costs resulted from defective specifications, excessive changes, failure to disclose important information, and lack of cooperation. DCAA auditors demonstrated, however, that many points in the contractor's claim were either unsubstantiated or the result of poor contract planning.

In another instance, DCAA work sampling disclosed that inadequate supervisory controls permitted engineering nonproductivity averaging 30 percent of total labor.· The contractor agreed and immediately implemented audit recommendations that will achieve significant productivity improvements and will result in annual government savings of $24.2 million.

4. External Management Initiatives

DoD welcomes ideas and suggestions from outside sources that enhance the department's ability to meet the nation's security needs in an efficient, cost-effective, and business-like manner.

a. Grace Commission Recommendations

The President's Private Sector Survey on Cost Control (Grace Commission) addressed a number of subjects pertaining to DoD. We have already implemented many of the commission's management initiatives to include multiyear procurement, economic production rates, and enhanced competition.

Our FY 1984 and prior budgets contain savings of $3.4 billion resulting from the implementation of several Grace Commission initiatives. During FY 1985, the savings amounted to $5.5 billion, and we project savings of $5.8 billion for FY 1986. We are continuing to pursue implementation of the remaining Grace Commission recommendations and, where opportunities exist for further savings, we will take advantage of them.

b. Blue Ribbon Commission on Defense Management

In June 1985, President Reagan established a Blue Ribbon Commission on Defense Management. The commission is reviewing the progress already made in improving DoD's management, organization, acquisition, and decisionmaking procedures.

In addition, on October 16, 1985, the Senate Armed Services Committee (SASC) staff published the report, Defense Organization: The Need For Change. The report recommends far-reaching organizational modifications to DoD. The SASC recommendations are being studied for possible action and will be addressed in conjunction with DoD's response to the findings of the Packard Commission.

c. Reform '88

Reform '88 is a comprehensive program to improve, consolidate, and streamline the management systems of the federal government. Toward this end, DoD is implementing a broad range of initiatives in cash management, debt collection, administrative systems, and management reviews.

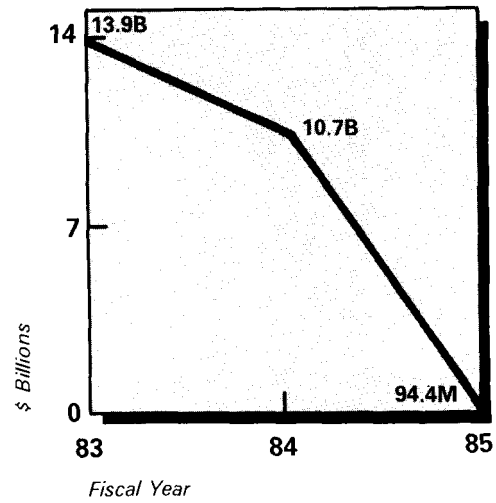
Cash management improvements have accounted for $225 million in savings through FY 1985. We project an additional $160.5 million in savings for FY 1986. These savings have been realized through a reduction in the amount of early and late payments made within DoD. Interest on late payments decreased from $4.1 million in FY 1984 to $3.6 million in FY 1985, a 12 percent reduction. Also, during FY 1985, our early payments decreased by $10.6 billion, from $10.7 billion in FY 1984 to $94.4 million, a 99 percent reduction. Chart II.B.8 shows this dramatic improvement in reducing early payments since FY 1983.

Additionally, DoD has reduced debts owed the government by using credit reporting bureaus, collection agencies, salary offsets, and assistance to other federal agencies in collecting debts. We have assisted the Department of Education in collecting more than $15 million in delinquent student loans from DoD employees, and collected over $378,000 in debts with the use of commercial collection agencies.

We have consolidated and standardized administrative systems. For instance, we reduced the number of civilian personnel and payroll systems from 36 in 1983 to 29 today.

Chart II.B.8

Early Payments



Also, DoD participates in the OMB Management Review Program providing information on the development and implementation of management initiatives. In total, more than 30 management improvement actions were completed and provided to OMB as part of the FY 1986 review. The plan for FY 1987 has identified 105 actions to be taken and provided to OMB during this planning cycle.

5. Conclusion

During the past four years, we have identified management problems within DoD and initiated reforms to eliminate these problems. Of course our job is far from done. We will continue to uncover problems, even as we continue to evaluate and, when necessary, revise our management reforms. Comprehensive programs to improve acquisition management; to end spare parts pricing abuses; and to curb waste, fraud, and abuse are in place -- and they are working.

Our challenge in the coming years will not be just to solve problems, but to prevent them. As we develop new weapons systems, we must plan at the outset for competition, for efficient production, and for adequate support and readiness. We must write tough contracts and enforce them strictly. And we must examine our operations to see not just where waste or fraud is occurring, but where it could occur -- and then see to it that the taxpayers' dollars are not squandered.

C. READINESS AND SUSTAINABILITY

1. Introduction

Readiness and sustainability are two of four essential components of military capability -- the other two being modernization and force structure modifications. While DoD has witnessed major improvements in all four areas during the past five years, this section of the Annual Report focuses on our progress in force readiness and sustainability. During the first four years of this Administration, we made substantial investments in both manpower and materiel to bring our readiness and sustainability up to an acceptable level. Modernization has also contributed to our readiness and sustainability posture through reliability and maintainability improvements. However, as we make headway in modernization and force structure increases, we are likewise experiencing increases in the net resources required to maintain our modernized and improved force levels at a high state of readiness.

Now, in an era of tightened fiscal resources, we must consolidate and hold our improved readiness posture, while continuing to improve our sustainability. Fiscal constraints, however, mean that future progress will be more gradual. As resources permit, we will continue to make improvements in a balanced way.

This chapter discusses several specific readiness and sustainability improvements, assesses our current posture, and identifies expectations for the future. Those manpower, installations, and other mobilization programs that contribute to readiness and sustainability are discussed in greater detail in other chapters of this report.

Much has been written about our military readiness and the extent to which it has improved. The airing of this issue has accomplished at least one purpose -- it has shown that the military capabilities of the United States are not easily captured by quantitative indices. A report, Improvement in U.S. Warfighting Capability FY 1981-1985, released last year, demonstrates several ways in which our military capability has grown in the last five years. In addition, we have begun work on developing quantitative indices of military capability that we hope will reliably represent changes over time.

2. Readiness

Our objective is to provide qualified personnel and capable equipment to our forces, and to provide training opportunities so that full combat potential can be achieved within tasked response times should a conflict arise. We evaluate four separate factors in assessing the readiness of our forces:

-- ***Equipment Fill:*** The amount of equipment (i.e., aircraft, tanks, trucks, etc.) we field relative to our combat requirement;

-- ***Equipment Condition:*** The ability of fielded equipment to perform its mission;

-- ***Personnel Fill:*** The availability of people with the right skills and training to man our force structure; and

-- ***Unit Training:*** How well our individual units are collectively trained.

These readiness components require various resources that have different procurement lead-times as depicted in Table II.C.1.

Table II.C.1
Readiness Components and Procurement Lead-Times

Component	Lead-Time (Years)
Equipment Fill (PA)	2-3
Equipment Availability	
—Depot Maintenance (O&M)	1
—Repair Parts (PA, SF)	1-3
Unit Training	
—Flying/Steaming Hours and Battalion Training Days (O&M)	1
—Simulators (PA)	2-3
Personnel	
—Recruiting and Retention (O&M, MP)	1

PA — Procurement Accounts Investments
O&M — Operations and Maintenance Account Expense
SF — Stock Funds Investment
MP — Military Pay

It is important to note that very little improvement to readiness can be achieved on short notice. Some important readiness areas have lead-times as long as our modernization programs. In fact, production lead-time is often much greater than the strategic warning we are likely to get. For this reason, we continue to give readiness a high funding priority in that we will not have time to "get ready" upon warning of the likelihood of a conflict. Our achieved readiness in peacetime will largely determine the effectiveness of our conventional forces in the first days of combat.

a. Equipment Fill

Navy and Air Force equipment-fill status remains adequate or has improved since last year's report. The Marine Corps and the Army have also improved their equipment fill status; however, the Army continues to experience readiness problems due to shortages in unit equipment. Although substantial amounts of modernized and new equipment have been fielded, the Army has not been able to overcome long standing equipment shortages or replace overaged or obsolete equipment.

Army fiscal resources have been inadequate to complete essential modernization and the procurement of support equipment. Given further reductions in fiscal resources compared to previously planned levels, the prospect of procuring the equipment the Army needs in the near future is dim. Therefore, we are concentrating on identifying the most urgently needed items for near-term procurement. Toward that end, the Army is refining the data systems it uses to track equipment inventories.

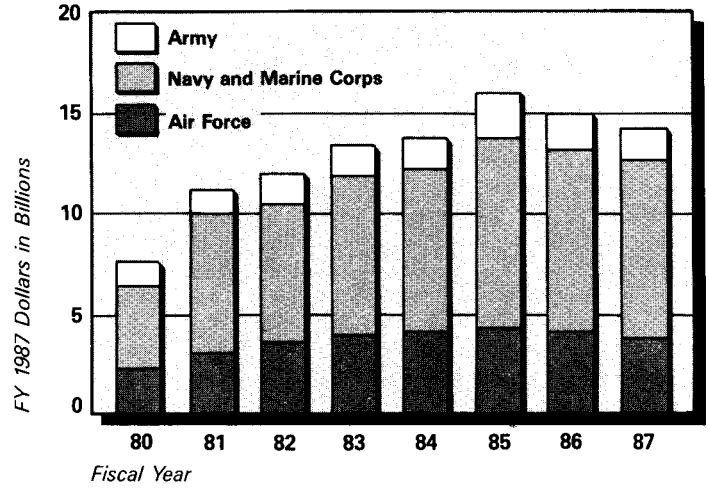
b. Equipment Condition

The operational availability of our fielded equipment is a function of how often it breaks (its reliability), how long it takes to fix it (its maintainability), the supply of repair parts and other components, and the availability of trained maintenance personnel to keep this equipment in combat-ready condition. We have made considerable progress in all of these areas.

(1) Depot and Field-Level Maintenance

The overhaul and field-level maintenance of ships, aircraft, tanks, missiles, and other major weapons systems are central to the equipment maintenance strategy of each Service. While the budget maintains the progress we have made in our maintenance posture, we have had to scale back our objectives somewhat because of fiscal constraints (see Chart II.C.1).

Chart II.C.1
Depot Maintenance Funding



However, we will continue to place strong emphasis on funding for depot and field-level maintenance while taking full advantage of benefits associated with such DoD initiatives as maintenance research and development, major weapons systems support evaluations, and reliability-centered maintenance. These initiatives impact on maintenance costs, availability, and readiness early on in the weapons systems' developmental stages.

(2) Spares and Repair Parts

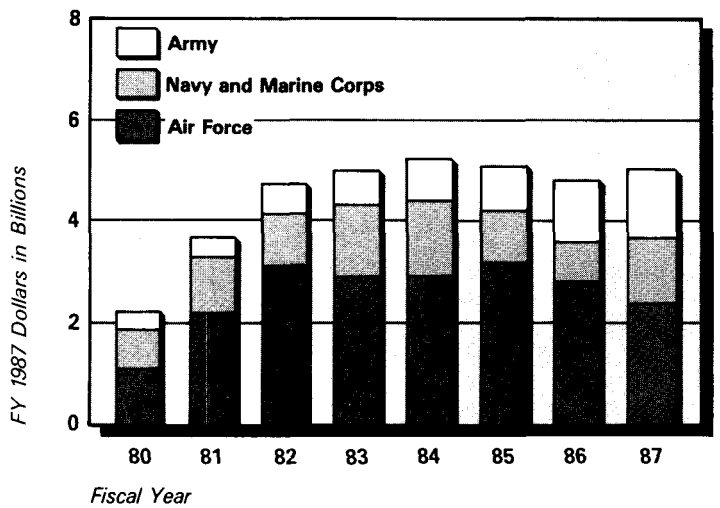
The effectiveness of both depot and field-level maintenance programs depends on the availability of spares and repair parts. We require both replenishment spares -- to replace those consumed by operational systems -- and initial spares -- to support new weapons systems entering the inventory. Replenishment spares requirements are driven largely by peacetime activity levels (aircraft flying hours, for example); initial spares requirements are a function of our modernization programs.

As shown in Chart II.C.2, we substantially increased and are maintaining our annual investment in replenishment spares to support our peacetime activity levels and improve the operational availability of our ships, aircraft, and combat vehicles. In addition, we have fully funded the requirement for initial spares each year to keep support abreast of new equipment deliveries and to ensure that our newest and most effective equipment is fully supported. We will also invest an additional $7 billion in initial repair parts purchased through the

Defense Stock Funds (DSF) between FY 1983 and FY 1987. As a result, the new weapons systems procured through our modernization programs are better supported at delivery than were their predecessors.

Chart II.C.2

Peacetime Replenishment Spares Funding

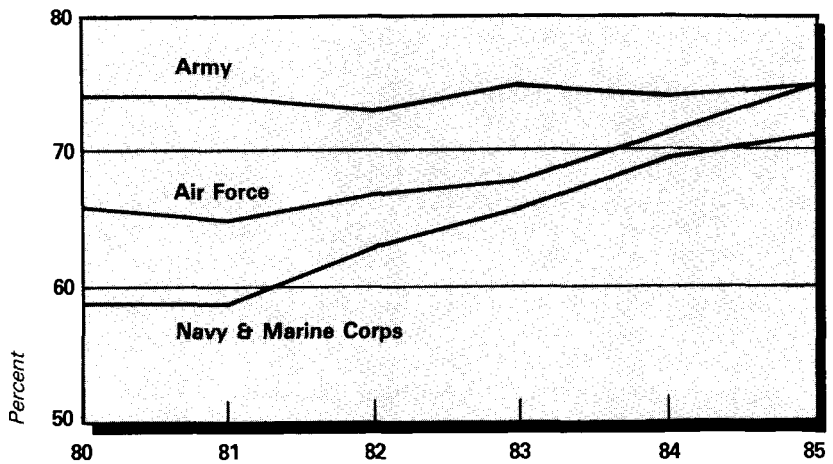


For some time DoD has recognized that greater efficiency could be achieved by sizing spares and repair parts inventories to specific weapon system availability objectives. This concept, known as "sparing to availability," is difficult to accomplish because of the complexity of modern weapon systems. However, under the auspices of the Supply Management Policy Group, a conceptual plan to achieve sparing to availability was formulated and subsequently implemented. This will be a long-term effort. The payoff, however, is potentially very large; we expect, given constant costs, to achieve higher weapons systems availability and to increase readiness. Additionally, should reduced funding levels be necessary in the future, we would be able to identify where best to take reductions to keep readiness at the highest level possible.

(3) Equipment Availability Results

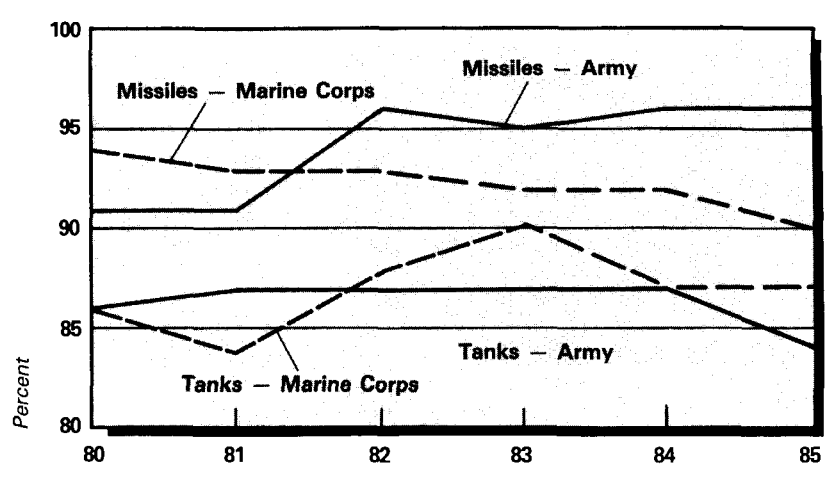
Our increased attention to equipment maintenance and spares and repair parts support is largely responsible for the measured improvement in equipment availability. Our primary measures of forcewide equipment availability include mission capable (MC) and fully mission capable (FMC) rates for aircraft and ground forces equipment, and substantially ready (SR), and marginally ready (MR) rates for ships. These measures describe the percent of weapons systems in the inventory that are capable of performing at least one assigned mission (MC) or all assigned missions (FMC). We have experienced positive trends in aircraft availability as illustrated in Chart II.C.3. Chart II.C.4 shows that FMC rates for Army and Marine Corps tanks have declined since FY 1983 due to maintenance problems with the older M48A5 and M60 tanks. For the more modern M60A3 and M1 tanks, the FMC rates were 91 and 89 percent respectively for FY 1985. For ships not in overhaul, the percent rated substantially ready in equipment readiness has increased from 54 to 89 percent between FY 1980 and FY 1985.

Chart II.C.3
Aircraft Mission Capable Rates



We expect these trends to continue as our expanded investments in spares and repair parts are fully delivered. The FY 1987 Materiel Readiness Report provides detailed historical and projected equipment readiness rates by specific weapon system and Service.

Chart II.C.4
Selected Ground Forces Equipment—FMC Rates



c. Personnel Fill

While great strides have been made in terms of manpower availability over the past several years, a resource gap is developing. Manning to fill valid programmed manpower force structure requirements is being constrained through reductions in the Active Component end strength request. Unless this trend is reversed, personnel fill readiness is and will continue to be diminished proportionately.

d. Training Readiness

In addition to adequate inventories of well-maintained equipment, our forces must be systematically trained and exercised as units to develop the collective skills required for success in wartime missions. The amount and quality of collective unit training define the training component of force readiness.

The ability to conduct good collective unit training depends on personnel and materiel readiness. The favorable trends described in the Manning the Force Chapter of this report -- high-quality enlistees, good retention of noncommissioned officers, improvements in personnel stability -- allow units to concentrate on perfecting collective skills. Improved availability of operational equipment also increases the opportunity for sound collective unit training.

The Army has increased substantially the number of battalions using the National Training Center -- perhaps the best facility in the world, short of combat itself, for training ground forces realistically. From FY 1982 to FY 1985, the number of battalions using this facility annually has increased from 16 to 28, a level that will be maintained in FY 1986.

Improving the training of Army Reserve Component forces has been a priority goal of this Administration. Toward that end, the Army increased the overseas deployment training of reservists from 4,200 in FY 1981 to 25,000 in FY 1985.

The Marine Corps has increased battalion field training days 16 percent from FY 1982 to FY 1985, while major field exercises have increased 24 percent.

In FY 1985, the Air Force trained 93 percent more tactical aircrews than it did in FY 1981, while tactical Air Force flying hours increased 13 percent from FY 1981 to FY 1984. The Navy also has increased both trained pilots and flying hours.

We have also improved training readiness by increasing the value of training time -- for example, the development and use of more effective training ranges and the increased development, procurement, and use of simulators and other training devices. These devices complement and supplement training on the primary equipment and raise proficiency beyond that which could be achieved in the past using primary equipment alone.

3. Sustainability

Our sustainability objective is to ensure logistics support to our conventional forces from the initiation of a conflict to its successful termination. Our requirements for combat-essential materiel during a conflict will be many times larger than our normal peacetime consumption. Thus, we strive to build up war reserve stocks sufficient to support the combat forces until the industrial

base can mobilize to meet our wartime requirements. Unfortunately, long production lead-times and the large quantities required make building stockpiles of war reserve munitions, equipment, and spares and repair parts a slow and expensive process.

Sustainability, like readiness, cannot be purchased quickly. Although the sustainability resource areas were allocated some of the largest real funding increases over the last five years, a little more than half of this investment has been produced and delivered. We recognize sustainability funding as a high priority, and we need continued congressional support to achieve these important objectives. The following section addresses the war reserve component of our sustainability support policies.

a. Munitions

We have continued the progress reported last year toward redressing critical deficiencies in munitions sustainability. Funding for the last eight budget years is shown in Chart II.C.5. This graph demonstrates our resolve to build our munitions inventories to the point that we would never be forced to escalate to theater nuclear weapons because our conventional sustainability had been exhausted. Even with these increases, however, achieving our modest mid-term objective has been painfully slow. The long production lead-time for munitions, about two years, means that the increased funding in FY 1982 through FY 1983 is only now being translated into increased combat staying power.

Chart II.C.5
Munitions Sustainability Funding

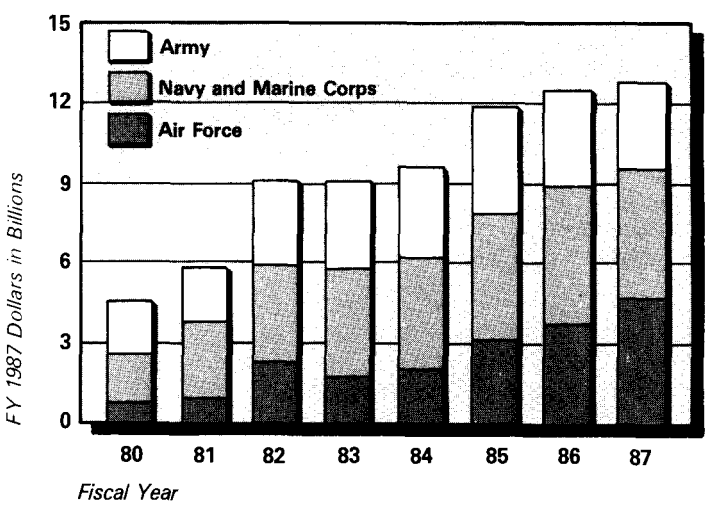
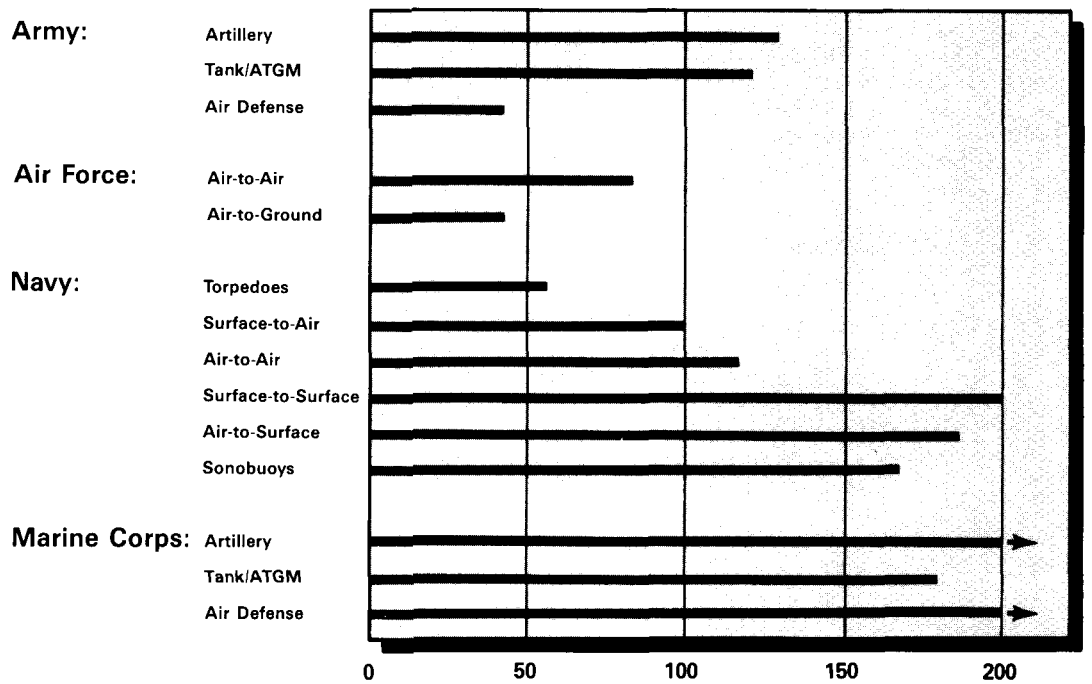


Chart II.C.6 reflects the increase in sustainability for major munitions items from FY 1981 to the end of the FY 1987 funded delivery period (FY 1989), if the amounts requested in the FY 1987 budget are approved. All Services show substantial improvement, with the Navy making the greatest strides. The rate of improvement in Army sustainability has slowed because recent fiscal constraints have resulted in a leveling off of Army munitions funding.

Chart II.C.6

Progress in Improving Sustainability in Munitions



% Improvements Over FY 81 Posture
(Assets, End-FY 1981 Funded Delivery Period versus End-FY 1987 Funded Delivery Period)

Procurement of modern munitions increases sustainability and achieves modernization as well. When we buy Maverick missiles, for example, we not only arm a number of sorties, we also greatly increase the potential effectiveness of those sorties. Similarly, the Copperhead offers an increase in capability that cannot be matched by older artillery rounds. The thrust of our munitions procurements is to get us through the intense early days of a conflict in good enough shape continue the conventional battle.

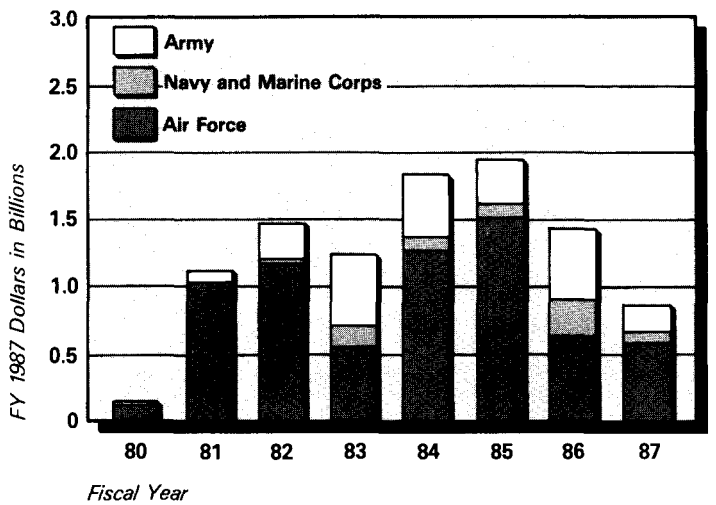
The exact level of our sustainability -- how many days or weeks that we could fight -- is scenario-dependent, and our estimate for specific scenarios is classified. In general terms, we have not attained the levels necessary to constitute a prudent-risk deterrent. On the one hand, sustaining a conventional war is very expensive. It will take many years to build our stockpiles to the required level. On the other, we think it is worth the expense to provide the conventional sustainability necessary to establish a credible deterrent and to reduce the risk of nuclear escalation.

b. Spares and Repair Parts

Our increased consumption of spares and repair parts to keep aircraft, ships, and other combat equipment fully operational at the much higher level at which they will be operated during a conflict is the

basis for our war reserve requirement for these items. We have concentrated on filling the necessary stockpiles of prepositioned spares and repair parts -- those that would be required first. To accomplish this, we have continued our funding for war reserve spares and repair parts in the procurement accounts; however, tight or fiscal constraints in the past two years have resulted in decreases from the FY 1985 levels (see Chart II.C.7).

Chart II.C.7
War Reserve Spares and Repair Parts Funding



Because of the production lead-times for these items, only about half of our investment over the last four years has been delivered. Today, we have only about one-third of our war reserve prepositioning objective on hand, but we expect that the increased sustainability funding already approved, as well as that planned, will allow us to achieve more than 80 percent of that objective by the end of this decade.

The payoffs from this funding are substantial. Perhaps the most impressive is in airlift, where additional spares procurement alone has provided a 73 percent increase in deliverable tonnage from FY 1981 to FY 1985. Additional capacity growth has been achieved through acquisition of new aircraft and modification of existing aircraft.) Army aviation war reserve spares inventories in FY 1985 increased 180 percent since FY 1981, and the number of Navy aircraft carriers with adequate levels of aviation spares has increased by over 100 percent. The Air Force reports that increased spares procurement has resulted in an 83 percent increase in wartime spares supportability for sorties from FY 1981 to FY 1985.

4. The Industrial Base

a. Objectives

The war reserves of materiel we stockpile in peacetime would only sustain our forces in combat for a relatively short period. To be prepared for the possibility of long-term combat, the United States needs a strong industrial base to produce the materiel that would be needed after our stockpiles are used up. For this reason, it is essential that we maintain an efficient and responsive production base to support peacetime procurement. Thus, in both peace and war, DoD relies upon a strong industrial base to produce the materiel needed by our combat forces for the protection of the nation.

There is a direct relationship between the health of the private industrial base and the ability of industry to respond to our needs for materiel. Past studies have been critical of the state of the industrial base as being outdated and not capable of surging production. The domestic industrial base is primarily privately owned. Therefore, the commitment of private investment capital for equipment, facilities, and process modernization is essential if we are to have a strong base that can respond to defense requirements.

Emphasis on defense contractor productivity and quality improvements are integral to DoD efforts to reduce acquisition costs. Productivity improvements are best achieved by stressing quality. Accordingly, we have formulated a ten-point program called the "DoD/ Defense Industries Quality Excellence Program." This and other major industrial base programs, such as manufacturing technology, earthquake preparedness, and measures for establishing domestic capacities to support industrial readiness are discussed below.

b. The Defense Production Act

The Defense Production Act of 1950 (see Chart II.C.8) is the legislative authority for building our industrial capability and for keeping defense programs on schedule and within costs. Our production programs of B-1 bombers, TRIDENT submarines, and Peacekeeper missiles all rely on the Defense Production Act to maintain manufacturing schedules, and to reduce lead-times and costs, and foreign-source vulnerability.

Chart II.C.8
Defense Production Act of 1950

Title I	Authorizes Allocation of Resources to Prevent Disruption of Production
Title III	Provides for Expansion of Industrial Capacity to Meet National Security Needs
Title VII	Establishes Advisory Committees to Allocate Production During Wartime

c. Stockpiling of Strategic and Critical Materials

The purpose of the stockpile program is to ensure a supply of critical raw materials including those needed for high-technology items to support the military, industrial, and civilian needs of the United States during an emergency. The Emergency Mobilization Preparedness Board (EMPB) working group on industrial mobilization has recently completed a study reviewing the process by which the national stockpile goals are set. New goals have been established by the President as a result of the study, and we look to modernizing stockpile assets to meet the needs of new and emerging technologies.

d. Manufacturing Technology Program

The manufacturing technology program seeks to improve the productivity and responsiveness of the defense industrial base by investing in advanced production technologies. One recent accomplishment is a photogrammetric technique for verifying aircraft assembly tool alignment that eliminates the labor-intensive use of master gauges. Savings to date are $4.2 million with expected savings of an additional $27 million. Another accomplishment is the development of an improved process for fabricating thermal sights. This process has saved $19 million to date with an additional $11 million savings projected. Return on investment can average 3-to-1 or more.

As recommended by the President's Commission on Industrial Competitiveness, we have established a Manufacturing Technology Information Analysis Center (MTIAC) to infuse program results more rapidly into the industrial base and to establish a focal point for manufacturing technology for DoD and its contractors. Currently, the MTIAC is preparing four technology assessments: high order languages for industrial robots; artificial intelligence and expert systems applications in manufacturing; evaluation of finite capacity scheduling and simulation systems; and automated inspection for flexible machining systems.

e. DoD Industrial Capabilities Information Management System

To assess the capabilities of the industrial base, we are building a multi-Service automated data base to help evaluate the responsiveness of critical sectors of U.S. industry starting with ammunition, precision guided munitions, and the gas turbine engine. The data base will be limited strictly to internal DoD use because of the sensitive information it will contain. This system will allow us to fulfill our industrial base mission more effectively.

f. Earthquake Preparedness Planning

Based on geologic evidence, the probability of a catastrophic earthquake in California is greater than 50 percent in the next 30 years. Such an occurrence could not only have a severe impact on the local industrial base, but also a major impact on the security of our nation. About 56 percent of the precision guided munitions and space vehicles, 40 percent of the semiconductors, 25 percent of the electronic computer equipment, and 21 percent of the optical devices manufactured in the nation are produced in the 21 California counties at risk. Currently, California has over 30 billion dollars in DoD prime contract awards, plus a multitude of subcontractor and supply vendor contracts. In many cases, California firms are the only source for some of our most critical defense systems. In addition, more military installations are located in California than in any other state.

In the past, the State of California and the federal government have emphasized development of immediate emergency (life saving and support structure) response plans. Because of the potential direct impact on our defense industrial base and national security posture, we are also emphasizing industrial recovery planning.

g. Industrial Responsiveness

We are increasing our dialogue with the private sector on expanding the ability of the industrial base to support our forces during mobilization. An industrial responsiveness analysis was conducted in conjunction with the JCS mobilization exercise PORT CALL 86. Responding to a hypothetical crisis scenario, 24 defense contractors who manufacture some 40 critical items provided data on the quantities they could produce in 18 months. This exercise has identified both the bottlenecks manufacturers are most likely to experience and constraints that currently limit industry's ability to accelerate production.

h. Emergency Procurement Budget

We are developing an emergency procurement budget that will focus on the critical components, consumables, and other items of materiel needed to sustain the force in the initial months of an extended conflict. The emergency procurement budget would save us substantial time in a national security emergency by providing a baseline from which a budget adjustment or a request for a supplemental appropriation could be tailored to meet the specifics of the crisis at hand. Ultimately, this budget will assist in better formulating our peacetime procurement and stockpiling policies and programs.

i. Industrial Productivity

We are seeking new ways to overcome obstacles in the acquisition process. Competition is too frequently based only on price. Quality, and the risks of poor quality or bad schedule performance, are equally important factors in our acquisition decisions. DoD will continue to act as a tough customer when quality problems are uncovered. The elements of our ten-point program to improve productivity and quality are shown in Chart II.C.9.

New ways will be found to consider quality history in the source selection process and to reward high quality performance. We intend to move away from defining equipment requirements in minimally acceptable terms to a system whereby the best quality equipment at an acceptable price is our recognized objective.

The DoD acquisition streamlining initiative aims to reduce excessive contract requirements that unnecessarily raise the cost of weapons systems. This initiative gives industry a greater opportunity to recommend the most cost-effective specifications, standards, and other contract requirements as weapons systems evolve from concept design through development to fielding. Thirty-three current major acquisition programs have been designated to implement streamlining. Streamlining will apply to all new DoD system acquisition programs initiated after September 30, 1985.

The Industrial Modernization Incentives Program (IMIP) encourages capital investment and the use of the latest technology in the production of defense materiel by providing incentives to contractors to invest their own funds in productivity enhancing capital investments. Currently we are working with over 100 contractors in the program;

long-term acquisition savings are estimated to be in the billions of dollars.

Chart II.C.9

DoD/Defense Industries Quality Excellence Program

Initiative		Focus
Design/Build Quality In	—	Improve the Technical Discipline of Engineering/Manufacturing
Award Contracts Based on Quality Excellence	—	Use Competition to Foster Quality Improvement
Streamlining	—	Focus on High Priority Contract Requirements — Eliminate Unnecessary Requirements that Add to Waste
Modernize Factories	—	Improve Process Control and Automatic Inspection
Provide Incentives To Motivate Employees To Reduce Scrap/Rework/Repair	—	Investigate Use of Gainsharing in Defense Industry to Reduce Direct and Overhead Costs
Increase and Improve Training/Communication in the Quality Discipline	—	Assist Academe and Industry in Development of Quality Improvement Programs
Implement Guarantees	—	Guarantee Design and Manufacturing to Specified Performance Requirements — Guarantee Free From Defects in Materiel and Workmanship
Minimize Use of *Specification/Source* Control Drawings	—	Eliminate Unnecessary Testing Requirements by Using Standard Parts
Improve OEM Discipline Over Subcontractor/Vendors	—	Reemphasize Prime Contractors Audit and Surveillance Over Subcontractors or Vendors
Tighten Quality Surveillance and Investigate Fraud and Abuse, When Indicated	—	Ensure Contract Compliance

j. Industrial Base Program (IBP)

The objectives of the IBP are to improve production efficiencies, establish production and repair surge capabilities, enhance wartime sustainability, and improve industrial preparedness planning. Nine production surge projects were submitted in the FY 1986 defense budget and seven projects were authorized by the Congress. These projects provide for rapid and cost-effective increases in production quantities during emergencies. Critical surge projects in FY 1986 include TOW 2 missiles, two sonobuoys, combined effects munitions, traveling wave tubes, squibs for chaff/flare, and landing gear repair. Nineteen high-priority candidates were reviewed for the FY 1987 surge program, and after detailed cost-payoff analyses, ten of the most promising surge projects have been proposed for the FY 1987 budget. We completed the first phase of a joint industrial base study of the entire family of precision guided munitions. Currently, seven high-priority projects are viable candidates for the $59 million requested in the FY 1986 budget and authorized by the Congress in FY 1985. Investment in both the manufacturing technology and the industrial modernization incentives programs capitalizes on the strengths of the U.S. industrial base -- technological and engineering excellence.

5. Conclusion

Without question, we have made substantial improvements in both the readiness and sustainability posture of our forces since 1980. With regard to readiness, we are confident that we have achieved a level that has substantially enhanced our ability to deter aggression and, if necessary, to react effectively should deterrence fail. This improvement is substantiated by readiness indicators. We have more and better equipment. Our equipment is more operationally available; we have more and better people to operate it, and they are better trained, individually and collectively.

In spite of this substantial progress, much still remains to be done. Thus, we will continue to improve our equipment availability by controlling depot maintenance backlogs for both end-items and components and by giving high priority to funding requirements for both initial and replenishment spares. In addition, we plan to continue funding for collective unit training at the current level for the Navy and Air Force, and at an increased level for the Army flying hour program.

Although we have made great progress, we are still not satisfied with the sustainability of our conventional forces. This is due in part to the longer lead-times required to procure modern munitions, spares, and repair parts, and in part to the major sustainability deficiencies that existed five years ago. Our sustainability requirements have also necessarily increased both to support our modernized weapons systems and to meet the larger threat we must deter and, if necessary, defeat. We will not reach a point of confidence in our sustainability posture until late in this decade, and even that achievement is contingent on continuing an adequate level of overall funding for the defense program. As a result of these investments, each year our conventional sustainability posture improves and reduces the probability of having to use nuclear alternatives should deterrence fail. This is not an investment area in which we can afford to be frugal.

Part III
Defense Programs

A. MANNING THE FORCE

1. Introduction

The most vital element of our improved force structure is manpower. Without sufficient numbers of qualified, motivated, trained people to operate and maintain today's weapons systems and to keep them supplied with munitions, fuel, and spare parts, the significance of the improvements made in force structure and modernization would be greatly diminished.

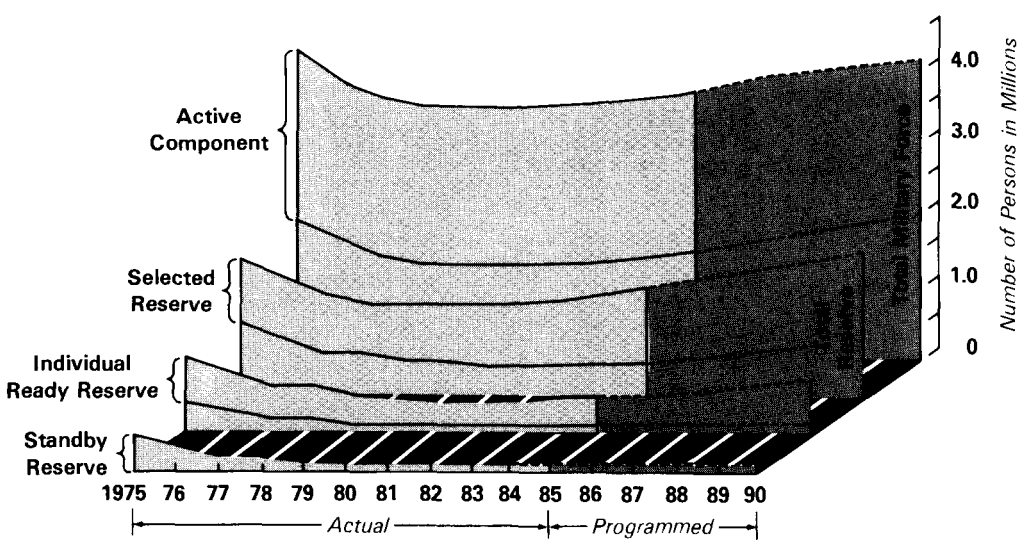
When the Reagan Administration came into office, there were serious manpower deficiencies in both the Active and Reserve Components. Entrance test scores and educational levels had reached alarming lows, unit and individual morale had declined, and we had serious shortages in the career force. Remedying this situation became one of this Administration's highest priorities. As a result, our manpower program today is an unprecedented success. We have overcome the serious personnel deficiencies that undermined our ability to meet our defense commitments. We now have a strong, high-quality force that not only provides for our immediate defense but also serves as a solid foundation for our future defense needs.

2. The Manpower Program

Our manpower requirements are derived directly from our force structure, which is developed to respond to the diverse threats to our national security. Consistent with our force structure requirements and in view of our perception of the threat, we traditionally maintain the minimum active force necessary to meet our immediate requirements, while relying increasingly on our Reserve Component

Chart III.A.1

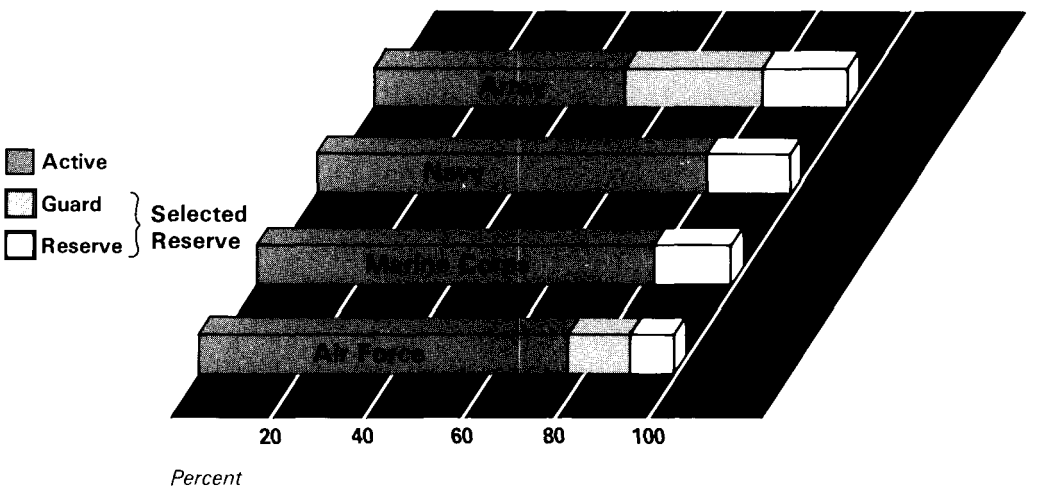
Composition of Total Military Force, 1975-90



forces and civilian manpower to support and augment the active forces. Toward that end, we have developed rigorous processes to measure, review, and validate our requirements for each category of the defense work force. The following section and the Defense Manpower Requirements Report discuss these programs in more detail.

Chart III.A.2

Partners in the Military Force
(FY 1985)



a. Active Component Military Manpower

The growth in capability of our Active Component has permitted development of a credible and formidable military force more capable of meeting its commitment to support our security program.

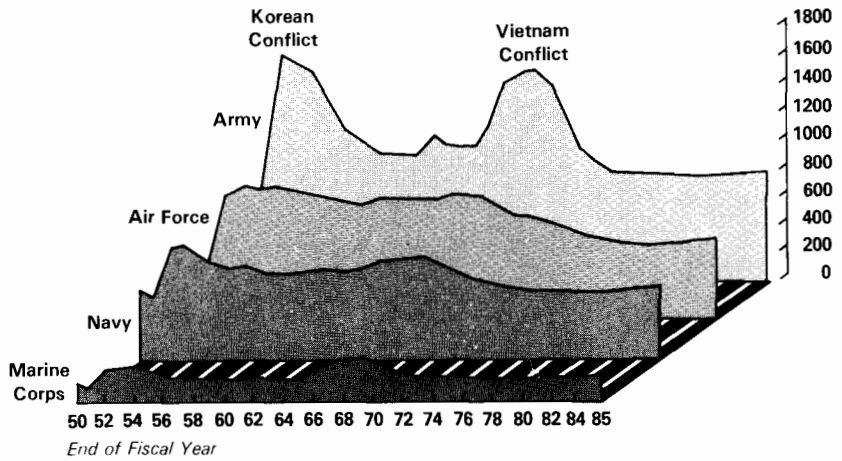
The continued record-high quality of new recruits provides us a solid foundation from which we can staff our force and draw our future leaders. Existing supervisory and leadership shortages are gradually being eliminated, providing us with a more appropriately graded force possessing the necessary skills and experience to win on today's battlefield.

Our progress in quality of life programs is reflected in the improved morale of our force and the decline in disciplinary actions during the past year. We have a force that is prepared and able to support our worldwide commitments. We now must focus on sustaining our manpower successes of the past five years.

(1) End Strength

From FY 1980 to FY 1987, Active Component end strength will increase seven percent to 2,181,100. This includes a growth of 13,730 from the authorized FY 1986 levels. Of this 0.6 percent strength increase, over 10,000 are required to operate and maintain Navy ships and airplanes added to the fleet. The balance of the increased manpower requirements will be devoted to filling out existing units and fielding new weapons systems.

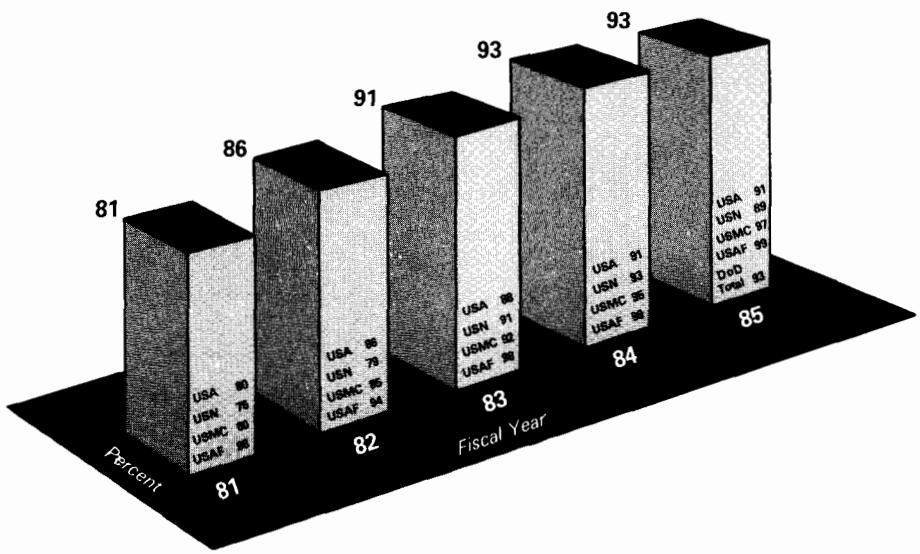
Chart III.A.3
Active Component Personnel Strength Levels
(Thousands)



(2) Recruiting

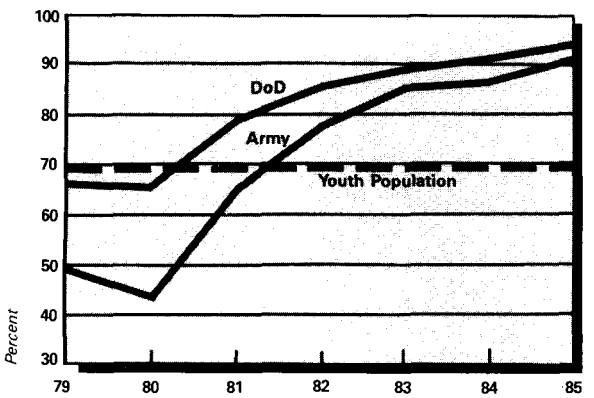
Alarmed by the poor state of recruiting and retention in FY 1980, this Administration introduced a comprehensive program to improve the Services' ability to attract and retain quality people. Included were programs designed to restore military pay and benefits to competitive levels, provide the Services with adequate recruiting

Chart III.A.4
High School Diploma Graduates
(% Total Active Duty Non-Prior Service Accessions)



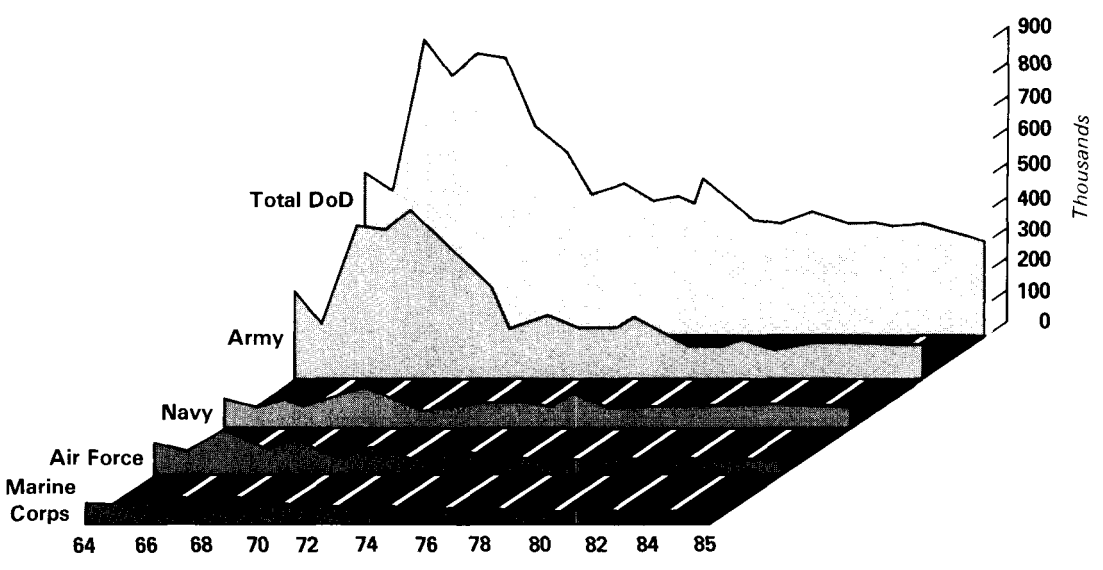
resources, and improve the quality of life for military members and their families. The results have been extremely encouraging. The quality of our recruits as measured by educational attainment (high school graduation) and scores on the enlistment test has improved substantially. By FY 1984, recruit quality had reached record-high

Chart III.A.5
Aptitude Level of Recruits
(Percent Scoring Average and Above)



levels and was significantly greater than the average of the eligible youth population. Charts III.A.4 and III.A.5 show how recruit quality improved during this period.

Chart III.A.6
Non-Prior Service Enlisted Accessions Over the Years



Our success in recruiting high quality young men and women continued through FY 1985. All four Services met or exceeded their enlistment objectives. Table III.A.1 shows actual enlisted accessions for FY 1985 and planned recruiting levels through FY 1987.

Table III.A.1
Enlisted Active Duty Accessions[a]
(Numbers in Thousands)

	Actual		Planned	
	FY 1985 Objective	Percent Achieved	FY 1986 Objective	FY 1987 Objective
Army	125.3	100	136.2	137.7
Navy	87.6	100	94.8	98.9
Marine Corps	36.5	100	33.1	33.7
Air Force	67.0	100	67.5	71.4
Total	**316.4**	**100**	**331.6**	**341.7**

[a]Includes prior service and non-prior service accessions.

We are confident that we can continue to meet our manpower needs with volunteers. However, the sustained economic recovery and a further decline in the military age youth population between FY 1986 and FY 1987, combined with the widening gap between military and private sector pay increases and a sharp decline in enlistment propensity, will pose difficult recruiting challenges. To compensate for these difficult conditions, we must give adequate recruiting resources to the Services and afford Servicemembers and their families a reasonable standard of living.

(3) Personnel Management

(a) Enlisted

The retention of eligible first-term and career Servicemembers continues to be excellent. Since 1980, the average years of service of enlisted personnel have increased from 5.55 to 6.04, an increase of 8.8 percent. At the same time the average time served in each of the top six enlisted grades has increased by 10 percent, while the average grade of the force has increased by 5.2 percent. High retention of quality personnel ensures that the desired experience level will be more easily maintained over the long-term. However, shortages persist in certain skills, especially those containing highly trained technicians who are in demand by the civilian market.

Two of the primary incentives to attract and retain high quality personnel are the Enlistment and Selective Reenlistment Bonus programs. The bonus authorities (Sections 308 and 308a of Title 37, USC) have a termination date of September 30, 1987. Since the present laws were enacted, evidence has shown that the bonuses are needed and are being used in a cost-effective way. In FY 1987, DoD will submit legislation to make the bonus authorities permanent. Without the Enlistment Bonus, we would lose considerable drawing power in attracting personnel into critical military skills. In the retention area, we rely heavily on the Selective Reenlistment Bonus as the most effective means of retaining personnel with highly marketable technical skills and in arduous combat specialties.

Since the present bonus programs were authorized, the laws have been extended for short periods in order to evaluate the merits and cost-effectiveness of paying the bonuses. However, repetitive short-term extensions create uncertainty that seriously hampers the ability of the Services to plan their long-range recruiting and reenlistment programs with any assurance that the authority will continue. Granting DoD permanent authority would not usurp congressional control of its use, as congressional control can be effectively exercised through the annual authorization and appropriation process.

We have demonstrated that military manpower requirements can be met with a volunteer force, provided we offer competitive compensation, adequate family support, reasonable living and work conditions, and educational assistance programs that strengthen the benefits package by providing funds for post-secondary education. We can now focus on initiatives under way to ensure our manpower investment is well-managed. These efforts will allow us to manage our manpower more intelligently and demonstrate why we need the resources requested, how they contribute to readiness, and that they are used efficiently and effectively.

(b) Officers

While the total personnel picture is bright, two officer communities continue to experience retention problems. Our most serious deficiency is the continued shortage of nuclear trained submarine and surface officers in the grades of lieutenant commander through captain. The enhancements to Nuclear Officer Incentive Pay contained in the DoD FY 1986 Authorization Act are expected to reduce this shortage from a peak of 22 percent in FY 1986 to 11 percent by FY 1990. These shortages require the nuclear trained officer community to assign some exceptional lieutenants to engineering billets normally filled by lieutenant commanders. Thus, a continuation of the temporary authority to promote these officers to lieutenant commander is necessary to ensure that these critical billets are adequately filled.

The Services' aviator shortage also remains an area of considerable concern. The anticipation of continued pilot hiring by the airline industry through the 1980s suggests that this problem will continue for the near future. High pilot losses jeopardize the experience levels we need to stay mission-ready and substantially increase replacement training costs. To remain competitive for aviator resources, the Services' monetary incentives, Aviation Career Incentive Pay (ACIP) and Aviation Officer Continuation Pay (AOCP), must be maintained. Particular to the Navy, the AOCP, which specifically targets those tactical aviators who face shipboard deployment, is forecast to have a positive impact on the current 1,100 pilot shortfall, as are other initiatives aimed at this problem area. As long as the military pilot is in demand to fly commercial aircraft, retaining these resources will be difficult.

(c) Revised Procedures to Determine General/Flag Officer Requirements

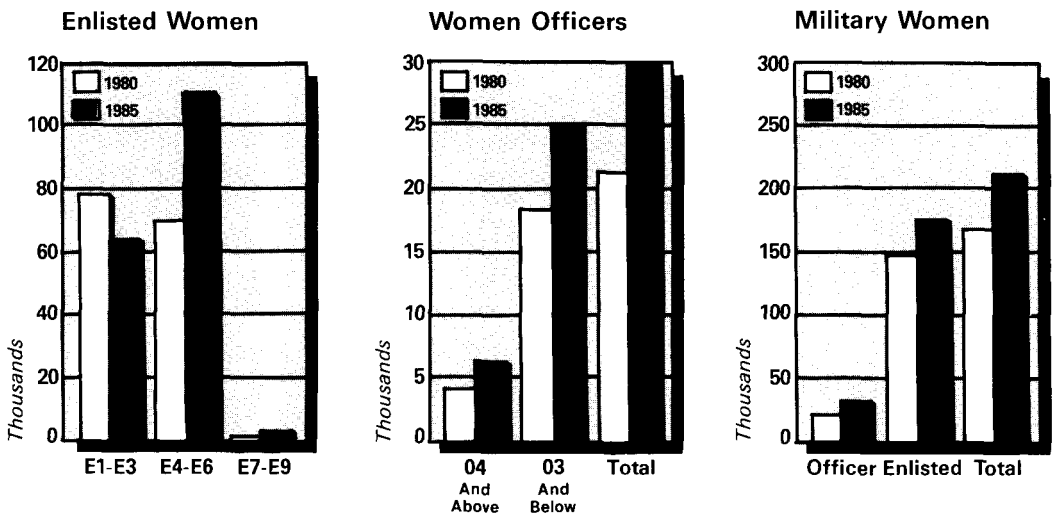
We again solicit congressional support for our legislative proposal to establish a new framework for the management of flag and general officers. This proposal has been submitted to the 97th, 98th, and 99th Congresses without enactment. As a result, it has been necessary for DoD to request annually specific ceiling relief at the three- and four-star grades to meet its essential senior flag officer requirements. Our legislative proposal would provide the necessary oversight, flexibility, and responsiveness required to

administer changing flag and general officer requirements. Accordingly, it responds both to the needs of DoD and the desires of the Congress. In the interim, we urge the Congress to remove the general/flag officer ceiling mandated by the FY 1978 Defense Authorization Act and return to the strength level that existed prior to October 1, 1981, i.e., 1,119.

(d) Women in the Military

Since the end of FY 1980, the total number of military women has grown by more than 39,000, an increase of over 22 percent. The number of women officers alone has increased by more than 8,800 or 40 percent. The role of women extends throughout the grade structure as women gain seniority. These numbers are expected to continue to grow as more and more women recognize the career opportunities that are available to them in the military Services.

Chart III.A.7
Women in the Military



(4) Training

Rigorous, well-planned training is a cost-effective force multiplier. Good training enhances combat capability by producing forces that can perform their missions effectively in battle. While continuing our efforts to improve the quality and realism of training, we are also introducing initiatives in training technology and in the organization and management of training. DoD issued major policy statements during the past year directing the development and acquisition of training simulators and devices and the use of computer-based instruction. The new Defense Training Data and Analysis Center has begun work on a number of projects from its approved list of priority tasks.

When budgetary resources are constrained, as they are at present, there is a strong tendency to reduce operations and maintenance funding in order to achieve near-term savings while preserving the investment accounts. Funding for the activities and resources required to support collective unit training -- flying hours, ship steaming days, ground-force battalion training days -- is particularly vulnerable. Knowing that effective team training of military crews and units is indispensable for force readiness, we have resisted the inclination

to reduce operations and maintenance funding. The resources in the FY 1987 budget request that support collective unit training can generally be described as marginally adequate. Nondeployed fleet steaming days will be sufficient, barring unforeseen operational requirements for the deployed fleets. However, flying hours and battalion training days are below required levels as computed by the Services.

To maintain acceptable readiness levels, we must have continued support for essential unit training requirements as well as adequate funding for the development of training technologies and for the analysis of data to make training more effective.

(5) Quality of Life and Family Matters

Our quality of life program improves the overall readiness of the Total Force. When Servicemembers are offered an attractive lifestyle, improved retention and duty performance are the documented results.

To attain this goal we have introduced a broad range of initiatives. We have a study under way that will provide information on quality of life (QOL) programs in other federal agencies and determine their transferability to DoD. The largest Nonappropriated Fund (NAF) construction program in history, nearly $500 million, will expand and upgrade NAF facilities at 400 locations worldwide. In October 1985, we received congressional approval to use nationally recognized credit cards in post exchanges. We are implementing pricing and distribution procedures that will ensure comparable pricing between overseas and CONUS commissaries and more timely delivery of merchandise to overseas stores. We have a safety and occupational health program that contributes to quality of life by reducing personal hardship and suffering through the prevention of accidental death, injury, and illness.

Where military bases are being expanded or created, DoD's economic adjustment program operates in close cooperation with local efforts to ensure that necessary public services, such as education, transportation, safety, and recreation, are available for the Servicemembers and their families.

To ensure that a comprehensive DoD family policy is formulated and published and that Service programs address family issues effectively, the DoD Family Policy Office was established February 1, 1985. This office has spearheaded sharing of family research plans and projects and improved information flow on family issues. It is involved with initiatives such as use of video cassettes to assist job hunters at employment centers, military spouse hiring preferences, and improved family member educational testing opportunities overseas.

In addition, the Military Family Resource Center conducted a DoD Child Sexual Abuse Policy Conference in September 1985 that was a major vehicle in the development of a coordinated DoD policy to combat this heinous crime.

(6) Compensation

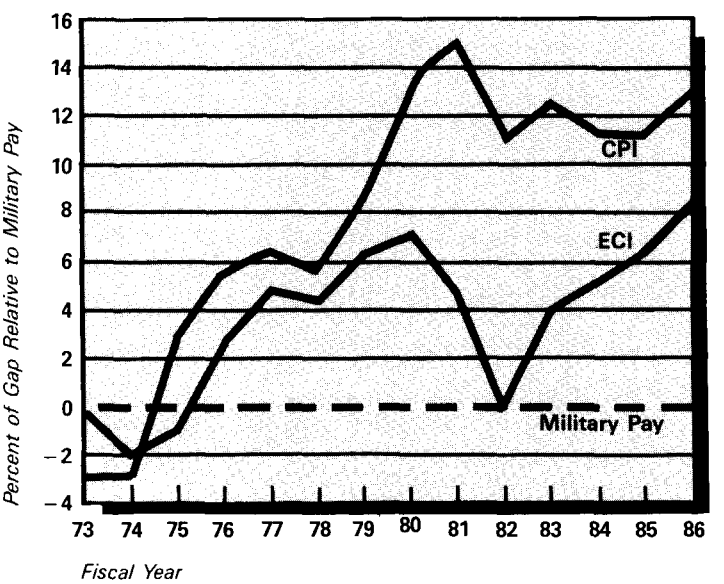
To continue to attract and retain the high quality personnel we need in today's Armed Forces, we must provide a compensation package that can compete with what the private sector can offer intelligent, highly skilled individuals. The improvements to compensation that we requested and that the Congress provided in the FY 1986 Authorization

Act are a major step in keeping us competitive with the private sector.

Due to fiscal constraints, however, DoD requested only a 3 percent pay raise for FY 1986, but asked the Congress to make that raise effective July 1, 1985, in order to offset the impact of a raise that was less than the projected private sector wage growth. The Congress granted the 3 percent across-the-board raise, effective October 1, 1985. Because of this pay cap, and the 4 percent pay caps in each of the preceding three years, military pay now lags private sector pay levels by 8.3 percent, as measured against the Employment Cost Index. If we are to avoid widening that gap further, and if we are to avoid the potential retention and recruiting degradation that would probably result from this pay comparability gap, the FY 1987 pay raise must closely parallel the projected private sector wage growth. The 4 percent military pay raise we are requesting will do this. Another pay cap in FY 1987 will only increase the disparity between military and private sector wage levels.

Chart III.A.8

Comparisons of Military Pay, ECI, CPI (Cumulatives)



In recognition of the unfairness of asking Servicemembers to incur out-of-pocket expenses when making a permanent change of station (PCS) move, the FY 1986 Authorization Act introduced a number of provisions to remedy this inequity. A major issue was removed by providing dependent per diem and mileage allowances at the rate authorized federal civilians. Temporary lodging expenses (TLE), a program that had been authorized but not funded for the past several years, was made an entitlement. These changes have moved more of the costs of carrying out government-directed travel from the Servicemember to the government, where they belong. There remain significant cost items requiring Servicemembers to subsidize part of the government's cost. One major request that was not made an entitlement was the increase in household goods weight allowances. The FY 1986 Appropriation Act provided funding to increase the allowances

for junior enlisted members to 5,000 pounds for those with dependents, and to 1,500 pounds for those without dependents for both CONUS and overseas moves. Other than this most recent change, the existing weight allowances for uniformed Servicemembers were set in 1966 and have undergone virtually no change since then. Our Federal civilian employees, regardless of grade or dependency status, now have an allowance for 18,000 pounds of household goods. While the increase for junior enlisted members is appreciated, DoD strongly supports the recommended increases in household goods weight allowances for all personnel.

In the FY 1986 Authorization Act, the Congress provided other compensation improvements to enhance the quality of life of our military members. The authority for advanced payment of BAQ and variable housing allowance (VHA) will help alleviate some of the financial burden members experience when establishing a new household following a PCS move. A dependent dental care program will be implemented, although the program will be delayed at congressional direction until October 1, 1986. A burial expense allowance has been authorized to provide travel and transportation allowances for dependents of a deceased member to attend the burial. Servicemembers E-7 and above without dependents, who have established off-base housing prior to deployment, will now continue to draw BAQ and VHA beyond 90 days of sea/field duty. Funded travel while a ship is in overhaul has been improved to allow travel by the member's dependents when the cost would not exceed the cost of the member's travel.

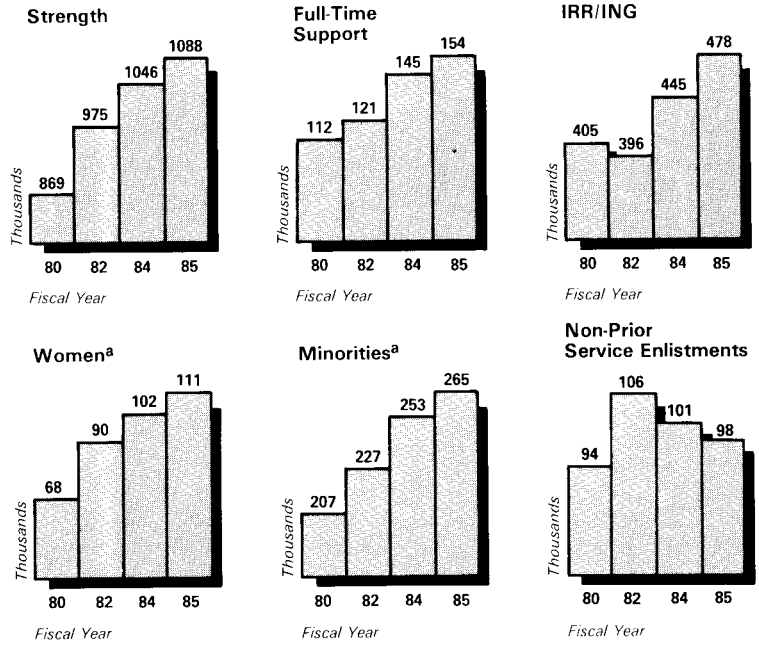
As mandated by the Congress, DoD has submitted legislation to reduce the military retirement fund by $2.9 billion. We continue to oppose strongly this method of legislating changes to the retirement system. We insist that whatever changes the Congress finally makes must not adversely affect the combat readiness of our forces, or violate the absolute commitments that have been made to retirees and those currently serving. The Congress must also be prepared to implement enhancements to the total compensation package necessary to offset the negative impact of changes to a system that is a major element of the military compensation program.

In competing for manpower, we function in a volatile world. We have only recently taken steps toward ensuring that we have a total compensation package that will allow us to compete equitably in that world. The continued shrinkage of the recruitable pool of military age youth makes it absolutely essential that we do not become complacent and allow ourselves to fall so far behind the private sector that we return to the difficult times we experienced in the late 1970s. We have, by all standards of measurement, the best military personnel we have ever had. We cannot afford to lose them by failing to provide a total compensation package that recognizes the hardships and sacrifices they endure as members of the Armed Forces.

b. Reserve Military Manpower

This Administration has supported extraordinary improvements in Reserve Component military manpower. Since FY 1980, the Selected Reserve has grown by 25.2 percent, including a 37.5 percent growth in full-time support. The Individual Ready Reserve is 18 percent larger. These improvements, together with readiness measures and equipment improvements outlined elsewhere in this report, are testimony to the fact that reliance on a Total Force policy is not a hollow slogan (see Chart III.A.9).

Chart III.A.9
Improvements in Reserve Component Manpower



[a]FY 1980 and FY 1982 data exclude Navy Training and Administration of Reserves (TARS). FY 1980 data exclude Category D Individual Mobilization Augmentees (IMAs).

Total reserve manpower consists of the Ready Reserve, the standby Reserve, and the Retired Reserve. The Ready Reserve has two categories: the Selected Reserve and the Individual Ready Reserve

Chart III.A.10
Reserve Forces Units and Personnel

Reserve Component Category			Training Status
Ready Reserve	Selected Reserve Units and Individual Mobilization Augmentees	Active	
	Individual Ready Reserve Individuals	Active	
	Inactive National Guard Individuals	Inactive	
Standby Reserve	Standby Reserve Individuals Individuals	Active Inactive	
Retired Reserve	Retired Reserve Individuals	Retired	

(IRR)/Inactive National Guard (ING). Both the Selected Reserve and the IRR/ING are essential to initial wartime missions. The Selected Reserve comprises those organized units and individuals required to maintain the highest level of readiness in the Reserve Components. The IRR/ING consists of individual reservists who are not in the Selected Reserve but are subject to recall on an individual basis to provide initial augmentation of active or reserve units. The Stand-by Reserve contains those individual reservists who wish to remain affiliated with the reserves but are unable to participate in the Ready Reserve. Finally, the Retired Reserve contains reservists who have been transferred to a retired status in accordance with law or directive. As with all reserve manpower, they are subject to mobilization in time of war or national emergency, with different categories available under different levels of emergency authority.

(1) Selected Reserve Manpower Strength

Growth has continued, with the Selected Reserve attaining yet another all-time high strength level of 1,088,062 in FY 1985. Last year's strength of 1,045,828 exceeded the previous high set in 1959, which was 1,006,588. Today's record high levels were achieved without the draft inducement of 1959, when reserve membership could be substituted for conscripted service in the Active Component. The Army Reserve Components (Army National Guard and Army Reserve), traditionally the most difficult to fill, exceeded the overall DoD strength increase. They have posted a 26.2 percent increase since 1980. This growth trend should continue for all the components, although at a lesser rate. FY 1987 Selected Reserve end strength is programmed at 1,186,000. This would bring the overall strength increase since FY 1980 to 317,000 members, or over 36 percent (see Table III.A.2).

Table III.A.2

Selected Reserve Manpower[a] (End Strength in Thousands)

	Actual		Programmed	
	FY 1980	FY 1985	FY 1986	FY 1987
Army National Guard	367	440	450	463
Army Reserve	213	292	311	328
Naval Reserve	97	130	142	156
Marine Corps Reserve	36	42	43	44
Air National Guard	96	109	111	115
Air Force Reserve	60	75	77	81
Total[b]	**869**	**1,088**	**1,135**	**1,186**

[a] Data for all years include Active Guard and Reserves (AGRs), Navy Training and Administration of Reserves (TARs), and Category D Individual Mobilization Augmentees (IMAs).

[b] Numbers may not add to totals due to rounding.

(2) Selected Reserve Personnel

In FY 1985, 42 percent of the Selected Reserve enlisted accessions had no prior military service. These recruits are necessary to man our entry level positions and provide the youth input required for a viable force. Even in the face of sustained economic growth, a smaller pool of military-age youth, and higher retention of members in the Active Components, the total number of enlistees has grown (see Table III.A.3).

Table III.A.3
Selected Reserve Enlistments[a]
(Non-Prior/Prior Service in Thousands)

	Actual		Programmed	
	FY 1980	FY 1985	FY 1986	FY 1987
Army National Guard	50/47	39/44	48/45	51/45
Army Reserve	26/34	29/46	31/46	31/47
Naval Reserve	3/25	12/20	11/23	12/28
Marine Corps Reserve	5/4	9/6	9/6	8/6
Air National Guard	7/10	5/10	5/9	7/10
Air Force Reserve	3/10	3/10	4/10	4/11
Total[b]	**94/128**	**98/135**	**108/139**	**113/147**

[a]All data include Active Guard and Reserves (AGRs), Navy Training and Administration of Reserves (TARs), and Category D Individual Mobilization Augmentees (IMAs). Includes Navy Sea Air Mariner (SAM) recruiting program for FY 1985 and beyond.

[b]Numbers may not add to totals due to rounding.

This growth has been accompanied by increases in the quality of accessions. In FY 1980, 65 percent of new non-prior service recruits were high school graduates. (For the Army Reserve Components, the results were similar -- 64 percent.) By FY 1985, the high school graduate percentage had increased significantly to 85 percent for the total reserve force and to 83 percent for the Army Reserve Components. In addition, aptitude test score levels of non-prior service accessions also increased dramatically. In FY 1980, 73 percent of all non-prior service reserve accessions scored average or above on the entrance test, with 70 percent of the Army Reserve Components scoring average or above. In FY 1985 corresponding percentages were 90 percent for all Reserve Components and 89 percent for the Army Reserve Components (see Table III.A.4).

Table III.A.4
Non-Prior Service (NPS) Reserve Enlistments—
High School Graduates and Entrance Test Category

	FY 1980		FY 1985	
	Number	Percentage of Total NPS Enlistments	Number	Percentage of Total NPS Enlistments
Total NPS Enlistments	93,700		97,800	
(Army Reserve Components)	(76,200)		(68,600)	
High School Graduates[a]	61,300	65	83,300	85
(Army Reserve Components)	(48,600)	64	(57,200)	83
Entrance Test Category I-III	68,300	73	87,900	90
(Army Reserve Components)	(53,300)	70	(60,800)	89

[a]Includes equivalency certificate and diploma graduates and students currently in high school who are expected to graduate.

Increased recruiting resources and targeted incentives have been major factors in providing DoD with a better quality, more highly motivated reserve soldier. Moreover, today's reservist stands a better chance of completing his term of enlistment. This lower attrition is reflected in the steady increase in Selected Reserve strength while recruiting requirements have only slightly increased. To meet our projected growth through 1990 of approximately 20 percent in end strength and to achieve our desired readiness posture, we must maintain the right mix of pay, incentives, and benefits for reserve members and their families.

Our support for enhanced roles for women and minorities in the Armed Forces can also be seen in the Reserve Components by the significant growth in both categories (see Tables III.A.5 and III.A.6).

Table III.A.5
Selected Reserve Women
(End Strength in Thousands)

	Actual			
	FY 1980[a]		FY 1985	
	Number	Percentage of Total End Strength	Number	Percentage of Total End Strength
Army National Guard	17	4.6	23	5.2
Army Reserve	29	14.1	48	16.5
Naval Reserve	5	6.2	13	10.0
Marine Corps Reserve	1	2.8	2	3.9
Air National Guard	8	8.5	12	11.2
Air Force Reserve	8	13.1	13	17.3
Total[b]	**68**	**8.0**	**111**	**10.2**

[a]All 1980 data exclude Navy Training and Administration of Reserves (TARs) and Category D Individual Mobilization Augmentees (IMAs).
[b]Numbers may not add to totals due to rounding.

DoD policy for placement of women in the Reserve Components is consistent with that for the Active Components. We are committed to providing women full and equal opportunities to pursue military careers for which they can qualify. The only limitation for women is contained in laws and policy excluding them from combat missions. However, this exclusion cannot be interpreted to allow the closing of career opportunities.

Table III.A.6
Selected Reserve Minorities
(End Strength in Thousands)

	Actual			
	FY 1980[a]		FY 1985	
	Number	Percentage of Total End Strength	Number	Percentage of Total End Strength
Army National Guard	94	25.8	115	26.0
Army Reserve	61	29.5	87	29.8
Naval Reserve	13	15.4	19	14.6
Marine Corps Reserve	12	32.8	11	26.6
Air National Guard	14	14.3	16	14.7
Air Force Reserve	13	21.9	17	23.1
Total[b]	**207**	**24.3**	**265**	**24.4**

[a]All 1980 data exclude Navy Training and Administration of Reserves (TARs) and Category D Individual Mobilization Augmentees (IMAs).
[b]Numbers may not add to totals due to rounding.

(3) Full-Time Support Personnel

Required growth continued in the level of full-time support needed by the Guard and Reserve, and a close correlation exists between this growth and the current high levels of reserve readiness. Further

growth is projected, albeit at a slower rate than in recent years. The total full-time support strength for all Reserve components stood at about 14 percent of end strength at the end of FY 1985 (see Table III.A.7).

Table III.A.7
Full-Time Support Personnel[a]
(End Strength in Thousands)

	Actual		Programmed	
	FY 1980	FY 1985	FY 1986	FY 1987
Army National Guard	32	48	51	57
Army Reserve	17	30	31	31
Naval Reserve	20	24	27	32
Marine Corps Reserve	5	7	7	7
Air National Guard	26	32	33	34
Air Force Reserve	12	14	15	15
Total[b]	**112**	**154**	**163**	**175**
Percent of Selected Reserve	12.8	14.1	14.3	14.7

[a]Includes Active Guard and Reserve (AGR), Military Technicians (MT), Active Component (AC) Personnel, and Civil Service Personnel (CS).
[b]Numbers may not add to totals due to rounding.

(4) Individual Ready Reserve (IRR)/Inactive National Guard (ING)

The Individual Ready Reserve/Inactive National Guard is a primary source of pretrained manpower for mobilization. This manpower pool continues to increase in size. The current strength of 478,000 represents growth of 40 percent from a low of 342,000 in 1978. The projected strength of the IRR/ING for FY 1987 is 537,000 (see Table III.A.8). An additional growth of 126,000 to 663,000 is expected by 1990, principally as a result of the new eight-year military service obligation implemented in June 1984. The Reserve Components continue to employ management initiatives and the IRR Reenlistment Bonus Program to retain those with key skills and to reduce specific

Table III.A.8
Individual Ready Reserve and Inactive National Guard
(End Strength in Thousands)

	Actual		Programmed	
	FY 1980	FY 1985	FY 1986	FY 1987
Army National Guard (ING)	7	11	10	10
Army Reserve	199	302	319	336
Naval Reserve	97	72	85	94
Marine Corps Reserve	57	48	52	55
Air National Guard (ING)[a]	—	—	—	—
Air Force Reserve	45	46	39	43
DoD Total[b]	**405**	**478**	**504**	**537**

[a]Fewer than 500.
[b]Numbers may not add to totals due to rounding.

shortages in combat and other critical wartime skills. The number of members receiving mobilization training continues to increase as a result of our programs to establish IRR refresher training. DoD has directed that an annual screening of IRR members be accomplished to ensure that the mobilization availability and personnel status of members remain current.

c. Civilian Manpower

(1) The Role of Civilians

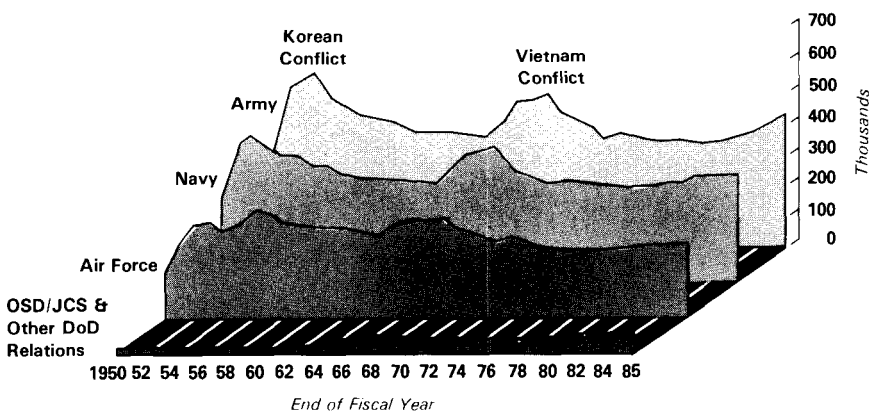
DoD has a long-established policy of employing civilians wherever possible to assist in maintaining our national security. This policy has a number of advantages. It minimizes the number of men and women required on active duty. Civilians also provide stability and continuity to those functions that require rotation of uniformed personnel. Finally, use of more civilians in the coming years may assist in meeting our total manpower demands as a declining youth population forces DoD to compete harder with the private sector for prospective recruits.

Civilians participate in all defense activities not potentially involving combat and account for one-third of all active DoD manpower. They comprise over half of DoD's personnel in research and development and base operations support and about 95 percent of all workers in depots, shipyards, and other logistics activities that directly affect the readiness of our forces. Many civil servants occupy overseas positions that would be essential to military operations in wartime. The mobilization chapter discusses how we would fill these essential positions during a crisis.

(2) Size of the Civilian Work Force

In FY 1987, DoD plans to employ about 1,115,000 civilians, of whom about 1,027,000 will be hired directly by the United States.

Chart III.A.11
Civilian Personnel Strength Levels

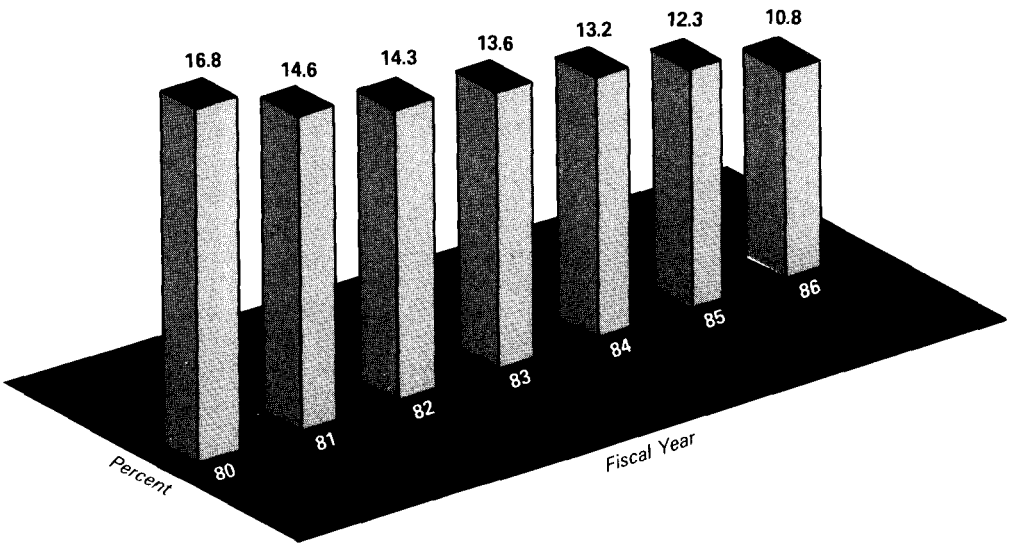


The remainder will be indirect-hires, foreign nationals paid by their own government for working at U.S. bases in accordance with Status of Forces Agreements. We reimburse the host country for the cost of these personnel.

These employment totals are almost 13 percent higher than FY 1980 levels and reflect increased defense resources and workload. Expansion in our overall defense program over the last five years has necessitated these additional employees. The increase in civilian manpower will continue to help DoD reduce depot maintenance backlogs, manage spare parts better, handle more foreign military sales, and civilianize former military positions, thus allowing the military to return to military positions and increase readiness. In spite of this growth, civilian manpower costs have declined as a share of the total DoD budget. In FY 1980, 17 out of every 100 dollars spent by DoD went for civilian related expenses. Six years later this portion has dropped to 11 out of every 100 dollars.

Chart III.A.12

Civilian Payroll Costs as Percent of Total DoD Outlays



As a result of congressional action, in FY 1986 we are not operating under any end strength ceiling on the number of civilians. This was also true in FY 1985. All DoD activities can employ the number of civilians needed to complete funded requirements approved by the Congress. We welcome this opportunity to demonstrate that we can manage all our programs more effectively without statutory end-of-year employment restrictions. During FY 1983, only DoD's industrially funded activities, such as depots and shipyards, were exempted by the Congress from ceilings. In FY 1984, military technicians were also exempted from ceilings. We benefited from this exemption in several ways. We gained through:

-- Greater ability to respond to unexpected workload changes;

-- Elimination of the need to drop workers from the rolls temporarily to avoid exceeding ceilings; and

-- Freedom to devote more emphasis to employee training and contract monitoring.

Just as important, these activities did not hire more civilians than were required to complete funded work. During FY 1986, DoD will report to the Congress the results of the removal of all hiring ceilings.

(3) Characteristics of Civilian Workers

About 32 percent of DoD's full-time employees, excluding indirect hires, are women, and 22 percent belong to a minority group. About two-thirds of our civilians are in General Schedule (GS) or General Manager (GM) positions and provide engineering, scientific, professional, technical, clerical, and administrative services. Our blue collar workers -- who are paid under the Federal Wage System -- repair ships, planes, tanks, and other equipment; maintain our installations; and provide most of the manpower for other logistics and supply operations.

The average grade of our GS/GM employees is about 8.2, up less than 0.4 in ten years. Four-fifths of this growth was due to a change in the composition of our work force, i.e., we hired proportionately fewer in occupations with lower average grades. This record was achieved during a time when defense technology became more complex and competition from the private sector for our scientists and engineers accelerated.

(4) Civilian Personnel Management

We continue our emphasis to improve employee productivity and to reduce the operating costs of our civilian personnel programs. As a part of Reform '88, DoD components were directed to reduce the number of automated civilian personnel data systems. We are implementing an executive development program that will enable DoD personnel to assume increasingly responsible positions as supervisors, managers, and executives. Although this program will concentrate initially on women, it will subsequently be open to all appropriate DoD personnel. We are also implementing policies to increase efficiency, promote the use of engineered staffing standards, and improve position management and the work force staffing process. Training policies and programs are being tailored to enhance organizational effectiveness, and compensation programs are being modified to control costs and provide for recruitment flexibility. The labor relations process is being monitored to minimize unnecessary impediments to economy and efficiency. We have before the Office of Personnel Management (OPM) a proposal to test innovative personnel management approaches at selected civilian personnel offices.

d. Summary

Although we have experienced great success in our manpower programs during this Administration, we cannot reduce our efforts now. We must continue to provide adequate resources and attention to recruiting, retention, compensation, and quality of life programs for each of our manpower components. Sufficient resource levels in each of these areas will allow us to achieve our goal of providing adequate manpower, in the right numbers, categories, and skills, to operate, maintain, and support our equipment and facilities effectively and efficiently. Inadequate manpower levels place a debilitating stress on our personnel, resulting in degradations in readiness and sustainability. Finally, history shows that while manpower losses can occur quite rapidly, it takes much longer to recoup such losses.

B. EQUIPPING THE FORCE

1. Land Forces

a. Introduction

(1) Force Rationale

Maintaining the nation's security requires our forces to be capable of protecting U.S. interests worldwide. The range of possible contingencies places particularly difficult demands on the land forces -- the Army and the Marine Corps. In coordination with allied armies, they must be capable of defeating the heavily armored, tactically mobile forces of the Warsaw Pact in Europe; of coming to the assistance of friendly states threatened by modern, well-equipped forces; and at the other extreme, of providing rapidly deployable forces for "show of force" missions or for operations against less sophisticated forces on difficult terrain.

We must maintain ready deterrent forces at key locations around the world. Likewise, our forces based in the continental United States (CONUS) must always be ready either to reinforce our forward-deployed forces or to deploy rapidly to other possible conflict areas.

Because of the wide variety of potential contingencies, structuring our land forces is a difficult problem. This problem is compounded as resources become constrained. Those forces capable of opposing the Warsaw Pact and other well-equipped mobile forces tend to be the most expensive and the most difficult to deploy, while those forces that can deploy rapidly -- predominately light infantry -- are less capable and less mobile upon arrival. Similarly, most rapid-response missions require highly trained and readily deployable active forces. Yet, because active forces are much more expensive than reserves, we desire to maintain as small an active force as feasible.

These are the factors that drive our force planning, and determine the size and mix of the forces we must maintain. First and foremost, we need to provide forward-deployed forces, rapid reinforcements for them in time of crisis, and rapid-response, "forcible-entry" forces for operations worldwide. Also, we need to give our forces adequate combat support (e.g., artillery and combat engineers) and combat service support (e.g., medical care and maintenance) to sustain them in peacetime and in war. We attempt to reduce costs and increase our capability for worldwide deployment through judicious prepositioning of equipment and supplies near areas where U.S. forces might be needed. Fiscal realities require that we rely to the maximum extent possible on assistance from allied forces and the citizen soldiers of the Reserve Components.

(2) Program Goals

Thus, consistent with fiscal realities and in light of our worldwide defense missions, our program seeks to provide the minimum essential number of combat forces that are:

-- Properly equipped;

-- Adequately supported; and

-- Carefully balanced, both between the Active and Reserve Components and between U.S. and allied capabilities.

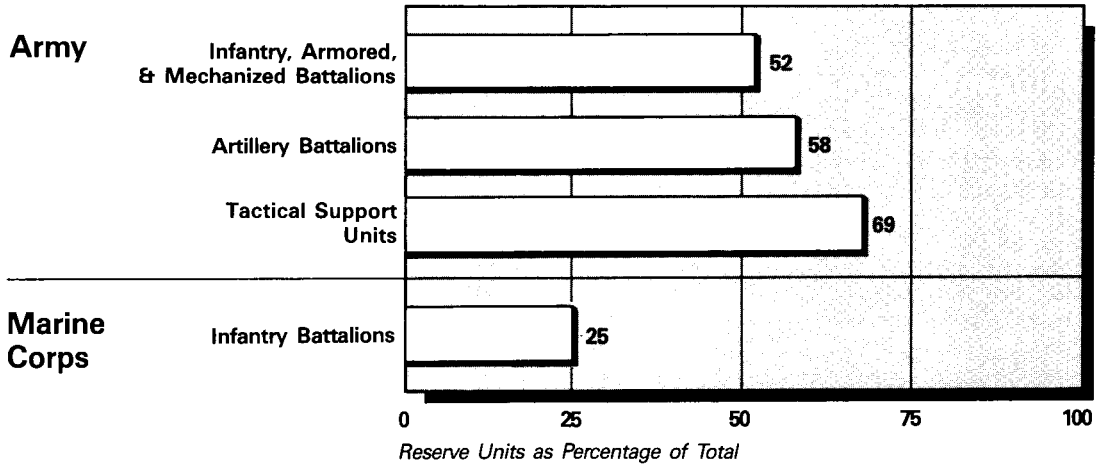
A complicating factor is the manpower intensity of land forces. Maintaining a large standing army entails high fixed costs both to pay and support it. Thus, the impact of fiscal constraints is felt especially by procurement programs. While the Army and Marine Corps failed to modernize in the early 1970s, the Warsaw Pact nations vigorously modernized and expanded their forces. Because our forces are (and are likely to continue to be) numerically smaller than those of the Warsaw Pact, it is essential that we maintain an advantage in modern weaponry. At the same time, however, we cannot afford to expend scarce funds on weapons that do not defeat the threat or whose poor reliability would place undue strain on our support systems.

(3) Force Composition

We have made no significant changes in our force structure plans since last year. The FY 1987 program continues our expansion toward a 32-division force, fleshing out the new divisions formed in FY 1985 and FY 1986 and establishing units to support them as they become deployable. The 32-division force will eventually comprise 21 active divisions (18 Army and 3 Marine) and 11 reserve divisions (10 Army and 1 Marine). Fully two-thirds of the support structure in FY 1987 will be in the Reserve Components. In addition, we will remain reliant on our allies for a significant amount of support both in Europe and Korea. Many of the reserve and allied units must be able to deploy within 10 days of mobilization -- a significant challenge and one that is compounded by deployability deficiencies.

Chart III.B.1.1

Projected Contribution of Reserve Components (End FY 1987)



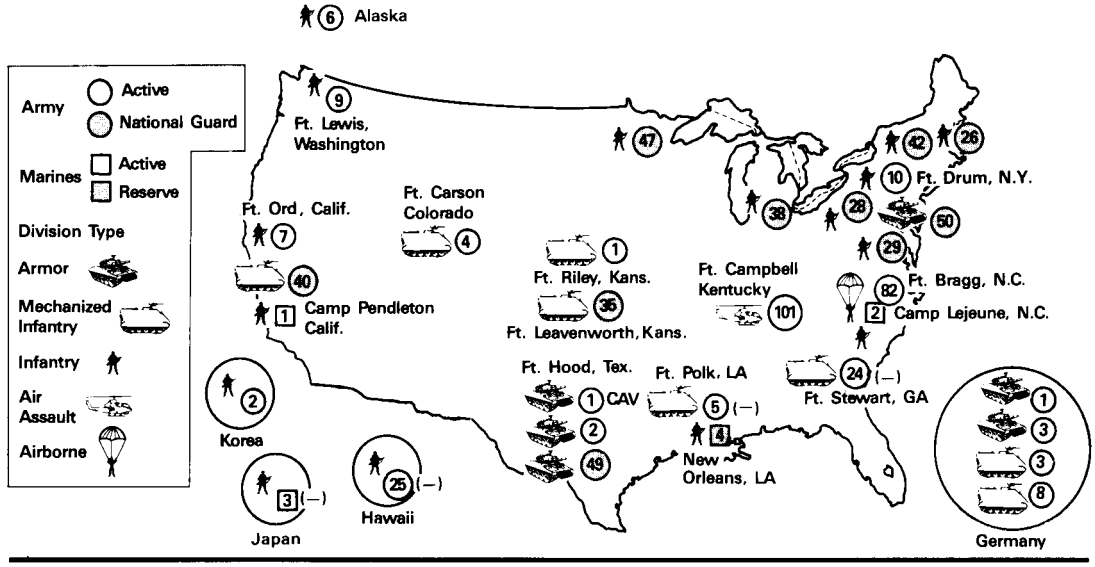
Economic realities force the active divisions to rely on reserve forces to reach their full combat potential. Five of the 18 active divisions will draw one-third of their combat units from the reserves. Four other divisions will also rely on the Reserve Components to supply one or more combat battalions.

(4) Force Disposition

Chart III.B.1.2 shows the planned location of the Army's and Marine Corps' active and reserve divisions at the end of FY 1987.

In addition to the forward deployments shown, two brigades of CONUS-based Army divisions are stationed in Europe, and one Marine brigade is based in Hawaii. At the end of FY 1987, the Army will maintain one separate infantry brigade and two armored cavalry regiments in Europe, one separate Army National Guard infantry brigade in Hawaii, five active and eighteen reserve brigades and regiments in CONUS, one separate active infantry brigade in Panama, and a National Guard infantry brigade in Puerto Rico.

Chart III.B.1.2
Deployment of U.S. Divisions



b. FY 1987-91 Programs

(1) Force Structure

In FY 1987, we will continue to reorganize and consolidate the Army's active force structure. The light force structure will grow as the new active light divisions being formed take on additional battalions. The 6th Light Infantry Division, based in Alaska, will be activating two infantry battalions, and the 10th Mountain Division, at Fort Drum, New York, will add one more battalion. This will bring to five the number of active infantry battalions in each of those divisions. (Though the 10th Division will be headquartered at Fort Drum, the majority of its maneuver units will continue to be stationed at Fort Benning, Georgia.) Both divisions have been assigned Reserve Component roundout brigades. The 7th Division at Fort Ord, California, has completed reorganization to a light infantry division. The other light infantry division -- the 25th, based in Hawaii -- will complete reorganization in FY 1986.

The 9th Infantry Division will activate its last high-technology motorized battalion in FY 1987, completing its conversion to a high-technology motorized configuration. That division will continue to experiment with systems and concepts aimed at improving the capabilities of our light forces.

Additionally, we will reorganize both the 101st Air Assault Division and the 82d Airborne Division in light configurations. This reorganization was made necessary by the concepts developed for our other light forces.

Table III.B.1.1.
Distribution of Heavy and Light Forces (End FY 1987)

Divisions	Heavy	Light	Total
Active Army	10	8	18
Army National Guard	4	6	10
Active Marine Corps	—	3	3
Reserve Marine Corps	—	1	1
Total	**14**	**18**	**32**
Nondivisional Maneuver Brigades/Regiments[a]			
Active Army	6	3	9
Army Reserve Components	11	9	20
Total	**17**	**12**	**29**

[a] These units have not been assigned a roundout mission.

Programs for the Special Operations Forces (SOF) focus on improving their capabilities for operating across the spectrum of conflict, with near-term emphasis going to methods for countering terrorism. We will fill out the SOF units activated in FY 1984 and FY 1985, raising them to their full wartime authorization.

We are also continuing to adjust personnel strength in the nondivisional support units activated in recent years. The net result will be to raise authorized manning levels in Europe and the Pacific by 1,000 and 500 support spaces respectively, while CONUS strength will decline by 2,200.

The Reserve Component combat force structure will change slightly as we begin to reorganize two armored cavalry regiments into heavy brigades. The heavy divisions are continuing their conversion to a modified Division 86 configuration. The tactical support structure will increase by 11,600 spaces. These will be used to form a number of units, including a new area signal battalion.

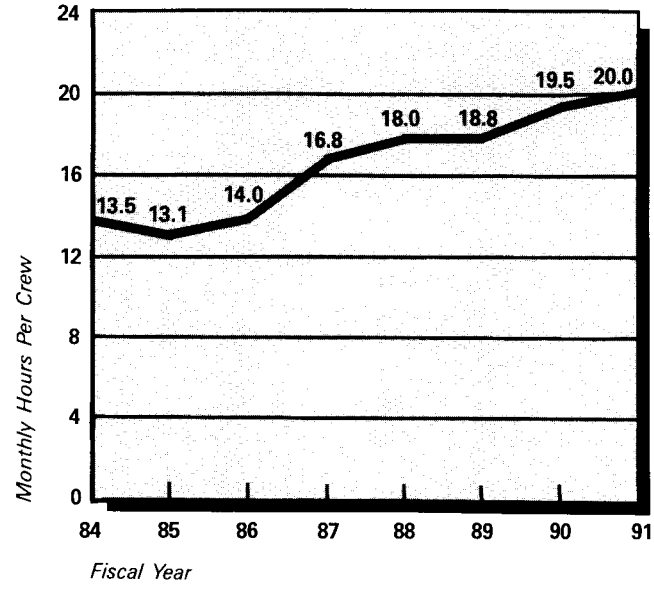
The new tactical support spaces in the reserves will increase the Army's ability to support the United States Central Command (USCENTCOM) without drawing down on forces needed for Europe. The major improvements in the units available to USCENTCOM will be readiness related, a result of increased manning, additional modern equipment, and increased participation in exercises.

(2) Readiness

Readiness remains our highest defense priority. We are working hard to give our forces vigorous and realistic training, and to develop more cost-effective tools for managing them. We have made significant progress in these areas over the past few years and expect to see continued gains in the future. But in this period of tightened

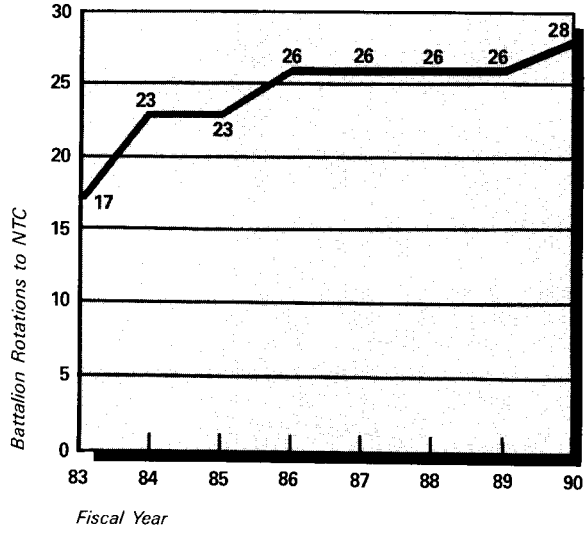
fiscal constraints, those gains will come at a much slower pace than we had originally projected.

Chart III.B.1.3
Monthly Flying Hours Per Crew
(Active Army Forces)



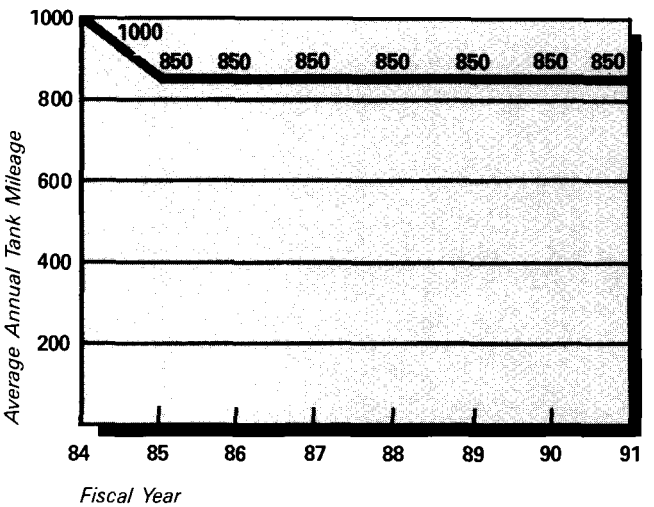
Training is the cornerstone of combat readiness for our land forces. Early deploying units will be only as ready for combat as

Chart III.B.1.4
Battalion Rotations Through the National Training Center
(Active Army Forces)



their peacetime training has made them -- there will be little or no time to correct training deficiencies after a war starts. Three useful measures of land forces' training are monthly flying hours per crew, battalion rotations through the National Training Center, and average annual tank mileage. Charts III.B.1.3 through III.B.1.5 show how the active force has fared in these areas over the past few years and the trends we project for the future.

Chart III.B.1.5
Average Annual Tank Mileage
(Active Army Forces)



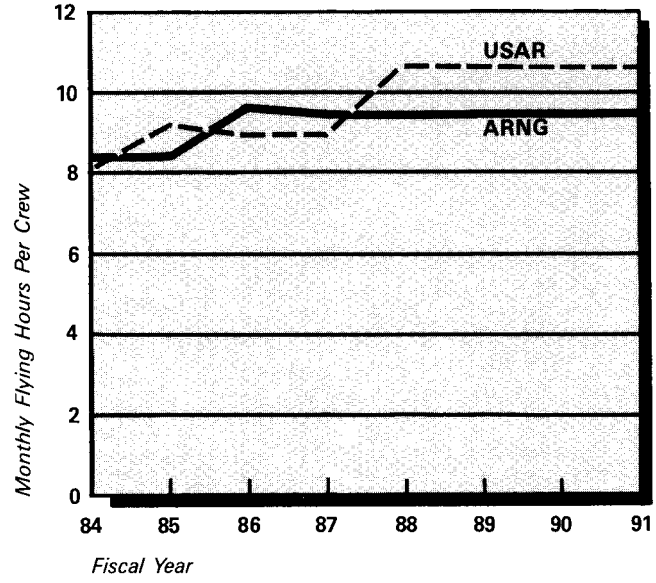
Important Army training initiatives include an increase in the Ranger training load from 2,100 to 3,000 students per year (to support the new light infantry divisions) and the allocation of $248 million to buy additional training equipment (to increase the capacity of the training base to accept recruits in the event of a full mobilization).

In recognition of the key role reservists would play in a major war, we continue to emphasize improvements in the amount and quality of training they receive. Charts III.B.1.6 and III.B.1.7 depict recent and projected trends in this area.

Overall, the Army's training posture has improved significantly over the past several years. Though we expect continued gains in the future, certain areas will feel the pinch of the tighter fiscal limits we now face. These include JCS exercises, ammunition purchases, and operating tempos of major combat systems such as tanks. Funding for exercises conducted or directed by the JCS will decline by about 9 percent. After three years of real growth, procurement of Army ammunition will decline in FY 1987, with the decreases distributed between training and war reserves. Our major combat equipment, however, will continue to operate at the FY 1985 levels. We expect that the increased availability of simulators and other training devices will help offset the lack of increased operating hours.

Chart III.B.1.6

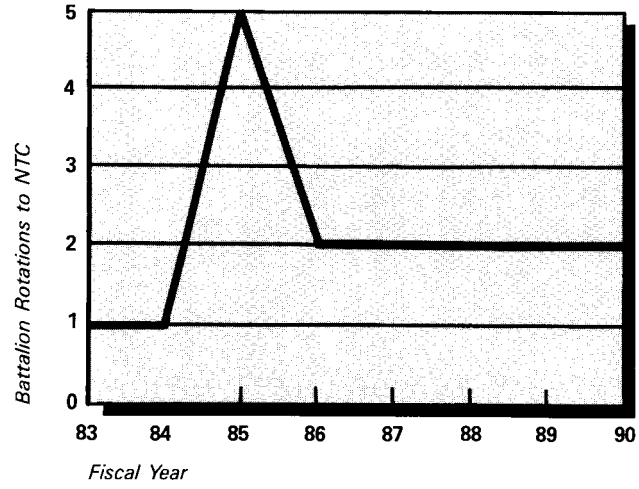
Monthly Flying Hours Per Crew (Army Reserve Forces)



The continued infusion into the inventory of modern weapons and other equipment adds significantly to the readiness of our land forces. While many of these items are being used to relieve shortfalls, more frequently they are needed to replace older, less capable systems. But as with other readiness-related programs, the past year's reductions in projected funding levels have slowed significantly the pace at which new equipment can be added to the inventory.

Chart III.B.1.7

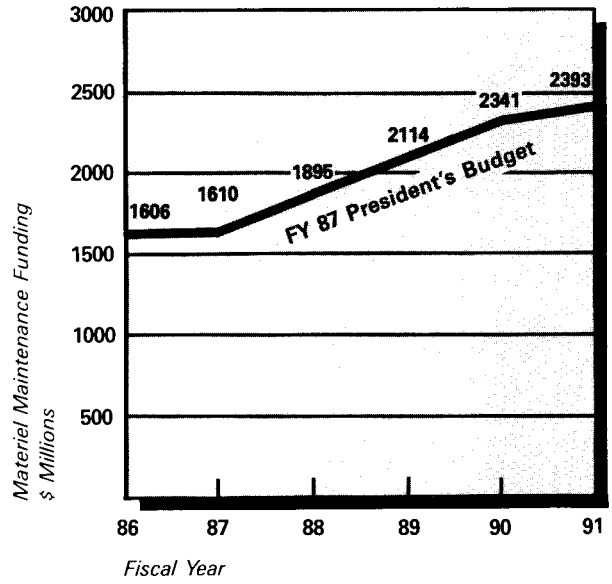
Battalion Rotations Through the National Training Center (Army National Guard)



Fiscal constraints also affect our ability to maintain the equipment we already have. Thus, while the $1.61 billion budgeted for depot maintenance activities in FY 1987 is comparable with the FY 1986 level, in real terms it amounts to a slight decrease in program funding. As a result, the depot maintenance backlog will grow modestly in FY 1987 from zero in FY 1986.

Chart III.B.1.8

Army Depot Maintenance

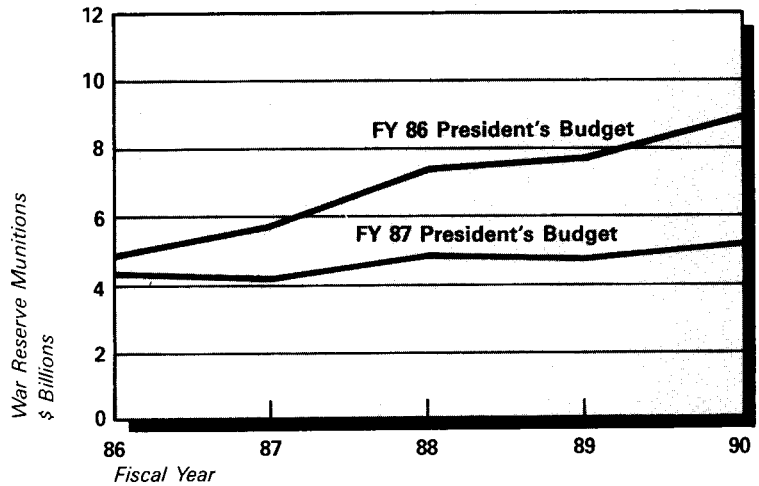


(3) Sustainability

Whereas readiness denotes our ability to fight on the first day of a war, sustainability measures our ability to continue to fight

Chart III.B.1.9

Army and Marine Corps Munitions Funding

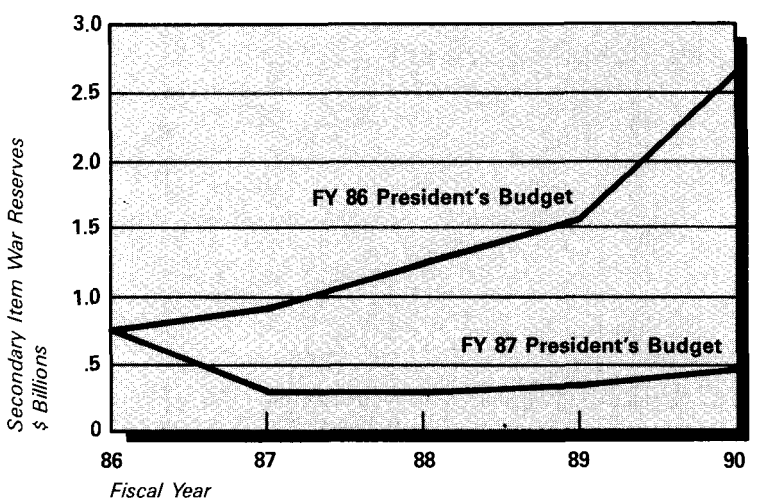


over a period of time. This "staying power" -- usually measured in days of supply -- is a function of a number of factors, including the amount of material on hand to replace items lost or consumed in combat, the availability of trained personnel to replace wartime casualties, the size of the support forces, and the amount of host nation support available.

Our sustainability program has also felt the effects of the less than expected growth in defense funding. We continue to build toward prudent stockage objectives for munitions, spare parts, and other secondary items, but at significantly slower rates than we had previously projected. Charts III.B.1.9 and III.B.1.10 compare programmed funding for munitions and secondary items in the FY 1986 President's Budget with the amounts being requested for FY 1987. It is clear that it will take us considerably longer than we had planned to reach our objectives. Our program to buy and preposition major items of equipment needed to replace combat losses continues but, once again, at a reduced level.

Chart III.B.1.10

Army Secondary Item War Reserve Funding



(4) Modernization

The FY 1987-91 program continues a major, and long-overdue, modernization of the land forces. We are replacing obsolete systems with modern equipment that will enable our forces to perform effectively against any potential opponent in any likely theater of operations. We are upgrading other systems to enhance their performance on the modern battlefield. And looking ahead to the future, we are applying emerging technologies to the development of new generations of weapons that promise even more significant gains in combat capability. Together, these efforts will give our forces the ability to employ the new AirLand Battle doctrine.

(a) Close Combat

Our land forces are well on the road to rebuilding their capability to counter a heavily armored opponent in close combat. The new weapons and equipment now entering the inventory are boosting their overall firepower, while providing them greater tactical mobility and better protection from enemy fire.

M1 Abrams Tank -- Procurement of the M1 tank will continue throughout the program period, enabling the Army to achieve its inventory objective of 7,467 M1s during the 1990s. The Marine Corps will make its first M1 purchases in FY 1989. More than half the Army's, and all the Marines', M1s will be of the improved M1A1 version. That version incorporates a larger, 120mm gun. The first production deliveries were made in August 1985.

Bradley Fighting Vehicle (BFV) -- The BFV, now being fielded with the Army's mechanized infantry battalions and cavalry squadrons, is improving the antiarmor and mechanized combat capability of the force. The vehicles to be produced in late FY 1986 will all carry the TOW 2 missile, significantly boosting their antiarmor capability. The 870 BFVs being requested in FY 1987 will bring total procurement to 4,541 -- or 66 percent of the Army's acquistion objective.

Assault Amphibian Vehicle (LVT7) -- The LVT7 is a lightly armored vehicle designed to carry Marine forces from ship to shore in amphibious assaults. [1] On the ground, it provides tactical mobility and protection for infantry units. By the end of FY 1986, the Corps will have 1,317 of these vehicles -- all in the improved LVT7A1 configuration. Of that amount, 333 will be new vehicles and the remaining 984 rebuilt LVT7s.

Light Armored Vehicle (LAV) -- The LAV increases the ground mobility, survivability, and firepower of the Marine Corps. The vehicle is being produced in six versions, designed for use in antiarmor, direct and indirect fire, command and control, logistics, and recovery operations. The basic vehicle is armed with a 25mm cannon.

TOW Missile System -- The Army and Marine Corps are continuing to build their inventories of TOW 2 antitank missiles. These weapons, incorporating an improved warhead, electro-optical countermeasures, and guidance system, will give our antiarmor forces a means of defeating technologically advanced armored systems.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
M1 Tank[a]				
Development:				
$ Millions	52.2	21.7	30.9	25.4
Procurement:				
Quantity	840	840	840	840
$ Millions	1,878.8	1,945.7	2,115.9	2,167.9
BFV				
Development:				
$ Millions	23.7	23.3	20.0	13.8
Procurement:				
Quantity	655	716	870	870
$ Millions	1,022.7	962.4	1,200.7	1,244.9

[a] Includes Army and Marine Corps funding.

[1] A lightly armored vehicle protects its occupants from small-caliber weapons fire and fragments from exploding artillery projectiles, grenades, and other munitions.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
LVT7				
Procurement:				
Quantity	244	—	—	—
$ Millions	100.4	—	—	—
LAV[b]				
Development:				
$ Millions	8.8	16.8	30.0	40.6
Procurement				
Quantity	292	—	—	—
$ Millions	223.6	—	—	—
TOW Missile[a]				
Development:				
$ Millions	11.9	11.7	14.9	18.9
Procurement				
Quantity	15,822	16,938	15,400	15,400
$ Millions	233.4	200.4	182.1	210.7

[a] Includes Army and Marine Corps funding.
[b] Includes the basic vehicle and variants.

(b) Land Forces Aviation

1. Helicopters

The Army and Marine Corps maintain a versatile fleet of helicopters to support their combined-arms teams. The missions of these aircraft range from detecting and engaging enemy armored formations to transporting troops and equipment within combat theaters. Many of the systems now in service will need to be replaced or upgraded to meet future operational requirements. Over the next five years, we will be continuing a major modernization of the fleet, designed to enhance the firepower of the ground attack component, add lift capacity in the assault-support elements, and improve survivability forcewide.

Attack Helicopters -- The AH-64 Apache will add substantially to the antiarmor capability of Army forces. Armed with the Hellfire missile system, the helicopter will be able to operate day or night in all kinds of weather, anywhere in the world.

In FY 1986, the Marine Corps will take delivery of the first of 44 AH-1T Super Cobra helicopters it is adding to its fleet. The new aircraft will be powered by improved engines and carry a mix of Hellfire and TOW air-to-surface missiles and Sidewinder air-to-air missiles. The 46 AH-1Ts currently operated by the Fleet Marine Force will also receive the new engines and missile system.

Assault-Support Helicopters -- To improve the tactical mobility of its forces, the Army is fielding new UH-60 Blackhawk helicopters and modifying its existing fleet of CH-47 Chinooks.

A larger, more agile, and less vulnerable aircraft than the UH-1 (Huey) it replaces, the Blackhawk is able to deliver 50 percent more cargo and troops over greater distances at higher airspeeds, providing commanders added flexibility in employing their troops. When equipped

with an external stores support system, the Blackhawk will be able to self-deploy over 1,100 nautical miles without refueling.

In the medium-lift category, the CH-47D modernization program will improve its overall reliability and maintainability and reduce its vulnerability to enemy fire.

The Marine Corps has two programs under way to modernize its inventory of assault-support helicopters. It is acquiring additional heavy-lift capacity by continuing procurement of the three-engine CH-53E Super Stallion, the free world's largest helicopter. That aircraft, along with the JVX (discussed in the next section), is key to the new concept the Corps is developing for launching amphibious assaults from points beyond the horizon. (A detailed explanation of that concept is provided in the Naval Forces chapter.) The CH-46E -- the workhorse of the medium-lift fleet -- is undergoing a major upgrade to improve its safety, reliability, and maintainability. That program will enable the CH-46E fleet to remain in service into the 1990s.

Scout Helicopters -- Entering service this year is the Army's newest observation helicopter, the OH-58D. More agile and survivable than the earlier-model OH-58 it succeeds, the OH-58D will be used primarily to find and designate targets for artillery units. What distinguishes it from previous scout helicopters is its mast-mounted sight containing advanced sensors and optical systems and a laser rangefinder/designator. These features will enable the OH-58D to operate during periods of bad weather and reduced visibility.

2. Developmental Aircraft

Revolutionary advances in aviation technology are paving the way for entirely new generations of military aircraft. A new "tilt-rotor" aircraft, for example, is being designed to have the lift and versatility of a helicopter but the speed, range, and survivability of a fixed-wing plane. If demonstrated to be effective and affordable, the JVX (for Joint Services Advanced Vertical-Lift Aircraft) would be purchased by all the Services for use in a variety of roles, including air assault, special operations support, and combat search-and-rescue missions. The 1991 deployment date planned for this new aircraft is critical to avoiding a shortfall of medium-lift aircraft in the Marine Corps' inventory.

The Army is developing a new family of light rotorcraft (LHX) to replace its aging fleet of AH-1, OH-58, and OH-6 helicopters, and to replace the UH-1 in units not slated to receive UH-60s. The aircraft will be produced in two versions, one designed for utility missions and the other for use in the scout or attack role. Initial deliveries are expected in the early 1990s.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
AH-64				
Development:				
$ Millions	27.7	9.9	12.9	6.1
Procurement:				
Quantity	138	144	144	78
$ Millions	1,412.8	1,270.3	1,342.0	902.9

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
AH-1T				
Procurement:				
Quantity	22	22	—	—
$ Millions	211.6	205.3	37.2	7.1
Hellfire[a]				
Development:				
$ Millions	.5	4.9	14.4	25.3
Procurement:				
Quantity	6,218	7,054	—	6,624
$ Millions	249.4	273.4	—	255.0
UH-60				
Development:				
$ Millions	2.6	16.8	—	—
Procurement:				
Quantity	86	80	78	85
$ Millions	459.1	430.7	355.0	536.6
CH-47D				
Procurement:				
Quantity	48	48	48	48
$ Millions	442.4	362.3	276.6	247.4
CH-53E				
Procurement:				
Quantity	8	5	10	6
$ Millions[b]	177.8	90.7	157.4	103.3
JVX				
Development:				
$ Millions	177.3	555.3	386.9	483.1
OH-58D				
Procurement:				
$ Millions	234.9	237.5	246.7	260.3
LHX				
Development:				
$ Millions	71.6	114.2	155.6	344.1

[a] Includes Army and Marine Corps funding.
[b] The Fy 1985 figure includes the start-up costs of a multiyear CH/MH-53E procurement contract.

(c) Air Defense

Our land forces deploy a balanced mix of systems to defend against aircraft and missile attacks. Shorter-range (point defense) systems, such as Stinger and Chaparral missiles and antiaircraft guns, are designed primarily to protect troops and equipment near the front lines (e.g., forward command posts and maneuver units). Longer-range (area defense) systems, such as Patriot and Improved Hawk missiles, guard larger, more widely dispersed areas of the battlefield (e.g., corps command and control facilities and airfields). These weapons are supported and linked by a network of radar, command and control, and electronic warfare systems.

1. Short-Range Systems

Stinger -- The Stinger is a shoulder-fired, infrared-guided missile that can be carried by a single soldier or marine. Designed to defend against low-flying aircraft at relatively short ranges, the missile is being purchased jointly by the Army and Marine Corps to replace the aging Redeye. In FY 1984, an improved version, with increased resistance to enemy countermeasures, entered production. That system, called Stinger-POST, is scheduled for fielding in FY 1987. A further product improvement, a reprogrammable microprocessor going into production this year, will allow us to respond more rapidly to future changes in enemy countermeasures. In the coming years, the Army will also be introducing a new, air-to-air launcher for the missile, designed to give its helicopter forces a self-defense capability.

Chaparral -- Currently deployed with most active Army divisions, Chaparral will soon be consolidated at the corps level. To enable the missile to engage targets at night and in poor weather, we are fitting it with a forward-looking infrared (FLIR) night sight. For the future, we are developing an improved guidance system that will be highly resistant to infrared countermeasures. With these modifications, the Chapparal will be able to remain in service through the end of the century.

Short-Range Air Defense Command and Control (SHORAD C^2) -- To take maximum advantage of the capabilities afforded by its forward-area air defense systems, the Army is developing a new automated command and control system for use at the division and corps levels. Called SHORAD C^2, the system will be able to alert maneuver forces to enemy air threats as well as transmit engagement instructions to Chaparral and Stinger operators.

2. Long-Range Systems

Patriot -- The Patriot is the Army's advanced all-altitude air defense missile. The system's multifunction, phased-array radar enables several missiles to be directed to their targets simultaneously, even under jamming conditions. A state-of-the-art system, the Patriot will be highly effective against any enemy aircraft likely to be encountered through the end of the century. In December 1984, the Army began fielding the missile in Europe, where it will form the backbone of NATO's future air defense system. Several allied nations are also considering procuring the Patriot for their forces.

Hawk -- Hawk is a medium-range air defense guided-missile system designed to provide air defense coverage against low to medium altitude air attack. In the field since 1960, it is a mobile all weather, day or night missile system providing vital air defense against enemy air attack. Hawk has superior fire control, lethality, range, reliability, and effectiveness in an electronic countermeasures environment. Currently, Hawk is being reorganized into a more streamlined and efficient fighting organization with system improvement efforts focusing on enhancing mobility and firepower while reducing manpower requirements.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
Stinger/Stinger-POST[a]				
Development:				
$ Millions	5.0	23.3	6.3	—
Procurement:				
Quantity	3,060	4,239	5,622	7,864
$ Millions	266.1	304.5	361.3	471.8
Air-to-Air Stinger				
Procurement:				
Quantity	—	—	68	495
$ Millions	—	—	28.8	41.5
Chaparral				
Procurement:				
Quantity	—	—	456	960
$ Millions	31.0	54.9	103.7	114.5
SHORAD C^2				
Development:				
$ Millions	18.4	32.6	82.1	116.2
Patriot				
Development:				
$ Millions	61.1	50.8	40.2	50.2
Procurement:				
Quantity[b]	440/12	585/12	700/12	715/12
$ Millions	958.8	928.1	996.8	952.8
Improved Hawk				
Development:				
$ Millions	32.9	21.5	5.1	13.3
Procurement:				
Quantity	500	550	430	550
$ Millions	124.8	122.7	115.4	147.5

[a] Includes Army and Marine Corps funding.
[b] Includes missiles and firing units.

(d) Artillery Fire Support

To offset the Warsaw Pact's numerical superiority and near technological parity with NATO in ground maneuver forces, we must improve the ability of our forces to detect advancing enemy formations and mass large volumes of accurate, effective firepower against them. To that end, we are upgrading the target acquisition and fire control capabilities of our fire support systems, developing new munitions with improved laser-homing capabilities, and increasing the overall sustainability of our fire support forces on the modern battlefield.

Target Acquisition -- The Army is working on two new systems that will provide long-range targeting support for its missile and artillery batteries. The Joint Surveillance and Target Attack Radar System (Joint STARS), described in more detail in the Deep Battle section, will be able to locate and track moving targets at extended ranges. The Remotely Piloted Vehicle (RPV), an unmanned aircraft, will be used to locate and designate targets for laser-guided weapons and to provide firing data for artillery units.

Fire Control -- Under development by the Army, the Advanced Field Artillery Tactical Data System (AFATDS) is a new-generation automated fire control system designed to increase the efficiency and targeting capacity of all available fire support means. In procurement is the Army's and the Marine Corps' Battery Computer System (BCS), a small computer designed to provide firing data for individual guns. The BCS can either stand alone or be linked to the Tacfire automated fire control system.

Weapons and Support Systems -- The Multiple-Launch Rocket System (MLRS) is a high-rate-of-fire weapon assigned to general-support artillery units. It can be used to supplement cannon artillery fire or to strike targets, such as enemy artillery and air defense systems, beyond cannon range. A single launcher can fire its load of 12 rockets in less than a minute, covering an area the size of six football fields with approximately 7,700 grenade-like submunitions effective against both personnel and lightly armored targets. The Army began deploying the MLRS in FY 1983 and is using multiyear procurement authority for its continued production. At the same time, as part of a multinational program with Germany, France, and Great Britain, the Army is working on a warhead for the system that will be able to dispense terminally guided submunitions.

Over the coming years, the Army and Marine Corps will continue modernizing their inventories of howitzers. The FY 1987 budget seeks funds for additional M198 155mm towed howitzers for the Marine Corps and for the Howitzer Improvement Program, under which the Army is upgrading its self-propelled M109s. Entering procurement in FY 1987 will be a new towed 105mm howitzer for the Army's light infantry divisions.

The Army has recently taken delivery of its first Field Artillery Ammunition Support Vehicles (FAASVs). These highly mobile tracked vehicles will provide armor protection for ammunition, and will carry equipment to prepare and supply ammunition for howitzers. They will be assigned to self-propelled artillery units in Europe and Korea and to selected CONUS units.

Ammunition -- The Army and Marine Corps are continuing to build their inventories of improved conventional munitions, 155mm howitzer-delivered scatterable mines, and 155mm laser-guided Copperhead artillery projectiles. A large number of these items have been earmarked for the war reserve stocks.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
RPV				
Development:				
$ Millions	97.8	73.9	91.9	19.4
Procurement:				
$ Millions	—	31.7	141.9	225.6
AFATDS				
Development:				
$ Millions	29.2	19.8	40.4	67.2
Procurement:				
$ Millions	—	25.6	—	10.7

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
BCS[a]				
Procurement:				
Quantity	167	255	66	—
$ Millions	28.7	44.8	11.0	—
MLRS[b]				
Procurement:				
Quantity	50,472/44	72,000/44	72,000/44	72,000/44
$ Millions	509.0	509.9	474.2	480.2
MLRS TGSM				
Development:				
$ Millions	24.5	30.3	42.7	52.2
M198 Howitzer[a]				
Procurement:				
Quantity	—	50	94	18
$ Millions	—	26.7	45.0	11.9
Light Howitzer				
Procurement:				
Quantity	—	—	64	120
$ Millions	—	—	26.5	32.0
FAASV				
Procurement:				
Quantity	170	150	131	155
$ Millions	81.5	64.8	67.7	77.4

[a] Includes Army and Marine Corps funding.
[b] Includes rockets and launchers.

(e) Deep Operations

Emerging technologies are providing our land forces with radically new techniques for defeating armored attacks. Moving targets deep behind enemy lines will be located and tracked by long-range detection systems. Intelligence and fire control information from multiple sources will be rapidly processed by computers and distributed to tactical commanders for targeting decisions. Targets will be attacked by aircraft and missiles delivering a variety of munitions, including terminally guided submunitions. In this way, our forces will be able to carry the fight to the enemy in synchronized operations against both the front and rear lines. Enemy forces will be attacked where they are most vulnerable, denying them the initiative and forcing them to react to our battlefield activity. This warfighting concept, prescribed by the new AirLand Battle doctrine, seeks to maximize the capabilities made possible by new technologies, thus helping our forces to overcome their opponent's advantage in numbers of troops and weapons.

Joint Surveillance and Target Attack Radar System (Joint STARS) -- This airborne detection system, being developed jointly by the Army and the Air Force, will be able to monitor and assist in attacking moving targets well before they reach the main battlefield. Drawing on the information it provides, our forces will be able to use their advanced weapons systems to attack targets deep behind enemy lines.

Joint Tactical Fusion Program (JTFP) -- Under this program, the Army and Air Force are developing an automated system to process, analyze, and distribute intelligence reports gathered from multiple sources. This information will assist battlefield commanders in assessing the status and disposition of enemy forces and in selecting targets.

Army Tactical Missile System (ATACMS) -- This new missile, fired from existing MLRS launchers, will be able to dispense submunitions against targets deep behind enemy lines. Designed to exploit the long-range vision of our new target acquisition and guidance systems, the missile will enable attacks to be directed against enemy follow-on forces, air defense systems, tactical ballistic missile launchers, and command and control facilities.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
Joint STARS[a]				
Development:				
$ Millions	96.4	231.4	383.6	341.7
Procurement:				
$ Millions	5.0	—	63.4	107.9
JTFP[a]				
Development:				
$ Millions	76.9	155.2	168.2	93.7
ATACMS				
Development:				
$ Millions	76.4	101.5	80.7	97.7

[a] Includes Army and Air Force funding.

(f) Tactical Wheeled Vehicles

The Army and Marine Corps are continuing to improve the ground mobility of their forces by upgrading their overage, over-mileage fleets of tactical wheeled vehicles. As part of that effort, they began fielding the High Mobility Multipurpose Wheeled Vehicle (HMMWV) in FY 1985. This versatile 5/4-ton vehicle is being used to replace a portion of the jeep inventory and other vehicles in the 1/4- to 5/4-ton range.

In the 10-ton category, the Army is procuring the Heavy Expanded Mobility Tactical Truck (HEMTT). The truck is being produced in five body styles for use by combat and combat support units. The Marine Corps is procuring a variant of the HEMTT, called the Logistics Vehicle System (LVS), for its combat support forces. The LVS comes with four interchangeable rear-body units. By integrating the two programs, we were able to accelerate the introduction of the Marine Corps' trucks by more than a year. Army units began receiving their HEMTTs in FY 1982, while the Marine Corps began fielding its version in FY 1985.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
HMMWV				
Procurement:				
Quantity[a]	15,288	16,964	13,585	4,555
$ Millions	383.1	426.3	349.4	128.5
HEMTT				
Procurement:				
Quantity	1,290	651	1,523	396
$ Millions	199.6	116.1	234.3	70.4
LVS				
Development:				
$ Millions	0.039	0.7	0.06	—
Procurement:				
Quantity	708	719	1,246	382
$ Millions	66.7	69.1	104.0	28.6

[a] Includes Army and Marine Corps funding.

(g) Tactical Command, Control, and Communications and Electronic Warfare

In equipping our land forces, it is not enough merely to provide them with modern weapons systems; we must also be able to direct their operations efficiently in battle. To that end, we are developing a variety of command, control, communications, and intelligence (C^3I) systems that will enable tactical commanders to locate and gather information about enemy forces; assist them in analyzing that information; provide jam-resistant, secure communications links between headquarters and subordinate units; and allow our forces, through the use of electronic warfare, to disrupt enemy communications and intelligence gathering. With these capabilities, our land forces will have the flexibility and responsiveness to defeat any opponent. (Additional details on C^3I systems can be found in Chapter III.D.)

Ground Mobile Forces (GMF) Satellite Communications -- The GMF will provide reliable, jam-resistant communications support for battlefield commanders. By using satellite communications, we provide commanders with a means of transmitting timely orders and intelligence reports over long distances. The Army, Air Force, Marine Corps, and Readiness Command have procured more than 300 GMF terminals and supporting equipment. Fielding of the Multichannel Initial System commenced in FY 1985.

Single-Channel Ground and Airborne Radio System VHF (SINCGARS-V) -- These very high frequency (VHF) radios will provide a secure, jam-resistant replacement for the aging equipment now in use in combat battalions and companies. The Army is scheduled to field the new radios in FY 1987, and the Marine Corps plans to introduce them in FY 1989.

Army Data Distribution System (ADDS) -- A digital communications system, the ADDS will provide secure, jam-resistant data links for command and control, intelligence, air defense, fire support, electronic warfare, and combat service support computer systems. It will also provide information on the position and location of friendly ground forces, thereby allowing more precise battlefield navigation. The system is scheduled to be fielded in FY 1988.

Maneuver Control System (MCS) -- This automated command and control system will quickly process battlefield data into useful information to help tactical commanders make sound combat decisions. The system will also prepare and send the orders implementing those decisions. MCS, which is being fielded in FY 1986, has been developed through a unique, evolutionary program with the direct participation of its eventual users.

Mobile Subscriber Equipment (MSE) -- This tactical communications system will provide automatic, secure field telephone and data services at the corps and division levels. Commanders and their staffs will be able to transmit and receive both voice and data communications through mobile, automatic switchboards interconnected by radio links. MSE will also provide mobile radio telephone service that commanders can use from their vehicles and mobile command posts. The Army will begin fielding the system in FY 1987.

Electronic Warfare (EW) -- To increase its ability to disrupt enemy communications, the Army is procuring additional tactical jamming systems such as the MLQ-34 TACJAM and the EH-60 Quick Fix helicopter. Tactical intelligence systems are being modernized through continued production of Trailblazer (TSQ-114A), Teammate (AN/TRQ-32), and Teampack (MSQ-103), and upgrades to existing systems.

Communications Security (COMSEC) -- The Army is procuring several types of modern COMSEC equipment. These systems provide secure communications links over which commanders can transmit orders and intelligence information without giving the enemy an opportunity to eavesdrop.

Joint Tactical Communications Program (TRI-TAC) -- Under the joint-Service TRI-TAC program, the Army and Marine Corps are providing more modern communications equipment for their forces. The Army is now fielding a new family of automatic switchboards at echelons above the corps level, and soon will begin receiving up-to-date radio transmission systems. The Marine Corps is developing new automatic switchboards to replace the old manual equipment now in service at unit level.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
GMF				
Procurement:				
$ Millions	48.3	58.6	13.4	43.6
SINCGARS-V				
Development:				
$ Millions	7.0	12.7	13.9	6.7
Procurement:[a]				
Quantity	10,600	400	16,000	19,000
$ Millions	126.0	110.8	211.7	316.1
ADDS				
Development:				
$ Millions	23.9	37.3	42.1	22.6
Procurement:				
$ Millions	—	31.8	84.0	173.1

[a] Includes Army and Marine Corps funding.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
MCS				
Development:				
$ Millions	21.9	8.6	9.4	14.9
Procurement:				
$ Millions	27.9	59.9	56.9	57.4
MSE				
Procurement:				
$ Millions	63.3	335.3	903.7	1,019.8
TRI-TAC				
Development:				
$ Millions	40.3	30.2	17.4	20.2
Procurement:				
$ Millions[a]	163.8	169.5	235.2	330.4

[a] Includes Army and Marine Corps funding.

c. Conclusion

We have made substantial progress in revitalizing the combat strength of the Army and Marine Corps. The FY 1987-91 program will bring further gains, although at a slower rate than we hoped at this time last year, moving us closer to our goal of creating:

-- A credible and efficient force, equally capable of peacetime deterrence and wartime success;

-- A modern, balanced, and strategically mobile force armed with advanced weapons systems and maintained at a high level of personnel and materiel readiness;

-- A total force backed by a growing stockpile of war reserve munitions and spare parts; and

-- An active force capable of being rapidly expanded by the Reserve Components and prepared for sustained combat anywhere that conflict might threaten.

2. Naval Forces

a. Introduction

As an island nation and a senior partner in a global alliance system, the United States needs a strong Navy to support its forward defense strategy. In peacetime, the Navy helps maintain an American military presence in forward areas where we have vital interests to safeguard. These routine overseas deployments provide tangible evidence of our commitment to preserving international stability and security. In times of crisis, naval forces are often dispatched to trouble spots, both to support friends and allies and to deter aggression against them. Should deterrence fail, these forces would serve among the lead elements in our forward defense strategy, which emphasizes an active defense of Europe and the Eurasian littoral regions. In their wartime role, naval forces would be called on to protect friendly shipping from air or sea attacks, to deprive enemy forces of access to strategic areas, and to project power against targets at sea or on land.

These demands, coupled with the growing challenge posed by Soviet maritime forces, drive our naval force planning and dictate certain requirements that our forces must be able to meet. First, the forces must be large enough to support our overseas alliance system in peacetime and in war. But also, they must be ready and capable enough to operate effectively in forward areas, most likely against heavy Soviet opposition.

The Navy would have been hard-pressed to meet those challenges when this decade began. The fleet had experienced a sharp decline from almost 1,000 deployable battle force ships in the mid-1960s to less than 500 ships in the late 1970s, as vessels built during World War II were retired from service in large numbers. While the fleet was shrinking in size, modernization was slowed by the budget cutbacks that followed the Vietnam war. And, perhaps most important of all, the quality and readiness of our forces had fallen to dangerous lows, a result of pay caps and other cuts in readiness funding.

There was, however, no corresponding reduction in our defense commitments. Quite the contrary, turmoil in Southwest Asia led to an expansion of our overseas commitments, which today include ensuring the stability and security of the Persian Gulf region. As a result, the Navy was stretched too thin to meet all the requirements of a global defense strategy. The credibility of our deterrent capability was in question. In peacetime, our naval personnel were burdened too heavily by the cycle of overseas deployments. In wartime, they would have faced an unacceptably high degree of risk in performing their combat missions.

That these developments occurred at a time when the Soviets were strengthening their fleet only compounded our problems. That modernization effort continues today, with little indication of significantly abating over the long term.

Arrayed against our forces at sea is an increasingly sophisticated arsenal of weapons capable of being launched from bombers, submarines, and surface ships. These weapons pose a very real threat to our forces over large portions of the ocean's area.

Backfire bombers armed with long-range, supersonic antiship missiles can threaten surface targets in most of the maritime regions where our naval forces would operate in a major conflict. These

include such vital areas as the Norwegian Sea, the North Atlantic, the eastern Mediterranean, the Indian Ocean, and the western Pacific. Improved bombers and missiles soon to come on line will extend the range and magnify the severity of this threat.

A Soviet force of about 275 attack submarines threatens our naval forces on a global scale. And the threat is growing as new submarines with improved capabilities continue to enter service. An increasing portion of the Soviet fleet is nuclear powered, which means the ships can stay on patrol for extended periods. And new submarine types -- such as the Oscar, Mike, Sierra, and Akula classes -- provide abundant evidence of the substantial improvement in the quality of Soviet submarines. These vessels' larger size enables them to carry more weapons, while their greater speed and diving depth, and quieter operations, make them more difficult to detect and engage.

In recent years, the Soviets have also introduced new generations of surface combatants, such as Kirov and Slava cruisers and Udaloy and Sovremennyy destroyers. These vessels carry powerful antiship missiles, compounding the threat faced by our surface units, particularly in a surprise-attack scenario. Toward the end of the decade, we expect the Soviets to introduce a new, much larger aircraft carrier. Though projected to be less capable than our own multimission aircraft carriers, this new system will enable the Soviets to conduct air-defense and air-strike operations in regions outside the reach of their land-based tactical aircraft.

Taken as a whole, these developments point unmistakably to the conclusion that we must continue to build the Navy's size and strength. The following section outlines the goals we have established toward that end.

(1) Program Goals for Naval Forces

As part of a general effort to rebuild the military strength needed to support our forward defense strategy, we have established six goals for our general purpose naval forces:

-- As an initial priority, to improve the Navy's readiness and sustainability;

-- As a means of meeting our global responsibilities, to build a 600-ship fleet by the end of the decade;

-- As a way of bolstering our offensive punch, to expand and improve our power projection forces, including aircraft carrier battle groups, battleships, amphibious assault ships, and cruise missile forces;

-- As a defense against air attacks, to improve our capability to intercept bombers and cruise missiles;

-- As a counter to advances in the Soviet submarine fleet, to upgrade our antisubmarine warfare capabilities; and

-- As a complement to the enlarged fleet, to modernize and expand our support and mine warfare forces.

We have made considerable progress toward those goals over the past five years. At the same time, we have had to delay or curtail efforts in many areas as a result of a series of reductions in

projected funding. This chapter outlines our accomplishments to date, as well as the compromises necessitated by fiscal pressures.

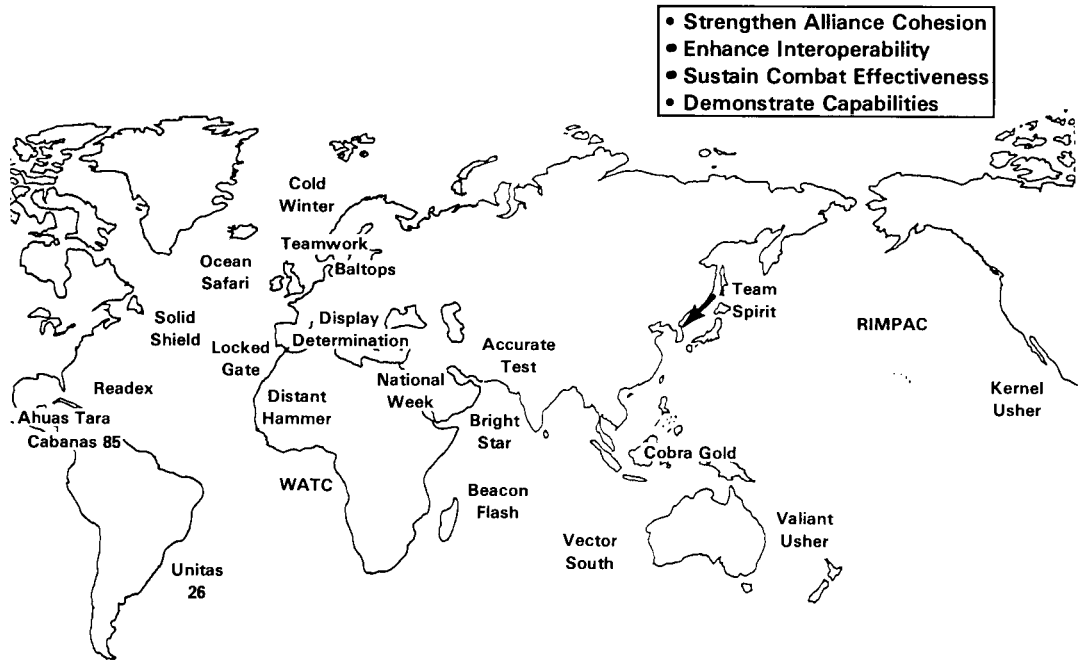
As part of the naval expansion plan, we are also increasing and modernizing our inventory of tactical aircraft. Those programs are described in the Tactical Air Forces chapter. Similarly, modernization programs for the ballistic missile submarine force are covered in the Nuclear Forces chapter, while sealift initiatives are described in the chapter on Mobilizing and Deploying the Forces.

(2) Readiness and Sustainability

Today, our naval forces are at a high level of readiness. This dramatic turnabout in just five short years has resulted largely from sharp improvements in manning. High-quality recruits are entering the Navy each year, while experienced personnel are choosing to stay. Last year, 66 percent of those eligible to reenlist elected to do so, up from 48 percent in 1980.

Each year, our forces engage in a series of highly realistic training exercises designed to maintain a high state of readiness. Many of these exercises are conducted in forward areas in coordination with other Services and allied navies, often in the presence of Soviet maritime forces. In 1985, the Navy conducted 110 major exercises, involving 41 allied countries. Highlights are shown in Chart III.B.2.1.

Chart III.B.2.1
Major U.S. Naval Exercises



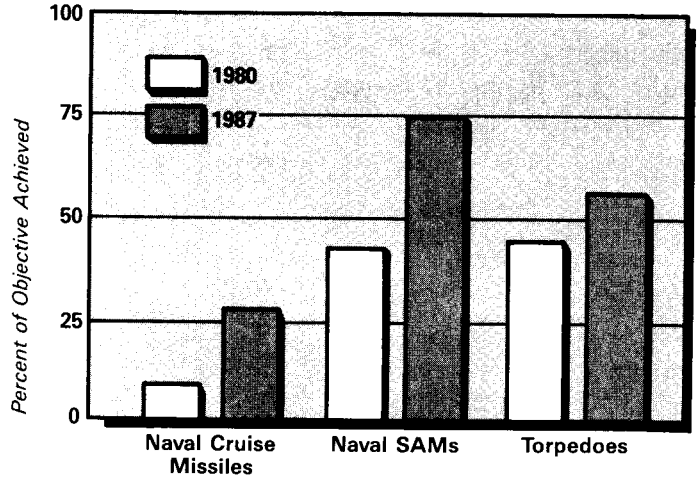
In FY 1987, the operating tempo of the fleet will continue to reflect our emphasis on maintaining high force readiness. The budget supports 50.5 steaming days per quarter for the forward-deployed fleets (the Sixth and Seventh), with the "home" fleets (the Second

and Third) steaming an average of 29 days per quarter. These rates will support a continued naval presence overseas, while permitting the home fleets adequate resources for training and operations. At the same time, the Navy will hold down operating costs by alternating battleship battle groups with aircraft carrier battle groups during periodic deployments to the western Pacific and by reducing the number of escorts deployed with carrier battle groups. In addition to providing financial savings, these initiatives will also ease the "at sea" burden on our naval personnel.

Sustainability, the "staying power" of the force, also improved substantially in recent years. Since 1980, the Navy's weapons inventories have climbed steadily, as shown in Chart III.B.2.2. The FY 1987 budget continues this trend, providing for an increase of more than 15 percent in Navy weapons' procurement funding over the amount approved last year.

Chart III.B.2.2.

The Navy Is Steadily Building Its Stocks of Weapons



(3) Force Structure

(a) Growth in Deployable Battle Forces

Over the past year, we have continued to expand the fleet. At the end of FY 1985, the deployable battle force stood at 542 ships, up from 479 at the end of FY 1980. As Table III.B.2.1 shows, we expect the force to grow to 554 ships by the end of FY 1986, and to 567 ships by the end of FY 1987. During the rest of the decade, the fleet will continue to expand as new ships are delivered faster than old ones are retired from service. By the end of FY 1989, the Navy should reach its goal of 600 deployable battle force ships.

Table III.B.2.1

Deployable Battle Forces[a] (End Fiscal Year)

	FY 1980	FY 1986	FY 1987
Ballistic Missile Submarines	40	38	39
Strategic Support Ships	8	6	6
Aircraft Carriers (Deployable)	13	13	14
Battleships	0	3	3
Cruisers	26	32	35
Destroyers	81	69	69
Frigates	71	113	115
Nuclear Attack Submarines	74	97	99
Diesel Attack Submarines	5	4	4
Patrol Combatants	3	6	6
Amphibious Ships	66	62	62
Mine Warfare Ships	3	3	5
Underway Replenishment Ships	48	54	57
Support Forces Ships	41	54	53
Total	**479**	**554**	**567**

[a]Table reflects data as of December 31, 1985.

(b) Specific Force Structure Goals

As part of its goal of achieving 600 deployable battle force ships, the Navy has set force structure goals for individual elements of the fleet. These are outlined in Chart III.B.2.3.

Chart III.B.2.3.

The Navy's Force Structure Goals

20-40	Ballistic Missile Submarines and Other Strategic Ships[a]
15	Deployable Aircraft Carriers
4	Reactivated Battleships
238	Principal Surface Combatants
100	Nuclear-Powered Attack Submarines
14	Mine Countermeasures Ships
75	Amphibious Ships (MAF-plus-MAB Lift)
6	Patrol Combatants
65	Underway Replenishment Ships
60-65	Support Ships and Other Auxiliaries
about 600	**Deployable Battle Force Ships**

[a]The force-level goal for strategic submarines has not been determined; the eventual force level will depend on arms reduction talks and other factors.

By the end of the decade, many parts of this force structure will be in place. The Navy will have built a force of 15 deployable aircraft carriers, returned to service four modernized battleships, and expanded the attack submarine force to 100 ships. Other goals will not be achieved until the 1990s, however. For example, the amphibious lift objective will not be met until 1996, a two-year delay necessitated by funding reductions. Likewise, requirements for mine warfare and support ships will not be fulfilled until the early to mid-1990s, when the last of the ships in the FY 1987-91 program are delivered.

Given the large number of cruisers and destroyers scheduled for retirement in the 1990s, the Navy will also fall short of its goal of 238 principal surface combatants. These goals, and the challenges we face in meeting them, are discussed in greater detail in the section on FY 1987-91 Programs.

(c) A Growing Role for the Reserves

To man the expanded fleet within the constraints imposed on active-duty personnel levels, we are enlarging the role of the Naval Reserve Force (NRF). By the end of FY 1987, we will have transferred 19 modern frigates of the FFG-7 and FF-1052 classes from the active force to the NRF, building steadily to a total of 26 reserve frigates. The LAMPS MK I antisubmarine helicopters deployed with these vessels have been assigned to reserve squadrons. In addition, the reserves operate 13 of our 37 squadrons of P-3 maritime patrol aircraft. In FY 1987, the first of two reserve squadrons of airborne mine countermeasures helicopters will be established. Eventually, all of our new MCM-1 and MSH-1 mine countermeasures ships will be operated by the NRF, as well as an increasing number of amphibious assault and support ships. To keep these forces in a high state of readiness, the FY 1987 budget funds a steaming rate of 21 days per quarter for the reserve ships, up from less than 15 days last year. The growing contribution of the reserves to the manning of the 600-ship Navy is illustrated in Chart III.B.2.4.

Chart III.B.2.4.
The Growing Contribution of Naval Reserves

	FY 1980	FY 1985	FY 1992
Deployable Battle Force Ships			
Destroyers	1	1	1
Frigates	0	11	26
Amphibious Ships	3	2	5
Mine Ships	0	0	14
Support Ships	2	0	5
Total[a]	**6**	**14**	**51**
Aircraft Squadrons			
Maritime Patrol Aircraft	13	13	13
ASW Helicopters	4	5	5
Minesweeping Helicopters	0	0	2
Total	**17**	**18**	**20**

[a] Does not include other reserve ships excluded from deployable battle forces category.

b. FY 1987-91 Programs

The following sections describe the purposes, schedules, and funding requirements of the naval programs we are proposing for FY 1987 through FY 1991. The programs are divided into four functional areas:

-- Power projection forces;

-- Antisubmarine warfare forces;

-- Antiair warfare forces; and

-- Mine warfare and support forces.

Though functionally distinct in some respects, these forces operate together as an integrated whole, each contributing to the successful accomplishment of the Navy's missions. For this reason, we must maintain a proper balance among our funding priorities. The FY 1987-91 program has been carefully structured with that objective in mind, at the same time taking into account the funding reductions the Defense Department has had to absorb.

(1) Power Projection Forces

A primary objective of the naval expansion program has been to strengthen the power projection forces. These are the forces that would seize the initiative in wartime by carrying the battle to the enemy. In this role, they would be called on to reinforce key areas where our forces do not maintain a continuous presence in peacetime. They would also conduct counteroffensive operations against the enemy's areas of greatest vulnerability. In peacetime, their continuous forward deployment provides a visible demonstration of this capability, thus providing a vigorous deterrent to aggression.

Our specific objectives for the power projection forces remain unchanged from previous years. We are expanding the aircraft carrier force to 15 deployable carriers. We are refurbishing and returning to service our four Iowa-class battleships. We are expanding and upgrading the amphibious fleet. And we are arming our surface and subsurface forces with Tomahawk and Harpoon cruise missiles, giving them a capability to strike distant targets at sea and on land.

(a) Aircraft Carrier Forces

Carrier battle groups, perhaps the most visible symbol of our maritime capability, form the core of today's Navy. Our multimission aircraft carriers -- operating an array of advanced combat aircraft and accompanied by a potent mix of surface combatants, attack submarines, and mobile logistic support ships -- can execute the full range of naval missions. They can strike targets at sea and on land. They can establish air defense umbrellas in the skies above naval task forces. And they can undertake operations against enemy submarines.

The Navy now has 13 deployable aircraft carriers. An additional carrier is undergoing long-term renovation and thus is unavailable for operations, while a smaller unit supports pilot-training activities. To meet our global maritime responsibilities, we will expand the deployable force to 15 carriers by the end of the decade. Thanks to congressional approval of two new carriers in FY 1983, that growth will be achieved at minimum cost to the taxpayers. Our fourteenth carrier, the USS THEODORE ROOSEVELT (CVN-71), will join the fleet this fall -- nearly one-and-a-half years ahead of schedule. At the end of the decade, the Navy will reach its goal of 15 deployable carriers when it takes delivery of the USS ABRAHAM LINCOLN (CVN-72), the first of the two new carriers authorized four years ago. The second carrier in the multiship program, the USS GEORGE WASHINGTON (CVN-73), will be delivered in early FY 1992, permitting replacement of the USS CORAL SEA, which will become the Navy's training carrier, replacing the USS LEXINGTON.

Looking ahead, the Navy will have to order replacements for some of its other carriers in the early 1990s if it is to sustain a force of 15 into the next century. Specifically, it will need to replace the USS MIDWAY, a vessel built during World War II but extensively

modernized over the years, as well as its other conventionally powered carriers dating from the 1950s and 1960s.

In the meantime, the Navy is prolonging the life of its conventionally powered aircraft carriers through the Service Life Extension Program (SLEP). Under this program, carriers are removed from the deployable force for two to three years to undergo a major renovation that extends their service lives at least 15 years. Two ships have already completed this process, and a third is now being refurbished. The fourth renovation -- the USS KITTY HAWK -- will be funded in FY 1988.

(b) Battleship Forces

Our Iowa-class battleships, now being refurbished and armed with long-range Tomahawk and Harpoon cruise missiles, are a potent supplement to the carrier force. In a war, they could be used for power projection operations, or to provide naval gunfire support for amphibious operations. In peacetime, they help maintain a maritime presence in foreign waters we routinely patrol. This year, for example, we plan to alternate a battleship battle group with a carrier battle group during periodic deployments in the western Pacific.

I am pleased to report that we are nearing the successful completion of this important element of the naval expansion program. Two battleships, the USS NEW JERSEY and USS IOWA, have already been refurbished and returned to service. The third ship, the USS MISSOURI, is undergoing its renovation and will be recommissioned in April. The fourth and last battleship, the USS WISCONSIN, will be reactivated in FY 1986 with funds saved from other ship construction programs. Its delivery is anticipated in late 1988.

(c) Amphibious Assault Forces

Amphibious assault forces give us a means of rapidly deploying Marine air-ground task forces to distant trouble spots with the equipment to fight their way across hostile coasts. In wartime, these forces would be used to establish lodgements ashore in support of naval or land campaigns, to secure flank areas, or to seize the initiative in counteroffensive operations. In peacetime, they maintain a continuous presence in areas of vital interest or potential turmoil. Often during emergencies, they have been called on to protect American citizens or to come to the aid of friendly nations -- Grenada being the most recent example.

We have begun a major and long-needed modernization and expansion of the amphibious assault force. The goal of the expansion is to provide lift for the assault echelons of a Marine Amphibious Force (MAF) and a Marine Amphibious Brigade (MAB). This will require an increase of roughly one-third over today's capacity, which could accommodate a MAF. Three new classes of ships -- the LHD-1 and the LSD-41 now under construction, and a third class now being designed -- support that effort.

The force modernization is linked to a new operational concept the Navy and the Marine Corps are developing. That concept calls for launching assaults from points over the horizon, where the opportunity for surprise is greater and the vulnerability of our ships is lower. This will require buying new equipment for transporting Marine forces from ship to shore. Key programs providing such ship-to-shore mobility include the Landing Craft, Air Cushioned (LCAC) and the MV-22

tilt-rotor aircraft being developed in the JVX program (described in the Land Forces chapter).

Unfortunately, fiscal pressures have required reductions in our amphibious shipbuilding programs. This will delay completion of the expansion and modernization goal by two years, to 1996.

Chart III.B.2.5
Amphibious Modernization and Expansion Plan

	Troop Berths	Vehicle Space (square feet)	Cargo Space (cubic feet)	Helicopter Spots	LCAC Spots
MAF + MAB Lift Requirements	50,000	1,040,000	2,490,000	633	90
Existing Fleet After Projected Retirements	38,000	750,000	1,670,000	423	31
5 LHA-1	8,500	125,000	544,000	190	5
7 LPH-2	11,000	23,000	279,000	189	–
11 LPD-4	8,500	124,000	430,000	44	11
5 LSD-36	1,500	29,000	7,000	–	15
5 LKA-113	1,000	167,000	343,000	–	–
20 LST-1179	7,000	277,000	65,000	–	–
2 LCC-19	500	5,000	2,000	–	–
New Ships Needed to Meet Requirements	15,600	280,000	785,000	210	59
5 LHD-1	9,300	100,000	505,000	210	15
8 LSD-41	3,600	100,000	40,000	–	32
6 LSD Variant	2,700	80,000	240,000	–	12

LHD-1 -- As shown in Chart III.B.2.5, the LHD-1 multipurpose amphibious assault ship will provide the largest share of the increased lift needed to meet the MAF-plus-MAB goal. A 40,000-ton ship, the LHD-1 will provide berthing for nearly 2,000 Marines, as well as space for assault vehicles and cargo. The ship is designed to carry 42 helicopters and three LCACS, vital components of the new over-the-horizon assault concept. The lead ship in the program, the USS WASP, is now under construction, and the Congress has authorized a competitive multiyear procurement initiative for the next three ships, to be purchased between FY 1986 and FY 1989. Unfortunately, fiscal constraints have forced us to delay the fifth ship's authorization from FY 1990 to FY 1991, with delivery projected for FY 1996, thereby causing a delay in meeting the helicopter-lift requirement.

LSD-41 Cargo Variant -- Last year, the Congress authorized the last two ships in the LSD-41 program. The eight ships of this class will be used to transport and support LCACs in an amphibious landing. To provide the necessary cargo capacity for meeting the MAF-plus-MAB lift goal, we plan to switch production to a variant design. Under current plans, the cargo variant will have essentially the same hull and engineering plant as the LSD-41, but it will carry more cargo in exchange for fewer LCAC spaces. Construction will begin in FY 1988, with a total of four ships funded in the five-year program, down from six ships in last year's five-year plan. This reduction will postpone meeting the overall cargo requirement.

LCAC -- The LCAC is the key to the new assault concept being developed for the future. It is designed to carry the combat and logistical vehicles of a Marine landing force from ship to shore at

speeds in excess of 40 knots. To support the landing requirements of a MAF and a MAB, we plan to buy at least 90 of these craft. A total of 33 have been authorized to date, the first of which was delivered for operational testing last year. The system fully met its performance specifications during those tests, but it did experience some reliability problems. These are now being corrected, and further testing is scheduled over the next few months. In the meantime, we have postponed procurement of additional craft until FY 1988, to allow time to correct the reliability problems and to eliminate production backlogs. A steady rate of nine purchases per year is projected for FY 1988 to FY 1991.

(d) Cruise Missile Forces

The Tomahawk and Harpoon cruise missile programs represent a major effort to distribute offensive striking power more widely throughout the fleet. The Harpoon, having a shorter range than the Tomahawk, is designed primarily for antiship strikes but is being given a land-attack capability. The Tomahawk, now entering the fleet in substantial numbers, has the range to reach both ships and shore targets beyond the horizon.

Tomahawk -- Tomahawk missiles will be carried aboard a wide variety of naval vessels, including battleships, cruisers, destroyers, and attack submarines. Continued testing of the Tomahawk system during the past year has given us increased confidence in its technical maturity, allowing us to continue increasing the procurement rate. The FY 1987 budget includes funds for 324 missiles, to be purchased competitively under our new dual-source procurement program.

Harpoon -- The Harpoon antiship missile system is deployed on most of our surface combatants and attack submarines, and can also be launched by P-3 patrol aircraft, A-6 attack aircraft, and F/A-18 strike-fighters. Future plans call for S-3 antisubmarine aircraft to be modified to carry the missile as well. The FY 1987 budget funds 94 additional missiles.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
CV Service Life Extension Program				
Procurement:				
Quantity	1	—	—	1
$ Millions	714.5	52.0	83.5	544.8
Battleship Reactivations				
Procurement:				
Quantity	—	1	—	—
$ Millions	—	469.0	—	—
LHD-1				
Procurement:				
Quantity	—	1	—	1
$ Millions	39.2	1,268.3	232.0	1,046.3
LSD-41				
Procurement:				
Quantity	2	2	—	1
$ Millions	476.6	373.4	—	311.2

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
LCAC				
Procurement:				
Quantity	9	12	—	9
$ Millions	230.1	307.0	—	207.9
Tomahawk Missiles				
Procurement:				
Quantity	180	249	324	410
$ Millions	581.1	767.8	835.7	958.4
Harpoon Missiles				
Procurement:				
Quantity	439	370	94	204
$ Millions	350.4	306.2	153.8	216.2

(2) Antiair Warfare (AAW) Programs

Soviet tactical missiles pose a serious threat to our naval forces, sea lines of communications, and forward bases. These highly sophisticated weapons are being produced in several versions, designed for launch from bombers, submarines, and surface ships. Because they are difficult to intercept, the missiles can best be countered by detecting and engaging the aircraft and vessels that carry them. Each region of potential conflict has unique geographical characteristics that influence our choice of a defense. Thus, we have adopted a regional approach to maritime antiair warfare, designed to exploit Soviet geographical constraints to the advantage of our air defenses.

Because the air threat to our maritime forces is so severe, we would plan to conduct a "layered" defense, in which enemy forces would be attacked in a series of engagements by different types of weapons systems. This maximizes the protection afforded to our forces and makes it more difficult for the enemy to overcome any one element of our defensive screen. Thus, while our longer-range "regional" and "outer-zone" defenses provide a high degree of leverage to our antiair warfare forces, we must also maintain strong "local" defenses in the immediate vicinity of naval task forces. We have attempted to maintain a careful balance among these requirements, as described in the following sections.

(a) Wide-Area Surveillance and Control

By giving forces an opportunity to position themselves to engage the enemy, timely warning of air strikes maximizes the forces' effectiveness in exposed theaters. This warning can come from any combination of Navy, Air Force, or national surveillance systems. For example, we plan to use Air Force airborne warning and control aircraft to patrol air corridors in such high-priority regions as the North Atlantic.

The tactical Relocatable Over-the-Horizon Radar (ROTHR) system, now under development, will substantially increase the amount of warning time available to our maritime forces. The radars will have a detection range of up to 1,600 miles, and will be deployed in regions where they can scan likely bomber-attack corridors, as well

as surface-ship approaches. Being "relocatable" to prepared sites, the system will also provide a capability to establish wide-area coverage in regions not routinely monitored.

To provide our commanders with the right information at the right time, we need a comprehensive, integrated command and control network as good as our surveillance capabilities. Several programs now under way will give battle groups at sea the kind of command, control, communications, and intelligence (C^3I) support they need for an effective defense against the Soviet air threat. These programs are described in detail in the Command, Control, Communications, and Intelligence chapter.

(b) Broad-Area Interception

Interception of air raids at longer ranges maximizes enemy attrition and reduces the number of missiles that are able to reach our local defenses. Given proper warning, a land- or carrier-based team of early warning aircraft, fighter-interceptors, and electronic warfare aircraft can detect and intercept approaching bombers before they come within missile-launch range. To supplement our aircraft systems, the Outer Air Battle Missile program is investigating the feasibility of developing a ship-based antiaircraft missile that could intercept enemy bombers at long ranges. Such a capability would permit AAW surface combatants to contribute to broad-area air defense operations.

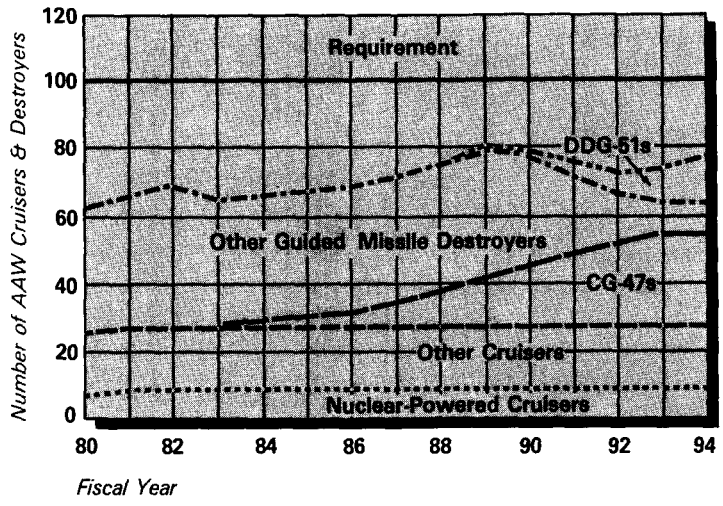
(c) Antiair Warfare Ships

Our long-range weapons will never guarantee a "leak proof" antiair net, so we must also maintain strong local defenses. These systems protect our most critical naval forces from missiles that survive our broad-area defenses or are launched at short ranges from undetected submarines. Two new classes of AAW ships -- the CG-47 guided missile cruiser and DDG-51 guided missile destroyer -- are bolstering the self-defense capabilities of our naval battle groups. Both ships feature the Aegis radar and missile combat system, which incorporates advanced technologies for detecting and intercepting high-speed cruise missiles at sea. The system's powerful phased-array radar can detect incoming missiles at long ranges, and its automated fire-control equipment can track and engage many targets simultaneously, even under heavy jamming conditions. These capabilities are substantially improving the fleet's defenses against the kind of coordinated antiship missile saturation attacks we would expect the Soviets to attempt in an engagement at sea.

CG-47 -- The Congress has authorized 19 CG-47 Ticonderoga-class cruisers to date, four of which have already joined the fleet. The five-year shipbuilding plan funds eight more, at a reduced rate of two per year. This will complete the program in FY 1990, one year later than we had projected last year.

DDG-51 -- The lead ship in the 29-ship DDG-51 program, the USS ARLEIGH BURKE, was authorized in FY 1985 and is now under contract. This year, we are requesting funding for the next three ships, which will be procured under a competitively awarded contract. Fiscal constraints have, however, forced us to delay moving to a five-ship-per-year procurement rate until FY 1991, which will only aggravate the shortage of AAW ships in the 1990s (see Chart III.B.2.6). A follow-on class of AAW ships will be introduced upon completion of the DDG-51 program in the mid-1990s.

Chart III.B.2.6
Continuing Shortages of AAW Cruisers and Destroyers



(d) Antiair Warfare (AAW) Weapon Systems

To improve our area air defense capabilities, we are continuing to build our inventories of surface-to-air Standard Missiles (SM-2s). We plan to buy 1,194 of these missiles in FY 1987. A "Block 2" version now in production promises even better intercept capabilities against the sophisticated high-altitude antiship missiles the Soviets might target against our carrier force in a war. Over the next five years, we also plan to add a new fuse to the system in order to improve its effectiveness against sea-skimming antiship missiles.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
ROTHR				
Development:				
$ Millions	31.6	52.6	41.1	12.9
Procurement:				
Quantity	—	—	—	—
$ Millions	—	—	2.3	165.0
CG-47 Cruisers				
Development:				
$ Millions	35.1	34.7	38.4	32.4
Procurement:				
Quantity	3	3	2	2
$ Millions	2,752.9	2,612.3	1,924.3	1,902.6

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
DDG-51				
Development:				
$ Millions	118.3	87.0	96.5	84.6
Procurement:				
Quantity	1	—	3	3
$ Millions	976.0	74.0	2,527.8	2,354.6
Standard Missile				
Development:				
$ Millions	31.6	46.5	46.1	75.6
Procurement:				
Quantity	1,384	1,316	1,194	1,250
$ Millions	754.0	872.9	747.6	761.5

(3) Antisubmarine Warfare (ASW) Forces

The preeminent role given attack submarines in the Soviet fleet requires that we pay special attention to developing effective ways to counter this threat. The large size of the Soviet submarine force has always been a problem for our antisubmarine forces, but the dramatic qualitative improvements that we have witnessed in the Soviet force in recent years demand that we redouble our efforts to upgrade our ASW capabilities. Indeed, the Navy is now initiating new approaches to coping with the challenge presented by the Soviet undersea force.

Conceptually, our basic strategy for combating the Soviet submarine threat remains unchanged. We still see a need for a layered offensive strategy that both maximizes enemy attrition and provides a high level of protection to our own forces. The best means of neutralizing enemy submarines is to engage them in forward areas and barriers -- before they come within range of attacking our forces. The compelling logic of this approach has only increased with the fielding of new Soviet systems that are more deadly and more difficult to counter. For long-term offensive operations, we rely primarily on attack submarines and ASW patrol aircraft supported by long-range surveillance systems. Even under the most favorable circumstances, however, some enemy submarines would escape our forward sweeps. These would have to contend with the layered defensive screen surrounding our naval task forces. Within this defensive ring, we rely upon formations of surface combatants equipped with advanced sonar systems, torpedo-armed antisubmarine helicopters, and carrier-based antisubmarine aircraft, as well as screens of attack submarines operating in the direct-support role.

(a) Antisubmarine Warfare (ASW) Surveillance Systems

The ability to locate enemy submarines within broad ocean areas is perhaps the single most important element of an effective antisubmarine warfare system. And it is in this area that the new Soviet submarines present the greatest challenge. To maintain our ASW capabilities, we must invest in new and improved systems for monitoring Soviet submarines.

One of our most important ongoing programs in this area is the TAGOS Surveillance Towed-Array Sonar System (SURTASS). By the end of FY 1985, the first six TAGOS ships had joined the fleet, and

they have proved to be highly effective during initial operations. Once fully integrated into the fleet, these ships will be crucial both for extending coverage to ocean areas that are not routinely monitored by fixed systems and for providing backup coverage in the event that other systems are incapacitated. The Congress has funded 16 TAGOS ships through FY 1986, and we are projecting construction of ten more over the next five years, including three in FY 1987.

(b) Attack Submarines

In any major naval campaign, our nuclear-powered attack submarines would carry the brunt of the initial engagements. Early in a war, they would move rapidly into far-forward positions, including waters where the Soviet navy would be operating in strength and where little assistance from friendly forces could be expected. Possible areas of conflict might include the ice-covered Arctic Ocean, where the demands on our submarine units would be great. Operating under these conditions would place a premium on stealth, quick and accurate weapons delivery, and firepower -- all areas in which the Soviets are fast encroaching on our long-held advantages. To maintain our technological edge in undersea warfare, we have structured our attack submarine programs to give maximum emphasis to these requirements.

SSN-688 -- In the near term, we are making evolutionary improvements in the basic design of the SSN-688 Los Angeles-class submarine, which is rapidly becoming the mainstay of our attack submarine force. To provide increased stealth, we are adding new sound-quieting features. To improve the speed and accuracy of weapons delivery, we will install the AN/BSY-1 Advanced Combat System on all new SSN-688s, starting with the SSN-751, which is now under construction. (The AN/BSY-1 program, which has undergone restructuring during the past year, will maintain our force's edge in undersea detection and targeting.) To increase firepower, we are installing vertical launch systems aboard all new SSN-688s, thereby providing 12 additional weapon spaces for submarine-launched missiles. And to allow the SSN-688 class to engage in Arctic operations, we are giving the submarines a greater under-ice capability.

Of the 52 SSN-688s approved through FY 1986, 33 have been delivered and are operating with the fleet today. The five-year program projects construction of 15 additional units, including four in FY 1987. This represents a slight reduction from last year's plan, but it will sustain a force of 100 attack submarines through the 1990s. Even a force of that size will remain seriously outnumbered by the Soviet submarine force, making it imperative that we retain a solid lead in performance.

SSN-21 -- Maintaining our technological superiority into the next century will require construction of an entirely new class of submarines in the 1990s. To that end, we have moved ahead with design work on a new attack submarine, designated SSN-21 (SEAWOLF) for its key role in maintaining our naval power in the 21st century. A priority objective of this program is to make improvements in sound quieting in order to preserve our acoustic advantage over a Soviet submarine force making rapid advances in this same area. Also, we are designing the SSN-21 to carry a much larger number of weapons than existing classes and to operate under ice more effectively. In addition, the new submarine will incorporate an advanced combat system, built upon the advances made in the AN/BSY-1 program. Designed to maximize speed and accuracy in the detection and targeting of enemy submarines, this capability is vital if our forces are to be successful in undersea engagements.

ADCAP Torpedoes -- The MK-48 ADCAP torpedo will give the attack submarine force a means of countering the faster, quieter, and deeper-diving submarines now entering service with the Soviet fleet. An upgraded version of earlier MK-48 models, the ADCAP ("advanced capability") is also designed to counter other advances in Soviet submarine designs and tactics. We are requesting funds for 227 torpedoes in FY 1987, which will support establishment of a second source for future competitive procurement.

(c) Surface Ship ASW Systems

To provide a strong antisubmarine screen for the future, we must also upgrade the ASW capabilities of our surface combatants. To that end, we are buying new sonars, antisubmarine helicopters, and weapons for our modern cruisers, destroyers, and frigates.

Tactical Towed-Array Sonar (TACTAS) -- The long-range performance of the TACTAS improves our surface combatants' ability to detect and engage Soviet submarines before they close to weapons-launch range. This capability is especially crucial in light of the increasing range and lethality of Soviet antiship missiles and torpedoes. The AN/SQR-18 towed-array system is being deployed aboard all 46 FF-1052 frigates and all of the Naval Reserve's FFG-7s. The more advanced AN/SQR-19, now entering production, will be installed as part of the SQQ-89 Surface ASW Combat System on our cruisers and destroyers, as well as on the FFG-7 frigates operated by the active fleet. The design of both systems could facilitate future upgrades that may be needed to respond to advances in Soviet capabilities.

ASW Helicopters -- The SH-60B LAMPS MK III antisubmarine helicopter system, also known as Seahawk, will be based aboard almost 100 of our most modern surface combatants, allowing them to prosecute long-range submarine contacts provided by TACTAS. A total of 114 of these helicopters have been authorized to date. Deliveries to the fleet have already begun, and initial deployments have confirmed that the Seahawk will be a highly capable and reliable aircraft. In FY 1987, the Navy will begin procuring a variant design, designated SH-60F, to replace its aging force of carrier-based SH-3s. Under the new fiscal constraints, the Navy will cap the combined production of the two SH-60 models at 24 per year. The current plan emphasizes procurement of the "F" model in the near term, leaving funds for only 17 SH-60Bs in FY 1987, followed by six per year through FY 1990.

MK-50 Torpedo -- The FY 1987 budget contains initial procurement funds for the MK-50 torpedo, which is nearing the end of a very successful development program. This new antisubmarine weapon is designed for launch from surface ships and their antisubmarine helicopters, as well as from maritime patrol aircraft. Relative to its predecessors, the MK-50 will provide significant improvements in speed, diving depth, accuracy, and lethality. Until the system is ready for high-rate production, we will continue buying upgraded MK-46 torpedoes under a multiyear contract.

(d) Maritime Patrol Aircraft

Maritime patrol aircraft contribute to our ASW capabilities through their role in long-range offensive operations and barrier patrols. The Navy maintains a force of 333 P-3 maritime patrol aircraft in 37 squadrons, 35 percent of which are operated by the Naval Reserve. The P-3C, of which some 260 have been procured through FY 1986, is the backbone of the force, while earlier "A" and "B" models round out the inventory. The five-year program funds 45 P-3C

aircraft at a steady rate of nine per year. The Navy has also initiated a competitive development program for a "D" model P-3 aircraft incorporating improved avionics and engines.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
TAGOS SURTASS Ships				
Development:				
$ Millions	3.7	2.0	5.9	6.4
Procurement:				
Quantity	2	2	3	3
$ Millions	99.7	113.9	148.1	193.9
SSN-688				
Procurement:				
Quantity	4	4	4	3
$ Millions	2,665.0	2,540.9	2,332.6	2,046.9
SSN-21				
Development:				
$ Millions	257.9	356.0	256.7	224.9
Procurement:				
Quantity	—	—	—	—
$ Millions	—	—	454.3	160.2
MK-48 ADCAP Torpedo				
Development:				
$ Millions	125.9	62.6	37.9	42.7
Procurement:				
Quantity	28	123	227	296
$ Millions	113.7	409.5	530.9	564.3
SH-60B Helicopters				
Development:				
$ Millions	11.3	14.0	19.7	10.6
Procurement:				
Quantity	24	18	17	6
$ Millions	421.3	292.9	234.8	158.5
MK-50 Torpedo				
Development:				
$ Millions	145.5	157.6	153.2	91.5
Procurement:				
Quantity	—	—	84	204
$ Millions	—	—	118.7	356.7
MK-46 Torpedo				
Procurement:				
Quantity	1,565	500	493	500
$ Millions	231.5	122.0	100.7	87.7
P-3C Aircraft				
Development:				
$ Millions	24.9	33.1	96.9	82.4
Procurement:				
Quantity	9	9	9	9
$ Millions	415.8	418.5	414.2	321.6

(4) Support and Mine Warfare Forces

The expansion of the fleet has brought with it an increased requirement for mobile logistic support ships and mine warfare ships. At the same time, our existing forces are aging and in need of replacement with more up-to-date equipment. To meet these combined demands, the FY 1987-91 program carries forward a general modernization and expansion of these often-overlooked forces.

(a) Support Forces

Multiproduct Station Ships -- The FY 1987 budget funds the lead ship in the new AOE-6 class of multiproduct station ships. These ships support carrier battle groups in sustained operations at sea. One is needed for each battle group to keep it supplied with food, fuel, ammunition, and other provisions. To support the expanded force of 15 carriers, we must add four new station ships to the eleven we now have. All four will be purchased over the next five years, though the last ship will not join the fleet until the mid-1990s.

Fleet Oilers -- The FY 1987-91 shipbuilding program continues construction of TAO-187 fleet oilers at a rate of two per year. These ships, operated by the Military Sealift Command, shuttle fuel from forward bases to battle groups at sea. The new ships are needed to replace the 35-to-40-year-old vessels now performing this service.

(b) Mine Warfare Forces

The Soviet Union has long maintained the world's largest and most capable inventory of naval mines. Though we would look to our allies to perform the bulk of mine clearing operations in a major conflict, we still must maintain a capability to clear our home ports and to sweep certain areas overseas where allied mine warfare forces might not be available. For this reason, the Navy is revitalizing its mine warfare capabilities, in the process replacing the 1950s-vintage minesweepers it now operates.

MCM-1 -- The MCM-1 mine countermeasures ship will improve the Navy's minesweeping capabilities and provide our forces with a system for hunting and neutralizing advanced mines that cannot be countered by sweeping techniques. Eleven MCM-1 ships have been approved to date, and the final three will be requested in the FY 1988 budget -- a one-year delay necessitated by production problems and fiscal constraints. We expect to receive the lead ship, the USS AVENGER, later this year.

MSH-1 -- A second new type of mine warfare ship, the MSH-1 Cardinal-class mine sweeper-hunter, will augment the MCM during initial harbor breakout operations. The MSH-1 is equipped with an advanced mine-hunting system similar to the MCM's, but it is smaller and less expensive. The Congress has already authorized the first five of these ships. The FY 1987-91 program funds twelve more, including four in FY 1987.

MH-53E -- The MH-53E will upgrade and expand our existing force of mine countermeasures helicopters. Compared with the RH-53Ds now flying this mission, the MH-53E will provide a much-needed boost in flight endurance and capacity to tow mine-clearing devices. A total of 13 MH-53Es have been funded to date. The five-year plan projects procurement of 23 more, including four in FY 1987. (The CH-53E helicopter, assembled on the same production line, is discussed in the Land Forces Chapter.)

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
AOE-6 Multi-Product Ship				
Development:				
$ Millions	7.8	4.7	6.7	3.8
Procurement:				
Quantity	—	—	1	—
$ Millions	—	—	612.7	—
TAO-187 Oilers				
Development:				
$ Millions	0.3	0.1	—	—
Procurement:				
Quantity	3	2	2	2
$ Millions	463.0	266.3	275.5	319.9
MCM-1 Ships				
Development:				
$ Millions	0.9	0.5	—	—
Procurement:				
Quantity	4	2	—	3
$ Millions	344.5	197.2	—	272.2
MSH-1 Ships				
Development:				
$ Millions	2.1	1.0	—	—
Procurement:				
Quantity	—	4	4	4
$ Millions	—	184.5	196.1	181.8
MH-53E Helicopters				
Development:				
$ Millions	15.0	1.2	3.5	8.7
Procurement:				
Quantity	2	10	4	8
$ Millions[a]	76.7	192.6	79.2	137.4

[a] The FY 1985 figure includes a part of the start-up costs for the CH-53E MH-53E multiyear contract.

c. Conclusion

Over the past five years, we have grown steadily closer to our goal of a modern 600-ship Navy, ready for combat and able to sustain itself in battle. As the fleet grows, it is also gaining larger numbers of highly capable ships, such as the CG-47 cruiser and the improved SSN-688 submarine. The quality of the people manning these units has also improved, and our stocks of naval weapons have expanded.

But there are still difficult challenges ahead. Construction of modern surface combatants has slowed, with the result that the Navy will not achieve the desired number and mix of ships required to meet its wartime requirements. The expansion plan for the amphibious force has been significantly delayed over the past year. Likewise, the Navy will be delayed in achieving its goals for support and mine warfare forces until the mid-1990s.

Table III.B.2.2.

FY 1987-91 Shipbuilding Program

		FY 1987	FY 1988	FY 1989	FY 1990	FY 1991	FY 87-91 Five-Year Total
New Construction							
Trident	(Ballistic Missile Submarine)	1	1	1	1	1	5
SSN-688	(Attack Submarine)	4	3	3	4	1	15
SSN-21	(Attack Submarine)	—	—	1	—	2	3
CG-47	(Guided Missile Cruiser)	2	2	2	2	—	8
DDG-51	(Guided Missile Destroyer)	3	3	3	3	5	17
LHD-1	(Amphibious Ship)	—	1	1	—	1	3
LSD-41	(Landing Ship Dock-Cargo Variant)	—	1	1	1	1	4
MCM-1	(Mine Countermeasure Ship)	—	3	—	—	—	3
MSH-1	(Mine Hunter-Sweeper)	4	4	4	—	—	12
AOE-1	(Multipurpose Stores Ship)	1	—	1	1	1	4
AE-36	(Ammunition Ship)	—	1	—	2	2	5
ARS	(Salvage Ship)	—	—	—	—	1	1
TAO-187	(Oiler)	2	2	2	2	2	10
TAGOS	(Surveillance Ship)	3	3	2	2	—	10
AGX	(Research Ship)	1	—	—	2	3	6
Total		**21**	**24**	**21**	**20**	**20**	**106**
Conversions/SLEPs/Reactivations							
CV	(Aircraft Carrier) SLEP	—	1	—	—	1	2
LPD-4	(Landing Platform Ship) SLEP	—	—	1	3	3	7
AO	(Oiler) Conversion	1	1	1	2	—	5
TACS	(Crane Ship) Conversion	2	2	2	—	—	6
Total		**3**	**4**	**4**	**5**	**4**	**20**

3. Tactical Air Forces

a. Introduction

Our tactical air forces are designed to deploy and operate on a global scale either from land bases or aircraft carriers. These forces must be capable of sustaining combat operations until a conflict has been resolved. One of their most important wartime duties would be to gain and maintain control of the skies, thereby allowing our ground, naval, and air forces to operate with minimal interference from enemy air attack. They also would be used to attack ground targets inside hostile territory as well as to support friendly forces in close combat with the enemy. These missions, together with the nature of the threat we face, largely determine our tactical air force needs.

Our major concerns relate to the significant improvements in Soviet aircraft and weapon systems. Throughout the postwar period, the U.S. tactical fighter force has enjoyed a significant qualitative advantage over the much larger Soviet force. Current-production U.S. fighters -- Air Force F-15s and F-16s and Navy F-14s and F/A-18s -- have been rated vastly superior to their principal adversaries, the Soviet-built MiG-21/Fishbed and MiG-23/Flogger. But an entirely new generation of Soviet aircraft now threatens to reduce this traditional area of U.S. superiority. Over the past few years, the Soviets have begun deploying an impressive new fighter -- the MiG-29/Fulcrum -- with their tactical aviation regiments. The MiG-29 is similar in size to our F/A-18 and is estimated to be at least comparable to our current-generation fighters in aerodynamic performance. That aircraft will soon be joined in the inventory by a second new Soviet fighter, the Su-27/Flanker. A larger aircraft than the MiG-29, the Su-27 is similar in size to our F-15 and is estimated to have comparable capabilities. Aircrews began training in earnest last year, and we expect the plane to reach operational units sometime this year and to be fielded in air defense units later in the decade. Both aircraft will carry the new AA-10 missile, an advanced air-to-air weapon that, in combination with a new advanced air intercept radar, will give the Soviets their first look-down/shoot-down capability.

These new aircraft are expected to provide the Soviets rough equivalency in fighter aircraft effectiveness by the early 1990s. Of course, the outcome of any air battle with the Soviets would be decided by a whole host of factors above and beyond aircraft effectiveness. Other key determinants could include aircrew proficiency, command and control support, situation awareness (intelligence gathering and dissemination), air base survivability, logistics support, and spares and munitions sustainability -- all areas in which the Soviets still have important shortcomings. Nonetheless, the introduction of vastly more capable aircraft into the Soviet inventory has dramatically increased the threat Soviet forces could pose in an aerial campaign. At the same time, the continued deployment of Soviet fighters outside the USSR's borders -- the Flogger squadrons in Vietnam and North Korea are two recent examples -- has extended the reach of Soviet tactical air power over a much wider portion of the globe.

But the Soviets' modernization efforts have not been limited to their fighter forces, as evidenced by the impressive gains they have been making in air-to-surface capabilities. Production of the Fencer long-range attack aircraft continues. This aircraft performs a role equivalent to NATO's Tornado and our F-111. Soviet Fencer regiments

continue to be deployed to Eastern European bases, increasing the depth of their potential coverage of our airspace. Air-to-surface variants of the older Flogger and Fitter series are being delivered to Soviet and allied units. The new Soviet Su-25 "tank-buster," designated "Frogfoot" by NATO, was based in Eastern Europe for the first time in 1985. One Soviet Su-25 regiment was assigned to a Soviet air base in East Germany; earlier in the year, a Czech squadron began reequipping with Su-25s. The Su-25 constitutes a significant new air threat to our ground forces. Soviet development and deployment of attack helicopters also continues. The Soviets are moving ahead in adapting attack helicopters for air-to-air combat, adding a new facet to the threat these aircraft pose -- a component of the Soviet armed forces that did not exist at all 15 years ago.

Soviet advances in air defenses also present a new challenge to our tactical air forces. For example, the Soviets and their Warsaw Pact allies are establishing complexes in Eastern Europe from which to launch the high-performance, long-range SA-5 surface-to-air missile (SAM). This threat must be eliminated if our future standoff aircraft -- such as the EC-18 Joint Surveillance Target Attack Radar System (JSTARS) -- are to be effective. Introduction of new shorter-range SAMs, such as the high-firepower SA-11 and the SA-X-15, will likewise improve Soviet defenses of maneuver forces. The new SA-X-12 mobile tactical SAM, expected to reach operational units shortly, is a high-performance system analogous to our own Patriot. Proliferation of ground-based weapons such as the SA-X-12 and SA-5 complicates our air force tasks and requires new countermeasures on our part.

Similarly, our tactical air forces face some very difficult ground targets. The Warsaw Pact has many more hardened concrete aircraft shelters for its tactical aircraft than we and our European and Asian allies do for our forces. These targets impose formidable requirements for accuracy and lethality -- demands not yet satisfied with current air-to-surface munitions.

Traditionally, the Soviet Union has fielded vast numbers of attack aircraft, SAMs, and artillery, assuming that mass would overcome any shortcomings in technology. Easily accessible Western technology has now, however, enabled the Soviets to begin fielding extremely advanced systems that are quite competitive with ours. As a result, the threat our forces will soon face is nearly as credible as the threat we will pose to the Soviets. It will require innovative planning on our part in both operational concepts and weapons development to ensure that our tactical air forces remain an effective deterrent in the future.

(1) FY 1987-91 Program

The FY 1987-91 program for the tactical air forces has been structured to procure the most capability for each dollar spent. The program combines procurement of new, highly effective systems with modifications to improve existing equipment. It serves four broad objectives:

- -- Increasing the readiness and sustainability of our forces through better training, increased stocks of spare parts, and more effective, modern munitions;
- -- Modernizing the active and reserve forces with more capable aircraft, procured competitively wherever possible to hold down costs;

-- Enhancing our electronic warfare and command and control capabilities, to improve force survivability; and

-- Improving our surveillance and targeting systems, to take advantage of the new capabilities afforded by modern technology.

(2) Force Composition

Our tactical air forces must be equipped and trained to perform through the entire spectrum of conflict, from counterterrorist operations to a strategic nuclear exchange. The Services operate a variety of aircraft, all having important roles in tactical operations.

One of the most important jobs of fighter aircraft is to gain and maintain control of the skies, commonly called the "counterair" mission. These aircraft are armed with numerous types of weapons, including long-range and medium-range radar-guided missiles, short-range heat-seeking missiles, and internally mounted cannons. Fighter and attack aircraft also perform two key missions in support of our ground forces. Flying in the "close air support" role, they conduct bombing operations against enemy formations in close proximity to friendly ground forces; for "interdiction" missions, their targets lie behind enemy lines. For both these missions, the aircraft employ a mix of weapons, ranging from cluster munitions and rockets to guns and air-to-surface missiles.

Rounding out the force structure is a wide array of aircraft that help the fighter and attack forces carry out their missions. The roles of these "support forces" fall into eight general categories: airborne early warning, command and control, tactical reconnaissance, electronic warfare, airborne refueling, defense suppression, tactical air control. and special operations.

Table III.B.3.1
Typical Composition of Navy and Marine Corps Air Wings

Navy		Marine Corps	
Number	**Type Aircraft**	**Number**	**Type Aircraft**
24	F-14	48	F-4 (or F/A-18)
24	F/A-18 (or A-7)	20	A-6
10	A-6	40	AV-8B (or 38 A-4M)
4	KA-6	9	TA4/0A4
4	EA-6	8	RF-4
4	E-2	8	EA-6B
10	S-3	12	KC-130
6	HS-3	48	CH-53
		60	CH-46
86	**Total**	24	AH-1
		24	UH-1
		12	OV-10
		313	**Total**

(a) Air Force Aircraft

The Air Force keeps two-thirds of its fighter inventory in the active force, and the remainder in the reserves. At present, it has the equivalent of 36.5 wings -- 24.5 active and 12 reserve. (A typical tactical fighter wing (TFW) is composed of three squadrons,

each with 24 aircraft.) For the future, the Air Force plans to expand its force structure to 40 TFWs, while holding the average age of its aircraft to about 10 years.

(b) Navy and Marine Corps Aircraft

Whereas Air Force wings usually include only one type of aircraft, Navy and Marine Corps wings operate a mix of aircraft types. An active Navy carrier wing typically consists of nine squadrons: two fighter; two light-attack; one medium-attack; plus an assortment of electronic warfare and reconnaissance aircraft, tankers, and helicopters (see Table III.B.3.1). There are 13 active carrier air wings in the force today; a fourteenth will be added in FY 1987, when the Navy's next carrier joins the fleet. There are three active Marine Aircraft Wings (MAWs), one each on the East and West Coasts, and the third in Japan. A typical MAW consists of between 20 and 25 squadrons.

(3) Combat Readiness

Combat readiness is a measure of our ability to fight a war with what we have on hand. For the tactical air forces, it means having adequate inventories of aircraft kept in top-notch condition; ample stocks of spare parts, munitions, and supplies; and highly trained crews to service and fly the aircraft. The funding emphasis given to the operating accounts in recent years has yielded important gains in readiness. The FY 1987-91 program carries forward those trends, concentrating on those areas requiring further improvement.

Equipment and Supplies -- As reported in Part I, the readiness of the Air Force fighter force has increased markedly over the past six years. Target kill capability in air-to-air combat is up 130 percent over the 1980 level, while air-to-surface capability has jumped 170 percent. These tremendous increases are a result of new aircraft procurement (A-10s, F-15s, and F-16s) and stepped-up acquisitions of logistics resources -- spares, repair parts, fuel, and munitions. While expanding our inventories of these items, we are making every effort to ensure that we pay the best prices the market can offer. And to keep our forces at a high state of readiness in the future, we are working hard to develop more precise techniques for computing logistics requirements and assessing the ability of our logistics resources to support wartime operations. As a result of these efforts, we are confident that the funding we apply to the readiness accounts will keep our forces in "go-to-war" condition.

Personnel and Training -- Aircrew readiness is a function of experience, flying time, and quality of training. While the Soviets appear to be putting new emphasis on pilot initiative and independence, our pilots are still much more innovative and aggressive than their Soviet counterparts.

After the dramatic increases in pilot retention from FY 1981 through the first half of FY 1984, both the Air Force and Navy experienced a downward trend during the last half of FY 1984 and FY 1985. This means a loss of experience within the pilot communities of both Services, but not to the extent of adversely affecting readiness.

Pilot proficiency and force readiness are directly related to training time. In FY 1987, the Air Force's tactical pilots will average about 240 flying hours, while Navy fighter pilots will log an average of about 288 hours. The figures for both Services represent increases since this Administration took office.

Our air-superiority pilots are trained using the most advanced techniques technology has afforded. Air combat maneuvering ranges (ACMRs) are totally instrumented and provide aircrews an opportunity to critique their performance with the aid of computerized video displays. Modern training devices such as these enhance performance progression at greatly reduced cost. Likewise, joint-Service exercises provide active and reserve forces from the United States and allied nations an opportunity to increase their combat proficiency during integrated operations. Large-scale exercises such as RED FLAG, conducted at Nellis Air Force Base, Nevada and COPE THUNDER in the Phillipines, and Marine Corps live-fire exercises at Yuma, Arizona, provide our aircrews realistic training closely paralleling the way they expect to fight. Our fighter crews' participation in such exercises has risen by 93 percent since 1980.

(4) Force Sustainability

The possibility of extended conflict requires improvements in force sustainability. To that end, we have given high priority to increasing our stocks of war reserve munitions. New "force multiplier" weapons with improved warhead lethality and multiple-kill-per-pass capability are beginning to enter the inventory in quantity. Since 1983, the number of Air Force tactical wartime sorties that could be flown with optimum munitions has increased 65 percent. This improvement has resulted largely from the procurement of Combined-Effects Munitions (CEM), Infrared (IR) Maverick missiles (AGM-65D), Laser-Guided Mavericks (AGM-65E), GBU-15 glide bombs, and runway-cratering munitions. Continued purchases of radar-guided and heat-seeking missiles have brought us to 66 percent of our procurement goal for these categories of weapons. Further increases will come in future years as additional Sidewinder missiles, High-Speed Anti-radiation Missiles (HARM), and the new Advanced Medium-Range Air-to-Air Missile (AMRAAM) enter the inventory.

In addition to sustainability, the five-year program gives force projection a high priority. We have provided funds to preposition materiel-handling equipment and support vehicles in Europe and Southwest Asia; aircraft support equipment in Europe; and bare-base equipment in Southwest Asia. At the same time, we are providing additional storage capacity for munitions and petroleum, oil, and lubricants (POL) in both regions. These programs will shorten response times in both areas and reduce the demand for intertheather airlift and sealift resources in the critical early stages of a deployment.

(5) Force Modernization

Our modernization programs for the tactical air forces serve five goals: increasing the combat capability of our present inventory: maintaining an acceptable average aircraft age; building toward the Air Force's goal of 40 TFWs; expanding the Navy's force to 14 active carrier wings; and purchasing aircraft competitively whenever feasible to optimize procurement funding.

The FY 1987-91 program calls for continued procurement of modern, high-performance aircraft equipped with our most advanced combat and support systems. The program authorizes the Air Force to buy 1,590 fighter aircraft and the Navy and Marine Corps to purchase 1,207, at the rates outlined in Table III.B.3.2. These totals are up from last year, despite budget limitations. To ensure our force structure goals are reached with the current five-year program without increasing the average aircraft age, the Air Force plans to operate its aircraft to maintain an average age of 10 to 11 years, while the Navy and Marine

Corps believe the high stress of carrier operations requires an average service age of eight to nine years. The current plan reflects a conscious decision to allocate more resources to aircraft procurement. A corresponding decision was also made to moderate the increasing unit cost of fighter aircraft by introducing a limited fighter competition and by procuring a less expensive, modified configuration of the F-16C/D. These decisions will allow us to modernize our tactical forces and replace peacetime attrition losses while achieving a modest force growth. As these programs move forward, we will continue upgrading our existing forces with more modern weaponry and support equipment.

We remain committed to a research and development program that will ensure an effective tactical force in the 1990s. Our future air-superiority forces will benefit from the improved offensive counterair capability of the Advanced Tactical Fighter (ATF). Theater command and control capabilities will be strengthened with the addition of the Mark XV cooperative identification system. The AMRAAM missile will give our future fighter forces a multiple-target-engagement capability. And planned improvements in the F-15 and F-16 will enable those aircraft to conduct tactical operations at night and in adverse weather.

Table III.B.3.2
Fighter/Fighter Attack Procurement (FY 1987-91)

	FY 1987	FY 1988	FY 1989	FY 1990	FY 1991
Air Force					
F-15E	48	48	48	48	48
F-16C/D	96	96	96	96	96
F-16 CM[a]	120	120	120	120	120
Competition	30	60	60	60	60
Total	**294**	**324**	**324**	**324**	**324**
Navy/Marine Corps					
F-14A/D	18	12	18	24	36
A-6F	11	12	18	24	24
F/A-18	120	132	132	163	163
AV-8B	42	42	42	42	42
Total	**191**	**198**	**210**	**253**	**265**

[a]Modified configuration.

b. Major Air Force Programs

Further details on major elements of the Air Force's program are provided below:

F-15 (Eagle) -- The F-15 is the Air Force's primary air-superiority fighter. Equipped with beyond-visual-range radar missiles, it can engage aircraft deep in enemy airspace from standoff positions in all types of weather. Following completion of F-15C/D procurement in FY 1986, the Air Force will begin producing an upgraded, dual-role version of the F-15 -- designated the F-15Es. The addition of this new model to the inventory will meet an urgent requirement of our operational commanders for an air-superiority fighter that can also fly interdiction and airfield attack missions.

For these latter roles, the aircraft will carry the new LANTIRN navigation and targeting system, which will enable it to operate against ground targets at night, while flying at low altitude. A total of 392 F-15Es are to be procured through FY 1994, including 48 in FY 1987. As they enter service, the Air Force will withdraw earlier-model F-15s from the active force and transfer them to the reserves.

F-16 (Fighting Falcon) -- The F-16 is a single-engine, high-performance fighter capable of conducting a broad spectrum of air-to-air and air-to-surface missions. The Air Force plans to continue procurement of these aircraft through FY 1994 to replace its aging F-4s and to modernize its reserve forces. The "C" and "D" versions will be able to employ our most advanced combat and support systems, including the AMRAAM, LANTIRN, ALR-74/56M radar warning receiver, and Global Positioning System (GPS). A modified, less expensive configuration version of the F-16C/D will be introduced and will be assigned a less comprehensive multirole mission. The modified configuration aircraft will be highly capable in both air-to-air and air-to-surface missions. The F-16 has demonstrated remarkable bombing accuracy. It was the overall winner of the 1983 and 1985 Gunsmoke Competition -- a worldwide, biannual gunnery competition held at Nellis Air Force Base, Nevada.

Fighter Aircraft Competition -- We are conducting a full and open competition for fighter aircraft to replace the Air National Guard's aging F-4s. (These aircraft are part of our CONUS air defense force, described in Chapter III.B.4.) In modernizing the Guard's inventory, we are seeking aircraft that not only can meet a high standard of performance, but will be highly reliable and easy to maintain. By procuring the aircraft competitively, we are confident of obtaining an effective interceptor force at an affordable price. Plans call for the source-selection process to be completed by the end of FY 1986 and for procurement to begin in FY 1987. Once this program is under way, consideration will be given to expanding the competition in the future to include tactical air mission requirements as well.

Increased-Thrust Engines -- To cope with the Soviet air-superiority challenge of the 1990s, we must improve the counterair capabilities of our forces. While the new combat and support equipment being added to the F-15 and F-16 will enhance their air-to-air potential, it also will increase their weight and reduce their aerodynamic performance. To alleviate that constraint, we plan to add more thrust to the engines now powering those aircraft. Two firms -- Pratt & Whitney and General Electric -- are under contract to the Air Force to develop higher-thrust (29,000-pound class) versions that will be very durable and easy to maintain. The program timetable calls for the engines to be installed beginning in the late 1980s.

MC-130H (Combat Talon) -- The Combat Talon is a tactical support aircraft flown by the Special Operations Forces. Its primary mission is to drop combat personnel and equipment behind enemy lines. An array of special navigating and self-protection devices help the aircraft fly through enemy airspace at night and at a low enough altitude to avoid radar detection. The Air Force plans to acquire a total of 35 Combat Talons, of which 14 will be modified C-130s and the remainder new-production models (MC-130Hs). All of the modified aircraft are already in service, and five of the new aircraft are on order, with deliveries scheduled to begin in 1988. Together with the FY 1986 authorization, the FY 1987-91 program provides funds for the remaining 16 aircraft, all of which are scheduled to enter service by FY 1993.

AC-130 (Gunship) -- The AC-130 is a modified C-130 aircraft whose primary mission is to provide support for special operations and for conventional forces by employing its highly accurate guns against enemy targets. The aircraft is configured with a precision-navigation system, terrain-following radar, and electronically aimed weapons. Deliveries of the 12 new-production aircraft will begin in FY 1990 and continue through FY 1992, offsetting the retirement of older-model aircraft. The new gunships will help revitalize our Special Operations Forces.

Low-Altitude Navigation and Targeting Infrared System for Night (LANTIRN) -- LANTIRN is a pod-mounted navigation and targeting system designed to help fighter aircraft conduct ground attacks at night and under the weather. The system, which will be installed on new F-15Es and F-16C/Ds, will enable those aircraft to penetrate enemy airspace while flying low enough to elude air defense radars. The navigation pod successfully completed initial operational testing in December 1984 and entered low-rate production last April. The targeting pod is undergoing thorough developmental testing and should be ready for a production decision this spring.

Imaging Infrared (IR) Maverick -- The Maverick is an air-to-surface missile designed to destroy enemy armor. Unlike the earlier TV-guided version, the IR system uses an imaging infrared seeker for guidance, enabling it to operate equally well in day or night. Now in low-rate initial production, the missile is scheduled to become operational in early 1986. A second source is under contract to begin producing the system later this year.

Advanced Medium-Range Air-to-Air Missile (AMRAAM) -- The AMRAAM is a new, all-weather air-to-air missile being developed for use by both the Air Force and the Navy. Unlike current radar missiles, which are guided to their targets by radar systems aboard the launching aircraft, AMRAAM has its own radar, giving it a "launch-and-maneuver" capability. This means that the missile can guide itself to its target, freeing the launching aircraft to pursue other targets or to return to base. Aircraft armed with AMRAAM will therefore be able to engage multiple targets on a single intercept, reducing their exposure to enemy air defenses while increasing overall combat effectiveness. Sophisticated electronic countercountermeasures capabilities being built into the missile will enable it to cope with the rapidly evolving electronic warfare threat. The AMRAAM program was restructured last year in a major effort to achieve cost-effective production features.

AIM-7M (Sparrow) -- The AIM-7M is an all-weather, semi-active, radar-guided air-to-air missile carried by both Air Force and Navy aircraft. First procured in FY 1980, the "M" model features much improved electronic counter-countermeasures and an improved look-down/shoot-down capability relative to earlier versions.

AIM-9M (Sidewinder) -- The AIM-9M is an infrared-guided air-to-air missile carried by both Air Force and Navy aircraft. It incorporates improved background-discrimination and counter-countermeasures capabilities relative to earlier Sidewinder models. Other improvements include a reduced-smoke motor, which makes it more difficult for enemy aircrews to see the missile and, therefore, determine the launching aircraft's location.

Tactical Aircraft Modifications -- We modify our aircraft to enhance their combat capabilities, improve their reliability and maintainability, correct safety defects, and extend their service

lives. Major elements of the FY 1987-91 program include: for the F-4 -- the addition of low-smoke engines, improved radar warning receivers, a self-protection AIM-9L/M capability, and a digital navigation system; for the RF-4 -- a radar upgrade; for the A-7 -- the provision of a forward-looking infrared (FLIR) capability for three squadrons; for the F-15 -- a multistage improvement program to incorporate new capabilities; and for the F-16 -- an operational capability upgrade program to update the older "A" and "B" models, and a multinational staged improvement program to add new systems and avionics to F-16C/Ds.

Air Base Survivability (ABS) -- We are devoting considerable effort to improving the ability of our overseas air bases to support wartime operations. In some cases, that has meant building additional shelters for aircraft or expanding storage capacity for fuel and munitions; in other instances, we have had to take steps to improve the survivability of the bases themselves against air and ground attack. Though the projects may vary from one location to the next, their overriding purpose remains the same: to ensure that key airfields abroad could survive an attack and go on to generate sufficient numbers of combat sorties.

Under the ABS program, the Air Force is improving facilities at airfields from which our forces with NATO, Pacific, or SWA commitments would operate in a war. The program in Europe involves the 22 main operating bases (MOBs) and five standby bases maintained by the United States, and the more than 70 collocated operating bases (COBs) maintained by the European allies but shared with U.S. air forces in wartime. Funding for U.S. facilities at MOBs and COBs is provided by the NATO infrastructure budget or by the United States unilaterally, as specified in NATO agreements. Examples of projects we must fund unilaterally under existing NATO agreements are rapid runway repair equipment, chemical defense measures, and camouflage gear. NATO infrastructure funding covers the costs of building or upgrading basic operating facilities, such as main runways, aircraft shelters (70 percent of the requirement), and munitions storage sites.

In general, ABS improvements include three types of measures: active defense, passive defense, and recovery. Active defense measures are designed to prevent the air and ground threat from reaching air base targets. Specific examples include Rapier surface-to-air missiles, which provide point defense at selected bases, and ground defense personnel trained to defeat special operations forces. Passive defenses, on the other hand, serve to limit damage to air bases, aircraft, and personnel should an attack actually occur. The construction of concrete revetments and hardened facilities, and the provision of chemical warfare defense equipment and clothing, all contribute to our passive defense capabilities. ABS recovery measures are designed to restore combat sortie generation capability quickly. They include construction of alternate launch and recovery surfaces, and the acquisition of improved rapid runway repair equipment and vehicles, mobile aircraft arresting systems, and mobile armored reconnaissance vehicles for identifying unexploded ordnance rapidly and safely.

While improving the survivability of our in-place force structure remains our highest ABS priority, we are also working closely with our allies to ensure the survivability of U.S. reinforcing squadrons that would operate from our COBs. In FY 1985, we concluded agreements with Norway and Denmark, and in FY 1986 we will pursue agreements with Turkey and Italy, to provide protected parking for U.S. aircraft until aircraft shelters are built. These agreements

encourage the host nations to develop a compatible rapid runway repair capability. We are also pursuing bilateral agreements with our allies to ensure that point air defense requirements are met at air bases where U.S. Army forces are not available. In FY 1985, we signed a Memorandum of Understanding with Turkey to provide Rapier protection at selected U.S. installations in Turkey.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
F-15				
Development:				
$ Millions	189.6	230.0	209.0	106.5
Procurement:				
Quantity	42	48	48	48
$ Millions	2,045.5	1,962.3	2,027.3	2,131.3
F-16				
Development:				
$ Millions	91.4	66.3	81.3	42.7
Procurement:				
Quantity	150	180	216	216
$ Millions	2,804.2	3,219.0	3,842.6	3,932.1
MC-130H				
Procurement:				
Quantity	2	2	5	5
$ Millions	107.1	133.7	251.5	246.6
AC-130H				
Procurement:				
Quantity	—	1	—	5
$ Millions	—	33.4	18.2	309.3
LANTIRN				
Development:				
$ Millions	97.8	39.8	40.1	20.4
Procurement:				
$ Millions	103.4	441.4	815.4	830.0
IR Maverick				
Procurement:				
Quantity	2,600	3,115	5,119	7,927
$ Millions	377.5	435.0	638.9	768.3
AMRAAM				
Development:				
$ Millions	204.3	101.3	39.1	13.0
Procurement:				
Quantity	—	15	260	833
$ Millions	73.1	209.0	756.8	1,041.3
AIM-9M				
Procurement:				
Quantity	1,000	3,770	2,337	1,444
$ Millions	77.4	184.1	161.3	108.2
Tactical Aircraft Modifications:				
Procurement:				
$ Millions	805.8	809.1	830.8	1,186.4

c. Navy and Marine Corps Programs

Naval aviation programs for the next five years continue our commitment to providing the modern aircraft and weapons systems needed to counter a rapidly growing Soviet maritime threat. The five-year plan projects procurement of 1,207 Navy and Marine Corps tactical aircraft, of which 1,117 will be fighter and attack planes. The active force will continue its modernization with AV-8Bs and F/A-18s, while reserve units will update their inventories with F-14s, F/A-18s, A-6Es, and E-2Cs. The overall lethality and survivability of the force will improve with the introduction of upgraded F-14D and A-6F models, while a restructured mix of fighter, attack, and support aircraft will give carrier air wings added flexibility for meeting mission requirements.

Further details on major naval tactical aircraft programs are provided below:

F-14 (Tomcat) -- The F-14 is a carrier-based, all-weather, air-superiority fighter with a uniquely capable and extremely lethal weapons system. Armed with the long-range Phoenix air-to-air missile, the F-14 is the free world's only naval aircraft capable of intercepting oncoming bombers before they come within range to threaten our battle groups. For engagements at shorter range, the F-14 carries AIM-7 Sparrow and AIM-9 Sidewinder missiles; an internally mounted 20mm cannon for close-in combat rounds out its weapons suite. This array of weaponry, coupled with the aircraft's high performance, gives the F-14 great versatility and depth as a fighter and interceptor. To ensure its effectiveness against new-generation Soviet aircraft, we are planning major improvements in the aircraft's radar, avionics, and engine thrust. Starting in FY 1986, the F-14A will be procured with a new engine -- the General Electric F-110 -- with significant safety and performance enhancements. In FY 1988, an upgraded version of the aircraft, the F-14D, will enter production. That model will incorporate improved electronic counter-countermeasures capabilities, a digital avionics suite, and more reliable, higher-performance engines. Two naval reserve squadrons were modernized with the F-14 in FY 1985; the remaining two reserve squadrons will complete their transition from F-4s to F-14s in FY 1988.

A-6 (Intruder) -- The A-6 is a medium-attack, carrier-based aircraft equipped to locate and strike land and sea targets in day or night and in all types of weather. Operated by Navy and Marine Corps units, the aircraft is particularly well-suited for war-at-sea, power projection, and deep interdiction roles. Although it has been in the inventory for more than two decades, repeated upgrades have kept the A-6 one of our most versatile and capable attack aircraft. One of the most important recent additions has been the Target Recognition Attack Multisensor (TRAM) system, which enables the aircraft to deliver laser-guided weapons and to operate at night much more effectively. To ensure its continued effectiveness in the future, a significantly improved model -- the A-6F -- is planned for procurement beginning in FY 1988. Representing a major advancement in all-weather attack technology, the A-6F will incorporate improved survivability and reliability features, digital avionics, a high-resolution radar, and new engines. In addition, we are studying advanced tactical aircraft (ATA) concepts that could lead to the introduction of a replacement aircraft in the 1990s.

AV-8B (Harrier) -- The Harrier is a second-generation vertical/short-takeoff and landing (V/STOL) aircraft entering the Marine Corps

inventory to replace the AV-8A/C and A-4M. Compared with earlier V/STOL aircraft, the AV-8B has a significantly greater flying range and offers more payload options. It also is more stable in flight than previous V/STOL aircraft, which decreases training requirements and improves flight safety. With its vertical takeoff capability, the aircraft can operate from remote unprepared airfields, highways, or any surface ship (merchant or combatant) capable of landing a helicopter. Such basing options give operational commanders increased response flexibility, as the British found during the Falkland conflict. The AV-8B is equipped with an angle-rate bombing system, which enables it to deliver unguided ordnance with nearly the precision of our modern terminally guided munitions. Although not designed for use as a fighter, the AV-8B has an excellent self-defense capability against potential adversary aircraft.

F/A-18 (Hornet) -- The Hornet is a state-of-the-art, dual-mission fighter and attack aircraft already being deployed aboard some of our carriers and flying in operational Marine squadrons. As a fighter, the F/A-18 has unsurpassed acceleration and maneuverability ability in the flight regimes where aerial combat most often occurs. The Hornet's air-to-air weapons are updated versions of reliable and proven systems: the M-61 20mm cannon, the AIM-7 Sparrow missile, and the AIM-9 Sidewinder missile. For attack missions, the F/A-18 carries the entire spectrum of ordnance approved for naval aircraft. It can carry these weapons at greater speeds than previous attack aircraft and deliver this ordnance more accurately than other aircraft.

Reliability and maintainability were designed and built into the F/A-18. This has already begun to pay dividends in the form of higher sortie rates, higher in-commission rates, and fewer maintenance man-hours. An additional benefit of its reliability is the Hornet's extremely low accident rate, which has so far been unmatched by any previous tactical aircraft at a comparable stage of development. The Congress and taxpayers of the United States can take justifiable pride in their role of providing the Hornet to our naval forces.

Laser Maverick -- The Laser Maverick is a member of a family of precision-guided, standoff munitions designed for use against a variety of land and naval targets such as tanks, bunkers, and ships. All Marine fighter and attack aircraft are capable of employing the missile. The Laser Maverick finds its target by homing in on reflected energy from a coded laser beam emitted by an airborne or ground laser tracking device. This advanced guidance mechanism enables the launch aircraft to fire its missiles and leave the target area before enemy air defenses have time to react. Safety features that prevent the warhead from detonating if the laser beam is lost make the missile an excellent standoff weapon for use in close proximity to friendly troops. The launch range depends only on sufficient and properly coded laser energy reaching the missile's seeker. The Laser Maverick's 300 pound blast-fragmentation warhead is ideal for use against bunkers and has been shown to have an excellent potential for stopping advancing enemy armor.

AIM-54A/C (Phoenix) -- The Phoenix is a long-range air-to-air missile designed for use with the F-14. Each of those aircraft can carry six Phoenix missiles and launch them virtually simultaneously against six different targets. The missile's design enables it to be used in any type of weather as well as under heavy jamming conditions. First procured in FY 1980, the "C" model has improved electronic counter-countermeasures features relative to earlier versions.

Tactical Aircraft Modifications -- We modify our aircraft to enhance their combat capability, improve their reliability and maintainability, correct safety defects, and extend their service lives. Major elements of the FY 1987-91 program include: for the A-6 -- an inertial navigation system, the target recognition attack multisensor (TRAM), and new wings of composite construction, which will add 8,800 flight hours to the aircraft; for the EA-6B -- improved radar jamming equipment (the ICAP II program and ALQ-99 pod); and for the E-2C -- an improved radar antenna (the TRAC-A program).

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
F-14A/D				
Development:				
$ Millions	276.6	347.9	268.4	156.7
Procurement:				
Quantity	24	18	15	12
$ Millions	976.9	784.6	690.9	962.7
F/A-18				
Development:				
$ Millions	31.2	58.3	59.1	63.5
Procurement:				
Quantity	84	84	120	132
$ Millions	2,417.1	2,436.1	3,406.7	3,594.9
A-6E/F				
Development:				
$ Millions	68.7	238.1	144.3	72.2
Procurement:				
Quantity	6	11	11	12
$ Millions	310.5	301.1	390.1	801.1
AV-8B				
Development:				
$ Millions	61.3	65.3	48.6	20.5
Procurement:				
Quantity	32	46	42	42
$ Millions	695.5	918.9	761.9	905.6
AIM-7M				
Procurement:				
Quantity	2,082	2,445	2,095	2,117
$ Millions	362.5	424.4	345.3	378.3
Laser Maverick				
Development:				
$ Millions	6.9	2.0	—	—
Procurement:				
Quantity	600	1,500	1,800	575
$ Millions	103.0	167.2	201.7	81.7
AIM-54A/C				
Procurement:				
Quantity	265	265	205	430
$ Millions	441.1	353.4	321.5	441.9

d. Electronic Combat

Electronic combat (EC) refers to actions taken against an enemy's electromagnetic capabilities or in support of our own. It consists of three elements: electronic warfare (EW); command, control, and communications countermeasures (C^3CM); and suppression of enemy air defenses (SEAD).

The FY 1987-91 program funds a complementary mix of systems designed to degrade hostile air defenses; deny the enemy unrestricted use of his command, control, and communications systems; and protect the security of our own communications.

Details on major elements of the program are provided below:

EC-130H (Compass Call) -- The Compass Call is a specially configured C-130 aircraft designed to disrupt enemy communications systems from standoff ranges. Previous budgets have provided funds to modify and equip nine C-130s for the Compass Call mission; the FY 1987 budget seeks funds for six more conversions, satisfying the near-term procurement objective.

EA-6B (Prowler) -- This carrier-based tactical support aircraft is designed to degrade enemy defenses by jamming their radars and communications systems. Improved features being added to the aircraft will enable it to counter new generations of enemy radars and weapons systems.

EF-111A -- The 36 aircraft in the EF-111A fleet are designed to jam enemy early-warning, acquisition, and ground-control intercept radars from secure, standoff ranges. We are under contract to update the EF-111A's jamming equipment to meet the improved quality and number of hostile radar systems.

F-4G (Wild Weasel) -- A highly modified version of the F-4E, the F-4G is designed to locate and attack enemy radar sites. For this mission, the aircraft is armed with the new High-Speed Antiradiation Missile (HARM) and older antiradiation missiles. Over the next five years, we anticipate modifying an additional 18 F-4Es to the "G" configuration, while updating the avionics suites of all the aircraft in the F-4G fleet. These upgrades will enable the aircraft to counter the more advanced Soviet radars projected for deployment in the 1990s.

High-Speed Antiradiation Missile (HARM) -- This new antiradiation missile, carried by Air Force and Navy aircraft, is designed to suppress or destroy enemy air defense radars. The missile guides itself to its targets by "homing in" on the enemy radar beams. The weapon's increased velocity relative to previous antiradiation missiles allows less time for enemy reaction, while its expanded radar-frequency coverage enables a greater number of radar systems to be brought under attack. Future improvements will include the incorporation of a low-cost seeker (LCS), currently under development by the Naval Weapons Center. That system promises to be much more economical to produce than the existing seeker.

Precision Location Strike System (PLSS) -- This near-real-time, all-weather electronic combat system will play a key role in our future SEAD capabilities. It is designed to help friendly ground and air forces locate enemy radar emitters and conduct strikes against them. Electromagnetic sensors on TR-1 aircraft flying in standoff orbits would spot the targets and relay intercept data to ground stations, where the information would be processed and

distributed to friendly forces. Thus, theater commanders will have a total picture of enemy electronic emitter operations and be able to assign strikes against these targets. The system is scheduled to become operational in Europe in the late 1980s.

The Airborne Self-Protection Jammer (ASPJ) -- This internally mounted electronic jammer will give our tactical forces better self-protection capabilities against modern radar-controlled airborne and ground-launched weapons. The system is designed for use with a variety of aircraft, including the F-16, F-14, F/A-18, A-6E, and AV-8B. It is being developed jointly by the Air Force and Navy, under the Navy's lead. The system is now undergoing developmental ground testing, and should be ready for an initial production decision later this year. Ultimately, we plan to produce some 2,200 systems -- 1,200 for the Air Force and 1,000 for the Navy.

e. Antijam, Secure Voice, Data, and Identification Friend or Foe (IFF) Systems

Joint Tactical Information Distribution System (JTIDS) -- This new digital system will provide secure, jam-resistant channels for transmitting data and voice communications. During the past year, we merged the Services' JTIDS programs into a single development effort in the interest of saving costs and providing a standard system for use by all our forces. JTIDS equipment is already in service on Air Force E-3 (AWACS) aircraft and at NATO command and control centers. Additional terminals of various sizes and capabilities will be fielded into the 1990s.

Also under development is a new airborne VHF radio that will be interoperable with the Army's SINCGARS system. The Air Force will buy the jam-resistant Army VHF/FM system for use on the ground.

TRI-TAC -- Under the TRI-TAC program, we are replacing aging ground communications equipment with new jam-resistant digital systems. The program provides both telephones and teletype machines designed to support a high volume of communications between deployed air bases and tactical air control systems. Some of this equipment has already been fielded by the Services and allied forces.

Tactical Air Control System Improvements (TACSI) -- Under the TACSI program, the Air Force and Marine Corps are acquiring new, modular tactical air operations equipment to replace the large, inflatable command and control shelters they have used since the Vietnam years. State-of-the-art computers will be capable of tracking large numbers of aircraft, and distinguishing friend from foe. With a change of software, the modular control element could function as a ground attack control center, enabling tactical air control systems to control deep-interdiction air attacks more rapidly against time-sensitive ground targets. To counter the low-altitude, high-intensity electronic countermeasures threat, the Air Force has acquired the first of 65 ultra-low sidelobe antennas for its tactical radars. Future improvements will make the TACSI system more survivable against enemy antiradiation missiles. The FY 1987-91 program projects procurement of 107 TACSI devices, or 60 short of the full requirement. Fiscal constraints have delayed the remaining purchases until the years beyond 1991.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
Compass Call				
Development:				
$ Millions	23.4	35.8	50.3	—
Procurement:				
$ Millions	43.2	29.4	38.6	22.7
EF-111				
Development:				
$ Millions	—	—	—	—
Procurement:				
Quantity	—	—	—	—
$ Millions	—	—	—	60.7
EA-6B				
Development:				
$ Millions	35.8	78.2	69.7	58.5
Procurement:				
Quantity	6	12	12	12
$ Millions	399.2	455.6	450.2	460.7
HARM				
Development:				
$ Millions	4.0	2.6	3.9	3.1
Procurement:				
Quantity	1,684	2,275	3,204	3,204
$ Millions	589.9	656.3	767.5	757.3
F-4G Wild Weasel				
Development:				
$ Milions	47.3	35.7	38.7	23.3
PLSS				
Development:				
$ Millions	76.9	61.5	26.6	11.1
Procurement:				
$ Millions	166.5	97.5	111.0	4.0
ASPJ				
Development:				
$ Millions	60.9	25.8	30.0	12.1
Procurement:				
$ Millions	33.1	110.8	72.4	236.2
TRI-TAC				
Development:				
$ Millions	74.7	44.0	35.8	45.8
Procurement:				
$ Millions	266.7	366.4	503.2	582.6
TACSI				
Development:				
$ Millions	16.1	29.7	21.7	41.7

f. Target Acquisition, Surveillance, and Warning

The ability to locate, identify, and attack enemy air, naval, and ground forces is critical to effective tactical air operations and, therefore, to the outcome of the battle. The following major programs are improving our capabilities in this area.

E-3 Airborne Warning and Control System (AWACS) -- This Air Force aircraft, a derivative of the Boeing 707, is equipped with a long-range, "look-down" radar with substantial resistance to jamming. Capable of detecting both air and maritime targets, and of managing multiple fighter and attack sorties, the AWACS provides surveillance, warning, and control capabilities for use in North American air defense, as well as in overseas theaters of operation.

The 34 aircraft in the U.S. E-3 fleet have seen considerable advances since their initial deployment. Crew size has grown by 26 percent, tracking capacity has tripled, and command and control capabilities have increased by 46 percent. In addition, the E-3 is flying 50 percent more hours than originally planned, while improving its mission capability by 15 percent above the originally forecast rate. A series of sensor, communications, and platform improvements will ensure that the E-3 remains an effective, survivable airborne surveillance system in the future.

E-2C (Hawkeye) -- This all-weather, carrier-based aircraft plays a vital role in almost every facet of Navy tactical air operations. Its primary mission is to provide early warning of approaching enemy bombers and vector interceptors into attack position. In addition, the E-2C performs a variety of other tactical support functions, including surface surveillance coordination, strike force and air traffic control, communications relay, and search and rescue assistance. To ensure the E-2C retains its advantage against the future threat, major improvements are being made in its sophisticated electronic suite.

TR-1 -- The TR-1 is a high-altitude U-2 derivative designed to carry a reconnaissance or Precision Location Strike System (PLSS) payload. The TR-1's ability to accommodate different sensor packages gives it the flexibility to respond to changing mission needs. The reconnaissance package can provide 24-hour, all-weather surveillance of enemy first- and second-echelon forces.

Fourteen TR-1s have already been delivered to the Air Force, and a functional prototype ground processing and reporting station has been installed in Europe. Plans call for the fleet to grow to 26 aircraft and for additional data processing terminals to be fielded.

Joint Surveillance Target Attack Radar System (Joint STARS) -- Joint STARS is the cornerstone of our new strategy for countering enemy second-echelon forces. Now in full-scale engineering development, the system will consist of sophisticated multimode radars carried by Air Force C-18 (modified Boeing 707) aircraft. The radars will be able to spot moving targets, such as enemy tank columns, deep in hostile territory. Information about the targets would be sent virtually instantaneously to ground control stations, where it would be processed and relayed to tactical commanders for targeting decisions.

The five-year program supports the procurement of ten C-18 aircraft to satisfy near-term requirements, while providing for long-term improvements in the C-18's survivability.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
E-3A Modification				
Development:				
$ Millions	65.1	118.8	137.2	117.8
Procurement:				
$ Millions	78.1	4.1	33.5	32.4
E-2C				
Development:				
$ Millions	34.4	23.6	34.5	63.4
Procurement:				
Quantity	6	6	6	6
$ Millions	334.1	359.8	335.3	374.2
TR-1/U-2				
Procurement:				
Quantity	4	6	3	—
$ Millions	207.4	315.2	100.3	59.2
Joint STARS				
Development:				
$ Millions	96.4	131.4	383.6	361.7
Procurement:				
$ Millions	5.0	—	63.4	107.9

g. Rapid Deployment Force Programs

The inherent deployment flexibility of aircraft makes them a key element of our rapid deployment forces. While virtually all tactical air forces are considered "rapidly deployable," the Air Force and Marine Corps have designated several units for commitment to the U.S. Central Command (USCENTCOM), oriented toward Southwest Asian (SWA) operations. A mix of fighter, attack, and support aircraft have undergone special training to prepare them for this assignment. The BRIGHT STAR 85 exercise offered Air Force and Marine air and ground units a valuable opportunity for in-theater training, while INFERNO CREEK 85 provided realistic training for combat aircrews. Likewise, our detachment of E-3A AWACS in Saudi Arabia receives valuable training and helps provide stability in the Persian Gulf as it monitors air and naval traffic. Our SWA construction programs are progressing very well. Nearing completion are expanded parking aprons, fuel storage areas, navigation facilities, and maintenance support areas.

h. Conclusion

The FY 1987-91 tactical air program represents a blend of new system procurements and modifications of existing systems to maximize our combat capability within fiscal realities. The program will increase the readiness and sustainability of our forces while accommodating a modest force growth. Continued emphasis will be placed on procuring more modern munitions to increase force effectiveness. Top research and development priority will go to several high pay-off programs such as AMRAAM, JTIDS, PLSS, and Joint STARS. We will continue to make our aircraft more survivable with the incorporation of electronic countermeasures suites. The total program will yield a force that is balanced, flexible, and capable of responding to hostilities wherever they might occur.

4. Nuclear Forces

a. Introduction

The President called for a strategic modernization program early in his Administration to counter the massive Soviet buildup of strategic nuclear forces and defenses. The President's program directed an across-the-board modernization of U.S. strategic offensive forces; strategic defensive forces; and strategic command, control, communications, and intelligence systems. This modernization was designed to ensure continued deterrence and to provide the Soviet leadership incentives for equitable, mutual, and verifiable arms reductions.

An even more significant step toward deterring war and providing incentives for negotiated arms reductions was taken by the President when he established an intensive research effort, the Strategic Defense Initiative (SDI), to examine technologies that may allow the United States to develop defenses against ballistic missiles. This research program, in conjunction with the President's strategic modernization program, provides the basis for ensuring peace today and offering hope for the future.

The modernization effort has already begun to show results. Peacekeeper intercontinental ballistic missiles (ICBMs) are well into production, the first five B-1B bombers have been delivered, Trident submarines continue to enter service, and increasing numbers of air- and sea-launched cruise missiles are being deployed. Meanwhile, work continues on other systems, including the Trident II (D-5) submarine-launched ballistic missile, the advanced technology bomber, the advanced cruise missile, and the Small ICBM.

The improvements in strategic defenses are equally significant. We have begun to deploy new atmospheric surveillance radars and to modernize our air defense interceptor squadrons. We have successfully tested an antisatellite weapon. We continue to make significant progress in the SDI research effort and are initiating a parallel research program for advanced air defenses.

We are also improving the warning sensors, communications systems, and command centers that support our strategic forces. These improvements provide for greater survivability in a nuclear war and are essential elements of a stable deterrent.

We continue to adhere to NATO's decision to counter substantial SS-20 deployments by deploying ground-launched cruise and ballistic missiles in Europe. A modernized intermediate-range force is essential for negotiating mutual and equitable arms reductions with the Soviets.

b. Composition of U.S. Nuclear Forces

U.S. nuclear forces can be grouped into four categories: strategic offensive forces; strategic defensive forces; associated command, control, communications, and intelligence (C^3I) systems; and nonstrategic nuclear forces.

Strategic offensive forces include land-based intercontinental ballistic missiles (ICBMs); submarine-launched ballistic missiles (SLBMs); and long-range bombers armed with gravity bombs, short-range attack missiles (SRAMs), and air-launched cruise missiles (ALCMs). Together, these three elements of the force -- land- and sea-based missiles and bombers -- constitute the strategic nuclear triad.

At present, the strategic defensive forces include ground- and space-based surveillance systems and air defense forces. Surveillance systems warn of ballistic missile and bomber attacks, and detect and track objects in space. These systems contribute to deterrence by ensuring timely warning of an attack, thereby reducing a potential aggressor's confidence that a surprise attack could be successfully carried out. Air defense forces control access to North American airspace and provide a limited defense against bombers and cruise missiles. Although we have no defenses against ballistic missiles today, SDI research is examining technologies that could allow the deployment of effective ballistic missile defenses in the future.

Strategic C^3I systems provide attack warning and assessment information, and support command functions by linking warning sensors, command centers, and forces. Effective deterrence demands that these systems be able to function both during and after an attack. We have learned that our nuclear forces are only as strong as the C^3 systems that support them.

Nonstrategic nuclear forces include intermediate-range nuclear forces (INF), such as intermediate-range ballistic missiles, land-based cruise missiles, and bombers carrying nuclear weapons; short-range nuclear forces (SNF), such as artillery projectiles and surface-to-surface missiles; land-based defensive systems, such as surface-to-air missiles and atomic demolition munitions; and sea-based systems. These forces enhance deterrence by providing a capability to respond at the lower end of the nuclear spectrum, firmly linking our strategic forces to our conventional forces.

c. FY 1987-91 Programs for Strategic Forces

The FY 1987-91 program continues the President's strategic modernization plan and pursues a vigorous research program for defenses against ballistic missiles.

(1) Strategic Offensive Forces

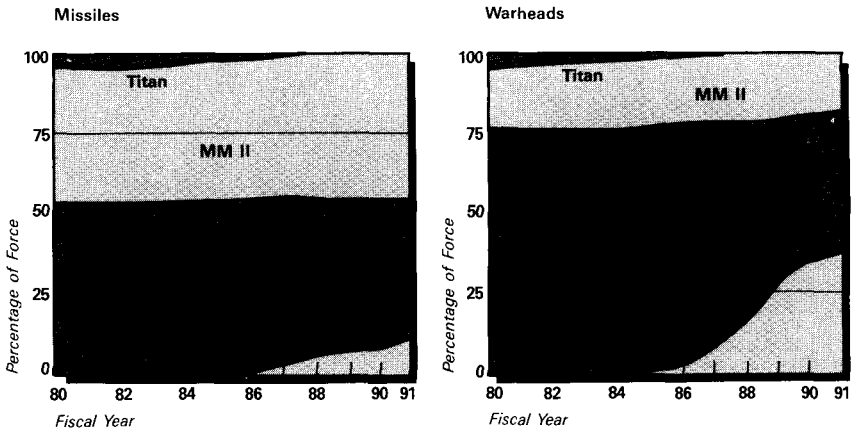
(a) The ICBM Force

The ability of land-based missiles to put time-urgent, hardened targets at risk is essential for strategic deterrence. With that in mind, we are continuing the President's strategic modernization program for the ICBM force by building the Peacekeeper missile, developing a Small ICBM, and investigating advanced basing technology. At the same time, we are maintaining and modernizing the Minuteman force and retiring the aging force of Titan IIs. The last of the Titans will be deactivated in FY 1987. Chart III.B.4.1 shows the projected composition of the ICBM force through FY 1991.

The Peacekeeper has performed exceptionally well in its ten test flights. The first silo launch took place last August from a modified Minuteman III silo at Vandenberg Air Force Base, California. We are currently modifying silos at F. E. Warren Air Force Base in Wyoming, where the first Peacekeepers will be deployed later this year. In keeping with recent congressional limitations, we plan to put only 50 Peacekeepers into existing Minuteman silos. In addition, we will investigate survivable modes for basing the second 50 missiles. The FY 1987 budget includes funds for 21 test missiles and for research on advanced basing modes, as described below.

Research on the Small ICBM continues. This new weapon promises to complicate Soviet attack planning and enhance survivability in an

Chart III.B.4.1
ICBM Force Modernization



era of increasingly accurate Soviet missile forces. The missile's single warhead and potential mobility would make it a low-value target that's hard to find. After vigorous competition among several contractors, we have awarded all of the contracts leading up to full-scale development of the missile and its mobile launcher. Our latest tests indicate that the launcher can achieve satisfactory levels of hardness within the weight constraints demanded by mobility. We are requesting funds to initiate full-scale development of the Small ICBM and hardened mobile launcher in FY 1987.

In the area of advanced basing technology, studies are under way on several potential basing modes for the second 50 Peacekeepers. During FY 1987, we will select one candidate for continued research and development. Much of the basing research could be applied to any future ICBM.

The FY 1987 program continues to replace aging Minuteman components and test equipment.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
Peacekeeper Missiles and Basing				
Development:				
$ Millions	1,631	734	750[b]	—
Construction:[a]				
$ Millions	96	56	28	20
Procurement:				
Quantity	21	12	21	48
$ Millions	2,490.8	1,776.8	1,473.5	2,142.7
Small ICBM and Mobile Launcher				
Development:				
$ Millions	462	624	1,396	2,593

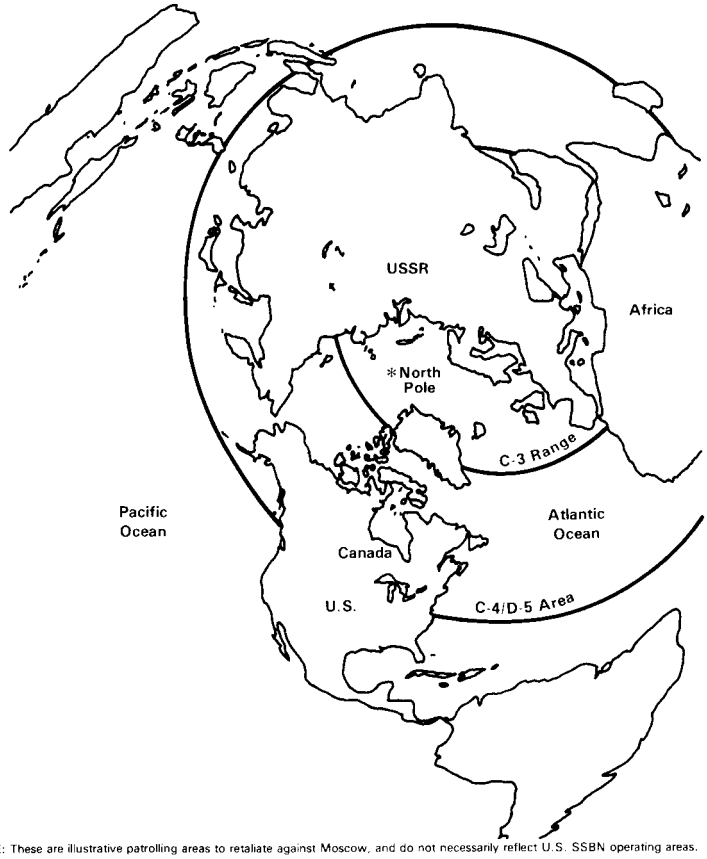
[a] Excludes planning and design, and family housing.
[b] Includes $370 million for second 50 Peacekeeper missile basing mode and $20 million for deep basing.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
Advanced Basing Technology				
Development:				
$ Millions	180	122	—	—
Minuteman Modernization				
Development:				
$ Millions	4.6	5.5	67.5	221.9
Procurement:				
$ Millions	119.9	126.7	105.6	133.4

(b) Sea-Based Strategic Nuclear Forces

Submarine-launched ballistic missiles remain the most survivable element of the strategic triad. Their survivability and post-attack responsiveness make them a potent and stabilizing deterrent to Soviet nuclear attack.

Chart III.B.4.2
Extended Patrolling Area of Newer U.S. SLBMs



NOTE: These are illustrative patrolling areas to retaliate against Moscow, and do not necessarily reflect U.S. SSBN operating areas.

Poseidon ballistic missile submarines (SSBNs) have been the backbone of our submarine-launched ballistic missile force for more than 20 years. In the late 1970s, 12 of these submarines were modified to carry the Trident I (C-4) missile instead of the Poseidon (C-3) carried by the remaining 18 ships. The C-4 has greater range and accuracy than the C-3. The longer range of the newer missile increased the ocean area available to patrolling SSBNs and added flexibility to the sea-based deterrent (see Chart III.B.4.2). Beginning in the early 1990s, the Poseidon submarines will reach their thirtieth year of service, the approximate age at which they must be retired.

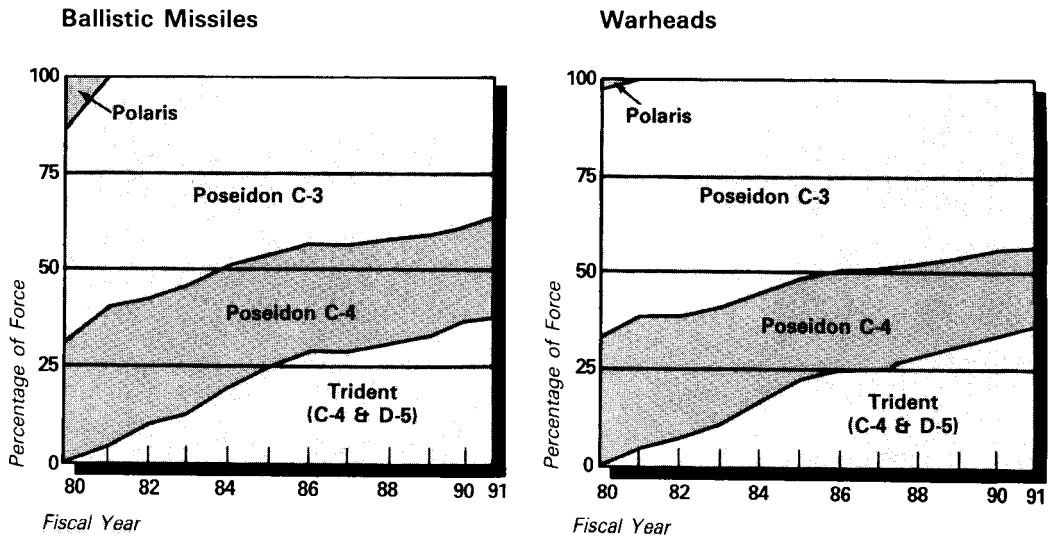
Under the strategic modernization program, we plan to build Trident submarines at the rate of one per year. Six of these SSBNs are already operational, and the seventh began sea trials last September. At that time, consistent with the President's decision regarding adherence to SALT provisions, we began dismantling one Poseidon submarine. That ship, after its missile tubes have been removed, will be converted into a moored training ship and used to provide realistic training for prospective propulsion plant operators on nuclear-powered ships.

The final component of the SSBN modernization program is the Trident II (D-5) missile. Trident II will have a larger payload capacity than the C-4 missile, and it will be the first U.S. SLBM capable of retaliating effectively against hardened Soviet targets. Now in full-scale development, it will be deployed at the end of this decade on the ninth and succeeding Trident submarines. Later, it will be retrofitted into the first eight Tridents. The FY 1987 budget includes funds to procure the first 21 D-5 missiles.

Chart III.B.4.3 shows the projected composition of the sea-based nuclear force through FY 1991.

Chart III.B.4.3

Sea-Based Force Modernization



Finally, we are continuing to deploy nuclear Tomahawk sea-launched cruise missiles (SLCMs) aboard selected Navy ships. These

missiles, through their dispersal aboard many ships, enhance deterrence by complicating an attacker's planning and by augmenting our survivable nuclear reserve force.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
Trident Submarine				
Development:				
$ Millions	32.2	38.2	51.8	86.2
Procurement:				
Quantity	1	1	1	1
$ Millions	1,503.6	1,309.4	1,509.1	1,516.5
Trident I Missile				
Procurement:				
Quantity	—	—	—	—
$ Millions	123.2	34.4	4.7	18.3
Trident II Missile				
Development:				
$ Millions	2,010.8	2,104.4	1,632.9	1,179.8
Procurement:				
Quantity	—	—	21	66
$ Millions	162.9	550.9	1,424.4	2,283.7

(c) The Strategic Bomber and Tanker Force

The flexibility of the manned bomber force will continue to make it an essential element of the triad. Bombers can be launched on warning of an attack to enhance survivability; they can be redirected or recalled after launch; they can seek out and attack moveable targets; and they can be rearmed for follow-on missions. Armed with conventional munitions, strategic bombers can project power to distant points on the globe, sometimes well before the arrival of other conventional forces. They also can conduct surveillance, minelaying, and antiship warfare operations in support of general-purpose naval forces.

Bomber Modernization -- Our bomber modernization programs are designed to use our technological advantage to render Soviet defenses obsolete. Today's force of B-52 and FB-111 bombers has provided a credible deterrent for some time. As Soviet air defenses become more formidable, the B-52s are increasingly less able to survive as penetrating bombers. As part of the President's strategic modernization program, we modified 90 B-52Gs to carry cruise missiles; all of these are now operational. Additionally, beginning in 1985, we began converting our 90 B-52Hs to carry cruise missiles. In 1986, we will begin deploying the B-1B while continuing the B-52H modifications. Toward the end of the decade, the B-1B will become our primary penetrating bomber. The program remains ahead of schedule and within budget, the first five planes having already been delivered.

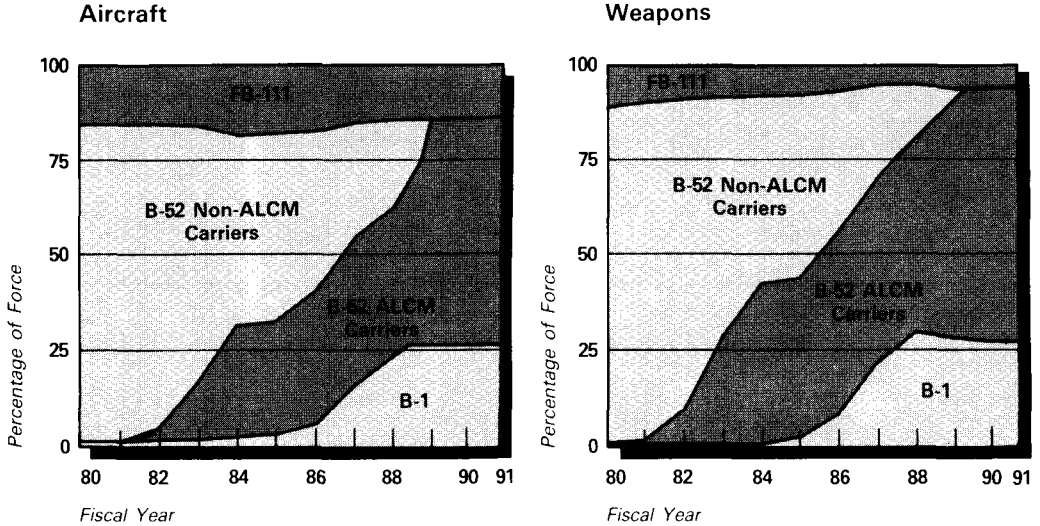
Because Soviet defenses will improve further in the 1990s, the President's program also calls for development of an Advanced Technology Bomber (ATB). We have selected the prime contractor and key members of the ATB development team, and their work is progressing smoothly. While most of the details about this program are classified, the essential point is that the ATB will use low-observable techniques to negate present and projected Soviet air defenses.

ATB technologies represent a major advance of extraordinary military significance.

In addition to the new bombers, we are developing two new bomber-delivered weapons: the advanced cruise missile (ACM) and the short-range attack missile (SRAM II). The ACM will have a greater range than the current cruise missile and will incorporate low-observable technology. Its longer range offers two advantages: B-52s will be able to stand off farther from Soviet defenses and still put distant targets at risk, and the missile itself could circumnavigate some air defenses. Its low-observable design will enhance the missile's ability to penetrate highly defended areas.

The number and types of bombers and bomber-delivered weapons in the program are summarized in Chart III.B.4.4.

Chart III.B.4.4
Bomber Force Modernization

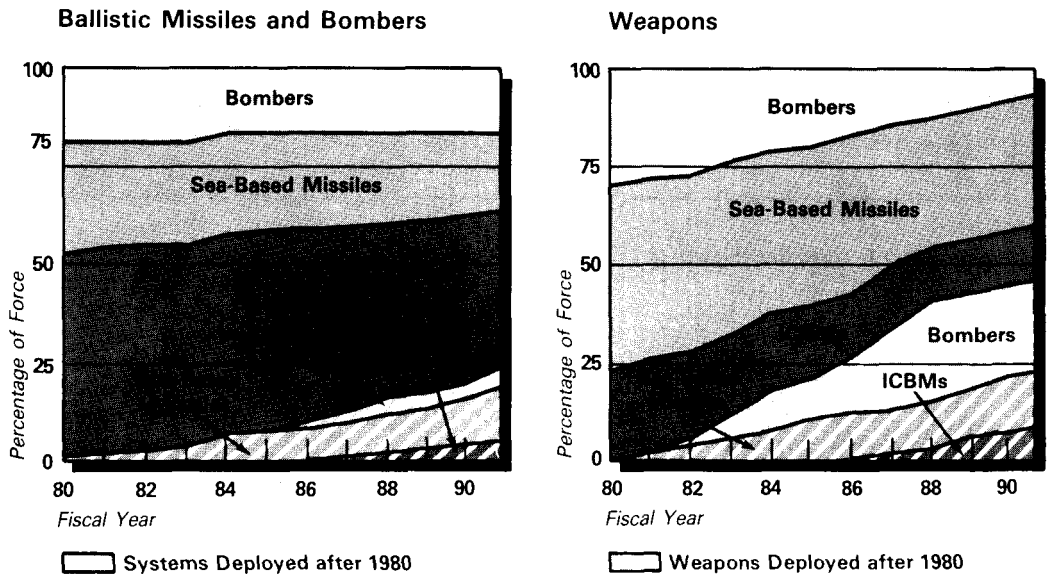


Aerial Tankers -- Aerial refueling is essential to all bomber missions, strategic or conventional. It allows bombers to reach more distant targets, carry heavier payloads, cover greater distances at lower altitude, and fly around enemy air defenses. Tanker forces also provide refueling support for Air Force, Navy, and Marine tactical fighters, cargo aircraft, NATO aircraft, and airborne command posts; they also can serve as transport aircraft. To meet these varied and sometimes simultaneously occurring demands, we are expanding our aerial refueling capability by modernizing existing KC-135As with CFM-56 engines and associated support systems -- the KC-135R program -- and by purchasing new KC-10 cargo/tanker aircraft.

When completed, the KC-135 reengining program will increase the fleet's refueling capability by approximately 50 percent, while reducing operating and maintenance costs. With this modification, the fleet will be able to remain in service well into the next century. The FY 1987 budget includes funds to buy support equipment and engines for 50 aircraft.

Since the KC-10 is being purchased primarily to enhance airlift capabilities, it is discussed in more detail in Chapter III.C, Mobilizing and Deploying the Forces.

Chart III.B.4.5.
Strategic Forces Modernization



(d) Force Structure Modernization

Chart III.B.4.5 shows the changing composition of the strategic offensive forces during the 1980s. By FY 1991, modernized systems

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
B-52 Bomber Modification				
Development:				
$ Millions	17.1	12.8	—	—
Procurement:				
$ Millions	457.7	416.2	413.4	387.5
B-1 Bomber				
Development:				
$ Millions	462.5	217.6	118.7	28.9
Procurement:				
Quantity	34	48	—	—
$ Millions	5,094.9	—	—	—
Air-Launched Cruise Missile				
Development:				
$ Millions	18.9	10.9	6.1	—
Procurement:				
Quantity	—	—	—	—
$ Millions	77.3	32.6	12.4	2.5
KC-135 Mod				
Procurement:				
$ Millions	786.6	902.5	1,077.4	982.7

will constitute almost 25 percent of our operational ballistic missiles and bombers and about 45 percent of our strategic weapons.

(2) Strategic Defensive Forces

We have made significant advances over the last five years in revitalizing our strategic defensive forces. The FY 1987 program carries forward these trends, making long-overdue improvements in the nation's strategic defenses. It updates the air surveillance radars that watch for intruders into North American airspace. It modernizes the interceptor squadrons assigned to the North American air defense mission. It strengthens space surveillance and ballistic missile warning capabilities. It provides for continued development of anti-satellite weapons. And finally, as the centerpiece of strategic defense, the budget continues to support a major research program that is investigating various ways of defending against ballistic missiles.

(a) Strategic Defense Initiative (SDI)

The SDI program was established by the President in 1983 to explore advanced technologies offering the potential for creating highly effective defenses against ballistic missiles launched at the United States or its allies. Such defenses might at first reduce, and ultimately eliminate, the utility of offensive ballistic missiles. It is vital to the future well-being of our nation and its allies that we confer on this initiative a high priority. The SDI program is discussed in detail in Chapter III.G.1.

(b) Air Defenses

We are continuing to replace our aging air defense forces. Improvements in this area are needed to cope with the threat posed by new Soviet bombers and cruise missiles. The Soviets are about to deploy a new intercontinental bomber, the Blackjack, that will complement the long-range Bear-H and the Backfire, already in service. Both the Bear H and the Blackjack are capable of launching long-range cruise missiles against North American targets. At sea, a new submarine-launched cruise missile has just completed testing and could soon be deployed aboard several classes of Soviet attack submarines.

To counter this growing threat, we are installing new air surveillance radars, modernizing the interceptor force, and increasing funding for research into advanced air defenses.

Surveillance Systems -- The air defense radars now monitoring our borders would not likely detect low-flying bombers or air- and sea-launched cruise missiles. To provide such coverage, we are deploying a network of Over-the-Horizon Backscatter (OTH-B) radars. These long-range radars will be able to spot even low-altitude bombers as far away as 1,800 miles from the U.S. coastline. Radars for the three 60° sectors covering approaches to the east coast have already been procured, and one of three radars for the west coast was funded in the FY 1986 budget. We are asking for funds in FY 1987 to procure the last two radars for the west coast. Ultimately, we plan to deploy twelve OTH-B sectors to provide full coverage of the continental United States and Alaska.

While OTH-B radars can provide long-range surveillance to the east, west, and south, their capabilities are limited when looking northward. (This is because the radars "see" incoming objects by

reflecting a high-frequency beam off the ionosphere, which is disturbed by the aurora borealis.) To provide continuous radar coverage to the north, we and our Canadian NORAD partners are replacing the now-obsolete Distant Early Warning (DEW) line with a network of microwave radars, called the North Warning System. The system will consist of 13 long-range, low-maintenance radars, interspersed with 39 short-range, unmanned radars to fill in the gaps in low-altitude coverage. The long-range segment of the network has already been procured, and the FY 1987 budget includes funds to continue development of the short-range installations. A negotiated agreement between the United States and Canada has succeeded in sharing equitably the cost to deploy and operate the system.

Interceptor Forces -- The interceptor force currently consists of 15 squadrons (four active and eleven Air National Guard) that maintain aircraft on ground alert at U.S. airfields. In times of crisis, these forces would be brought to an even higher state of alert, dispersed, and augmented by other available aircraft. Their primary mission in peacetime is to intercept and identify unknown aircraft approaching North American airspace; during a war, they could also provide a limited defense against bombers and cruise missiles.

We have completed modernizing three of the four active squadrons with F-15 interceptors. To ensure that we are obtaining the most effective interceptor force at the lowest cost, we are planning to hold an open competition for production of replacement aircraft for the Air National Guard squadrons. As a cost-saving measure, we will disestablish the fourth active air defense squadron in FY 1987. Its loss will be offset by having some Air National Guard squadrons man additional alert sites. Thus, at the end of our program, we will have a slightly smaller but completely modernized interceptor force for strategic air defense.

Advanced Research -- The SDI research program is examining options for effective ballistic missile defenses; corresponding options for highly effective air defenses will also be needed. Because of projected improvements in future Soviet strategic air forces, it is unlikely that highly capable air defenses could be achieved solely by upgrading programmed forces. Therefore, we are augmenting our air defense research program. The program will draw on some of the technologies being investigated as part of the SDI effort and extend research into new air defense technologies not covered by the SDI.

This program, for which we are requesting $62 million in FY 1987, includes research into new surveillance systems, weapons and weapon carriers, fire control and homing sensors, battle management and C^3 systems, and survivability measures.

(c) Space Defense

The antisatellite (ASAT) program is our primary effort to improve defensive capabilities in space. Its successful completion will deter the Soviets from using their ASAT weapons, which are already operational, while denying them unrestricted use of space for such threatening actions as targeting U.S. forces in wartime.

The ASAT missile, also known as the Air-Launched Miniature Vehicle (ALMV), is designed for use against low-altitude satellites. It will be carried by F-15 aircraft specially equipped for the ASAT mission.

The first test of the ALMV against an object in space was a complete success. The funds requested for FY 1987 will be used to continue the research, development, test, and evaluation phase of the ASAT program and to begin long lead-time material procurement. The program will be conducted consistent with congressional restrictions on testing.

The FY 1987 budget also includes funds to continue work on a space surveillance system to detect threats against U.S. space systems and to monitor Soviet satellites. This system of five ground-based electro-optical sensors will complement existing radars in detecting, tracking, and identifying objects in deep space. In FY 1987, the fourth electro-optical sensor will become operational and work will continue on the fifth site.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
Strategic Defense Initiative				
Development:				
$ Millions	1,397.3	2,759.2	4,802.6	6,290.7
Air Defense:				
Development:				
$ Millions	102.9	105.6	52.9	77.2
Procurement:				
$ Millions	140.1	181.9	192.5	262.9
Space Defense				
Development:				
$ Millions	197.8	199.5	278.0	226.2
Procurement:				
$ Millions	22.2	10.1	33.4	333.7

(3) Strategic Command, Control, and Communications (C^3)

Deterrence requires that strategic C^3 systems be sufficiently effective, reliable, survivable, and redundant to ensure that the National Command Authorities (NCA) receive timely warning of an attack and have an assured means of passing retaliatory orders to our strategic forces. Strategic C^3 systems are also vital to maintaining control over nuclear reserve forces following an attack. The FY 1987-91 program will improve each element of the strategic C^3 system: warning sensors, command centers, and communications systems.

(a) Missile Warning and Attack Assessment Sensors

The survivability of bombers and airborne command posts on ground alert depends on early warning of an attack. Similarly, the President must receive warning in time to consider retaliatory options; he also needs accurate information on the size and scope of an attack in order to select an appropriate response and to control escalation. Satellites would provide the initial indications that an attack was under way, and ground-based radars would confirm the satellite warning data. Both of these components of the missile warning network are being modernized.

Satellite Early Warning System -- Early warning satellites detect ICBM and SLBM launches. As currently deployed satellites reach the end of their useful service life, we are replacing them with new ones with improved survivability and performance features.

PAVE PAWS -- The PAVE PAWS phased-array radar system complements our satellite warning systems and confirms warning of SLBM attacks. The two operational radars on our eastern and western coasts monitor regular Soviet SSBN operating areas. When the two new PAVE PAWS radars -- one in Georgia and the other in Texas -- become operational in FY 1987, we will have closed coverage gaps to the southeast and southwest of our borders and will be able to shut down the aging FSS-7 radar in Florida. With FY 1987 funding, we will also begin increasing the power of the southeast and northwest radars to extend their range and will acquire new data processing equipment at the northeast and northwest sites for system-wide commonality. On completion of the southeast power upgrade, we will shut down the aging FPS-85 radar in Florida. The Perimeter Acquisition Radar Attack Characterization System (PARCS), a phased-array radar in North Dakota, completes our network of SLBM warning radars and also augments the BMEWS network, discussed below.

Ballistic Missile Early Warning System (BMEWS) -- BMEWS radars in Greenland, Alaska, and England would confirm satellite warning of an ICBM attack. Because these radars are expensive to operate and have difficulty distinguishing among large numbers of targets with small radar cross sections, they are being modified with phased-array radars similar to PAVE PAWS. The improved radar at Thule, Greenland, will become operational in FY 1987. The FY 1987 program continues a similar major upgrade at Fylingdales, England, with completion scheduled for FY 1990. In addition to its ICBM-related duties, the Fylingdales radar will improve warning of missile attacks against Western Europe and of SLBM attacks against the United States, while enhancing surveillance of objects in space.

Nuclear Detonation Detection System (NDS) -- To improve our ability to detect and locate nuclear detonations worldwide, we are installing new, more accurate sensors on the satellites of the Navstar Global Positioning System. In a nuclear war, the NDS would determine which targets had been destroyed and would assist in the selection of an appropriate response; in peacetime, it will contribute to nuclear test ban monitoring. We have successfully completed the validation phase of the program; all of the developmental satellites have been launched. The FY 1987 budget supports continued production of the NDS sensors and development of the terminals, which will be installed in various command posts. The system is expected to be fully operational by the end of the decade.

(b) Command Centers

Command centers play a central role in the operation and control of strategic forces. Fixed centers would be our most capable command posts in the early stages of an attack; airborne command posts, more likely to survive an attack, would be a key element of the command structure during and after an attack. We are requesting funds in FY 1987 to continue programs to protect electronic equipment in both fixed and airborne command posts against electromagnetic pulse (EMP) effects. These command posts will also receive more capable automatic data processing equipment.

(c) Communications

Communications systems connect warning sensors to command centers, enable information to be exchanged among command centers, and link the NCA with commanders and commanders with their forces.

Satellite Communications Systems -- The Air Force Satellite Communications (AFSATCOM) system provides low-data-rate links to the Strategic forces. The system consists of ultrahigh frequency (UHF) transponders deployed on a variety of host satellites and AFSATCOM terminals widely distributed among the forces and command centers.

The new Defense Satellite Communications System (DSCS)-III satellites will continue to replace DSCS-II satellites. DSCS-III will provide high-data-rate communications for the strategic forces as well as many other users. For example, the system would be used to transmit missile warning data to command centers and to connect the E-4B airborne command post to the bomber and ICBM forces. Compared with the DSCS-II system, DSCS-III communications are less susceptible to nuclear effects and are more jam resistant. In FY 1987, we will procure two DSCS-III satellites and continue efforts to lessen the susceptibility of the terminals to nuclear effects.

To meet our need for effective, continuous control of nuclear forces both during and after a Soviet nuclear attack, we are deploying the Milstar system. After warning sensors detected an attack, Milstar would provide secure voice communications among key command posts. Milstar terminals deployed with the forces will allow two-way communications with commanders, thereby increasing force effectiveness. Because the satellites will operate at extremely high frequencies (EHF), the system will be considerably less susceptible to the effects of nuclear detonations and jamming than either the AFSATCOM or DSCS-III systems. We are requesting funds in FY 1987 to start construction of the third development satellite, to procure long-lead items for the fourth development satellite, and to continue development of the terminals.

Ground Wave Emergency Network (GWEN) -- The purpose of the Ground Wave Emergency Network is to provide an EMP-resistant communications system to carry warning data to the NCA and retaliatory orders from the NCA to our forces. When the first phase is operational in FY 1987, GWEN will be our only EMP-hardened communications system serving both of these critical NCA requirements. It will increase our confidence that the links between sensors, the NCA, and bomber and tanker bases cannot be disrupted by EMP effects. The second phase of the program will add more transmitters and receivers, and provide an EMP-hardened link to the ICBM force. We expect to procure about 50 more nodes for the network in FY 1987 and to complete the system by the end of the decade.

Miniature Receiver Terminal (MRT) -- To improve communications with strategic bombers in flight, we plan to equip them with miniature terminals for receiving very low frequency (VLF) communications. Though slower than transmissions in the higher frequency bands, VLF communications can be transmitted over much greater distances than can line-of-sight communications, and they are much less susceptible to nuclear effects than are existing satellite and high frequency (HF) communications. We plan to complete flight tests of the terminals in FY 1987 and to begin producing them in early FY 1988.

TACAMO E-6A Aircraft -- To communicate with ballistic missile submarines, the Navy keeps special radio-relay aircraft continuously airborne over the Atlantic and Pacific. These planes, called TACAMO, transmit messages in the VLF band. In FY 1989, we will begin replacing the EC-130s (modified C-130 transports) now flying the TACAMO mission with the faster and longer-range E-6A, a derivative of the Boeing 707. At the same time, we will be outfitting the SSBN force with improved VLF receivers. The E-6A's ability to operate over

vast expanses of the ocean will permit SSBNs to expand their operating areas and still receive messages from the NCA. Building toward a fleet of 15 E-6As, we are requesting funds to procure the third, fourth, and fifth production aircraft in FY 1987. Though the planes will be outfitted initially with communications equipment transferred from EC-130s, they will eventually carry an improved VLF communications system that offers better performance.

Extremely Low Frequency (ELF) Communications -- Submerged submarines must now deploy an antenna at or close to the ocean's surface to receive messages, thus potentially increasing their susceptibility to detection. The use of ELF communications, which can penetrate to great depths, will alleviate this constraint. The ELF communications system will consist of two transmitter sites (in Wisconsin and northern Michigan), operating in electrical synchronism, and receivers aboard submarines. The ELF system's high reliability and continuous transmissions will significantly upgrade peacetime communications to deployed submarines and support the transition to wartime operations. We are installing receivers in some submarines this year so that the full system can be tested in FY 1987. We are requesting funds for FY 1987 to procure receivers for other submarines. The system should be fully operational by the end of FY 1988.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
Strategic Surveillance and Warning				
Development:				
$ Millions	137.8	130.6	226.7	167.5
Procurement:				
Millions	178.4	365.7	644.7	528.9
Strategic Command Centers				
Development:				
$ Millions	289.4	313.8	485.7	501.6
Procurement:				
$ Millions	40.5	78.4	70.7	57.6
Strategic Communications				
Development:				
$ Millions	901.1	948.9	1,299.4	1,127.5
Procurement:				
$ Millions	252.6	189.2	279.9	84.0

d. FY 1987-91 Programs for the Nonstrategic Nuclear Forces

Our programs for the nonstrategic nuclear forces are designed to maintain an effective worldwide deterrent. These programs include modernizing our inventories of tactical nuclear bombs, nuclear artillery, and sea-based missiles, and improving the C^3 systems that support them. Our highest-priority program remains the implementation of the 1979 NATO dual-track decision on longer-range INF missiles. This decision allows NATO to reduce its overall nuclear stockpile but only if the remaining stockpile of weapons were modernized and made survivable.

(1) Longer-Range INF Missiles

In 1979, NATO decided to deploy Pershing II and ground-launched cruise missiles (GLCMs) in Europe in order to fill a gap in the alliance's spectrum of deterrence, a gap exacerbated by the ongoing deployment of Soviet SS-20 missiles. Initial deployment of Pershing IIs and GLCMs began in late 1983 and has proceeded on schedule at a gradual but steady pace. All 108 Pershing IIs and 464 GLCMs are scheduled to be deployed in Belgium, Italy, the Netherlands, the United Kingdom, and West Germany by the end of 1988.

As we proceed with these deployments, we remain committed to arms reduction negotiations. All of the deployments are subject to modification, cancellation, or reversal if an agreement with the Soviet Union is achieved.

(2) Short-Range Nuclear Forces

Short-range nuclear forces provide visible evidence of NATO's commitment to a forward defense of its territory. In the event of a Warsaw Pact attack, the possibility of these weapons' use would inhibit the Pact from massing its ground forces to break through NATO's conventional defenses. If conventional defenses proved inadequate to stem the aggression, short-range nuclear forces could aid in maintaining a cohesive forward defense. Their widespread deployment enhances their survivability and contributes materially to the overall effectiveness of NATO's forces.

Modernization programs for the short-range forces center on the replacement of a significant portion of the 30-year-old W33 (8-inch) and 23-year-old W48 (155mm) nuclear artillery projectiles by the early 1990s. The W33 will be replaced by the W79, and the W48 by the W82. These extended-range projectiles -- enhanced for safety, security, and reliability -- will significantly improve our short-range nuclear forces. We are also evaluating product improvements to ensure the safety and reliability of those W48s and W33s that will remain in the inventory.

The FY 1987 budget continues development of the W82. (All DoD funds required for the W79 program have already been appropriated.) Consistent with congressional direction, all W82s, and those W79 rounds produced from FY 1985 on, will not be of the enhanced radiation type. Consistent with the recommendations of the Supreme Allied Commander Europe on implementation of NATO's October 1983 Montebello Decision, all atomic demolition munitions were withdrawn in 1985 from the NATO stockpile in Europe. In addition to the reduction called for by the Montebello Decision, SACEUR has called for and NATO is pursuing a number of programs to enhance the survivability of remaining weapons.

(3) INF Aircraft

NATO relies on a variety of dual-capable aircraft for nuclear air attack missions. The U.S. component of the force is being modernized with F-16s and F/A-18s, while the NATO allies are adding both Tornados and F-16s to their forces. At the same time, the nuclear munitions available for delivery by both U.S. and allied air forces are being improved in effectiveness, safety, security, and survivability. New storage and transport concepts are being evaluated to determine the most cost-effective means of ensuring the security and survivability of NATO's aircraft and munitions.

(4) Sea-Based Systems

The United States also deploys dual-capable weapons systems aboard a wide variety of ships. In addition to deterring Soviet first use of similar nuclear weapons at sea, U.S. nuclear antiair and antisubmarine weapons provide unique capabilities that serve as a backup for our conventional systems. Nuclear-capable carrier-based aircraft and nuclear Tomahawk sea-launched cruise missiles have three vital roles: contributing to our nuclear reserve force; providing a worldwide deterrent presence; and deterring attacks on our naval forces by Soviet nuclear antiship missiles (especially those aboard Backfire and Badger bombers). U.S. sea-based nuclear forces, along with our land-based forces, support our policy of confronting the Soviet leadership with uncertainty and risk should they contemplate a nuclear war at sea.

The FY 1987 budget supports continued production of the nuclear version of the Tomahawk sea-launched cruise missile. It also provides research and development funds for three new sea-based systems: a significantly improved gravity bomb for carrier aircraft; a new series of antisubmarine weapons; and a nuclear warhead for the SM-2 surface-to-air missile. All of these weapons are projected for deployment beginning in the early 1990s.

(5) C^3 Support for the Nonstrategic Nuclear Forces

Work is progressing on two new communications systems for the nonstrategic nuclear forces in Europe and the Pacific. The first system will link via UHF satellite the command headquarters with their deployed forces. A UHF satellite system is fully operational in the Pacific, and the European UHF system will be completed in FY 1987. The second new system, an HF network, is scheduled for completion in Europe and a portion of the Pacific during FY 1989. This network will provide reliable and secure HF channels over which commanders can communicate with their forces. The HF system is designed to be highly resistant to electronic jamming and to withstand the EMP effects of a nuclear blast. Full-scale production of HF system components is to begin this fiscal year. Plans call for the initial stage of the Pacific HF system to be extended to all the nonstrategic nuclear forces assigned to the Pacific Command.

e. Conclusion

We are pursuing two goals as we implement the nuclear modernization program and the Strategic Defense Initiative. First, we are establishing a stable and credible deterrent to aggression. At the same time, we are increasing incentives for the Soviets to stay at the bargaining tables to negotiate significant arms reductions. Together, modernization and arms reductions will ensure a safer future for us and for our allies.

C. MOBILIZING AND DEPLOYING THE FORCES

1. Introduction

The people and dollars we devote to defense cannot be employed effectively without efficient processes for the rapid transition from peace to war -- mobilization -- and for the timely movement of forces to the battlefield -- deployment. Our ability to mobilize and deploy our forces rapidly is as important to our deterrence strategy as the warfighting capability of the forces themselves. Collectively, these two processes -- mobilization and deployment -- would directly influence the outcome of the first day of any future war, and in large part could determine the victor on the final day. Moreover, the perception of our capabilities with regard to these processes constitutes a key element in the overall deterrence equation.

In the early stages of past wars, we and our allies have endured combat setbacks and territorial losses while mobilizing our industry and creating the force structure required for victory. This bitter experience is the foundation of today's national strategy of maintaining the ability to conduct a forward defense of U.S. and allied interests against enemy aggression.

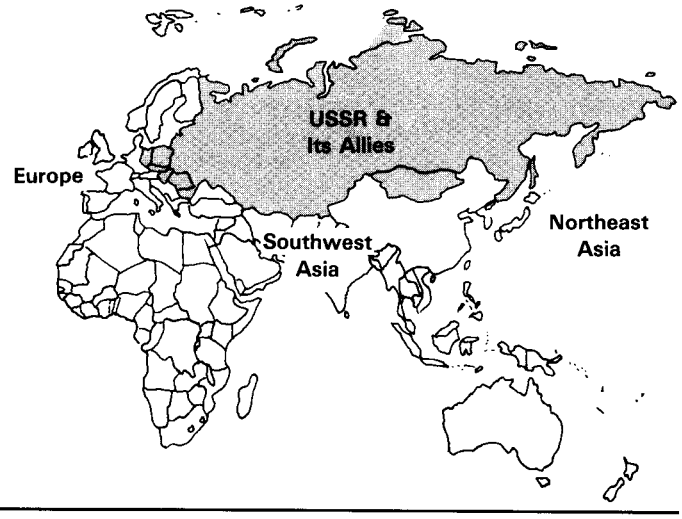
This strategy serves as a powerful deterrent to aggression. To support it, we maintain:

-- An active force, including a considerable presence overseas, of sufficient size to prevail in small-scale conflicts and to serve as the vanguard of our response to large-scale aggression;

-- A reserve force capable of mobilizing quickly in the face of the larger threat; and

-- Projection forces capable of rapidly transporting our active and reserve forces to the location of a conflict.

Chart III.C.1
Soviet Geographic Advantage



The scenario used in sizing our forces is a worldwide conventional conflict with the Soviet Union and its allies. This scenario severely challenges our mobilization planning and deployment capabilities because it recognizes both the ability of the Warsaw Pact to launch a major attack on NATO with very little warning and the significant advantages the Soviets and their allies enjoy through their proximity to several critical theaters -- Europe, Southwest Asia, and Northeast Asia (see Chart III.C.1).

This threat is fundamentally different from the one we faced in World War II, when the United States began at a very low level of preparedness and had several years to build its military capability. It is also different from the situation we faced in Korea and Vietnam, where relatively small portions of our total force became involved. Today, we must be ready to bring to bear the bulk of our forces for a war that could arise on very short warning. This chapter describes the steps we are taking to ensure that we could mobilize and deploy our military forces quickly in an emergency; industrial mobilization efforts are covered in Chapter II-C, Readiness and Sustainability.

2. Military Mobilization

Mobilization encompasses a wide range of activities, including the transition of our military and civilian work forces from a peacetime to a wartime footing and the surging of our industrial base to produce the additional materiel needed in a war.

a. Force-Mix Implications of Military Mobilization

The total force is often thought of only in terms of the Active and Reserve Components, but in reality it also encompasses retired military personnel and the civilians and contractors who work for DoD. In this period of declining youth populations and funding constraints, we need to obtain the best possible mix of all these assets.

b. Mobilization Manpower Assets

The Reserve Components are a key element of the total force, and we are working hard to make the fullest use of them in our mobilization planning. In the event of a war, these forces would deploy alongside Active Component units; their missions demand that they be as capable and ready as their active-duty counterparts. By placing a substantial amount of capability in the reserves, we can hold down the size of our standing forces, and so reduce total operating costs.

In deciding on the proper mix of active and reserve forces, we must, of course, consider more than cost. We must also consider overseas deployments and peacetime missions for which, in many cases, part-time reserve forces are not appropriate. We must ensure there are sufficient Active Component forces on hand to reinforce our forward-deployed units in the early stages of a war, or to deploy to troublespots where U.S. forces are not stationed in peacetime. Each decision about the force mix must be addressed on its own merits, and from a long-term planning and funding perspective. With that in mind, we will continue to work to achieve the optimum active/reserve mix.

During a mobilization, the Individual Ready Reserve (IRR) would be used to bring both active and reserve units to their authorized wartime strength, to replace untrained or partially trained unit members, and to replace initial casualties. The new eight-year military service obligation, in conjunction with enlistment and reenlistment bonuses and more intensive management procedures, is projected to

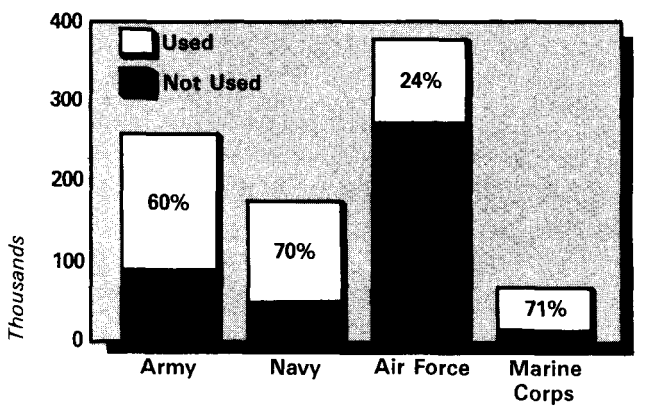
produce an IRR strength of about 650,000 by 1990. However, the longer service obligation will also increase the average length of time many IRR members go without training. Consequently, we have decided to conduct an annual screening to help determine IRR members' skill proficiency, refresher training needs, and mobilization readiness. Annual screenings will also help us keep track of any changes in the members' personal status. These and other initiatives designed to ensure that the IRR will be a useable wartime asset are discussed in greater detail in Chapter III.A, Manning the Force.

It is the department's basic policy to rely increasingly on federal civilian employees and private-sector contractors for services not requiring military personnel. Most of these people provide services related directly to the readiness of operational forces. Large numbers are employed in such fields as logistics, communications, medicine, and equipment maintenance. Because many of them occupy positions overseas that are essential to wartime operations, we have recently taken steps to ensure that they would remain available in an emergency. We are also continuing to increase the size of the civilian work force and to expand our reliance on private-sector contractors so as to free additional military personnel for combat units, thereby reducing active manning requirements.

During the early stages of a major conflict, we would also make extensive use of military retirees for a variety of training and support functions. These well-schooled, multitalented people constitute a pool of trained individuals who are not currently members of either the active force or the Selected Reserve, but who have prior military experience. By law, they can be recalled to active duty by their respective Service secretaries for use as fillers to bring units to wartime strength, to expand the continental United States (CONUS) support base, or to perform other functions in the interest of national defense.

The objective of our management efforts is to ensure that all physically qualified military retirees under age 60 whose skills match a mobilization requirement are preassigned in peacetime to

Chart III.C.2
Retired Manpower Yield — FY 1987



mobilization billets or stations. The Army has already issued preassignment orders to over half its eligible retirees. The Marine Corps has preassigned a small percentage of its retirees, but can link the remainder of its retiree force to vacant wartime positions through automated data systems. The Navy is just beginning the process of matching existing assets with mobilization billets, and the Air Force plans to use retirees selectively only after announcement of a mobilization. The military departments are improving their ability to manage and mobilize this valuable source of highly trained people. Chart III.C.2 illustrates the results of Service efforts to date.

Although significant progress has been made in the total force arena, we are continuing to explore ways to shift appropriate functions to the Reserve and Civilian Components while also increasing our reliance on military retirees.

c. Wartime Manpower Planning System (WARMAPS)

WARMAPS was developed to provide a consistent methodology for establishing time-phased military and civilian manpower requirements and for identifying specific shortfalls during mobilization. The military manpower portion of the system has been in operation since 1979, and the civilian subsystem since 1981. WARMAPS has pinpointed when the Services would experience their peak military manpower shortfalls during a mobilization and highlighted critical skill shortfalls.

Table III.C.1
Wartime Military Manpower Needs at Peak Shortfall (Strength in Thousands)

	Demand	Supply	Peak Shortfall
Army	2,270	2,198	− 72 at M+90
Navy	881	852	− 29 at M+30
Air Force	924	888	− 35 at M+30
Marine Corps	443	439	− 4 at M+150
Overall DoD	**4,118**	**3,989**	−129 at M+30

Source: WARMAPS FY 1987 POM.

Another of its major uses has been to identify the locations and skills of civilian workers the Services would have to recruit to meet wartime needs. Tables III.C.1 and III.C.2 display current WARMAPS data for military and civilian manpower based on a worldwide war of 180 days' duration.

Table III.C.2
Wartime Civilian Manpower Needs Shortfall at M + 30 (Strength in Thousands)

	Demand	Supply	Required New Hires
Army	442	284	158
Navy	327	253	74
Air Force	216	200	16
Marine Corps	23	17	6
Def Agencies	85	85	0
DoD Total[a]	**1,093**	**839**	**254**

Source: WARMAPS FY 1987 Program.
[a]Numbers do not add due to rounding.

We have made good progress over the past few years toward alleviating some of our most serious military manpower shortfalls. The Individual Ready Reserve (IRR) pool is better managed and more readily available. The Individual Mobilization Augmentees (IMA) program has been expanded. Thus, the shortfalls in the first 60 days of a war have been significantly reduced. Because of peacetime draft registration, a large output from the training base could be available beginning about 120 days after a decision to mobilize and begin inductions. Thus, shortfalls after this time period have also been reduced. The large and persistent shortfall across the middle of the scenario (from about M+60 to about M+120, before initial casualties could be replaced) has been only partly alleviated. We have initiated a number of programs (e.g., extension of the military service obligation from six to eight years, IRR enlistment and reenlistment bonuses) that we estimate will solve the remainder of our total military manpower shortfalls by the early 1990s. However, we will still face significant shortfalls in several critical skill areas (e.g., medical personnel, engineers, technicians, mechanics, and construction personnel).

WARMAPS has defined our civilian manpower shortfalls by size, occupation, and geographic location. We are taking steps to ensure that we could quickly recruit the large number of additional workers needed during a mobilization. We are working with industry to identify areas in which we would have to compete for people with critical skills; with the Services to facilitate the sharing and reallocation of resources; and with other agencies to identify additional resource pools (e.g., civil service retirees, National Defense Executive Reserves) from which civilian workers could be drawn.

d. Training Base

In the event of a mobilization, the strength of the military forces would need to be increased quickly. In addition to reservists and other pretrained military manpower, the Services would need to obtain many untrained individuals who, following initial training, could be assigned as replacements or fillers to existing or newly formed units. The Selective Service System is prepared to deliver inductees to the Armed Forces on a schedule based primarily on the capacity of the training base to absorb them.

In conjunction with the Army, we are reviewing our process for determining inductee delivery rates during a mobilization. The objective of this effort is to ensure that the right numbers and types of people would be available to meet wartime requirements. Additionally, we are expanding an existing Army training-base model for application in the other Services.

e. Exercises

Exercises remain our primary vehicle for evaluating and verifying our mobilization plans, policies, and procedures. We use them to identify major problems and deficiencies and to develop solutions. After the plans have been refined, we test them again and again in subsequent exercises to make sure they will work.

Since early 1981, we have devoted considerable effort to improving our ability to carry out a military mobilization. A prototype management tool, called the Crisis Management System, was tested in late 1982 during Exercise PROUD SABER. Based on the results of that test, a number of modifications were made to the system that will be evaluated and refined during forthcoming exercises.

This past fall, we conducted another in a series of national-level mobilization exercises -- PORT CALL. That exercise tested our decisionmaking process -- how well we could coordinate the many complex issues that would have to be presented for decision during a mobilization. Among the specific policies and procedures evaluated were the call-up of selective reserves, the draft, retiree recall, adequacy of the support forces and the industrial base, and recommending a decision to mobilize.

We are putting special emphasis on improving our ability to mobilize our civilian work force. In the 1982 TIDEWATER mini-exercise, we evaluated our ability to hire additional civilian workers to support a military mobilization. We learned that many civilian personnel offices were unaware of how many additional people they would have to hire, or that their installations even had a mobilization mission. Some installations were not familiar with the procedures by which they would have to communicate their civilian hiring needs to state and federal agencies who would aid in providing workers. Finally, some installations did not realize that they would have to compete with other installations and private industry for civilian workers.

A follow-on exercise conducted late last year -- the Bay Area Civilian Mobilization Mini-Exercise -- gave us a chance to measure our progress in correcting these problems. The San Francisco region was chosen because of its high DoD employment (about 43,000), substantial need for new civilian hires in wartime (approximately 16,000), and the presence of all the military departments and the Defense Logistics Agency. Twenty Bay Area installations participated.

While we found we had made significant progress on a number of fronts, the exercise highlighted some additional areas requiring improvement. We need to be more consistent in our estimates of needs; improve our procedures for reporting our requirements to the Department of Labor and the Office of Personnel Management; better coordinate our hiring needs among installations; and work more closely with defense industries with which we would have to compete for people with certain critical skills during a war.

f. Role of the Congress

The Congress has an important role in mobilization. A congressional declaration of national emergency or war is required before we can mobilize all of our reserves, or take a number of other essential mobilization steps. The Congress must also pass specific legislation before we can begin inductions. We have developed standby legislative packages for submission in an emergency.

A specific problem that has been uncovered in recent exercises concerns the need for state emergency forces to help defend U.S. territory in the event the National Guard is mobilized. These forces are not a part of the U.S. Armed Forces. They could be used to provide internal security, disaster relief, and protection from civil disorder. This requirement increases with the prospect of terrorist activity in the United States. As a result, we are submitting legislation that would authorize us to loan or issue military equipment to state defense forces.

3. Force Projection

a. Strategy and Missions

Our projection forces -- airlift, sealift, and prepositioning -- permit the deployment of combat forces when and where they are needed to protect our national interests.

To counter the growing ability of the Soviet-bloc nations to launch simultaneous offensives in Europe, Southwest Asia (SWA), and the Pacific region, our long-term goal is to be able to deploy forces to those areas simultaneously. Because the European and SWA portions of any such deployment would place the heaviest demands on our projection forces, our objectives for those regions are discussed in detail below.

(1) Europe

Rapid reinforcement is central to a successful defense of NATO. Because the Warsaw Pact maintains a large active military force along its borders with Western Europe, and the road and rail networks would support a rapid enemy buildup, NATO must be prepared to reinforce its in-place forces immediately upon receiving firm indication that a Pact buildup had begun. The timely arrival of reinforcing units from the United States would be key to an effective forward defense during the opening weeks of a war, when the risk of a Pact breakthrough would otherwise be high. Our initial reinforcements would include six Army divisions, 60 tactical fighter squadrons, and one Marine Amphibious Brigade -- all of which would have to be delivered to their combat positions, with support detachments, within 10 days of a decision to mobilize. Given the constraints of distance and timing, the forces would have to go by air, and draw on equipment that had been prepositioned for them in Europe in advance.

Once the initial reinforcements were in place, sealift would accomplish most of the remainder of the deployment. Because government-controlled and U.S.-flag shipping can fulfill only a portion of the requirement, we would also use ships from allied civil fleets. Our dependence on allied shipping to reinforce and resupply NATO would increase if we had to deploy forces simultaneously to one or more other theaters.

(2) Southwest Asia

The problems we would face in a SWA deployment differ from those of a NATO reinforcement in three respects: a Soviet threat to SWA would take longer to materialize because of the limited road and rail systems and the greater distances to be traveled; we have no forward-deployed forces in the region; and we, too, would have to contend with limited road and rail systems, as well as limited port facilities. A deployment to SWA would require moving our forces some 8,000 nautical miles by air (nearly double the distance to Europe) and more than 12,000 nautical miles by sea (more than three times as far as to Europe). At their destination, our troops would be operating from ports and airfields that lack the modern cargo-handling equipment found at European facilities. Moreover, since no U.S. combat units are based in SWA in peacetime, we would have to deploy an entire fighting force, with all of its support elements -- and do so very quickly. Although these objectives are challenging, they can be met with the planned improvements to our projection forces, if we have modest support from friendly nations in the region, and if we respond promptly to warning.

Our objective is to be able to deploy a major joint task force and its required support within six weeks of being asked for assistance. Establishing air defenses would have a high priority in the early stages of a deployment, as would securing and protecting ports and airfields. Airlift, combined with prepositioning, would deliver the forces needed to accomplish these tasks. Heavy combat and support forces would follow on fast sealift, with conventional sealift completing the deployment.

b. Contributions of the Various Force Elements

Force deployments have two segments: the intertheater movement of forces and materiel between major geographic regions, or "theaters," and their subsequent intratheater movement. Some aircraft and ships are designed to operate over only one deployment segment, while others can be effectively employed over both. Thus, our new FSS fast sealift ships are reserved for longer, intertheater transits, and our medium-range C-130 aircraft fly only intratheater missions. Amphibious ships, on the other hand, can move Marine forces both to theaters of operation and between operating locations within theaters. Similarly, the new long-range C-17 aircraft will be able to deliver forces over intercontinental distances directly to austere forward locations, thereby obviating the need for additional intratheater lift.

The following sections describe how the various elements of our projection forces would contribute to the movement of military troops and materiel in a deployment.

(1) Prepositioning

Prepositioning, whether ashore or at sea, can sharply reduce response times in the critical early stages of a deployment. For example, by storing the heavy equipment of mechanized divisions in Europe, we can cut each division's transit time from several weeks to two or three days, thereby meeting our early NATO reinforcement objectives.

Although land-based prepositioning programs do much to improve early combat capability, their contributions are restricted to the localities in which materiel has been stored. Prepositioning at sea offers greater flexibility, since ships can be moved from one region to another as the need arises. Sea-based prepositioning programs, therefore, contribute to our ability to deploy forces rapidly to threatened areas worldwide.

(2) Airlift

Airlift, our most flexible and rapid force-projection resource, would play a vital role in a wide range of deployments. In regions such as Southwest Asia, where we maintain only a limited military presence in peacetime, airlift would deliver the initial increment of combat forces. These forces -- comprising tactical air, air defense, and light ground units -- would be needed to establish a foothold and secure an area, including ports and airfields, for the arrival of follow-on forces. Airlift would also deliver our initial reinforcements to Western Europe in the event of a NATO/Warsaw Pact war.

It is simply too expensive to buy enough aircraft to transport heavier forces, such as mechanized and armored units, in the numbers needed for either a European or a Southwest Asian conflict. Yet

we must be able to deploy such units quickly, particularly in a NATO reinforcement, given the heavily armored forces the enemy could bring to bear. This can be achieved only by combining airlift with extensive prepositioning.

The current airlift force includes 304 C-5 and C-141 long-range cargo aircraft, designed primarily to transport materiel to or between theaters of operation, and 44 KC-10 dual-role airlift and aerial-refueling aircraft. The recent activation of C-5 and C-141 units in the Air National Guard and the Air Force Reserve will maintain our mobilization capability while reducing peacetime flying costs and extending the service lives of the aircraft.

Another 518 aircraft of shorter range (C-130s) and some 700 helicopters (CH-46s, CH-47s, CH-53s, and CH-54s) contribute to our capability to move troops and supplies within theaters. In a major deployment, these forces would be augmented by aircraft from our civil fleet, which could contribute 227 passenger and 64 cargo aircraft through the Civil Reserve Air Fleet (CRAF) program.

(3) Sealift

Most Army and Marine Corps units without prepositioned equipment would deploy by sea. Amphibious forces and government-controlled ships maintained in a high state of readiness would be the first to depart. They would be followed by ships from the U.S.-flag fleet and, in a NATO or Korean conflict, by ships committed by our allies. Commercial ships in or near CONUS ports could be loaded quickly enough to take part in the initial deployment; ships at sea, which could take some time to return to port, would carry follow-on reinforcements.

As with airlift, we would combine prepositioning with sealift to shorten response times. Cargo-handling equipment and other items used to unload ships are prepositioned so that the first ships to arrive would have a full support capability awaiting them. Having these assets on hand would be especially important in deployments to regions such as Southwest Asia where port facilities are austere or have been damaged.

Approximately 90 dry cargo ships and 30 tankers are maintained under government control by the Military Sealift Command or by the Maritime Administration in the Ready Reserve Force. Most of these ships could be made available for sealift operations within five to twenty days of notification. Approximately 140 additional cargo ships are in the National Defense Reserve Fleet and could be readied for use within one to three months.

As with airlift, our military sealift forces would be augmented in a major deployment by ships drawn from the civil fleet. The U.S.-flag fleet could supply approximately 200 dry cargo ships and 120 tankers. Of these, about 140 cargo ships and 17 tankers could be made available by charter or government contract under the Sealift Readiness Program, which operates at no direct cost to DoD.

(4) Support at Intermediate Bases and Assistance from Allies

Access to intermediate bases would be important for any deployment, particularly one requiring a large amount of airlift. To move a large force quickly, we would need to make maximum use of the cargo capacity of our airlift fleet. Without access to intermediate bases for refueling, valuable cargo space would have to be sacrificed in

order to carry more fuel, or an already overburdened aerial-refueling force would have to be pressed into additional service. Although the facilities we have received permission to use are adequate for day-to-day operations, many of them require upgrading or expansion to support the heavier airlift demands of a deployment.

The NATO nations and other allies have agreed to contribute a number of ships and aircraft for a U.S. reinforcement of their regions. The European allies have earmarked some 600 ships for this purpose -- the majority of the sealift capacity required for a NATO reinforcement. To augment our airlift force, the allies also would provide nearly 40 long-range cargo transports and a like number of passenger aircraft. Smaller numbers of ships and aircraft would be made available by the Republic of Korea for support of a Korean conflict. These commitments would both speed the arrival of U.S. troops and materiel and free some of our projection forces for use elsewhere.

c. Recent Advances and the Current Program

While our force-projection capabilities were substantial when this decade began, we could not have moved large forces quickly enough to deter Soviet aggression with reasonable confidence, nor could we have deployed major forces to two or more theaters simultaneously. Moreover, we lacked the ability to unload the full range of ships needed to move materiel into less-developed regions. Since 1981, we have made great progress in redressing these deficiencies, adding substantially to our airlift and sealift capacity and prepositioning additional large quantities of materiel abroad.

FY 1986 and FY 1987 will mark the full achievement of major improvements in our force projection capabilities. In FY 1986, we will bring the Maritime Prepositioning Ship (MPS) program fully on line, and complete our Fast Sealift Ship (FSS) program. These programs, together with the improvements made possible in our wartime airlift utilization rates by airframe modifications and expanded stocks of spare parts, greatly increase our ability to deploy large, heavily armed forces rapidly.

The procurement programs for C-5 intertheater heavy-lift aircraft and KC-10 tanker/transport aircraft will be completed in FY 1987 -- reaching the first plateau for expansion of our airlift capability. Additionally, over one million ton miles per day (MTM/D) of cargo capability will be added in FY 1987 through the modification of commercial aircraft under the CRAF Enhancement program. This will bring our total intertheater airlift capability to 46 MTM/D -- over 50 percent more than the 30 MTM/D we had in FY 1981. Further improvements through the C-17 program will bring us to our goal of 66 MTM/D by the turn of the century.

FY 1988 will see the completion of improvements in the Ready Reserve Force and in the ability of the U.S.-flag fleet to contribute to wartime operations. Together with the MPS and FSS programs, these improvements will have more than tripled our sealift capacity since 1981.

The programs described in the remainder of the chapter will bring us far closer to our goal of a fully capable, flexible projection force.

(1) Prepositioning Programs

Over the next five years, we will be adding to our stocks of prepositioned equipment in Europe, while completing a major sea-based program that will enhance our rapid-response capabilities worldwide.

(a) Europe

Prepositioning of U.S. equipment in Europe began in the 1960s in response to U.S. and European concerns that the forces available in the theater in peacetime were inadequate to meet a mobilized Warsaw Pact threat. Since that time, the Pact has increased the size and effectiveness of its forces. As a result, the need for rapid deployment of heavy, mobile forces is at least as great today as it was when the prepositioning program was first proposed.

Under the POMCUS (Prepositioning of Materiel Configured to Unit Sets) program, the Army stores heavy items of equipment -- such as tanks, personnel carriers, and trucks -- in dehumidified warehouses in Europe. The equipment is arranged in unit sets, ready to be moved rapidly out of storage to marshalling areas. This means that only the troops themselves, their personal equipment, and any remaining materiel not suitable for prepositioning -- such as helicopters and electronic gear -- would have to be airlifted to the theater at the outbreak of a crisis. On arriving in Europe, the forces would be trucked to the marshalling areas, where they would pick up their prepositioned equipment, assemble into units, and move forward.

We are committed to provide POMCUS equipment for a total of six U.S.-based Army divisions and supporting units. Four division sets are already in place, and work on the remaining two is under way. New facilities for the fifth and sixth sets in Belgium and the Netherlands became available in 1985 under the NATO Infrastructure program. The first of the new warehouses began receiving equipment last summer. With continued congressional support, we plan to move additional equipment into this newly available storage.

The Air Force also is prepositioning equipment and consumable materiel in Europe to support its in-place and reinforcement squadrons committed to NATO. The materiel in storage ranges from engineering, ground support, and medical equipment to munitions, spare parts, and fuel.

The Marine Corps has begun a land-based prepositioning program in Norway to support a Marine Amphibious Brigade (MAB). Currently, some equipment is in temporary storage. All of the materiel will be prepositioned when NATO-funded permanent storage facilities are completed. The latter construction programs began in FY 1985 and will be concluded by late 1989.

(b) Southwest Asia

Our prepositioning efforts in SWA serve three main objectives: they permit forces to be deployed rapidly to the region; they provide the materiel needed to unload ships in austere ports; and they provide supplies and ammunition to cover expected consumption until sealift can meet demands. We are making extensive use of sea-based prepositioning in the region because we lack land-based sites and because sea-basing provides flexibility to meet the variety of contingencies we might encounter in SWA or elsewhere.

By the end of FY 1985, our prepositioning program for SWA had provided 16 prepositioning ships carrying more than 165,000 short tons of Army, Air Force, and Marine unit equipment and supplies.

(c) Access to Foreign Facilities

We have reached formal agreement with several nations, and are seeking permission from others, to preposition materiel and conduct routine training exercises during peacetime, and to use their facilities during crises. In some cases, it has been necessary to improve existing facilities. These projects were initially funded in FY 1980 and FY 1981, and most will be completed by the end of FY 1987.

By agreement with the United Kingdom, we have enlarged the airfield at Diego Garcia to increase its capacity to support refueling, and have also improved the port facilities. Facilities at Lajes Air Base in the Azores are being upgraded, and we have received Portugal's approval to provide for additional fuel storage at the base. These programs enhance our ability to deploy forces rapidly in a crisis as well as support routine peacetime operations.

(2) Airlift Programs

The FY 1987-91 program continues to give high priority to increasing airlift capacity. By the end of the decade, we will have added 48 C-5Bs and 60 KC-10s to the intertheater fleet and started procuring a major new transport aircraft. As these programs move forward, we will continue to improve the performance of existing aircraft by increasing the cargo contribution of the civil fleet and extending the service life of the military fleet.

(a) Expansion of Airlift Capacity

The C-5B increases our ability to move "outsized" equipment, such as tanks, self-propelled howitzers, surface-to-air missiles, and helicopters. These items would have to be dismantled to be carried by smaller aircraft in military or civilian use, and then reassembled upon arrival in the combat theater -- a time-consuming process that would slow a deployment and introduce significant risks. This problem would be particularly severe in a NATO reinforcement, given the large amount of outsized cargo that would have to be moved within the first 10 days.

The KC-10 adds a new dimension of flexibility to our airlift force because it can operate as a transport aircraft or a tanker, or as both simultaneously. In a NATO reinforcement, it would probably be employed as a transport aircraft for moving bulk and "oversized" cargo. In deployments to other regions, where access to intermediate bases for refueling might be limited, it could be used as a tanker for refueling C-5s and C-141s, or it could operate in a mixed role, carrying fuel for fighters and a limited amount of cargo.

Under the CRAF Enhancement program, we are adding "cargo-convertible" features to 19 wide-bodied passenger aircraft that would be used for military airlift operations during a national emergency. The modifications will enable the planes to be converted to carry military cargo. This program will increase the cargo contribution of the civil fleet by more than 30 percent, while avoiding the cost of acquiring and operating additional military transports of comparable capability.

Although these programs will significantly increase our intertheater airlift capacity, they cannot meet our long-term goals. Consequently, the FY 1987 budget includes a request for funds to continue full-scale engineering development of the C-17 cargo aircraft, working toward a production start in FY 1988. Though smaller than the C-5, the C-17 will be able to carry the full range of military equipment, including all armored vehicles and most other outsized cargo. Unlike other intertheater transports, it will be able to use austere airfields, thereby increasing the amount of cargo that can be delivered directly to operating forces. After its intertheater mission is completed, the C-17 also could be used to augment the C-130 force in moving troops and materiel within theaters.

(b) Improvements to Existing Aircraft

To meet our airlift objectives, we must improve our existing airlift forces as well as acquire additional lift capacity. Programs in this area provide two main types of improvements: aircraft modifications, to fix structural problems or extend service lives; and increases in spare parts stocks, to raise wartime utilization rates.

Intertheater Airlift -- We have nearly completed a major modification program for the C-5A fleet, correcting structural deficiencies in the planes' wings. Upon the program's completion in FY 1987, all 77 C-5A aircraft in the fleet will be able to remain in service well into the 21st century.

We are continuing to build our inventories of spare parts for the C-5A and C-141 fleets. Adequate amounts of these items must be maintained in peacetime if our aircraft are to achieve and sustain their planned surge rates in a crisis.

Intratheater Airlift -- In FY 1984, we began modifying the wings of older-model C-130 aircraft to repair corrosion damage and to correct problems caused by stress. The modifications to the "A" models will be completed during regularly scheduled depot maintenance periods in FY 1986; work on the other models will be completed in FY 1989. With these refurbishments, the "A" models will be able to remain in service through the mid-1990s, and the later models into the next century.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
C-5				
Procurement:				
Quantity	8	16	21	—
$ Millions	1,722.8	2,158.6	1,953.8	—
KC-10				
Procurement:				
Quantity	8	12	8	—
$ Millions	601.5	486.7	104.4	—
CRAF Enhancement				
Procurement:				
Quantity	—	—	—	—
$ Millions	128.9	158.8	—	—

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
C-17 Cargo Aircraft				
Development:				
$ Millions	120.0	372.8	612.3	901.9
Procurement:				
Quantity	—	—	—	2
$ Millions	—	—	217.3	1,382.8

(3) Strategic Sealift Programs

Sealift is vital for projecting and sustaining the full range of combat and support forces. In a major deployment, it would deliver most of our forces and cargo, including much of the nonprepositioned equipment for heavy divisions and support units, as well as the bulk of our ammunition and other supplies.

(a) Maritime Prepositioning Ships

The Maritime Prepositioning Ship (MPS) program provides one of our most dramatic improvements in rapid force projection. Thirteen chartered ships are loaded with equipment and supplies for three Marine Amphibious Brigades, each capable of conducting highly mobile mechanized operations. The ships are maintained at locations from which they could depart for troublespots on very short notice. The troops themselves and any residual equipment would be airlifted to the theater, where they would draw their combat gear from the MPS. Once unloaded, the ships could be used to meet tactical (intratheater) or strategic sealift requirements.

The first MPS squadron went on station in the Atlantic in 1985. A second squadron deployed to the Indian Ocean in late 1985, and the third will be deployed to the Pacific in 1986.

(b) Ready Reserve Force

As noted earlier, we have begun a program to expand the Ready Reserve Force (RRF), a part of the National Defense Reserve Fleet. Current plans call for the force to grow to 116 ships (100 cargo ships and 16 tankers) by the early 1990s. This increase of 39 ships over previously planned levels was necessitated by a continuing decline in the capability of the civil fleet to carry military equipment.

This important force can be made available for strategic sealift operations on five to twenty days' notice, without disrupting routine commerce. In a major crisis, RRF ships would provide some of our earliest available strategic sealift. We also could use the ships for smaller contingencies not requiring augmentation from the U.S.-flag fleet.

(c) Civil Reserve Auxiliary Fleet Ships (CRAFTS)

It is expensive to maintain the large number of militarily useful merchant ships needed in the Ready Reserve Force to offset a declining U.S.-flag fleet. Moreover, while the RRF ensures an adequate number

of readily available ships, the lay-up of ships does not stimulate growth of the U.S.-flag fleet, maintain desired shipyard work levels, or provide needed employment for merchant marine officers and seamen. This year, for the first time, we are exploring the possibility of supplementing our sealift capabilities through a civil reserve auxiliary fleet.

The CRAFTS program, similar in concept to the Air Force's CRAF program, will incorporate sealift enhancement features in privately owned commercial ships during their design and construction in U.S. yards. The Navy would pay, up front, for the installation of sealift enhancement features, for their maintenance over the following 15 years, as well as any operating penalty (fuel costs) due to increased dead weight. CRAFTS could reduce the number of ships needed for the RRF while stimulating U.S. shipbuilding, and providing increased employment for merchant mariners.

(d) Containership Utilization

In their operations to recapture the Falkland Islands, the British found breakbulk ships to be the most useful vessels for delivering cargo. These ships carry their own cranes and can accommodate the full range of military cargo. With the trend toward containerization in the maritime industry, however, breakbulk ships have become scarce. While the greater use of containerships has substantially increased shipping productivity, it has put into commercial service a class of ship with limited utility for military operations. Many items of military equipment are not suitable for containerization; moreover, most containerships are not self-supporting and require modern ports with extensive crane facilities to load or discharge cargo.

The Navy has developed two techniques for giving containerships a breakbulk capability. One uses container-sized platforms, called "flat racks," to build a tier of decks for carrying cargo. The racks fit into the standard container guides and can support even the heaviest military equipment. In essence, they function as portable decks that are loaded and unloaded with the cargo they carry. Alternatively, selected containerships can be fitted with large structures, called "sea sheds," that create a cargo hold accessible from the main deck. Installed in reinforced container guides, sea sheds are strong enough to carry the full range of military cargo and have a work-through floor allowing the cargo to be unloaded without removing the sheds themselves. Our goal is to buy enough flat racks and sea sheds to outfit approximately 50 containerships.

(e) Sealift Discharge

A deployment to SWA could well require unloading ships in austere or damaged ports, or in areas lacking port facilities. The Army and Navy are working together to improve their ability to deliver forces under these conditions. Key programs supporting that effort include the procurement of transportable barges for unloading ships unable to navigate in shallow water; mobile piers; portable facilities for unloading petroleum, oil, and lubricants (POL) from tankers; portable ramps for removing cargo from roll-on/roll-off ships; and 12 auxiliary crane ships (TACS) for unloading "non-self-sustaining" containerships.

	FY 1985 Actual Funding	FY 1986 Planned Funding	FY 1987 Proposed Funding	FY 1988 Proposed for Authorization
Ready Reserve Force				
Procurement:				
Quantity[a]	6	13	—	—
$ Millions	31.0	228.4	27.8	50.4
Flat Racks and Sea Sheds				
Procurement:				
Quantity	160	997	1,020	807
$ Millions	22.3	52.6	29.7	12.3
TACS				
Procurement:				
Quantity	1	3	2	2
$ Milionss	30.5	82.5	61.1	59.9
Sealift Discharge				
Procurement:				
$ Millions (Navy)	58.1	73.0	33.0	41.0
$ Millions (Army)	61.0	47.0	107.5	68.1

[a]Quantity may vary depending on actual unit costs at time of purchase.

(4) Command, Control, and Communications (C^3) Support

Work continues on a number of improvements in the C^3 systems serving the airlift and sealift fleets. The high-frequency radios aboard long-range military transport aircraft are being upgraded, and commercial ships that would carry military cargo in a war are receiving more capable and secure communications equipment. In addition, automated transportation planning and C^3 systems, including the Joint Deployment System, are in development. These latter systems will contain master data files and computer models for use in formulating contingency plans; in a crisis, they would provide up-to-the-minute information to commanders making deployment decisions.

4. Conclusion

The proximity of the Soviets and their allies to several regions of critical importance to the United States and their ability to field large forces on short notice pose enormous challenges to our ability to mobilize and deploy our forces. We have recognized the serious shortfalls in our capability and have begun a series of programs to correct them.

Through WARMAPS, we have achieved a more realistic understanding of our mobilization manpower requirements and capabilities. Recent exercises have identified the problems we would face in an actual mobilization, and have led us to improve and strengthen our plans. In particular, improved management of our reserves and initiatives to take better advantage of the capabilities of our retirees, federal civilian employees, and contractors have greatly increased our ability to mobilize rapidly.

The procurement of additional C-5s and KC-10s and of the new C-17 aircraft, along with CRAF Enhancement and extensive prepositioning, will greatly increase the capability and flexibility of our airlift forces. Completion of the Maritime Prepositioning Ships program will enable us to deploy a Marine force very rapidly to distant theaters of conflict; completion of the fast sealift program will do the same for Army forces. The expansion of the Ready Reserve Force, coupled with continued purchases of equipment to unload ships in austere or damaged ports, will enhance our capability to deploy combat forces and materiel by sea.

The programs we have planned for the next five years will move us considerably closer to our goal of being able to mobilize our forces quickly and deploy them rapidly to distant theaters. While further improvements will be necessary, these programs will greatly enhance both the deterrent value and the warfighting strength of our forces.

D. COMMAND, CONTROL, COMMUNICATIONS, AND INTELLIGENCE (C^3I)

1. Introduction

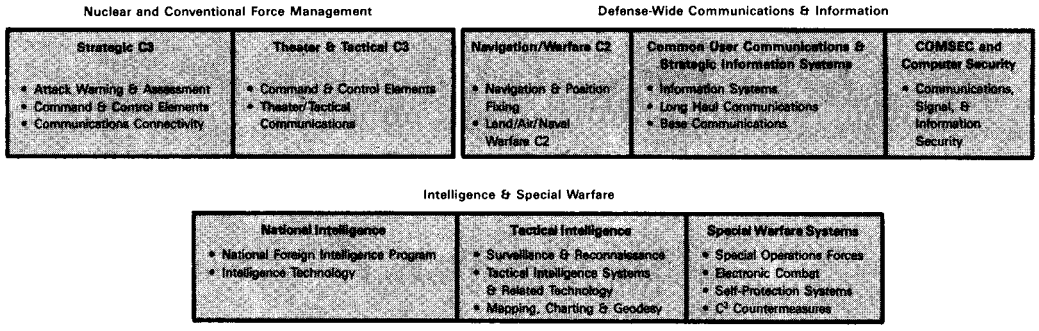
C^3I systems are the critical information and control links necessary to support command decisionmaking and manage our forces during peacetime and periods of crisis. These integrated support systems consist of sensor arrays, communications networks, information processing and display systems, and command facilities.

Our basic national strategy is one of deterrence of war through the defensive use of strategic, nonstrategic nuclear, and conventional military power. Since this commitment requires our military forces to react quickly if an enemy takes the first initiative, heavy reliance is placed on C^3I systems that are capable of rapid and effective force management. A primary goal of DoD is to provide survivable, secure, endurable, and interoperable C^3I systems to maximize the performance of our forces and weapons systems, and, should deterrence fail, to provide the means to control the escalation of conflict and to terminate hostilities rapidly on terms favorable to the United States.

The Congress directed that all C^3I management functions be centralized under an Assistant Secretary of Defense to promote a more efficient management mechanism for directing the evolution of C^3I systems from initial policy formulation through final acquisition. In order to support this initiative and emphasize a total C^3I/weapon systems approach to our development and acquisition activities, C^3I programs are grouped in accordance with the management structure shown in the following chart.

Chart III.D.1

Command, Control, Communications, and Intelligence Management Structure



2. Strategic C^3

Strategic C^3 allows the translation of employment plans into mission capabilities and is, therefore, an essential element of our deterrence strategy. (This topic is discussed in greater detail in Chapter III.B.4.) To be successful, our strategic C^3 programs must provide the means to link widely dispersed strategic units into an integrated, effective force. Strategic C^3 programs provide three fundamental capabilities: attack warning and attack assessment, command decisionmaking, and strategic communications connectivity.

In the attack warning/attack assessment area, we are procuring additional PAVE PAWS radars to be operational in calendar years 1986 and 1987. Also, upgrades to the Thule BMEWS radar are under way, and work is now ongoing to replace the antiquated detection and tracking radars with a new ultrahigh frequency (UHF) phased-array radar. These upgrades will significantly enhance the quality and detail of missile warning information available for decisionmaking in the event of a nuclear attack by intercontinental ballistic missiles (ICBMs) and submarine-launched ballistic missiles (SLBMs). Similar efforts are programmed for the Fylingdales BMEWS radar in England beginning in FY 1986.

In the atmospheric threat surveillance area, the existing Distant Early Warning (DEW) line is being totally replaced. This replacement, called the North Warning System, will result in a substantially improved capability to detect modern aircraft and cruise missiles across the entire North American boundary. The North Warning System, together with the new Over-the-Horizon Backscatter (OTH-B) radars planned for the east, west, and southern United States, will provide complete contiguous surveillance coverage of air-breathing threats and timely warning of bomber or cruise missile attacks on North America.

In the command decisionmaking area, we are continuing to upgrade the survivability and capability of those command centers that would direct U.S. strategic forces during all phases of operations, from low-level crises through nuclear conflict over an extended timeframe. A significant improvement in the survivability of these capabilities has been realized with the delivery of four E-4B National Emergency Airborne Command Posts (NEACP) to serve the National Command Authorities (NCA) during crisis or war.

Our strategic communications programs are structured to provide improved communications and assured connectivity between sensor sites, command locations, and nuclear capable forces. In both the strategic ground-based and the satellite communications (SATCOM) areas, we are continuing to make improvements in the quantity, quality, and cost-effectiveness of our programs, with particular attention being focused on increased capacity, survivability, and endurance. One example of our progress is the implementation of the second phase of the Ground Wave Emergency Network (GWEN). Another is the replacement of the EC-130 TACAMO aircraft with the E-6A. Its greater range, speed, and endurance will significantly enhance the TACAMO mission.

3. Theater and Tactical C^3

Theater and tactical C^3 systems are essential to military commanders for planning, directing, controlling, and operating their forces, including nuclear capable forces, in a hostile environment. Our main objectives in this mission area are to:

-- Provide flexible, reliable, secure, and enduring tactical C^3 systems;

-- Provide interoperable and connective force management assets;

-- Give our forces the capability of resisting and countering the electronic threat;

-- Provide improved automation for tactical C^2;

-- Integrate C^3 throughout weapons systems developments;

-- Emphasize secure, jam-resistant, and interoperable voice/data communications;

-- Provide improved interoperable identification systems; and

-- Deploy a precise worldwide, all weather, jam-resistant navigation capability.

Several of our theater and tactical C^3 systems have completed the development phase and are in production. Examples include: the majority of our TRI-TAC program equipment; Single Channel Ground and Airborne Radio Systems (SINCGARS); improved fleet telecommunications equipment; ground mobile forces satellite equipment; and the Position, Location, and Reporting System (PLRS).

DoD has long recognized the importance of interoperability among the four Services and its allies. In this regard, we have recently established the Joint Tactical Command, Control, and Communications Agency (JTC^3A) to develop technical standards and the long-range joint tactical C^3 architecture needed to ensure interoperability.

Another major milestone in promoting interoperability was achieved with the development of a NATO Identification System (NIS), the Mark XV Combat Identification System, to distinguish aircraft reliably as friend-or-foe. After years of debate, the United States and Germany have reached an agreement on the operating parameters to be used for the NIS; this agreement was subsequently endorsed by NATO. Work will proceed in FY 1986 to define, with other NATO nations, the detailed technical parameters for the system, leading toward a test flight of the system by the early 1990s.

Of particular note was the first successful flight test of the Joint Tactical Information Distribution System (JTIDS) terminal on an F-15 aircraft during 1985. This success clears the way for resilient interoperable data and voice jam-resistant communications that will serve our forces well into the next century.

To ensure reliable and secure beyond line of sight communications in a wartime environment, we must exploit every available technology. This includes satellite communications and other systems in the inherently long-haul frequency spectrum, including high frequency (HF). Systems in the lower frequency spectrum such as HF permit long-haul communications without the additional vulnerability of a relay system. In order to ensure reliable HF communications, we plan to award a full-scale engineering development contract for the High Frequency Antijam Program in the coming year.

The last NATO Airborne Warning and Control System (AWACS) E-3A was delivered in April 1985. This completed the delivery of 18 NATO E-3As in this historic cooperative $1.8 billion program. These aircraft are now operational in the European theater, manned and maintained by international crews. They are providing an unprecedented warning and control capability in Europe.

Our commercial technology has advanced at a remarkable pace over the last decade. We have recognized an opportunity to capitalize on this technology for our tactical forces. By applying nondevelopment items to military use, we can shorten the cost and acquisition time for many major procurements. An example of this approach is the multi-billion dollar Mobile Subscriber Equipment (MSE) program. This program will provide improved mobile communications to our tactical

forces in less than one-third of the standard development time and at a significant cost-savings to the government.

4. Defense-Wide Communications and Information System

Defense-wide systems support both nuclear and conventional force management. Efforts to improve the capabilities of our defense-wide communications and information systems focus on navigation/warfare C^2, common-user communications, and strategic information systems.

a. Navigation/Warfare C^2

The Navstar/Global Positioning System (GPS) is a major effort to improve our navigational capabilities. It is a space-based system providing highly accurate position, velocity, and time information. The fixed price 28 satellite production line is now in full operation, and we have begun the acquisition of other sensors for deployment on GPS satellites that will accurately detect and locate nuclear detonations on a global basis. Deployment of the initial 18 satellite network scheduled for calendar year 1988 will provide a global, three-dimensional, navigation/position fixing and timing capability.

b. Common-User Communications and Strategic Information Systems

Common-user communications and strategic information systems include: the capabilities required for information processing, storage, retrieval, and display for strategic command and control processes; the Defense Communications System that provides global telecommunications service to DoD; and all DoD support and base communications programs.

The ADP element of the Worldwide Military Command and Control System (WWMCCS) supports the National Command Authorities and key military commanders. The WWMCCS Information System (WIS) is DoD's modernization program for both hardware and software. The WIS is being developed and fielded in "blocks" of capabilities. Block A provides the technical foundation for the entire WIS program. Developmental testing and evaluation along with integration testing will be completed on the initial WIS capabilities (Block A) in FY 1987. Our strategic modernization efforts also include upgrades to the NORAD-Cheyenne Mountain Complex ADP equipment needed to satisfy C^3I requirements unique to the attack warning/attack assessment function and to various types of operations in space.

The Defense Communications System (DCS) consists of both government and commercial facilities. We are pursuing the following major programs to improve the capabilities of the DCS:

(1) The Defense Switched Network (DSN)

The DSN is DoD's next generation, long-distance telephone service. Phase I of the DSN will be fully operational by FY 1987 and will provide telephone, data, and video services in portions of the Western Hemisphere. Efforts will begin to replace AUTOVON by exploiting the public switched network and commercially available technology. Overseas acquisition will be completed and a major portion of Phase I will be operational in Europe and the Pacific.

(2) Integrated AUTODIN System (IAS)

The IAS will replace the 20-year-old Automatic Digital Network (AUTODIN) system that has been DoD's primary means of transmitting and receiving formal message traffic. IAS consists of three components: the Defense Data Network (DDN), the Inter-Service/Agency Automated Message Processing Exchange (I-S/A AMPE), and the Blacker program. DDN replaces the analog transmission media of AUTODIN with a common user long-haul digital transmission media. I-S/A AMPE replaces the antiquated AUTODIN switching centers and user terminal equipment. The Blacker program provides end-to-end multilevel security protection. Each component begins fielding in 1989 with full system operational capability achieved in the mid-1990s.

(3) Secure Voice System (SVS)

The SVS will replace the Automatic Secure Voice Communications System (AUTOSEVOCOM), which currently provides DoD's primary secure voice capability. SVS consists of three components: the Secure Voice Improvement Program (SVIP), the Secure Conferencing Project (SCP), and the Red Switch Project (RSP). SVIP will provide new secure telephone units (STU-III) and interface devices. SCP will provide a worldwide secure voice and graphics conferencing capability. The RSP provides automatic secure telephone switching and tactical interfacing for the NMCC, ANMCC, and CINC command centers. Each component is in a different development and acquisition stage. Full system operational capability will be achieved in the mid-1990s.

c. Communications and Computer Security

Communications Security (COMSEC) is directed at fulfilling two basic objectives: the development of reliable and economical cryptographic systems for meeting the needs of the military departments and agencies of the federal government, and the development of improved cryptographic principles, techniques, and technologies required to maintain and enhance the secure receipt of U.S. communications in the face of increasingly sophisticated threats. We are continuing to implement protective measures to deny unauthorized persons access to national security information from U.S. telecommunications. As a part of this effort, we will begin the acquisition of small, relatively inexpensive secure telephones for installation throughout the federal government. Other initiatives focus on data and network security, nuclear release verification, the space program, and COMSEC technology development.

The DoD computer security program is designed to improve the security posture of defense computer systems. DoD has played a lead role in the National Telecommunications Information System Security Committee (NTISSC) established by the President. This group is responsible for policy and programs for the protection of national security information across all federal departments and agencies. In addition, work on a guideline entitled "DoD Trusted Computer System Evaluation Criteria" was recently completed. Our plan is to use this guide as a standard to assist in evaluating the effectiveness of computer safeguards for defense applications. Also, DoD is developing guidelines that will make it easier to determine and specify the level of security that a system needs when generating requests for procurements or acquisitions. Moreover, we are setting up an extensive vulnerability reporting program aimed at correcting weaknesses in DoD computer systems. Finally, policy directives and instructions are being updated and streamlined to reflect the emphasis on computer security.

5. Intelligence

The need for expanded intelligence support has become increasingly important as the worldwide threat to U.S. interests widens. The DoD intelligence structure is designed to collect and process operationally significant military information and disseminate the results to national, departmental, and tactical users, allowing decisionmakers to respond to military, diplomatic, and economic developments. Intelligence also permits weapons systems designers and developers, along with military strategists, to improve warfighting equipment and to update warfighting plans and concepts.

Our intelligence activities are accounted for in two separate, but related programs; the National Foreign Intelligence Program (NFIP) and Tactical Intelligence and Related Activities (TIARA). The Director of Central Intelligence, under Presidential direction, provides guidance and manages the overall NFIP. TIARA programs, under OSD oversight, are developed and managed by the Services and agencies in response to operational commanders' intelligence requirements. To strengthen interaction, an NFIP/TIARA Review Board was established this year to review interoperability, NFIP/TIARA technology transfer, and to ensure that there is no unnecessary duplication.

The overall goal for the intelligence program is to support user requirements at all levels. In this regard, we must ensure that the intelligence support structure essential for military operations is compatible with theater and Service C^3I architectures, interoperable with Service systems, supported with assured wartime communications, and as survivable as the commands and forces supported.

To accomplish this we have implemented a multilevel approach. With the unified and specified commands, we are developing integrated intelligence architectures under the Theater Intelligence Architecture Program (TIAP). Specific high-priority initiatives are also being pursued, such as imagery integration under the Imagery Acquisition and Management Plan (IAMP) and communications support under the Intelligence Communications Architecture (INCA) program.

Recognizing that future conflicts may well entail low-intensity warfare in less developed regions, we are developing capabilities to support governments seeking U.S. assistance. In Central America, we have implemented an intelligence capability that has significantly increased the effectiveness of friendly forces. For example, Remotely Piloted Vehicles (RPVs) were deployed in a relatively short time, allowing much greater surveillance capability than previously possible. Efforts such as these enable friendly nations to help themselves against externally supported aggression, while permitting the United States to maintain a low profile.

In like manner, we are expanding our intelligence capabilities to respond to the ever widening range of threats. We are developing capabilities in support of coalition warfare to share tactical intelligence with our NATO allies under the Battlefield Information Collection and Exploitation Systems (BICES) concept. We are also pursuing greater interoperability for our own forces. As an example, the Army has developed the Technical Control and Analysis Center (TCAC) to process signals intelligence (SIGINT) information for tactical units deployed in the field. The Marine Corps has used the system on a trial basis and is now developing a program to procure these systems so as to be able to support their own needs, at the same time ensuring an effective degree of interoperability. Similarly, we have improved the capabilities of the U.S. Central Command with the FY 1985

fielding of an improved intelligence processing/communications interface system. Also in FY 1985, we began fielding ASARS II (an advanced synthetic aperture radar system for the TR-1 aircraft) in the European theater.

In the coming years, we will develop and field advanced collection platforms and sensors. RPVs, with their many-faceted capabilities, will begin to enter the inventory. Sensor packages will give the field commander the ability to look deeper, with greater accuracy, and in a more timely manner. Near-real-time intelligence, through the automated fusion of large amounts of data, will become a reality. Comparable enhancements in intelligence training systems and investment in our foreign language programs are also being stressed. Accordingly, our ability to support the needs of users of intelligence, from national leaders to military field commanders, will significantly expand over the next several years as programs currently under development enter our military inventory.

Responsibility for the independent monitoring, review, and inspection of DoD intelligence and counterintelligence activities to ensure their propriety and legality is assigned to the Assistant to the Secretary of Defense for Intelligence Oversight (ATSD(IO)). The ATSD(IO) not only conducts worldwide inspections of DoD intelligence elements, but also oversees the inspections of intelligence units by the Inspectors General of the Services and defense agencies. During the past year, the ATSD(IO) conducted 141 inspections of DoD intelligence elements and reviewed the results of 52 additional inspections by the IGs of NSA, DIA, and Service intelligence organizations. The ATSD(IO) also evaluated inquiries into allegations of questionable activities to assure that the investigations were rigorously and thoroughly accomplished, and that appropriate corrective measures were implemented. Intelligence components of the military departments and defense agencies report to the ATSD(IO) the results of inquiries into allegations of illegality or impropriety, as well as activities undertaken to assure compliance with Executive Order 12333, "United States Intelligence Activities," and DoD policies.

6. Special Warfare Systems

Special Warfare Systems (SWS) deal with special operations, counterterrorism, tactical deception, and electronic combat. C^3I special operations efforts include the coordination and oversight of research and development (R&D) efforts for special operations and counterterrorism. We are applying new technology to specialized equipment for special operations and initiating programs to accommodate the longer-term R&D needs of special operations.

Electronic combat (EC) involves military action using electromagnetic energy to determine, exploit, reduce, or prevent hostile use of the electromagnetic spectrum while retaining friendly uninterrupted use of this resource. The recently published DoD Electronic Warfare Plan is an important first step toward achieving an improved, integrated EC acquisition and investment strategy that provides the framework for future EC development.

Two major programs for threat warning and self-protection are the Airborne Self-Protection Jammer (ASPJ) for our frontline fighter aircraft, such as the F/A-18 and F-16, and the Integrated Electronic Warfare System (INEWS). INEWS will provide a generic, next generation EC subsystem that will be integrated with other avionics subsystems to provide crew warning and countermeasures response for combat aircraft operational in the post-1990 time-frame.

Standoff and escort jamming complements our self-protection systems by degrading enemy early warning and ground control intercept sensors. The two main support aircraft used for this purpose are the EA-6B and the EF-111.

C^3 Countermeasures (C^3CM) is a strategy that integrates four fundamental approaches: destruction, disruption, deception, and denial of information to hostile C^3 and intelligence systems, while protecting friendly C^3 systems. We have completed development and commenced deployment of the COMPASS CALL communications jamming aircraft and entered full-scale engineering development of the AN/ALQ-149 communications jammer for the EA-6B ADVCAP aircraft.

7. Conclusion

Making our strategy of deterrence more effective requires a continued commitment to eliminating vulnerabilities in our C^3I systems. In view of the demands placed on C^3I by the multilayered aspects of deterrence, it is essential that the survivability and endurance of our C^3I systems be enhanced.

During the past year, we have made substantial progress in reducing weaknesses in our C^3I systems and, in turn, strengthening our C^3I capabilities. Being less visible than other aspects of our modernization effort, it could be tempting, as was sometimes done in the past, to overlook shortcomings in the area of C^3I. However, as evidenced by the emphasis the President's strategic modernization program places on C^3I and recent allocation of funds to improve the C^3I program, we are firmly dedicated to providing the enhanced C^3I capabilities necessary for effective and enduring force management under all conditions. The achievement of these capabilities not only requires the continued investment of resources, but also the dedicated commitment to maintain existing and promote future management initiatives directed at fielding an affordable mix of survivable C^3I systems able to meet an evolving global threat.

E. PREPARING TOMORROW'S FORCES — RESEARCH AND ADVANCED DEVELOPMENT

1. Introduction

A credible and stable deterrence strategy presupposes continued research and development of systems designed to preclude any hostile nation from acquiring a destabilizing military advantage. It is increasingly evident that the quality and quantity of Soviet-bloc equipment cannot be offset solely by the plans and programs enumerated elsewhere in this posture statement. An active research and development (R&D) program is essential for tomorrow's readiness. The R&D efforts of our defense establishment contribute to our military capabilities in that they ensure that our deployed forces are equipped with effective, reliable equipment that can be produced in needed quantities at an affordable cost.

R&D expenditures are of particular importance because they represent investment in future military capability -- capability that we must plan and invest for now to ensure our fighting forces are deployed with equipment that retains their confidence and helps ensure their success.

Table III.E.1

Relative U.S./USSR Standing in the Twenty Most Important Basic Technology Areas

Basic Technologies	U.S. Superior	U.S./USSR Equal	USSR Superior
1. Aerodynamics/Fluid Dynamics		X	
2. Computers and Software	← X		
3. Conventional Warheads (Including all Chemical Explosives)		X	
4. Directed Energy (Laser)		X	
5. Electro-Optical Sensor (Including Infrared)	X		
6. Guidance and Navigation	X		
7. Life Sciences (Human Factors/Biotechnology)	X		
8. Materials (Lightweight, High Strength, High Temperature)	X →		
9. Micro-Electronic Materials and Integrated Circuit Manufacturing	X		
10. Nuclear Warheads		X	
11. Optics		X	
12. Power Sources (Mobile) (Includes Energy Storage)		X	
13. Production/Manufacturing (Includes Automated Control)	X		
14. Propulsion (Aerospace and Ground Vehicles)	X →		
15. Radar Sensor	X →		
16. Robotics and Machine Intelligence	X		
17. Signal Processing	X		
18. Signature Reduction	X		
19. Submarine Detection	X →		
20. Telecommunications (Includes Fiber Optics)	X		

NOTES:

— The list is limited to 20 technologies, which were selected with the objective of providing a valid base for comparing overall U.S. and USSR basic technology. The list is in alphabetical order. These technologies are "on the shelf" and available for application. (The technologies are not intended to compare technology level in currently DEPLOYED military systems.)

— The technologies selected have the potential for significantly CHANGING the military capability in the next 10 to 20 years. The technologies are not static; they are improving or have the potential for significant improvements; new technologies may appear on future lists.

— The arrows denote that the relative technology level is CHANGING significantly in the direction indicated.

— The judgements represent overall consensus for each basic technology area. The USSR may be superior in some of the subtechnologies making up each basic technology. The average assessment can incorporate a significant variance when individual components of a technology are considered.

Soviet investment in military R&D has increased steadily in real terms for the past 20 years. Each year for the past decade the estimated dollar equivalent cost of their military R&D program has exceeded that of the United States. The Soviets are currently estimated to spend significantly more than what the United States spends for military R&D. In addition, the Soviets deploy approximately twice as many new and upgraded systems every ten years as does the United States. It should also be noted that this relentless Soviet buildup began from a very high base. We do not intend to "catch up" to the Soviets on a weapon for weapon basis. To do so would not only be inordinately expensive, but it would also be impractical. We do intend, however, to maintain the technological superiority that has served our strategy of deterrence so well.

Table III.E.1 illustrates that the United States continues to maintain a lead in 14 of the 20 most important basic technologies areas, despite the continuing massive Soviet investment in military research and development.

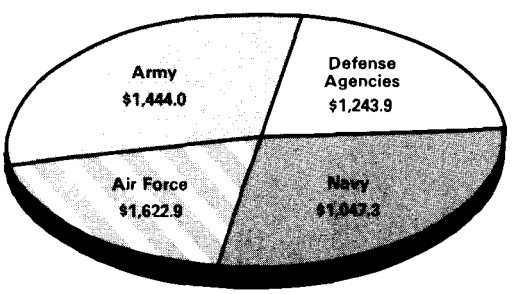
Other chapters of this report address R&D efforts in particular mission and Service-specific functional areas. This chapter focuses on those broad, cross-Service efforts in science and technology (S&T), advanced research projects, and nuclear weapons development.

2. Science and Technology Program

The Science and Technology (S&T) program forms the foundation for the research, development, test, and evaluation (RDT&E) program that, in turn, provides the military systems and equipment required by our future forces. Research, exploratory development, and advanced technology development are carried out by the nation's universities, industrial firms, and DoD laboratories. These institutions are engaged in the search for fundamental scientific knowledge and the translation of that knowledge into useful military products.

There is considerable uncertainty as to the nature of future conflict, but it is clear that the modernization process must provide for capable, reliable, and affordable materiel that can be operated effectively in a variety of military contingencies and battlefields. DoD

Chart III.E.1
FY 1987 Science and Technology Program Request [a]



[a] Does Not Include Strategic Defense Initiative

Total Request (B) $5.358

has recognized the importance of preparing for the future by undertaking S&T programs over a wide range of technologies important to the defense mission. It is through this process that we can assure military commanders of the capability they will need to meet the challenges of the future.

Our S&T programs are managed by the Services and the defense agencies (Chart III.E.1). The following paragraphs highlight some important Service endeavors. Defense agency programs are discussed in other sections of this report.

a. Integrated Circuits

We are continuing to make significant progress in developing integrated circuits, a key component of most military systems. Excellent progress has been made on the Very High-Speed Integrated Circuits (VHSIC) program. Most of the planned 1.25 micrometer VHSIC chips are fully functional with significant numbers available for weapons systems demonstrations. In addition, "brassboard" signal processors provide capabilities at the leading edge of technology. Development of the next generation 0.5 micrometer VHSIC chips is progressing satisfactorily with initial samples available for DoD testing. The introduction of these devices into DoD systems and equipment will significantly enhance the capabilities of our forces.

In addition to the VHSIC program, a new integrated circuit initiative is being undertaken. Microwave/millimeter monolithic integrated circuits using gallium arsenide materials offer great potential for increasing the capabilities of the "sensor electronics" of weapons systems and equipment. The program will focus on integrating analog functions into monolithic circuits and will provide significant gains in affordability, capability, and reliability over a wide range of frequencies used by the military.

b. Aircraft Propulsion Technology

Aircraft propulsion technology programs emphasize efforts that will increase significantly aircraft capabilities in both the mid- and long-term. The Air Force/Navy Joint Technology Demonstrator Engine program will provide the basis for further improvements in both new and growth engines. A recent Air Force initiative in expendable engine technology will lead to significant increases in cruise missile capabilities. The Army's Modern Technology Demonstrator Engine program will be completed on schedule this year. It seeks to develop an engine with 20 to 25 percent reduction in fuel consumption and reduced support costs compared to existing 5,000 horsepower class engines. Finally, our exploratory development efforts have been oriented to achieve greater than a factor two increase in high-performance turbine engine capabilities by the turn of the century.

c. Aircraft Technology

The Air Force has completed initial flight tests of a modified F-16 aircraft in its Advanced Fighter Technology Integration program. This aircraft features a unique digital flight control system that when used in conjunction with special control surfaces can produce variable response characteristics. The aircraft response characteristics can be optimized for the specific mission task of the aircraft, e.g., air-to-air combat, air-to-surface attack, etc. These tests have demonstrated a capability for a two-to-one increase in air combat effectiveness for future Air Force fighters such as the Advanced Tactical Fighter (ATF).

d. Materials and Structures

The FY 1987 Advanced Materials and Structures Technology program emphasizes the survivability of aircraft and missile structures against potential directed energy weapons. While the principal effort will address the laser threat, the program will also include protection concepts for military equipment subjected to high power microwaves and particle beams. These efforts will be directed toward evolving innovative materials and hardening techniques utilizing unique combinations and structural arrangements of metal-matrix and carbon-carbon composite materials.

e. Rocket Propulsion Technology

The United States continues to maintain a world leadership position in rocket propulsion technologies for space and missile applications. Smokeless rocket motors for tactical missiles provide a significant military advantage and are in great demand by our allies. Another rapidly maturing technology is the "pulse motor" concept in which a solid propellant rocket motor can be turned on and off several times during flight. Missiles employing these motors may have two times the range available from conventional rocket motors. In addition, safety issues continue to be emphasized in rocket propulsion programs in an effort to develop motors that are insensitive to shock or bullet impact, and can survive aircraft fuel fires.

f. Computers and Software

The defense software initiative is currently exploring three areas to improve our ability to develop and maintain reliable and cost-effective software. We have adopted a powerful standard programming language, Ada, that is projected for use in over 100 military systems to include NATO systems and certain parts of NASA's space station program. The Software Engineering Institute has been established to accelerate the transition of new software technologies into system use. The third element of our software initiative is the Software Technology for Adaptable, Reliable Systems (STARS) program. This program will improve our ability to provide software to meet mission-critical system requirements. Progress has been made in STARS planning, and a framework is in place for exploring software reuse, improved productivity of the software work force, and an automated software engineering environment. Planning is also under way for determining the requirements for the next generation of military computers, which should enter service in the early 1990s.

g. Sensors and Signal Processing Technology

Significant advances are being made in the development of infrared, micro/millimeter wave and acoustic sensors for target detection, surveillance, classification, identification, and tracking. With the advent of sensitive, high-density, infrared detector focal plane arrays and efficient phased-array antennas with compact transmit/receive modules, infrared and radar sensors can conduct surveillance and tracking missions over large areas with a very high resolution. Using advanced high capacity, signal processing computers with optical, temporal, and spectral discrimination algorithms, false alarms and ground and sea clutter can be eliminated. In addition, the use of multisensor fusion techniques where radar and sensor and/or infrared sensor signals are correlated, precise target classification and identification is possible under difficult environmental and battle conditions. A coordinated program is being pursued by the Services

to expand the military application of these advanced sensor and signal processing developments.

h. Medical and Life Sciences

The Medical and Life Sciences program contributes directly to unit readiness by keeping our personnel on the job at a high performance level. This program entails research ranging from vaccine development for diseases rarely found in the United States, through investigation of ways to protect personnel from excessive heat or cold, to developing techniques and equipment to prevent troops from suffering from the deleterious environments in which they may be required to live and fight. This includes environments such as high altitude, high acceleration forces, increased diving pressures, noise from artillery or other weapons, etc. The program seeks to maximize human operational efficiency in combat environments and is particularly important when you consider that manpower and manpower-related costs approach 50 percent of the DoD budget.

i. Chemical Defense

The Chemical Defense Technology program has continued to expand and achieve substantial progress toward meeting the needs of our combat forces. Cooperative programs with universities, industry, and our allies are providing new detection and warning devices with improved sensitivities and portability. Advances in biotechnology have generated breakthroughs in toxin detection mechanisms, prophylaxis, and therapy treatment. Developments in decontamination and collective protection systems are enhancing readiness by improving the ability to continue operations in a chemically contaminated battlefield. In view of the continuing chemical and biological warfare threat to our personnel, this program receives high priority in the technology program.

j. Laser Technology

Steady progress has been made in developing laser technology. We have been successful in developing and operating the most powerful and most capable experimental high energy laser facility in the free world. This facility, located at the White Sands Missile Range in New Mexico, enables us to conduct tests that are expanding our understanding of the military capabilities and limitations of lasers in both tactical and strategic roles. The high power laser program has resulted in many accomplishments, and we are just beginning to realize the potential of this relatively new area of science. Our goal is to use this technology to improve the capabilities of our forces and simultaneously to ensure that they are protected against this technology should it be used by an adversary.

k. Basic Research

The basic research program develops fundamental information that can be used to improve DoD's long-range technology posture. For example, the University of Wisconsin, under Air Force sponsorship, has made excellent progress in developing organosilicon compounds making possible the use of silicon carbide and silicon nitride ceramics to manufacture turbine blades, radar domes, and other compounds with increased fracture resistance. In Navy research, the parameters of acoustic signals used by humans in classifying sounds were determined. This has assisted the Navy in eliminating signals radiating from ships that might be used to confirm detection and classification. We plan

to continue a strong and viable basic research program to enhance our technological lead.

3. The Defense Advanced Research Projects Agency

The Defense Advanced Research Projects Agency's (DARPA) goals are to pursue those highly imaginative and innovative research ideas and concepts offering significant military utility, and to marshal advanced research through demonstration of its feasibility for military applications. DARPA programs focus on technology development and proof-of-concept demonstrations of revolutionary approaches and include scientific investigations into advanced basic technologies for the future.

DARPA's research programs cover a broad spectrum of technologies, several of which are dicussed below:

a. Strategic Computing

The Strategic Computing program is developing a revolutionary machine intelligence technology base for application by the end of the decade. This new technology base will enable the development of systems that are characterized as intelligent when compared to the mechanical behavior of conventional computing systems. This effort is supported by research into advanced generic artificial intelligence (AI), multiprocessor system architectures, and optical- and microelectronics. The generic AI projects will produce new generation technology for expert systems, natural language, speech, and vision. The multiprocessor system architecture projects, using advanced Very Large Scale Integration (VLSI) technology, will produce systems that can be configured to provide a wide range of performance more than 1,000 times faster than existing computers. Demonstration of this technology will include the development of an autonomous eight wheel land vehicle using imagery from a television camera to determine its proper path; a pilot associate program that will explore the use of artificial intelligence to enhance the combat capabilities of a flight crew -- especially for a single-place fighter aircraft; and battle management projects using artificial intelligence in planning combat actions.

b. Hypersonics Technology Program

The FY 1987 hypersonics technology program continues a three year effort initiated last year that focuses upon the proof-of-concept demonstration of an advanced air-breathing propulsion system. Also included are programs examining advanced materials, structural cooling concepts, lightweight tank concepts, and engine and airframe aerodynamics integration concepts that could usher in a new generation of air-breathing hypersonic transatmospheric vehicles by the turn of the century. It is envisioned that such vehicles would take off from a runway and cruise as an airplane in the upper atmosphere at speeds in excess of Mach 10. These technologies appear to offer the potential of substantially reducing the cost per pound delivered to orbit for future space launch systems.

c. Armor/Antiarmor

A broad research and demonstration effort to begin in 1986 will identify fundamental mechanisms and phenomenology of advanced armor and develop mathematical models and measuring techniques to characterize materials at high strain rates. It is anticipated that developments will lead to significant advances in armor defeat mechanisms

including chemical and kinetic energy hypervelocity munitions. New concepts for active and passive armor will evaluate lightweight materials in addition to chemical and electrical hybrid systems.

Armor defeat initiatives build on recent advances in the DARPA millimeter wave and infrared sensor programs and the hypervelocity electromagnetic gun program. This program will demonstrate a new family of low-cost terminal homing munitions that are compatible with conventional and hypervelocity electromagnetic launch mechanisms.

4. Nuclear Weapons Program

a. Modernization Program

DoD and DoE share statutory responsibilities under the provisions of the Atomic Energy Act of 1954 for managing the U.S. nuclear weapons program. The goal of this program is to enhance nuclear deterrence through a modernization program improving the military effectiveness, safety, security, survivability, and endurance of our nuclear weapons in all environments. In the near- and mid-term, we will continue the production and development of previously authorized weapons that modernize our strategic forces and emphasize incorporation of modern safety and command/control technology. A major focus in the future will be to modernize our tactical nuclear weapons stockpile.

Considerable progress has been made in improving the security and survivability of nuclear weapons worldwide. Survivability for nuclear weapons systems has been made a matter of DoD policy and should provide a firm basis for Service programs. Our NATO allies contribute substantial effort and resources toward developing a comprehensive posture for future storage and transport of nuclear weapons in Europe. Weapons protection matters have been given higher priority within NATO during the past year. Every effort is being made to expand cooperative programs with our NATO allies.

b. Program Management and Cost Control

In response to recommendations of the President's Blue Ribbon Task Group on Nuclear Weapons Program Management, we are working closely with DoE to emphasize fiscal discipline within and between federal departments. For example, we have proposed new arrangements for joint DoD/DoE senior level management reviews of nuclear weapons programs and budgets, with new opportunity for tradeoffs between departments related to nuclear weapons and other defense programs. Increased cost consciousness is being emphasized during the development of new nuclear systems through formal interdepartmental agreements on cost baselines and more thorough management reviews of the cost characteristics of each system.

Although fiscal discipline is being emphasized across-the-board, both DoD and DoE are also exercising great care to assure that this does not reduce the high standards necessary for safety and security or cause an unintended reduction in the quality of our nuclear research capabilities.

While much progress has been made, we must continue to strive to meet our objective of fielding adequate quantities of effective systems. Achieving our goals depends on continued congressional support. We intend to work closely with DoE and the appropriate congressional committees and their staffs to explain and justify our nuclear modernization program.

c. Defense Nuclear Agency (DNA) Programs

Defense Nuclear Agency (DNA) programs examine the technical aspects of nuclear weapons effects and system vulnerabilities, develop technology to enhance the survivability and security of U.S. forces, and provide timely information allowing the intelligence community to predict destruction thresholds of enemy systems. DNA programs include underground nuclear and aboveground high explosive testing, radiation and electromagnetic pulse (EMP) simulator testing, development of sophisticated computer models, and exoatmospheric experiments. DNA is also responsible for technical research and analyses of nuclear related problems to provide DoD, the Services, and the CINCs greater understanding of nuclear force employment, structure, size, and basing. In addition, DNA is DoD's lead organization in exploring the "nuclear winter" phenomenon.

In the next year we expect major advances from DNA's research on radiation hardened large-scale memories and very high-speed integrated circuits, and development of innovative methods of hardening against and testing to advanced electromagnetic pulse environments. In addition, DNA will pursue theoretical and experimental techniques to evaluate the survivability of state-of-the-art super-hardened strategic structures and road-mobile launchers. In 1986, DNA will complete construction of the underground nuclear test MISSION CYBER in support of the Navy's Trident II missile.

F. COALITION STRATEGY — THE STRENGTH OF ALLIANCE

1. Coalition Strategy

Our experience in two world wars and many lesser conflicts reinforces our belief that a system of defensive alliances and cooperation is the best way to deter potential opponents and the best way to share in the task of defending freedom. This coalition strategy is designed to maintain regional security by demonstrating to potential aggressors that they would face a determined and united opposition. Toward that end, U.S. policy seeks to strengthen our allies' and friends' efforts to preserve their independence of action in the face of increasing threats from the Soviet Union and its surrogates around the world.

Our commitment to the security of our allies and friends is a commitment to our own security as well. This commitment will last as long as the threat continues and as long as we possess the determination and will to preserve our shared values. Today, alliances are not temporary efforts to deal with specific short-term threats. The free world must act together to preserve our institutions and values from the long-term threat that the Soviet Union poses to our democratic way of life.

Our traditional alliances require continued attention and resources to counter dramatic increases in Soviet capabilities and efforts to divide the free world. Our leadership and consensus building in these alliances are particularly challenging diplomatic tasks as we work to achieve balance among the diverging and often conflicting interests of our alliance partners. Nonetheless, the long-term maintenance of these alliances is vital to our mutual interests, and we must remain resolute in our determination to overcome occasional disagreements, even those that become subject to intense public attention, thereby diverting our attention from our shared objective of deterring the Soviet threat. Our program to rebuild America's defenses and meet the Soviet challenge has breathed new life into our system of alliances and regional friendships. As a result, the years since 1981 have been our most peaceful period in three decades. Deterrence is working in Europe, in Asia, and in our own hemisphere.

Nonetheless, the threat of Soviet expansion is real, as Soviet operations in Afghanistan, Vietnam, and Angola have made clear. Cuban and Nicaraguan sponsored insurgencies threaten the stability of Central America. Libyan adventurism threatens the North African region, and the Iran-Iraq war could readily expand to engulf friendly nations in Southwest Asia. Moreover, while our adversaries are often deterred from direct attack, we have been required to devote increasing attention to the threat posed by low-intensity conflict, including terrorism and insurgency. As long as we face these challenges, we will find that our efforts not only bring peace to troubled areas but also strengthen our coalition for peace and freedom for the long-term.

2. Security Assistance and International Armaments Cooperation

In his State of the Union address on February 6, 1985, President Reagan placed security assistance in context:

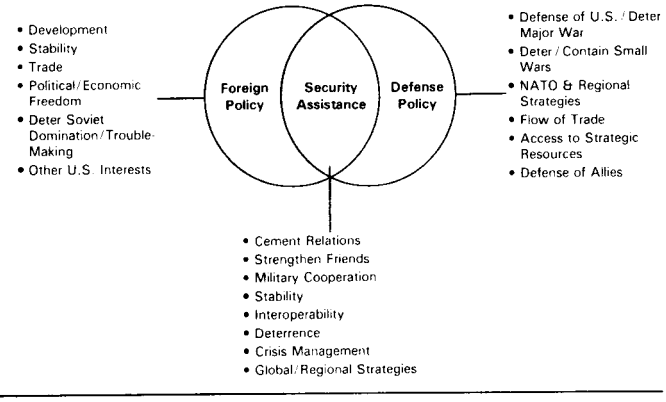
Without resources, diplomacy cannot succeed; our security assistance programs help friendly governments defend themselves, and give them confidence to work for peace. The Congress should understand that dollar for dollar security assistance contributes as much to global security as our own defense budget.

Security assistance strengthens formal alliances and contributes to stability in regions where formal alliances are not possible. U.S. security assistance programs in concert with other foreign policy tools have achieved some remarkable results, most notably preserving peace in the Middle East, improving the security situation in Central America, preventing the Iran-Iraq war from spreading, containing Libyan adventurism, securing Thailand against challenges along its eastern border, maintaining the security of the Republic of South Korea (ROK), and strengthening the posture of our friends and allies in Europe, Asia, Africa, and Latin America.

Our alliance system is the most successful example of coalition strategy and has served as a model for our worldwide efforts to preserve peace. Most of the world, however, resists formal alliances. Thus, U.S. strategy for regional security must be pursued through a series of interlocking bilateral security assistance relationships. Good examples of this approach to collective security are our policies toward Southwest Asia (SWA) and Central America.

Security assistance acts both as an instrument of foreign policy and defense policy. The dynamics of this relationship are illustrated in Chart III.F.1. Today, our security assistance programs are running smoothly and are strengthening U.S. relations with recipient nations. Actions taken to reduce the federal budget deficit, however, could threaten the ability of our security assistance programs to meet our requirements and those of our friends and allies. Our challenge is to secure sufficient funding in this difficult fiscal environment to meet our national security requirements. Failure to meet this challenge could be costly. Should a crisis develop in any of a number of volatile areas, for example, the economic burden for the United States would be much greater should U.S. forces be deployed to perform a mission that an adequate security assistance program could have prepared local forces to do.

Chart III.F.1
Role of Security Assistance in Achieving Objectives



We develop our programs from a hierarchy of strategic considerations. Starting with global U.S. strategic objectives, we derive strategic objectives appropriate to each region in which we have major interests. These regional objectives are weighed together with the country-specific threats and military requirements in order to plan, with the country, the details of each country's program.

Since 1981, the Administration has initiated or greatly expanded programs in a number of countries. Of special note are the new programs for Pakistan, increases in funding for Israel, Egypt, and Turkey, and a vigorous response in Central America.

We have demonstrated that we can respond quickly -- with no significant degradation of our own readiness or painful diversions -- to assist countries facing crisis. We have made such responses in Central America, Grenada, Chad, Lebanon, and Thailand and also reacted quickly to urgent requests from Saudi Arabia and Morocco.

Regionally, security assistance contributes to our foreign policy and defense objectives in a number of ways. Our programs continue to contribute greatly to ongoing diplomatic efforts to resolve conflicts in key areas, such as the Middle East. U.S. security assistance programs also play a crucial role in bilateral and coalition efforts to contain or deter conflicts in areas of high concern to the United States such as Korea, Pakistan, Morocco, and Somalia.

In addition, the promise of security assistance funding has greatly facilitated the conclusion of critical base rights renegotiations in strategically vital countries. Security assistance has also helped secure access to air and port facilities in or en route to Southwest Asia, thereby enhancing our force projection capability.

Finally, our security assistance programs have helped us cement closer relations and expand our strategic dialogues with such states as Tunisia, Egypt, Morocco, Saudi Arabia, Israel, Pakistan, Korea, Thailand, Indonesia, Jordan, and Turkey. In addition, our dialogues with the Gulf Cooperative Council (GCC) states are slowly expanding. Our current emphasis on even closer planning with many of our key security partners ensures that our programs will continue to be responsive to the needs of our friends and allies as we pursue our own national goals.

Today, we face the challenge of securing adequate funding to meet regional program requirements in a fiscally constrained environment. We must meet this challenge, because the costs of disengagement are far too great.

Because of uncertainties in this year's budget process, dollar figures for security assistance programs are unavailable. These programs include:

-- Foreign Military Sales Credit Financing (FMSCR), which provides direct credits to countries, either at prevailing interest rates or a concessional rate, to allow the purchase of equipment or services from the U.S. government or directly from U.S. contractors;

-- Military Assistance Program (MAP), which provides, on a grant basis, defense articles and services to eligible governments; and

-- International Military Education and Training (IMET), which allows DoD to provide training and training support to foreign military personnel as grant assistance.

a. Special Security Assistance Programs

There are two special DoD-administered programs that are a part of our security assistance program: the Special Defense Acquisition Fund (SDAF) and Support for Non-U.S. Origin Equipment.

(1) Special Defense Acquisition Fund (SDAF)

SDAF procures U.S. military equipment and services in order to increase our responsiveness to the security assistance requirements of friendly nations while minimizing degradation of U.S. readiness caused by diversions from production or withdrawal from our stocks. Through FY 1986, the Congress capitalized SDAF at a level of $1 billion from certain foreign military sales (FMS) receipts (i.e., receipts from nonrecurring cost charges) that are deposited in the SDAF account.

SDAF has been in operation since late FY 1982 and has obligated $719 million to date. We allocated 84 percent of the first three years' (FY 1982 to FY 1984) SDAF acquisitions against actual and prospective foreign military sales, and we are now in the process of allocating our FY 1985 acquisitions in a similar fashion. SDAF sales so far have met urgent needs in 25 countries, have expedited payback to the Services for diverted items, and have smoothed or extended U.S. production lines, thereby contributing to reduced costs and increased readiness.

Additional capitalization will be needed to allow DoD to continue to increase the availability, variety, and quantities of those selected critical defense items that are in high demand, short supply, and often have long procurement lead-times. We are requesting an additional $100 million in capitalization for FY 1987.

(2) Support for Non-U.S. Equipment

DoD has implemented a new program to assist a few selected friends and allies with security assistance support of non-U.S. origin weapons systems. This service is usually accomplished by those U.S. contractors that are capable of providing parts replacement, repair or upgrade, and training for a variety of non-U.S. origin weapons systems. The program is intended to help countries maintain their defense postures by allowing continued use of non-U.S. equipment in their inventories. The program can also facilitate a shift from total dependence on one military supplier nation, or provide an interim, low-cost solution for countries that are unable to purchase new equipment immediately and are faced with an aging, and sometimes diverse, inventory of foreign military hardware.

b. International Armaments Cooperation

The overall objective of our international cooperation and technology transfer program is to develop, field, and support -- through equitable burdensharing -- the most effective and interoperable conventional military equipment for our forces and those of our allies and friends. This requires international cooperation and the exchange of military technologies and goods, when in our national interest to do so, and the denial of militarily critical technologies and goods to our potential adversaries. How this program is implemented is discussed below in the context of regional security needs.

3. Humanitarian Assistance

Humanitarian assistance and civic action abroad serve both U.S. moral principles and our foreign policy objectives. Accordingly, I have sought to expand the military's capability to provide timely humanitarian assistance where needed.

I have increased DoD participation in humanitarian assistance significantly during the past year. In response to the African famine, DoD flew emergency airlift missions and provided relief supplies to Sudan, Mali, Zaire, Niger, and Mozambique. Additionally, we dispatched medical teams to Somalia and Sudan and installed and operated a pontoon ferry in Mali. During the Mexican earthquake and Colombian volcano disasters, we provided equipment, personnel, and airlift to meet urgent requirements.

In keeping with statutory requirements, most DoD humanitarian assistance efforts are requested and funded by the Department of State (DoS) and the Agency for International Development (AID). However, recent congressional initiatives have expanded DoD's capability and responsibility for humanitarian activities. In support of the Denton Amendment, which was effective at the start of FY 1985, DoD provided space available airlifts/sealifts of privately donated humanitarian supplies to Central America, delivering over 400,000 pounds of humanitarian cargo. The McCollum Amendment now allows DoD to provide excess nonlethal materials to DoS and AID for use in worldwide humanitarian assistance efforts. DoD's participation in providing humanitarian transportation and supplies to the Afghan people will play an important role in supporting our national objectives.

Project Handclasp, the Navy's highly successful people-to-people program, continues to provide effective, visible humanitarian assistance throughout the Third World. In addition, our unified commands carried out numerous medical treatment and small infrastructure projects incidental to authorized operations, such as schools, clinics, roads, and water/sanitation systems. Such civic action programs help our friends and promote our own proficiency by providing training, on-site experience, and a deep sense of achievement for our forces. I am determined that we will continue to work with other U.S. agencies to expand our humanitarian efforts.

4. The North Atlantic Treaty Organization (NATO)

The North Atlantic Treaty Organization was established as a response to Soviet expansion in Eastern Europe. Today, a strong NATO alliance remains essential to meeting the Soviet and Warsaw Pact challenge. As the Soviets continue to improve and expand their forces, NATO must choose either to modernize and improve its own forces in order to maintain a credible balance, or become more vulnerable to aggression and coercion by the Soviets.

a. United States Forces

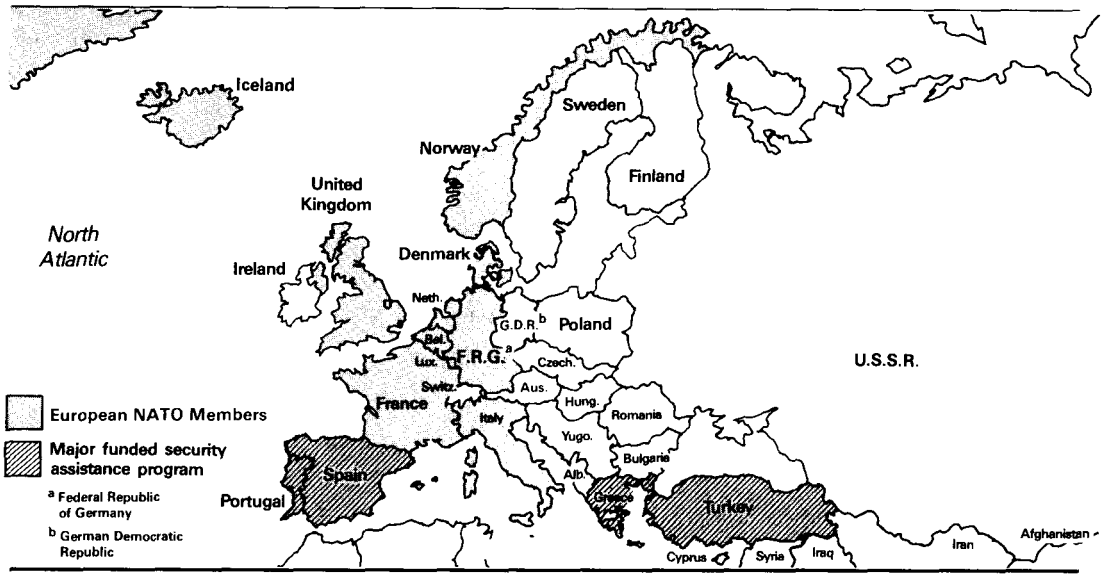
As an alliance member, the United States stations military forces in Europe and pledges to augment these forces in the event of a Warsaw Pact attack. The United States also furnishes a significant portion of NATO's naval forces, the great bulk of NATO's "external" strategic nuclear forces, and nuclear weapons for NATO's nonstrategic nuclear forces, including U.S.-manned forces.

Our forward force contributions to the alliance and allied burdensharing have significantly reduced the cost to the United

States of deterring Soviet aggression in Europe. Because we forward-deploy forces, we need not buy and maintain the additional airlift assets we would need to deploy those forces rapidly in an emergency. Stationing our forces abroad also spares us the cost of constructing and maintaining facilities for them in the United States.

Chart III.F.2

Western Europe — NATO Area



The level of our troop strength in Europe is currently constrained by a congressional ceiling. In DoD's view, defense manpower levels and locations should be determined based on how best to counter threats to U.S. security interests within the limits of a politically acceptable defense budget. The Congress, as overseer of the Department of Defense, needs to know where defense uses its allotted resources, including authorized manpower, but should not seek to micromanage U.S. troop strength on a theater basis. The current limit on troop strength in Europe is an artificial subceiling within the overall ceiling on Service end strengths. This subceiling distorts the process of allocating available manpower to meet the threat, and confuses the general debate about how much is enough for defense. In addition, the European subceiling reduces the conventional defense contribution of the United States to NATO since the obligation to deploy and man intermediate nuclear forces in Europe must be accomplished within this ceiling. This significantly undercuts the emphasis on conventional defense mandated by NATO Defense Ministers and currently stressed by the Congress.

Our alliance partners also make force contributions that, in the aggregate, exceed our own in a number of key categories. The NATO allies maintain three and one half million active duty military personnel, compared with a little over two million for the United States. If civilian defense manpower and committed reserve personnel (i.e., those reservists with specific post-mobilization assignments) are included, the totals come to just under eight million for our NATO allies and just under five million for the United States. In terms of ground combat strength (expressed in armored division equivalents) and tactical airpower (numbers of combat aircraft), the non-U.S. NATO allies would contribute roughly 60 percent of NATO's total combat systems in war.

b. Challenge

NATO's policy of collective defense will remain viable only as long as the Soviet Union does not gain such a preponderance of power that our partners fear the consequences of maintaining the alliance. To counter the threat of Soviet coercion or aggression in Western Europe, NATO maintains -- and must continue to improve -- strong military forces. NATO's strategy of flexible response relies on a stable and vigorous deterrence and a credible forward defense. The United States must continue to play a major role in this effort.

c. Risks

The Soviet/Warsaw Pact threat is growing. The principal risk we face in NATO defense is complacency in the face of this threat. While NATO has kept the peace, it has not nearly matched the Warsaw Pact military buildup. The NATO allies, including the United States, cannot afford to neglect their responsibility to maintain a credible and stable defense posture; we must improve defense capabilities over the long-term.

d. Planning

NATO has greatly expanded its long-term defense planning efforts. In December 1985, NATO defense ministers endorsed a conceptual military framework for long-term defense planning. Closer consultation between NATO commanders and the NATO governments on long-term planning will lead to better use of NATO defense funds.

e. Security Assistance

Our security assistance programs with the four southern tier countries -- Spain, Portugal, Greece, and Turkey -- help strengthen Western defenses among our historic allies. Turkey's critical location places it at the nexus of our security interests in NATO, the Middle East, and Southwest Asia. But it must modernize its obsolescent military equipment if it is to meet its agreed-upon force goals, which are the minimum necessary to meet the anticipated threat.

f. Burdensharing

In order to maintain peace, all members of the NATO alliance must be willing to share the burden equitably. However, there is no universally accepted formula for calculating each country's fair share. My Annual Report to the Congress on the Allied Contributions to the Common Defense considers a wide range of factors from which we conclude that while our NATO allies make a substantial contribution to the common defense, some allies are doing their full share while others less.

Given the NATO/Pact conventional force imbalance, I have emphasized the need for increased defense efforts. I am gratified to report considerable progress by our allies in this regard. Our allies have agreed to increase substantially the NATO infrastructure program along with their holdings of critical ammunition stocks. They have also continued to increase their defense outlays. We will continue to encourage our allies to do more.

g. International Armaments Cooperation

Technology continues to offer the alliance the opportunity of enhanced performance and greater efficiency. The NATO Conference

of National Armaments Directors is following up the 1982 "Emerging Technologies" initiative by focusing attention on the development of specific force multiplier systems. Initial projects may achieve early 1990's in-service dates; longer-term development projects are also being undertaken. The Congress provided strong support for U.S.-allied arms cooperation in FY 1986 by earmarking $200 million for NATO cooperative research and development programs, appropriating $100 million in new funding for these efforts, establishing a program for side-by-side comparative testing, and passing enabling legislation for flexibility in contracting.

h. Host Nation Support and Cooperative Logistics

Host Nation Support (HNS) arrangements are in effect with several European countries. During peacetime, functions such as surface transportation, POL distribution, and port operations are provided to U.S. forces. In wartime, we depend on continuation of these functions and others, such as airfield damage repair, installation security, and ammunition handling.

When we and our NATO allies field the same weapons systems in the European theater, it makes sense to cooperate on logistics support programs for those systems. Toward that end, the United States recently joined Weapon System Partnerships at the NATO Maintenance and Supply Agency (NAMSA) for Patriot and the Multiple Launch Rocket System; we are pursuing similar arrangements for TOW and Lance. We have contracted with NAMSA for repair of AIM-9Ls and storage of war reserve materiel. We also are working toward consolidated procurement of common NATO munitions.

i. Special Programs

(1) Conventional Defense Improvements

For the strategy of flexible response to remain credible, the NATO triad of forces must be in proper balance. Conventional force improvements are necessary in order to restore the deterrent value of this leg of the NATO triad, particularly in the face of continuing qualitative and quantitative Warsaw Pact advances. Conventional force improvements also respond to the growing congressional and public desire to reduce the need to rely on early recourse to nuclear weapons.

There is considerable agreement among NATO governments on the need to improve conventional defenses. At the May 1985 Defense Planning Committee (DPC) meeting, NATO ministers approved the Report on Conventional Defense Improvements that identified critical deficiencies in NATO's conventional defense and outlined a plan of action to overcome those deficiencies. The task remains to carry out this plan of action. NATO nations have reported some progress this year, and we expect key force planning improvements to be specified in the 1987-92 NATO force goals that the alliance will approve in the spring. NATO nations have already agreed to make a special effort to implement the most critical conventional force goals designated by NATO military authorities.

(2) Nuclear Planning

NATO's Nuclear Planning Group (NPG) is responsible for coordinating matters involving NATO's nuclear forces. At present, all members of the alliance except Iceland and France are represented on the NPG and one of its subsidiaries for special projects, the High Level Group.

The High Level Group (HLG) prepared the analyses and recommendations that led to NATO's December 1979 decision to deploy Pershing II missiles and ground-launched cruise missiles (GLCMs). A separate group, the Special Consultative Group (SCG), set up under the North Atlantic Council, laid the groundwork for the other half of the two-part December 1979 decision -- the commitment to seek, through negotiations with the Soviet Union, a balanced, equitable, and verifiable agreement limiting those missiles. The HLG also conducted the study of the alliance's nuclear needs that led to the October 1983 decision by the NPG at Montebello to reduce by 1,400 the number of nuclear weapons deployed in Europe, while ensuring that the remaining warheads and their delivery systems remain responsive, survivable, and effective. In March 1985, the Supreme Allied Commander Europe made recommentations to the NPG on implementation of these reduction by the end of 1988 and on necessary improvements to remaining systems. The reductions are under way and include the withdrawal, completed in 1985, of all atomic demolition munitions from the NATO stockpile in Europe.

(3) Infrastructure

Under the NATO infrastructure program, alliance members share the costs of constructing facilities for the use of their forces in war. Thirteen NATO nations contribute to the full infrastructure program. France joins the common funding for air defense warning installations. (Iceland has no military forces and Spain does not participate in the infrastructure program at this time.) This burdensharing effort contributes enormously to the effectiveness of NATO's conventional forces. Recent NATO agreements on improved procedures and substantial funding increases should result in an even greater contribution in the future.

In December 1984, NATO ministers approved a funding ceiling of over $8 billion for the FY 1985 to FY 1991 period. This funding, along with a much improved planning system and a NATO agreement to provide funds for project design up to three years before project implementation, will help ensure construction of badly needed support facilities. For example, we expect that by 1991 all required minimum essential facilities and essential operating facilities along with most shelters for reinforcing aircraft will be completed or under construction.

All NATO countries benefit economically from this program. Host countries receive the benefit of new installations and peacetime maintenance and operations contracts; all member countries compete for commercial contracts for construction and related goods and services; and the user nations benefit from allied contributions to facilities that their forces will use. While the United States contributes 27.8 percent of total infrastructure funding, a full 35 to 40 percent of the programmed projects directly support U.S. forces.

The infrastructure program funds only those facilities needed for wartime operations. Personnel support facilities and other peacetime related projects are funded by each country according to its own standards. Were such construction to fall under common funding, our cost would far exceed what we spend today for our own forces in Europe. Therefore, we would oppose broadening NATO infrastructure coverage to peacetime use facilities.

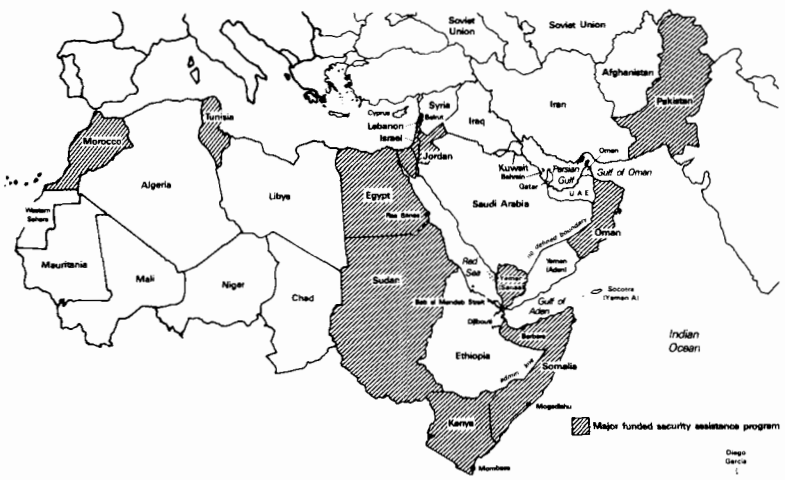
5. Southwest Asia and the Middle East

Political and military instability in Southwest Asia (SWA) and the Middle East continue to pose complex and dynamic challenges for U.S. defense planning. President Reagan has steadfastly reaffirmed our commitment to protect U.S. and free world interests in the region, especially the pursuit of a lasting Arab-Israeli peace and continued access to Persian Gulf oil.

Over the past several years, we have improved our military capabilities for the region, primarily by enhancing the readiness and mobility of existing forces. Our plans, programs, and command structure provide us with a broad range of capabilities in those areas and contribute to our effort to revitalize our rapid-response capabilities.

Chart III.F.3 depicts the general areas we refer to as Southwest Asia, the Middle East, and North Africa.

Chart III.F.3
Southwest Asia, the Middle East, and North Africa



a. U.S. Forces

Table III.F.1
Combat Forces Initially Available to USCENTCOM

Army	Air Force
1 Airborne Division	7 Tactical Fighter Wings[b]
1 Airmobile/Air Assault Division	2 Strategic Bomber Squadrons[c]
1 Mechanized Infantry Division	
2 Infantry Divisions	**Navy**
	3 Carrier Battle Groups
Marine Corps	1 Surface Action Group
1-1/3 Marine Amphibious Forces[a]	5 Maritime Patrol Air Squadrons

[a] A Marine Amphibious Force typically consists of a reinforced Marine division, a force service support group, and a Marine aircraft wing (containing roughly twice as many tactical fighter/attack aircraft as an Air Force tactical fighter wing, as well as a helicopter unit.)
[b] Includes support forces. Does not include 3-1/2 tactical fighter wings available as attrition fillers.
[c] These bombers would be accompanied by reconnaissance, command and control, and tanker aircraft.

The primary responsibilities of the Commander in Chief, United States Central Command, (USCINCCENT) are to ensure continued Western access to Persian Gulf oil; to deter Soviet aggression and preserve regional stability; and to reduce Soviet regional influence.

Although, most of our general purpose forces could be used for rapid-response missions, we have identified certain of our most mobile and ready units for priority allocation to USCENTCOM in a crisis (see Table III.F.1).

b. The Challenge and Risks

In a tension-filled region such as the Middle East, the danger of expanded conflict is ever-present. In recent years, the proliferation of technologically advanced weapons systems and increased Soviet support -- both direct and through proxies -- has increased the likelihood of terrorism, insurgency, and aggression. Our challenge is to preserve our interests and foster movement toward peace in this difficult context. We must continue to exercise patience, persistence, and imagination in pursuing our regional policies.

In the Persian Gulf area, the primary potential risk, in addition to a continuation of the Iran-Iraq war, would be direct Soviet exploitation of Iran's unsettled conditions stemming from the effects of long-term fighting and economic deprivation. Our challenge is to help friendly nations in the region preserve their freedom in the face of growing threats and to ensure Free World access to Persian Gulf oil.

In the Eastern Mediterranean, our primary objective is to help foster a peaceful resolution of the Arab-Israeli conflict. King Hussein, Prime Minister Peres, and President Mubarak have shown courageous leadership in their efforts to advance the peace process. We will continue to support their efforts and assist their nations in countering the threats posed by those hostile to peace.

c. The Recent Record: Improving Our Posture

We are making gradual but steady progress in discussions with several friendly countries concerning requirements for mutual support of our military forces in a crisis. For example, the Egyptian government has periodically reaffirmed its willingness to allow us temporary access to its facilities in the event the United States is invited to come to the defense of a friendly Arab country.

Negotiations and plans for obtaining such support must consider differing strategic priorities and perceptions of nations in the region; the absence of an indigenous integrated command structure and common operational concepts; major geographic barriers; political instabilities; and stong religious and cultural cleavages. Nations in the region are generally nonaligned, and all are wary of perceived superpower insensitivity to their sovereignty. We have approached several SWA countries with requests for host nation and contingency support and for permission to preposition U.S. materiel. We have achieved some successes and discussions are continuing.

We have improved our regional posture through exercises, security assistance, and enhanced presence. Beginning in 1980, the United States has developed an extensive exercise and training program with several regional states. The experience and training benefits for U.S. troops have been invaluable as we learned how to adjust for the unique characteristics of the region, including the harsh and diverse

climatic conditions. Substantial benefits accrue to friendly regional states as well.

The United States and several Arab countries benefit from combat and military support exercises in the theater. Our most recent major exercise, BRIGHT STAR 85, lasted about 45 days and involved more than 9,000 U.S. troops in three countries. In Egypt, U.S. and Egyptian staffs worked side-by-side to coordinate and control diverse activities, including a major live-fire exercise where U.S. and Egyptian forces repulsed a simulated attack on a key airfield. The United States and Jordan also conducted a series of combined exercises, many of which were a continuation of annual U.S.-Jordanian exercises. Moreover, building on experience from previous BRIGHT STAR scenarios, U.S. and Somali forces joined in combined operations and command post exercises.

To promote better understanding between the United States and friendly regional states, we have established several bilateral consultation groups. An important feature of our defense cooperation with Egypt involves annual meetings of the U.S.-Egyptian Military Coordinating Committee (MCC), a high-level forum for the planning, coordination, and discussion of security projects of mutual interest. The United States and Jordan conduct annual meetings each fall under the aegis of the U.S.-Jordan Joint Military Commission (JMC). Established in 1974, the JMC is the forum in which all outstanding security-related issues are reviewed.

The United States has also entered into a cooperative effort with Israel called the Joint Political-Military Group (JPMG). Among many issues considered by the group are combined planning, joint exercises, and requirements for prepositioning of U.S. equipment. Under the JPMG's guidance, the United States and Israel have also conducted a series of combined exercises that covered a range of activities beneficial to both nations.

We continue to deploy U.S. E-3A AWACS and tanker aircraft in Saudi Arabia and support Saudi and Gulf Cooperative Council efforts to enhance the security and freedom of navigation in the Gulf. In addition, as one step toward our goal of achieving a lasting Arab-Israeli peace, U.S. troops participate in Sinai peacekeeping operations as part of a Multinational Force and Observers program.

d. Security Assistance

In the Middle East and Southwest Asia, our financing and cash sales programs have helped regional states contain the Iran-Iraq war in the Gulf, encouraged the search for peace between Israel and its neighbors, and helped ensure the unimpeded flow of critical resources to the West. These programs have helped secure U.S. access and power projection assets necessary to deter aggression and protect critical sea-lanes.

e. International Armaments Cooperation

Several regional nations play an important role in the exchange of military technologies and goods and in the denial of militarily critical technologies and goods to our adversaries.

Cooperation with Israel continues and has provided valuable battlefield information to our Services. The U.S.-Israel Memorandum of Agreement has led to significant exchanges of technical information, cooperative R&D programs, exchanges of scientists and engineers,

and U.S. procurement of proven Israeli weapons systems. We are also continuing our armaments cooperation with friendly Middle East nations -- especially Egypt. We expect thereby to assist them in their military modernization efforts.

Our defense industrial cooperation agreement with Pakistan constitutes a significant element in our overall security relationship. This agreement is designed to improve Pakistan's industrial base and to complement U.S. security assistance support to that nation in aircraft, ammunition, communications, and armor. Evolving technical cooperation with India is a dynamic development that is being pursued in the wake of presidential initiatives.

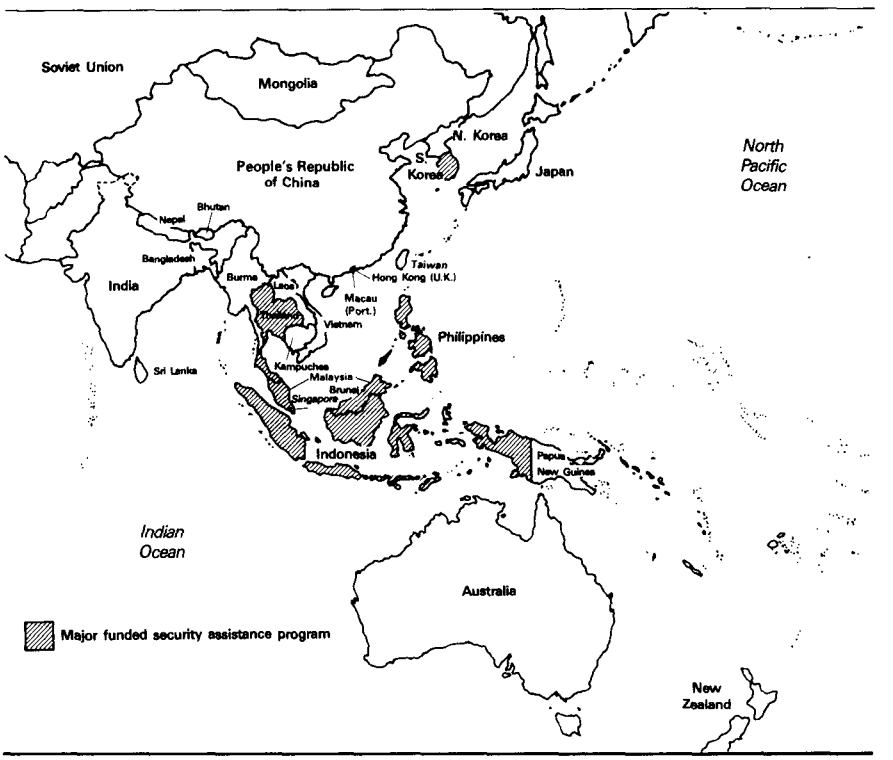
f. Special Programs

The United States and Egypt have initiated several projects outside the FMS program designed to improve Egyptian defense capabilities while contributing to the ability of U.S. forces to respond to contingencies in the area.

The United States and Israel have concluded agreements that should help bolster the Israeli economy and strengthen U.S.-Israeli relationships. The Free Trade Area Agreement will guarantee Israeli access to U.S. markets. The U.S.-Israel Memorandum of Agreement also allows Israel to compete with U.S. firms for some DoD contracts. Israel has also been invited to participate in the Strategic Defense Initiative (SDI) project.

6. East Asia and the Pacific

Chart III.F.4
East Asia and the Pacific



East Asia and the Pacific (depicted in Chart III.F.4) have important economic and security ties to the United States. Almost 35 percent of U.S. trade is conducted with the nations of this region, and five of our eight mutual security treaties link us with East Asian or Pacific nations. The commitments derived from these economic and security relationships require a strong and visible U.S. presence to deter the Soviet Union, North Korea, and Vietnam from interfering with the independence and stability of our friends and allies.

a. U.S. Forces

The U.S. Commander in Chief, Pacific (USCINCPAC), with headquarters in Hawaii and forces spread across the western Pacific and Indian Ocean, has geographic responsibility for over 50 percent of the earth's surface. Major units available to USCINCPAC are shown in Table III.F.2.

Table III.F.2
Forces Available to USCINCPAC

Army	Air Force
1 Infantry Division (Korea)	1 Strategic Bomber Squadron
1 Infantry Division (Hawaii)	11 Tactical Fighter Squadrons
	5 Tactical Support Squadrons
Marine Corps	
Portions of 1 MAF (Japan)	**Navy**
1 Marine Brigade (Hawaii)	6 Carriers with Air Wings
1 MAF (California)	89 Surface Combatants
	32 Amphibious Ships
	40 Attack Submarines
	12 Maritime Patrol Aircraft Squadrons

By helping Korea, Thailand, and the Philippines cope with ongoing conflicts or threats, we contribute directly to our own defense as well. Our efforts to assist the Philippines in coping with a growing armed insurgency are made even more important because our facilities at Philippine bases support U.S. presence throughout the region. We would find it very difficult to replace these facilities with comparable ones, and it is, of course, impossible to duplicate the geographic advantages of the Philippines.

b. The Challenge of Preserving the Independence and Stability of our East Asian and Pacific Allies

The Soviet Union's relentless drive to increase its military power and expand its influence in East Asia and the Pacific continues unabated. Since early 1984, we have seen more Soviet strategic and intermediate-range missiles deployed in the region. The Soviet navy deployed a second aircraft carrier and an Ivan Rogov-class landing ship to the Pacific. Modernization of the Soviet air force units in the Far East also continued. Most significantly, the Soviets improved their massive air and naval base at Cam Ranh Bay, Vietnam. It is now the largest forward deployment base and staging facility outside the Soviet Union. Operating from Cam Ranh Bay, Vietnam, Soviet air and naval forces could strike U.S. military units and facilities in the Pacific as well as interdict vital sea lines of communications in the South China Sea. The buildup of the Soviet capability in the region is clearly aimed at the United States and its regional friends and allies.

The Soviet Union poses the greatest challenge to U.S. interests in East Asia and the Pacific, but it is clearly not the only

security threat in the region. Maintaining peace and stability in Northeast Asia -- where the interests of the United States, Japan, China, and the Soviet Union converge -- is a vital concern of the United States. Renewed conflict on the Korean peninsula would endanger regional stability and test the political relationships of the major powers. For more than 30 years, the joint efforts of the United States and the Republic of Korea (ROK) have deterred North Korean aggression. Our support to the ROK under the Mutual Defense Treaty of 1954 and, in particular, the presence of U.S. air and ground forces in Korea, have played a key role in this deterrence. In recent years, however, North Korea has undertaken an extensive military reorganization and redeployment including repositioning of ground combat forces nearer the DMZ. This has seriously reduced the warning time available to U.S. and ROK forces should North Korea determine to launch an attack. Additionally, Soviet MiG-23 aircraft have been provided to North Korea. Thus, we face both a greater risk of conflict and a greater challenge to deter or, if deterrence were to fail, to defend effectively against North Korean aggression. We are committed to meeting this challenge to regional security by maintaining our own strength and helping the ROK build its capability for self-defense.

Our developing defense relationship with China is based on a commonality of security interests. A secure, modernizing China can be a force for peace and stability in East Asia and the world. In this context, the United States can play a positive role in China's defense modernization through high level dialogues, functional military exchanges, and military technological cooperation in areas that will enhance China's ability to defend itself against external threats.

The Cambodian people continue to suffer under a brutal Vietnamese military occupation. At the same time, the large Vietnamese force in Cambodia threatens our ally, Thailand. We are committed to help the Thai government meet regional threats and defend its borders against Vietnamese aggression.

We are deeply concerned about the deteriorating political, economic, and security situation in the Philippines. The rapidly growing communist insurgency, in particular, presents a serious threat to the Philippine government and the future of the nation. The reversal of current trends in the Philippines will not be an easy task. Recent government initiatives in the area of military, political, and economic reform hold promise, but progress in the restoration of democratic institutions, revival of the economy, and reduction of domestic violence is necessary if the Philippine government is to cope with the challenge of communist insurgency. The armed forces of the Philippines have a solid core of loyal, professional officers capable of correcting the military's internal problems while aggressively pursuing a successful counterinsurgency strategy. Too often in the past, however, resources and leadership problems have thwarted progress against the insurgency. The United States will continue to meet its commitments, encourage the energetic implementation of military reforms, and support the amelioration of the conditions that fuel the communist insurgency.

c. Fulfilling our Security Commitments in the Region

The size of the East Asian and Pacific region and the limited availability of U.S. forces require strong cooperation with our friends and allies to meet threats posed by potential adversaries.

(1) Japan

Our defense partnership with Japan, based on the Treaty of Mutual Cooperation and Security, remains the cornerstone of our defense policy in East Asia. Japan's 1986-1990 defense program, if fully carried out, should provide the minimum necessary capability to meet Japan's national defense goals of territorial, air, and sea-lane defense out to 1,000 miles. Owing to Japan's unique geostrategic location astride routes of egress from major Soviet Far East operating bases, an effective Japanese self-defense capability would be a major contribution to local, regional, and, indirectly, to global deterrence.

(2) Republic of Korea (ROK)

U.S. and ROK forces face a growing North Korean military threat. North Korea could today launch a massive attack with minimal warning. Together with the ROK and our United Nations partners, we must continue to strengthen U.S. and ROK capabilities. With U.S. assistance, ROK ground and air forces are modernizing and improving their ability to conduct joint operations. U.S. forces conduct major live-fire exercises with the ROK each year, including TEAM SPIRIT. We are also helping Korea improve its command, control, communications, and intelligence (C^3I) systems, upgrade its petroleum storage facilities and contingency airfields, and enhance the overall sustainability of its forces. The ROK provides significant peacetime host nation support to U.S. forces in Korea through the Combined Defense Improvement Projects (CDIP) program, much of which would continue in time of war.

(3) The Philippines

The Mutual Defense Treaty of 1951 and the Military Base Agreement of 1947 are the foundation of our security relationship with the Philippines. U.S. military facilities there permit a continuous air and naval presence in East and Southeast Asia and support U.S. forces operating in the western Pacific and Indian Ocean. The proximity of these facilities to the international sea-lanes connecting the Persian Gulf, Southeast Asia, and Northeast Asia makes them particularly important to the security of the region.

(4) Thailand

Thailand's independence and territorial integrity are critical to the stability of Southeast Asia. The presence of a large Vietnamese military force in Cambodia poses a direct threat to the security of our treaty ally, Thailand. During the past year, we have helped Thailand modernize its armed forces through our security assistance program, conducted bilateral combined exercises with Thai forces, and signed a new agreement to facilitate logistics cooperation. We will continue to provide Thailand with military assistance and training to bolster its self-defense capability.

(5) Australia and New Zealand

The ANZUS treaty, which links us with two of our oldest allies, Australia and New Zealand, remains under severe strain because of New Zealand's port access policies. Although the treaty remains in force, our security cooperation with New Zealand has been appropriately reduced. Enactment by New Zealand of adverse legislation continuing the port access ban will cause us to review our security obligations to New Zealand under ANZUS. Bilateral cooperation with Australia,

under ANZUS, continues to serve as the foundation for our mutual security efforts in the South Pacific.

d. Security Assistance

In East Asia and the Pacific region, security assistance and cash sales augment other policy instruments to achieve stability and political independence. The bulk of security assistance will help to deter external threats to Korea and Thailand and to enhance our close military relationship with the Philippines by helping that nation cope with a communist insurgency. Our programs in other ASEAN countries are consistent with our strong support for ASEAN and are aimed at supplementing those countries' efforts at self-defense, which is crucial for regional stability.

In the Philippines, U.S. security assistance funds are slated to help modernize the Philippine armed forces, especially in the areas of mobility, communications, and support for existing U.S.-origin equipment. In Thailand, our security assistance supports the government's efforts to improve social and economic conditions in the Thai-Cambodian border areas, which have experienced a large influx of refugees as a result of continued attacks by Vietnam. The threat from Vietnamese forces to Thailand also underscores the importance of our efforts to help the Thai government modernize its armed forces. To maintain support for South Korea, we propose to use FMS funds to augment Korea's efforts at improving the combat capabilities of its forces, many of which are stationed with our forces along the demilitarized zone and would operate with us under a joint command in time of war.

e. International Armaments Cooperation

Through technological consultation and cooperative armaments developments, most notably in tanks, communications equipment, and tactical missiles, we will continue to strengthen Korea's conventional force capabilities.

As Japan has a considerable technology base that could benefit U.S. defense systems, we have expanded our efforts to develop technology and systems cooperation with that country, with particular emphasis on encouraging a flow of Japanese military technology to the United States. The benefits of increased cooperation with Japan are:

-- A strengthened U.S. industrial base, resulting from the stimulus of technology in those areas in which Japan has a lead;

-- More efficient use of our R&D resources as we avoid duplicating Japanese development efforts and focus our attention on developing and introducing better systems sooner; and

-- Improved interoperability, thereby strengthening the security force structure in the northern Pacific.

Our technology cooperation efforts with Japan call for Service and industry experts in specific mission areas to assess the threat and the technologies available to meet that threat, and to identify applicable systems and technologies. The first two such groups have been established in the air defense and communication systems mission areas, and we are discussing procedures for the transfer of Japanese military technology to the United States.

Cooperative programs with Australia continue to progress and new initiatives are under discussion. In Southeast Asia, programs of mutual benefit are being explored with Indonesia and Singapore, and we are working closely with other nations in the area against a backdrop of greater Soviet presence in the South China Sea and the Pacific Ocean.

7. Western Hemisphere

Chart III.F.5
Western Hemisphere

Our primary defense objective is to maintain the security of North America, the contiguous Caribbean Basin, and the sea and air approaches that link us to the rest of the world. We share the world's longest undefended border with Canada, a strong ally that assists in our mutual defense. We also share a heritage with our Latin American allies. The Rio Treaty and the Canada-U.S. Basic Security Plan reinforces our commitment to regional security.

a. U.S. Forces

Considering the close proximity of the Caribbean Basin to the United States, the small number of forces stationed there does not reflect the real significance of U.S. strategic interests in the region. This region has been and continues to be an economy of force area.

The Commander in Chief, U.S. Southern Command (USCINCSOUTH), with headquarters in Panama, has responsibility for U.S. military forces stationed in Central and South America. The Commander in Chief, U.S. Atlantic Command (USCINCLANT), headquartered in Norfolk, Virginia, has responsibility for the Caribbean and waters adjacent to Central and South America.

The United States has about 10,000 military personnel in SOUTHCOM, including an Army brigade and small Air Force and Navy elements in Panama, primarily to protect the Canal. The United States also has naval bases in Puerto Rico and at Guantanamo Bay, Cuba, and maintains a continuous naval presence in the Caribbean to protect the sea lines of communications.

b. The Challenge

The primary objectives of U.S. policy in this region are to foster democracy, reform, and human freedom; support economic development; support dialogue and negotiations; and provide a security shield under which these elements can be nurtured. The Soviet Union and its proxies -- Cuba and Nicaragua -- continue to take advantage of the social, political, and economic instabilities of the region in hopes of expanding their Marxist-Leninist foothold in Central America and the Caribbean. Communist penetration near our southern border and our Caribbean flank presents a direct threat to our security interests and those of our neighbors. The Caribbean Basin is the strategic crossroads of this hemisphere. Cuba and other Caribbean Basin countries sit astride major sea lines of communications that are vital to our security and economic prosperity. Soviet/Cuban strategy expands the threat to our Caribbean lifeline with their support of the military buildup in Nicaragua and destabilizing guerrilla wars throughout the region. The Soviets would like to repeat their Cuban success in Nicaragua. We must seek effective ways to reduce Soviet presence and influence in this hemisphere and to constrain Soviet-Cuban supported aggression and subversion threatening our neighbors to the south.

c. Risks

Although all of the problems facing the region have not been resolved, enough progress has been made to convince us that our policies to bring peace, democracy, and development to the region are working. Democratic progress in El Salvador exemplifies what can be done when we demonstrate our commitment as a reliable ally. Without unwavering U.S. support, we risk reversal of the favorable trends in El Salvador, i.e., improved performance of the Salvadoran

armed forces, reduction of guerrilla combatants, and diminishing guerrilla support among the population. Without the pressure exerted by the Nicaraguan Democratic Forces on the Sandinista regime, the regime will continue to consolidate a communist state based on repression and to support guerrilla wars undermining Nicaragua's neighbors. Moreover, the growing evidence of a connection between drug traffickers, terrorists, and guerrillas, particularly in the Andean countries, adds a new dimension to the threat. Without a firm commitment to provide the assistance and support necessary to combat all forms of low-intensity threats to peace, democracy, and development in this hemisphere, we will continue to confront the alternatives of poverty, dictatorship, and Marxist destabilization accompanied by a massive flow of refugees.

d. Exercises and Training

U.S. military activities in Central America in 1985 consisted primarily of combined exercises and small-unit training deployments to Honduras. Counterinsurgency exercises such as AHUAS TARA, CABANAS, and UNIVERSAL TREK were complemented with smaller exercises such as FULL PLATE and the naval surveillance exercise KING'S GUARD. Additionally, we conducted an engineering training exercise, BLAZING TRAILS, and a canal defense exercise, KINDLE LIBERTY, in Panama. The Central American exercise program demonstrates U.S. commitment to our allies and provides training opportunities that enhance the combat-readiness of our forces to respond to regional crises. Additionally, we conduct several joint and combined exercises annually in the Caribbean including UNITAS (Caribbean Phase), OCEAN VENTURE, READEX, EXOTIC PALM, and UPWARD KEY.

e. Security Assistance to American Republics

In our own hemisphere, Central America is our priority strategic concern. Our assistance programs have concentrated on the defense and economic needs of El Salvador, Honduras, and the other Central American states.

We wish to work closely with Grenada and the other Eastern Caribbean democracies to build up their own security capabilities so that the future involvement of U.S. military forces will not be necessary. The Caribbean area also faces economic problems, drug trafficking, and subversive movements that add to the security concerns of the United States.

South America is struggling with the combined threats posed by weak economies, rampant inflation, high unemployment, excessive population growth, heavy external debts, skewed wealth distribution, illicit drug trafficking, international terrorism, and Marxist-Leninist supported insurgencies. Some of these problems have reached crisis proportions and pose serious security implications for the United States. We have a particular interest in helping the Andean countries maintain their democratic systems, defend against insurgencies and terrorism, and oppose narcotics cultivation and trafficking.

f. International Armaments Cooperation

We are investigating the feasibility of defense industrial cooperation programs in Central America to aid regional countries in assessing their most important military requirements and to improve their defense capabilities. We have enhanced bilateral cooperation with Brazil by participation in scientific and engineering exchanges.

g. Special Programs

Intelligence sharing is a key element of our assistance in Central America. Once again, successes in El Salvador provide a good example of what can be done. The information we have supplied to the Salvadoran armed forces has been used in planning and continuing operations against guerrillas and terrorists. The Salvadoran guerrillas are finding it increasingly difficult to operate in the countryside and have resorted to urban terrorism, a step backward for them. The use of shared information in the pursuit of the guerrilla groups that claimed responsibility for the murder of U.S. Marine guards illustrates the value and effectiveness of intelligence-sharing. We hope to expand intelligence-sharing to assist other countries victimized by guerrilla insurgencies.

The important military-to-military contact program continues in the form of conferences of the Inter-American service chiefs and exchange visits by defense leaders. To ensure that we maintain this contact with future military generations, we are developing a military scholarship program for junior officers and defense force leaders from the Americas to study in the United States. This program will complement professional military education programs already in being by providing our friends and allies in the region an alternative to counter Soviet-bloc and Cuban scholarship programs and to foster an understanding of and support for democracy, the promotion of which is the fundamental objective of U.S. foreign policy in the region. The U.S. Army School of the Americas, formerly in Panama, which had trained Latin American officers for 38 years, closed its doors in September 1984 pursuant to provisions of the Panama Canal Treaty. Because of its major contributions to our security and to the security of our neighbors, the school is continuing to operate from temporary quarters at Fort Benning, Georgia, until a suitable permanent CONUS facility can be found. We will continue to support the security forces of the member states of the Eastern Caribbean Regional Security System, as well as Jamaica and the Dominican Republic. To the extent possible, we will coordinate our efforts with those of allied nations active in the region, particularly the United Kingdom and the Netherlands.

8. Sub-Saharan Africa

In Africa, our principal objectives are to support the independence and stability of friendly governments; to preserve free access to mineral resources essential for meeting defense and industrial needs of the Western nations; and to deny the Soviet Union and its allies opportunities to make further inroads in the region. These goals are threatened by endemic unrest compounded by Soviet-bloc and Libyan adventurism in the region. The Soviets and their allies continue to unsettle the region through large-scale military supply and advisory efforts. Moreover, a 35,000-man Cuban expeditionary force in Angola continues to aggravate regional tensions and frustrate a peaceful settlement in neighboring Namibia. Libya, supplied primarily by Moscow and its allies, has stepped up its campaign of subversion against neighboring countries and has solidified its military occupation of northern Chad.

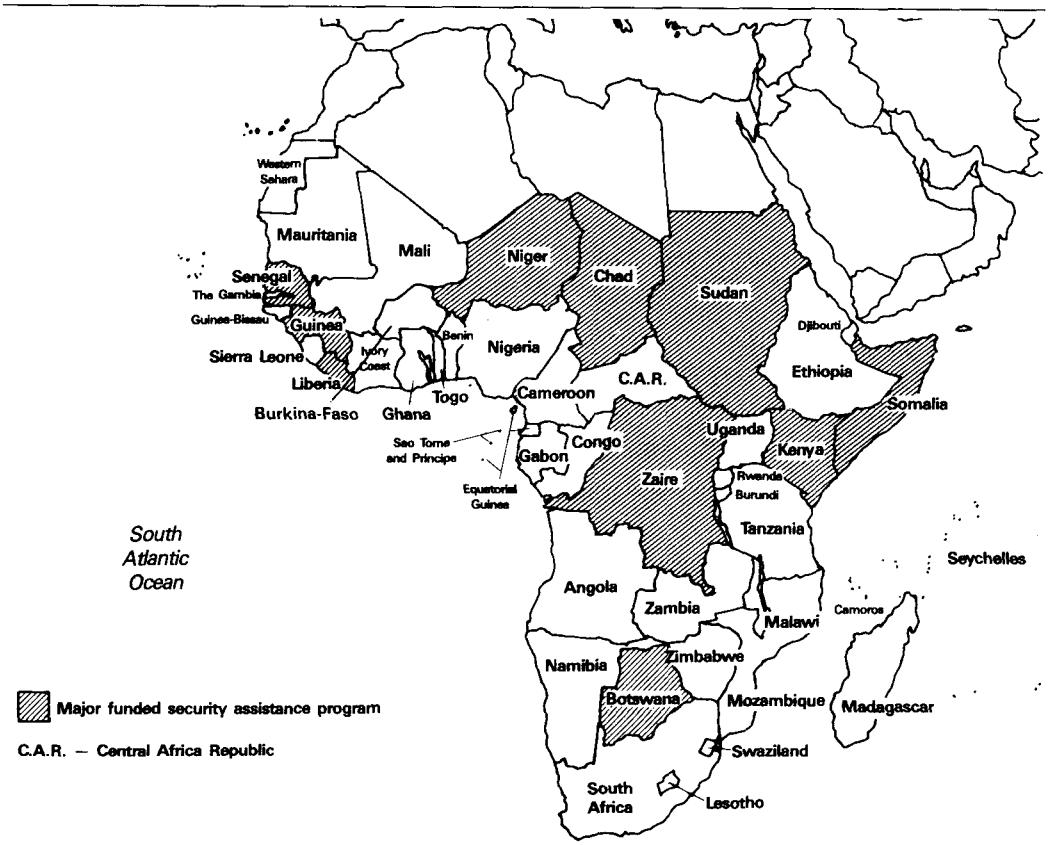
a. U.S. Forces

In recognition of these threats and the region's increasing importance, portions of Sub-Saharan Africa have been assigned to three separate unified commands. U.S. European Command (USEUCOM) has responsibility for most of the continent, while the area of

responsibility of the U.S. Central Command (USCENTCOM) includes the Horn of Africa -- Egypt, Sudan, Ethiopia, Djibouti, Somalia, and Kenya. Additionally, U.S. Pacific Command (USPACOM) is assigned responsibility for the four Indian Ocean island states adjacent to Africa.

Chart III.F.6

Sub Saharan Africa



b. The Challenge and Risks

Over the past few years, we have made substantial progress in implementing security assistance and related programs to counter threats to U.S. interests in the region. Libya's campaign to topple the Chadian government has been stymied; Ethiopia's incursions along the Somali border have been contained; and rebel activities in eastern Zaire have been checked by government forces. Moreover, security assistance programs have been initiated in such countries as Guinea and Madagascar to reinforce their shift from heavy dependence on the Soviets toward a more nonaligned posture.

Nevertheless, many parts of Africa are volatile, and serious reversals are entirely possible, especially should Western attention flag or resources devoted to the continent's numerous trouble spots dwindle. Libya's subversion campaign is resurgent, with Tunisia and Chad as prime targets. Southern Africa is in turmoil, with Soviet arms deliveries to Angola increasing both quantitatively and qualitatively. Many countries in the Sub-Saharan region are mired in economic stagnation, struck by extended drought, and desperate for

assistance to raise levels of food production. Promoting stability under such conditions requires the diligent application of adequate resources.

c. Security Assistance

The security assistance program in Sub-Saharan Africa concentrates on supporting countries threatened by the Soviets or their clients -- particularly Libya -- with special emphasis on the most vulnerable states of the Sahel and the Horn. We are committed to fostering education and professionalism among the military and assisting the economic development of the region to encourage self-sufficiency.

Although the FY 1987 request is modest in funding terms, security assistance is a significant resource for maintaining and improving our influence in the region in order to further our political and strategic objectives.

The principal DoD activities contributing to stability in Sub-Saharan Africa are our military assistance programs. Since 1981, we have sought to tailor these programs to African conditions. Strengthening the defense capabilities of our African friends requires attention to intractable socio-economic problems in addition to assistance in building basic military capabilities. To avoid overburdening fragile economies with debt, we have almost entirely replaced credit sales with grants. Our FY 1987 security assistance request for this region is over 90 percent grant. This includes funding to continue the Military Civic Action and African Coastal Security programs -- initiatives designed to contribute to nation-building and the economic well-being of Africans. Additionally, the Coastal Security program will help African nations check Soviet overfishing and other exploitative practices. The highly regarded IMET program, which in FY 1987 will reach 40 of the 47 states in the region, promotes military-to-military contacts, enhances professional skills and training, and exposes African military personnel to American values. Our program to enroll African cadets into each of the U.S. service academies also advances these goals.

Our security assistance request reflects our deep concern with instability in the Horn of Africa. Maintaining access to local military facilities in the Horn is a key element of our Southwest Asia strategy. But massive Soviet support for Marxist Ethiopia, Libyan meddling, and unrest stemming from economic stagnation and domestic conflict threaten this strategic goal and other U.S. interests in the region. Accordingly, the three largest U.S. military assistance programs for Sub-Saharan Africa are in Sudan, Somalia, and Kenya. These programs help build basic military capabilities to resist outside aggression and promote domestic stability; increase U.S. contact with host military establishments; and facilitate host nation support agreements.

d. Host Nation Support Agreements

Kenya has allowed us to use its facilities at Mombasa, where we have dredged the harbor and upgraded the airfield with improved navigation aids, utilities, and maintenance facilities. This port is useful for maintaining and refueling our ships, including aircraft carriers, and offers one of the few locations in the region for crew rest and liberty. Somalia has allowed us access to its seaport and airfield at Mogadishu, where we have improved the airfield's pavement and support facilities, and at Berbera, where we have made airfield modifications and port improvements, and have added fuel storage and

distribution facilities. In Djibouti, U.S. Navy ships and aircraft use local facilities in support of Indian Ocean operations.

e. Burdensharing

To avoid duplication of effort and build on the extensive experience of other countries outside the region, we are working closely with friends and allies, including the United Kingdom, France, and Italy, in carrying out security assistance and other programs in Africa.

G. SPECIAL INTEREST ITEMS

1. Strategic Defense Initiative

a. Introduction

In his March 23, 1983 speech, President Reagan described his vision of a world free of the threat of nuclear war. In doing so, he set in motion the establishment of the Strategic Defense Initiative (SDI). He called for an intensive and comprehensive effort to define a long-term research program with the ultimate goal of reducing or even eliminating the threat from ballistic missiles, a vital step toward freeing the world from the fear of nuclear conflict. The Fletcher Study followed and laid the foundation for what became the Strategic Defense Initiative Organization (SDIO).

SDIO was established as a research program to investigate the feasibility of advanced defensive technologies to provide a better basis for deterring aggression, strengthening stability, and increasing the security of the United States and our allies. It also seeks to reduce and, if possible, eliminate the threat posed by ballistic missiles. This research program will provide a future President and the Congress the technical knowledge necessary to support a potential 1990s decision on whether to develop and deploy advanced defensive systems.

SDIO is not a weapons development program, nor is it a program with preconceived notions of what a potential defensive system against ballistic missiles should entail. It is too early in the program to speculate on the kinds of defensive systems -- whether ground-based or space-based -- or on the capabilities that might prove feasible and desirable to develop and deploy. Moreover, nonnuclear defensive weapons are being emphasized. The defense that might evolve from the research program will not be intended to defend our strategic weapons systems. We are considering ways to defend both our territory and that of our allies against the ballistic missile threat. As the work progresses, we are in full consultation with our allies. All research is being conducted in full compliance with the ABM treaty.

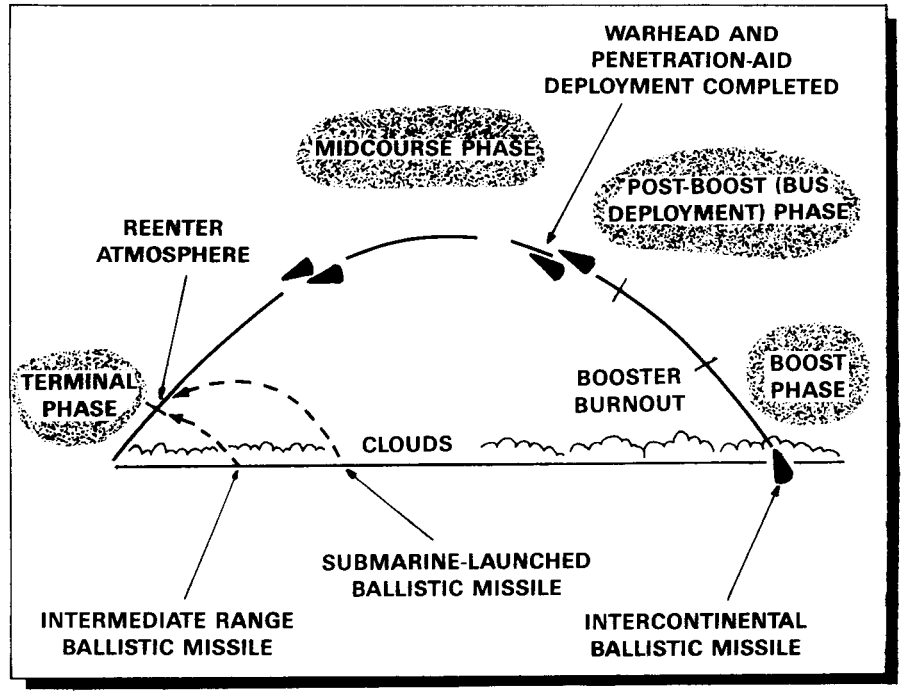
In addition to the promise offered by strategic defenses for rendering ballistic missiles obsolete, research has been undertaken as a response to the threat posed by Soviet nuclear and ABM activities. The Soviet Union has failed to show the type of restraint, in both strategic offensive and defensive forces, on which the ABM treaty was based. Their continuous improvement of ballistic missile forces with enhanced hard target kill capability threatens the viability and credibility of our deterrent capability. At the same time, the Soviet Union has continued to pursue a strategic advantage through the development and improvement of active defenses as well as major hardening of their principal assets. These active and passive defenses give the Soviets increasing potential to counter retaliatory forces, especially if our retaliatory capability were degraded by a Soviet first strike. Their significant expenditures on passive defensive measures aimed at improving the survivability of their forces, military command structures, and national leadership poses a very troublesome situation. In the face of these developments, pursuit of the SDI by the United States is both prudent and necessary.

Structured after the framework outlined by the Fletcher Study, the objective of the SDI is to develop a layered defense capability. Earlier defensive systems were fashioned around the idea of a single, terminal defense phase. The difficulties associated with attaining

the necessary effectiveness with a single-layer defense, as well as the relative ease with which such a defense could be overwhelmed, made its value questionable. With the advent of rapidly emerging technologies in fields such as data processing, optics, directed energy, sensors, and other related fields, there is new promise of the possibility of engaging a ballistic missile or its warheads at all points in their flight.

The layered defense approach offers a powerful disincentive to a potential aggressor because of the large uncertainties introduced in planning and launching a successful attack. Given the absence of active and passive U.S. defenses today, an attacker must consider only his missile reliability, warhead reliability, yield, and accuracy in seeking to destroy a target. To assure a high probability of success, up to three warheads may be dedicated to a target. When faced with a single layer defense having a 20 percent leakage rate, the number of warheads need be increased by only three to five warheads per target to give the same measure of confidence in destroying the target. However, if faced with a three-layered defense, each layer having an 80 percent effectiveness rate, the attacker would have to deploy literally hundreds of warheads to a single target to obtain the same confidence of success. With a strategic defense potentially having four or more layers, with possible engagement at any point along a trajectory, deterrence is substantially bolstered by this reduction in an attacker's confidence of success. If our objectives of developing reliable defenses are realized, proliferation would be forestalled -- given the fact that even prohibitive increases in numbers of Soviet warheads would not change their inability to destroy U.S. targets if the Strategic Defense Initiative proves reliable and feasible.

Chart III.G.1.1
Multiple Layered Defense



At the same time, strategic defenses will be judged desirable only if they are thoroughly reliable. Survivability, of course, is also vital to maintain stability in time of crisis.

b. Program Overview

To carry out this research program SDIO has established five program elements:

-- Surveillance, acquisition, tracking, and kill assessment (SATKA);

-- Directed energy weapons technology (DEW);

-- Kinetic energy weapons technology (KEW);

-- Systems analysis/battle management (SA/BM); and

-- Survivability, lethality, and key technologies (SLKT).

(1) Surveillance, Acquisition, Tracking, and Kill Assessment (SATKA)

SATKA is fundamental to the success of SDI research because it provides the "eyes" for all other program elements. It includes promising technologies with wide ranges of maturity. Among the goals of technology research are:

-- New optical and radar sensors capable of efficiently detecting and tracking multiple objects in a nuclear threat environment;

-- On-board signal and data processing systems capable of performing acquisition, tracking, discrimination, and kill assessment on the sensor platform and passing these results to battle management;

-- Data on observables from ballistic missiles and their warheads; and

-- Experiments to test the integration of these technologies short of ABM components.

(2) Directed Energy Weapons Technology (DEW)

DEW research provides technology for two principal missions:

-- Interactive discrimination of decoys from reentry vehicles; and

-- Boost and post-boost phase intercept.

The ability of directed energy systems to "perturb" objects offers a uniquely direct mechanism for performing midcourse discrimination, so essential for the viability of midcourse intercept.

For the second mission, directed energy weapons would more fully address the fast time line and depresssed trajectory threats and thereby provide critical leverage to reduce the utility of ballistic missiles. The state-of-the-art is being advanced in technologies for:

-- High-power laser and particle beam generation;

-- Optics and sensors for correcting and controlling the high-power beam;

-- Large, lightweight mirrors and lightweight magnets for focusing the beam on targets;

-- Precision acquisition, tracking, and pointing to direct and hold the beam on target; and

-- Control measures to capitalize on features unique to directed energy devices such as the ability to measure and control the energy delivered to a target.

(3) Kinetic Energy Weapons Technology (KEW)

KEW supports a broad range of applications across the full spectrum of a ballistic missile defense including relatively near-term options that could conceivably contribute to a hedge against a Soviet breakout of the ABM treaty. Technologies relating to precision rocket interceptors and hypervelocity guns will be explored to provide potential nonnuclear kill of ballistic missiles in all phases of flight -- boost, mid-course, and terminal. Technology base efforts include:

-- Smart seekers to acquire targets rapidly and provide highly accurate terminal homing;

-- Advanced guidance and control techniques to control interceptor maneuvers for direct impact with targets;

-- Miniature rocket vehicles for boost and mid-course ballistic missile intercept, as well as satellite defense; and

-- Electromagnetic launchers and smart hypervelocity gun projectiles.

(4) Systems Analysis/Battle Management (SA/BM)

Systems analysis/battle management is studying candidate architectures for future defensive systems as well as exploring technologies to implement communications, command, and control for a potential ballistic missile defense. Included here are threat analyses, mission analyses, conceptual design options for defensive architectures, performance requirements definition, and evaluation for all levels of a layered defense.

(5) Survivability, Lethality, and Key Technologies (SLKT)

SLKT addresses some of the most fundamental issues facing SDI -- survivability and lethality. It includes technology for enhancing survivability, reducing uncertainties regarding kill mechanisms and vulnerabilities, evaluation of countermeasures, investigating the needs of SDI logistics, and improvement of space power. The success of SDI is closely linked to our ability to provide electrical power in space as well as placing, operating, and maintaining systems in space. These issues must be resolved before any future decisions with respect to possible development and deployment may be addressed.

c. Progress

Against this background, the SDIO has made significant progress in the past year. It centralized the planning and control of the

research program, while decentralizing the execution of specific technology efforts. In doing so, the achievements in program management, resource management, and technical progress are particularly noteworthy.

SDIO effectively managed its funds during this period, despite normal problems of startup and large program growth. Obligation rates for FY 1985 were 94 percent. Actual program expenditures were comparable to similar DoD research activities such as the Defense Advanced Research Projects Agency (DARPA) and the Air Force Research and Development (R&D) Office. This was accomplished while executing approximately 1,000 SDI contracts during the course of the year.

Progress has proceeded in a number of technical areas. Directed energy research in the field of atmospheric compensation has yielded very promising results in technologies that could support the concept of large, ground-based lasers. Work with free electron lasers (FELs) has progressed more rapidly than anticipated, increasing the potential for application of this technology years ahead of schedule. In September, an experiment in which the MIRACL chemical laser destroyed a static Titan booster, demonstrated graphically the lethality of such a device.

The surveillance and sensor areas have witnessed equally impressive progress. Miniaturization and advances in optical sensors have provided rapid gains in SATKA technologies. Multispectral measurements of booster, post-boost vehicle, and reentry vehicle signatures have been obtained by both optical and radar systems. These measurements are necessary to understand threat signatures and will be used in the development of sensor technology. Considerable progress has also been made in imaging, particularly through phased-array radar technology and signal processing improvements. These advances will enhance our ability to identify threat objects. Additionally, significant progress has been achieved in technologies for hardening of high density microelectronic processors and infrared (IR) focal plane arrays against the effect of nuclear radiation that would be experienced during a nuclear exchange.

Electromagnetic launcher, or "rail gun," research in kinetic energy is progressing well. The ability to inject high levels of power to these devices has been demonstrated far sooner than expected. The implications of this are that heavier projectiles could be accelerated and higher, more lethal velocities attained. This adds to the number of possible weapons options that could be considered for an early defensive system.

The SDIO's Innovative Science and Technology Office is sponsoring research at the leading edge of science. Examples of a few of the concepts being explored under their direction include: advanced pulsed power, carbon-carbon composites, laser satellite networking, plasmoids and ion rings, ultra-high-speed computing, optical signal processing, and ultra-shortwave length lasers. Research by scientists at more than 70 universities and academic institutions as well as additional efforts by small businesses, laboratories, and major industry are supporting the work of the program.

The examples listed have been accomplished in the face of significant challenges to program management. The budget for SDI was established at levels essential to meet the direction set forth by the Fletcher Study. Extensive cuts to the SDI budget have led to program delays and reductions to some program efforts. The final result is that overall program success has been put more at risk.

d. Allied Participation

Many of our allies have indicated support for SDI research and in some cases interest in participating. The United States and the United Kingdom recently signed a memorandum of understanding establishing the framework for British participation in the SDI program. Discussion with the Federal Republic of Germany began in January 1986, and the possibility for an agreement similar to the U.K. agreement is promising. We also hope discussions with the Italian government will begin soon. U.S. and allied security remains indivisible and work will continue closely with them to ensure that, as research progresses, allied views are carefully considered. In addition to direct work for the program, their contributions could include innovative university research, individual exchanges, subcontracts to U.S. industry, or associate contractor arrangements.

e. Conclusion

In conclusion, there are several cogent themes that capture the direction and scope of the SDI program that bear repeating:

-- The aim of SDI is to secure and deploy a thoroughly reliable defense against Soviet strategic and intermediate-range missiles. Our research program to determine if we can do this is well under way;

-- Research will last for some years. Our research program is within the ABM treaty limitations, despite Soviet violations of that treaty;

-- It is too early in our research program to speculate on the kinds of defensive systems -- whether ground-based or space-based and with what capabilities -- that might prove feasible and desirable to develop and deploy;

-- The purpose of the defensive options we seek is clear -- to find a means to destroy attacking ballistic missiles before they can reach any of their potential targets;

-- U.S. and allied security remains indivisible. The SDI program is designed to enhance allied security as well as U.S. security. We will continue to work closely with our allies;

-- We are seeking serious Soviet considerations in our negotiations at Geneva on how deterrence can be enhanced through a greater reliance by both sides on new defense systems. Of course, we would not under any circumstances give the Soviets a veto over our future defensive deployments;

-- SDI represents no change in our commitment to deterring war and enhancing stability;

-- For the foreseeable future, offensive nuclear forces and the prospect of nuclear retaliation will remain the key elements of deterrence. Therefore, we must maintain modern, flexible, and credible strategic nuclear forces; and

-- Our ultimate goal is to eliminate nuclear weapons entirely. By necessity, this is a very long-term goal, which requires, as we pursue our SDI research, equally energetic efforts to diminish the threat posed by conventional arms imbalances,

both through conventional force improvements, and the negotiation of arms reductions and confidence building measures.

2. Space Systems Operations

To maintain the security of the United States, DoD acquires and operates space systems and pursues advances in related research and technology development. The expansion of Soviet space programs and capabilities has continued to the point where space assets play a major role in their combined arms concept of warfare. The use of space for military purposes is an integral part of Soviet military planning. Our activities in space, partly in response to Soviet actions, are predicated on the fact that we must have free access and use of space. Our current space systems support a variety of functions, such as communications, tactical warning and attack assessment, arms control verification, weather, and space defense. This functional support, coupled with the global access permitted by satellites and the efficiency and effectiveness of their use -- both in terms of mission and cost -- reflect the primary reason for our space activities.

Our objectives in space include:

-- Providing an expendable launch vehicle to complement the shuttle for assured access to space;

-- Improving the reliability, maintainability, and supportability of our space assets;

-- Achieving an operational antisatellite capability compatible with the President's pledge to seek the strictest possible ASAT agreement, which is both verifiable and in the national security interests; and

-- Continuing to exploit the unique attributes of the space shuttle as they relate to military applications in space.

We are now deploying military payloads on the shuttle using the inertial upper stage (IUS) and are proceeding with our plans for the first Vandenberg shuttle mission in July 1986. We have initiated a Complementary Expendable Launch Vehicle (CELV) program with an initial operational capability (IOC) of 1989, which will utilize a TITAN 34D7 to complement the shuttle for critical national security payloads. We are also implementing a program that will use refurbished TITAN ICBMs as space launch vehicles for small DoD payloads requiring unique orbits and launch on-demand capability.

At Vandenberg Air Force Base the Shuttle Launch Complex was officially dedicated and declared operational this past October. Work on that part of the Consolidated Space Operations Center (CSOC) facilities which will augment existing satellite command and control capabilities, is essentially complete. We expect to conduct initial military satellite control operations at the CSOC in late 1986.

On September 23, 1985 the United States Space Command was activated. This command will better serve U.S. interests and the needs of our allies worldwide by centralizing operational responsibilities for effective use of military space systems.

Space related research and technology is ongoing to ensure that we are not technologically surprised by our adversaries, to advance our own capabilities for getting to and operating in space, and to improve the survivability of future space systems. We have undertaken

with the National Aeronautics and Space Administration (NASA) a major study to identify the required technologies and supporting elements of a second generation space transportation system. This effort will investigate not only advanced propulsion concepts such as scramjets, but will also address the ground operations aspect of space launch with a goal of significantly reducing current launch costs.

3. Chemical Deterrence

a. Introduction

In responding to the threat of chemical warfare, we are primarily concerned with deterring the use of chemical weapons by any potential enemy. With regard to chemical warfare, we stand by our "no first use" commitment. Further, in accordance with our own policy and international treaty obligations, we will not possess biological or toxin weapons.

Our comprehensive approach to preventing chemical warfare includes three mutually reinforcing elements. We are pursuing arms control to eliminate the threat of chemical warfare by obtaining a complete, verifiable ban on the development, production, stockpiling, and transfer of chemical weapons. We are providing defensive equipment to our forces to protect them from the effects of the use of chemical weapons by others. And we are seeking to maintain a chemical retaliatory stockpile sufficient to negate any advantage an adversary might perceive in initiating the use of such weapons against us.

At the Conference on Disarmament in Geneva, the United States leads the effort to negotiate a complete, verifiable ban on chemical weapons. In 1984, the Vice President presented to the conference a draft proposal for the total prohibition of chemical weapons. The proposed treaty is a bold U.S. initiative forging new ground in the critical areas of verification and compliance. To establish confidence in the proposed treaty, the United States is offering to open its military, government-owned, and government-controlled facilities to unrestricted inspection. We are asking other nations to do the same. We realize that such a verification measure is unprecedented, but the risks of the status quo or of an unverifiable treaty are so severe that they far outweigh the risks of allowing international inspection teams into our sensitive facilities.

Last year, with our major initiative still on the table, progress in Geneva was more procedural than substantive. Nevertheless, our negotiators were able to achieve a procedural breakthrough in gaining agreement on a "rolling" treaty text that carries over from one negotiating session to the next. Even so, after many years of effort and 16 years of unilateral U.S. restraint in chemical weapons production, a ban remains elusive. Soviet unwillingness to address seriously the crucial issues of verification and compliance remains the major obstacle to progress.

Chemical weapons exert their greatest impact on the course of battle when there is an imbalance in chemical capabilities between the two sides. The Soviet Union possesses a considerable advantage in chemical warfare capabilities, which could be a decisive factor in nonnuclear conflicts. Working or fighting in protective gear -- the mask, hood, special suit, gloves, and boots -- can be so debilitating that the protective measures themselves can be damaging to military operations. The problems faced by an individual -- heat stress, restricted movement, impaired vision, and limited communications -- are compounded when people must work or fight as a unit. Tasks that

are demanding under "normal" battlefield circumstances -- repairing runways and other facilities, rescuing and treating casualties, flying aircraft, and defending against armored attacks -- become much more difficult in a chemically contaminated environment.

The lack of an effective U.S. chemical retaliatory capability could provide the Soviets with a powerful incentive to use chemical weapons to overcome the considerable conventional force improvements we and our NATO allies have achieved over the last five years. The hundreds of billions of dollars we have invested in improving our ability to turn back a Soviet conventional attack would be at risk in the absence of a credible chemical warfare deterrent. Even more important, in the face of such a potential Soviet military advantage, we might have no choice but to turn to nuclear weapons to deny the Soviets their objective. This is precisely the choice we want to avoid. We want to decrease rather than increase our reliance on nuclear weapons to deter conflict.

Outside the NATO area, the so called "nuclear umbrella" is even less credible as a deterrent to chemical warfare. The proliferation of chemical weapons, as shown by the Iran-Iraq war, increases the likelihood that U.S. forces could encounter chemical warfare in many areas of the world where we have vital interests. With as many as 16 nations now credited with possession of chemical weapons, our forces must be ready to deter the use of chemical weapons in virtually every operational circumstance.

Approval of a program to modernize our aging chemical stockpile with safer and more effective binary chemical munitions has at last put us in a position to redress the dangerous disparity outlined above.

Realization of a fully modernized retaliatory stockpile is still several years away, but some results of our effort are already visible. As early as last spring, our delegation to the Conference on Disarmament reported that the Soviets had visibly shifted from rhetorical posturing to more intensive negotiation as the legislative process moved binary chemical modernization nearer to reality. When congressional support for chemical modernization was initially recognized by the Soviets, participation in the negotiations became clearly in their interest.

It is now as important as ever that we continue to demonstrate the resolve embodied in this critical national security decision. With production of the short-range component of our modernized chemical deterrent on the horizon, we look forward to completion of the facilities for production of the long-range component, the BIGEYE bomb. These two systems along with the mid-range binary warhead for the Multiple Launch Rocket System (MLRS), still in research and development, link together to form the retaliatory portion of a credible deterrent to anyone who would consider chemical attacks against U.S. Armed Forces or those of our allies.

For an effective and stable deterrence, we have no need to match the size and scope of either the Soviet chemical arsenal or their protection capabilities. We do, however, require an adequate chemical defense and a modest, but effective, chemical retaliatory capability. Most of the resources in our program are devoted to improving protective capabilities -- suits, detectors, shelters, decontamination equipment, and antidotes. However, all foreseeable effective chemical protective equipment and procedures will continue to hamper individual and unit effectiveness. Therefore, improving our protective posture

will not by itself provide an adequate deterrent, since the Soviets and others would enjoy a significant and perhaps decisive military advantage if they could force us to operate in protective equipment while their troops remain relatively unencumbered. To possess an effective deterrent, we must maintain a retaliatory capability sufficient to assure that the Soviets would also have to operate in a protective posture and might, therefore, decide against using chemical weapons.

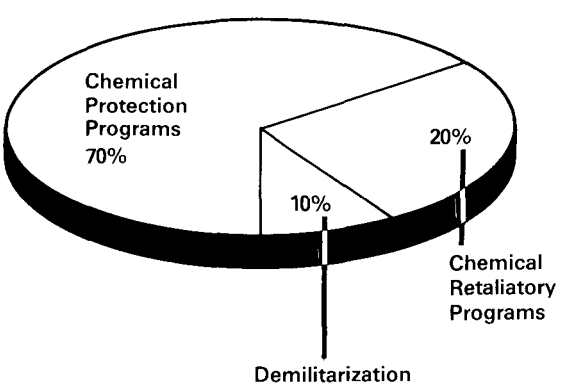
In addition to pursuing a chemical arms ban and reestablishing a chemical deterrent, our program includes plans for the disposal of obsolete and unusable stocks of chemical agents and munitions.

b. FY 1987-91 Programs

(1) Chemical Warfare Protection

As in previous years, our chemical protective program, comprises more than 70 percent of the FY 1987-91 chemical funding (see Chart III.G.3.1). We will continue to improve the capability of our forces to operate in a chemical warfare environment and reduce the degradation in effectiveness imposed by chemical protective equipment and procedures. Our major emphasis will be to develop and field improved protective equipment and supplies, including medical items. The program has placed additional emphasis on sustainability under chemical warfare conditions with additional funds programmed for collective protection in the form of vehicular, transportable, and fixed protection systems. Training, exercises, and doctrine remain key components of the chemical protective program.

Chart III.G.3.1
FY 1987-91 Funding for Chemical Programs

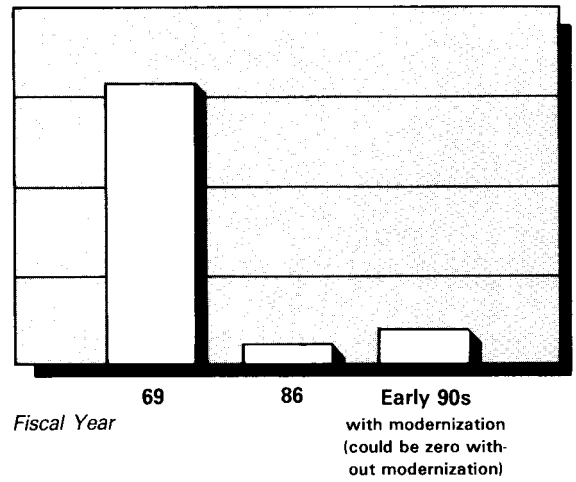


(2) Chemical Retaliatory Capability

A chemical retaliatory capability, in conjunction with a strong protective posture, is essential to ensuring that the Soviets have no incentive to use chemical weapons against us or our allies. Our binary chemical modernization program provides the means to stop the

substantial decline in the capabilities of our chemical stockpile (see Chart III.G.3.2). This decline has been due primarily to the phasing out of delivery systems such as the Honest John rocket, the 105mm howitzer, and obsolete rocket launchers.

Chart III.G.3.2
Useable Chemical Weapons Stockpiles



Our proposed program will continue maintenance efforts to preserve the serviceability of the militarily useful portions of the existing stockpile until adequate numbers of binary munitions are available. However, maintenance cannot halt or reverse internal deterioration of the chemical agent fill, nor can it provide an effective deep-target capability in the absence of appropriate weapons, or ease the logistical burdens associated with the current, lethal chemical munitions. Therefore, modernization of the stockpile is urgently required. Initial procurement of binary chemical artillery projectiles and additional facilities to increase the production rate of both the artillery munitions and the BIGEYE bomb represent about 20 percent of our FY 1987-91 program.

(3) Demilitarization

About 10 percent of our chemical program funds will be used to dispose of chemical munitions. Most of these funds will be used for the disposal of those chemical munitions that could pose safety problems. In conjunction with production of binary munitions, we are proceeding with technology development and planning for the accelerated disposal of the entire unitary chemical stockpile. Construction of facilities for the disposal of the highly flammable agent BZ at Pine Bluff Arsenal is nearing completion and construction of facilities at Johnston Island has begun.

c. Conclusion

Improving our chemical deterrent capability is necessary if we are to eliminate Soviet incentives to use chemical weapons and to provide an inducement for them to join in a comprehensive, verifiable chemical weapons ban. Both the protective and retaliatory components of the program are essential. Our binary chemical modernization program provides the means of correcting the current imbalance, which invites the

Soviets to use chemical weaponry and could give them a decisive edge in conventional conflict. Modernization of both program components is absolutely essential in support of international efforts to achieve what we and most of the world desire -- an end to chemical warfare.

4. Test and Evaluation

a. Introduction

Adequate and realistic test and evaluation (T&E) forms the basis for procurement decisions throughout the Armed Services. While the primary focus has been to enhance the testing of major weapons systems, numerous other key activities have been ongoing to improve the entire test and evaluation process within the context of acquisition management. The Test and Evaluation Policy Directive is being reissued and will define more stringent management policies in line with DoD's emphasis on operational test and evaluation (OT&E) as well as place more emphasis on up-front development and qualification testing. Initiatives to enhance the overall quality of T&E methodology and resources in DoD and to develop advanced threat systems have also moved forward under the leadership of the Director, Defense Test and Evaluation (DDT&E) and the Director, Operational Test and Evaluation (DOT&E). Simultaneously, both offices have taken steps to improve the realism and effectiveness of operational testing. The adoption of several new NATO-produced foreign systems sponsored by the Foreign Weapons Evaluation Program supports the congressional and DoD initiatives to induce and encourage more allied participation and support.

b. Enhancing our Defense Systems Test Capabilities

The tri-Service development program established in 1984 to develop threat radar simulators has created a data base for use in simulating the latest, most capable threat air defense systems. An integrated program is consolidating scientific and technical intelligence, surrogate testing, and simulator development. Inventories and shortfalls have been cataloged and requirements for additional threat simulators are being identified.

A supersonic low-altitude aerial target is being developed to replicate the high-speed, low-altitude dash threat of antiship missiles. A new subscale, subsonic target will also replace older, costlier systems and provide testing for counterair systems by 1989. A new Army helicopter aerial target, designed to test battlefield air defense systems, is now under development and is expected to be fielded by 1987.

A two volume Software Test and Evaluation Manual has been issued for use throughout DoD and defense industry. One of several efforts in an ongoing program aimed at improving the test and evaluation of major systems through improved acquisition management and risk reduction procedures, the manual contains important implementing tools that will be applied in support of existing and planned policy for the test and evaluation of software-intensive systems.

Modernization of our test facilities and resources is continuing with such programs as the Navy's Extended Area Test System at the Pacific Missile Test Center and the Air Force's Aeropropulsion Systems Test Facility (ASTF) scheduled to reach operational capability in 1986. The foundation for a new generation of Time Space Position Instrumentation (TSPI) systems was established when the tri-Service GPS/TSPI program entered full-scale development in 1986.

c. Operational Test and Evaluation Activities

During the past year, the activity level of the office of the Director, Operational Test and Evaluation continued to increase significantly. The office submitted its second annual report to the Congress and vigorously pursued a broad range of operational test and evaluation oversight responsibilities. The most visible of these was the assessment of the operational effectiveness and suitability of the Army's Division Air Defense (DIVAD) gun. Visits were made to a number of test organizations and various test centers. Observers were present at numerous program tests, including those of DIVAD, CH-47D, Landing Craft Air Cushioned Vehicle (LCAC), Tomahawk, Maverick, and LANTIRN. More than 20 programs were reviewed to determine the adequacy of their operational test plans, including the Army helicopter improvement program, the T-46A Next Generation Trainer, NAVSTAR GPS User Equipment, the Navy Close-in Weapon System, the DIVAD gun, the Joint Surveillance and Target Attack Radar System (JSTARS), and the SSN-21 attack submarine program. Other initiatives undertaken include: the establishment of a regular dialogue with the commanders of the Services' independent operational test and evaluation organization and, through policy memorandums and discussions with the Service secretaries, new emphasis on the tenets of operational test and evaluation; early planning and participation of operational test and evaluation organizations in acquisition programs; independent management and conduct of operational testing; and periodic reporting and reviewing of operational test results. More details on operational test and evaluation activities will be included in the DOT&E's FY 1987 Annual Report to the Congress.

d. Joint Test and Evaluation (JT&E) Programs

Five ongoing tests managed by the DDT&E will examine the capability of developmental and deployed systems to perform their intended missions in a joint environment. These tests include evaluation of command, control, and communications countermeasures; identification of friend, foe, or neutral systems; forward area air defense capabilities; electro-optical guided weapons countermeasures and counter-countermeasures; and live munitions effects on foreign and domestic armor and aircraft. The Director, Operational Test and Evaluation retains management responsibility for the Chemical Warfare Joint Test, currently examining chemical warfare doctrine, tactics, and procedures and reviewing various joint operational test nominations for possible new starts in FY 1986 and FY 1987.

e. International Test and Evaluation Initiatives

Under the provisions of an international T&E agreement concluded with Canada, the Air Force successfully completed two captive carry flights (one over Canadian territory) and two free flight tests of the air-launched cruise missile (ALCM) in 1985. Operational test flights will continue this winter along with testing of the Navy F/A-18 and AV-8B aircraft. The Canadian-U.S. agreement affords DoD a unique opportunity to test weapons systems in realistic battlefield conditions and geophysical environments replicating those in Europe and Eurasia. We are also formulating cooperative agreements with France, the United Kingdom, Israel, India, and the Peoples' Republic of China to assist them in the long-term improvement and modernization of their testing capabilities and to accept each other's test data.

The Foreign Weapons Evaluation Program has resulted in 22 items of equipment being selected for the U.S. inventory with a procurement value of over $1.5 billion. By capitalizing on the research and

development efforts of our allies, we have been able to obtain $25 of procurement value for every test dollar invested compared to a return of $3.20 in procurement value for every RDT&E dollar invested in domestic programs. This successful program, with its added features of increased interoperability and standardization, continues to enhance the "two way street" of international cooperation and provides an added incentive to our NATO allies to contribute more to the alliance.

5. Technology Security and Export Control

a. The Growing Soviet Threat to the West's Technological Lead

Technological superiority is a key element in the West's efforts to maintain a stable deterrence, thereby preserving the collective security of the free world today. U.S. policy seeks to offset the Soviets' numerical advantage with our strong suit -- superior high technology. We are working to maintain technological superiority by strengthening our research and development base and by restricting Soviet access to our militarily critical technology.

When this Administration came into office in 1981, we began a government-wide program to control what had become a massive flow of Western technology to the Soviet bloc. A decade of naivete and inattention to the importance of technology to our national security had resulted in systematic Soviet-bloc exploitation of Western technology solely for the benefit of its military machine. Only recently have we been able to make public the full extent of the Soviet acquisition effort.

The Soviet program is two-fold. First, they acquire technical information and goods to exploit and use in their military research and development programs in order to improve their weapons systems. Second, they acquire Western equipment, primarily microelectronics and test equipment, to use directly in their backward military factories in an effort to make them more efficient. Many of the acquisitions have no apparent military value at first glance; however, a study of the Soviet economy makes it clear that any technology or piece of hardware that can benefit the military will be used to that end. To the extent that we allow this to happen, we are subsidizing the Soviets' military expansion.

The West currently enjoys several years' lead-time over the Soviet Union in most of the militarily critical technologies, although successful Soviet acquisitions over the past decade have eroded many of those margins of safety. Our initiatives are designed to see that this trend does not continue.

b. DoD Objectives and Initiatives

As part of a government-wide effort to control the flow of militarily significant Western technology to the Soviet bloc, DoD undertook a series of domestic and international initiatives beginning in 1981. There is clear evidence now that our programs have had a marked effect on the Soviet acquisition of Western know-how.

(1) Domestic

Improvement of the export control function is the cornerstone of the domestic technology security program. While DoD does not lead in the administration of the Export Administration Act nor of the Arms

Export Control Act, our national security mandate makes us a key player in decisions made under these two laws. Since 1981 we have taken several steps to make the export licensing process less burdensome on the exporting community while making it more effective in safeguarding our technology.

In January 1984, many of the improvements to the DoD system of processing export license applications were institutionalized with the adoption of DoD Directive 2040.2, "International Transfers of Technology, Goods, Services, and Munitions." The directive clarified the responsibilities for export license processing and related functions within DoD and set the stage for the adoption of DoD Directive 5105.51 in May 1985, establishing the Defense Technology Security Administration (DTSA). A DoD field activity, DTSA places all DoD personnel in the export license application process in the same chain of command for the first time. This and other management initiatives have improved efficiency in license application processing. Not only does the business community benefit from a more expeditious review of its proposed exports, the national security is well-served by licensing decisions made on the basis of licensing history, reliable intelligence, solid technical assessments, and well-thought-out policy positions.

Another domestic initiative involves the business community. The effectiveness of government technology security efforts rests heavily on the support of the business community in the form of voluntary compliance. Through a systematic program of industry briefings and participation in many of the vital issues related to technology security, awareness of the extent and threat of the Soviet acquisition effort is greater than ever before.

The Militarily Critical Technologies List (MCTL), first published in 1980, continues to be used by export license officials as a reference guide detailing potential military applications of a large number of technologies. The technologies and commodities identified in the MCTL primarily contribute to the development, production, or utilization of items controlled for national security purposes or of goods that would convey information concerning these activities.

The MCTL and associated detailed documentation of list items provide guidance within DoD for the review of those license applications that involve the transfer of know-how to Warsaw Pact countries or to potential nuclear-weapon proliferant countries. The application of this list by DoD is commensurate with the Export Administration Regulations and other applicable regulatory requirements.

In October 1984, an unclassified version of the list was published for the first time enabling the business community to see clearly what technology areas DoD has identified as militarily critical. This will also aid businesses in developing and maintaining their own technology security programs.

Finally, in November 1984, DoD issued its implementation of § 1217 of Public Law 98-94 that, for the first time, allows the secretary of defense to withhold from public disclosure any technical data with military or space application if such data may not be exported lawfully without an approval, authorization, or license under the export control laws. DoD-wide implementation of this authority is progressing, and it is anticipated that the department will be able to provide for greater sharing of its export-controlled technical data within its industrial community while retaining the protection for such data afforded by the export control laws. This is possible because the

system established for dissemination of export-controlled DoD technical data is designed to keep such data out of the public domain while at the same time making it available to those who have a legitimate need for it. The result will be a further limitation on the ability of adversary nations to acquire advanced U.S. technology that is in the military domain.

(2) International

(a) COCOM

The effectiveness of the technology security program in the United States is inseparable from multilateral efforts with the same objective. Upon entering office, this Administration committed itself to strengthening the existing multilateral export control system known as COCOM, or the Coordinating Committee. COCOM, based in Paris, is the only organization through which the NATO nations (except Iceland) and Japan speak with one voice as to the exportability of Western goods and technology to the Warsaw Pact countries and several other destinations. It is much more effective now than it was five years ago, thanks to a persistent U.S.-led effort to make it a credible technology security force. In the fall of 1985, Spain announced that it would join COCOM. This will be the first new member since 1954, when Japan joined at the request of the United States.

We have been successful in the COCOM initiatives begun in 1981, although more remains to be done in this area. First, a successful and exhaustive list review, which began in the fall of 1982, was completed three years later. This review, the most comprehensive in over a decade, resulted in a more realistic appraisal of products and technologies which, if exported to the Soviet bloc, would enhance their military buildup. Literally hundreds of proposals were negotiated among the member countries to add and delete items from the control lists. The most important achievements were the imposition of controls on stand-alone software exports, tighter controls on switching equipment and technology, and a revision of the control parameters on computer hardware. New controls were added on robotics hardware and software, spacecraft, certain advanced technology printed circuit boards and related manufacturing equipment, and advanced aero-engine technologies.

DoD continues to seek a mechanism through which COCOM can benefit from timely information and analyses of technologies whose export may pose significant strategic risks for the Western alliance. We believe that the establishment of a military experts group to work as an advisory body to COCOM would go a long way toward providing a level of expertise, which is currently lacking in this area.

(b) Initiatives with Non-COCOM Countries

Since all technologically advanced countries are not members of COCOM, we have entered into or are negotiating agreements with various governments to establish a COCOM-level of protection of U.S. and indigenous technology within their borders.

This effort is under way within and outside of the European theater as well. It will grow in importance as the United States continues to increase its trade with industrializing countries, particularly in the Far East. Soviet military presence and exertion of influence in this part of the world is growing dramatically, making technology security efforts increasingly important.

c. Conclusion – Outlook for the Future

Clearly it is in our national interest to encourage industry and our research institutions to continue to be innovative and improve upon our rich industrial base. Our technology security programs have been and will continue to be focused on protecting the applied technologies that are incorporated into systems needed to perform our national security missions. Technology security controls are not intended to thwart our traditions of free expression and academic freedom in basic research. Neither are they designed to distance us from our allies and other friendly countries when it is in our national al interest and in the interest of our mutual security to share militarily significant technology.

One of the initiatives of this Administration has been to bring information about the Soviet technology acquisition threat to the forefront in the minds of industry, scientific circles, governments, and the general public in the United States and abroad. We have been extrememly successful in this aspect of the program -- spreading awareness. This is the first step toward meeting the Soviet threat head-on.

DoD's Technology Security Program is one of the most cost-effective means of protecting national security. Our studies have demonstrated that our initiatives have had a marked effect on the ability of the Soviets to use our technology for their military benefit. They have had to spend more rubles on military research and development than would have been the case had our improved controls not been in place. And our own defense budget has reflected a lower level of expenditures than would have been needed had various Western technical capabilities been acquired by the Soviets.

6. Installations

a. Introduction

I have one objective with respect to DoD's annual investment in installations -- to ensure we have excellent installations to accomplish defense missions in peacetime and war. That means excellent facilities for our Servicemembers where they live, work, and recreate. Almost ten percent of the annual DoD budget is invested in installations -- construction, maintenance, and operation of the physical plant. Specific programs include replacement and modernization of obsolete facilities; maintenance and repair of existing facilities; construction of new facilities; improvements to operating efficiency; host nation support programs; management initiatives; and compliance with environmental, safety, and occupational health standards.

b. The Road to Excellent Installations.

The figures in Table III.G.6.1 illustrate the extent to which we have committed funding for facilities from FY 1981 through FY 1987.

To obtain facilities worthy of our Servicemembers, we must control deterioration of existing facilities, stop living off our capital, and at least stay even with the ravages of time. How much do we need to stay even? My goal is to invest at least two percent of our total plant value in construction each year. For FY 1987, that amounts to about 8.4 billion dollars. This investment is large, but it is an investment in the people who work and live on our installations. That investment is repaid through increased morale, discipline, quality soldiers, greater output, and higher readiness.

Table III.G.6.1
Facility Investment
(Constant FY 1987 Dollars in Billions)

	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987
Repair and Maintenance	4.1	4.8	4.5	5.5	4.7	4.5	7.5
Construction	4.7	6.2	5.6	5.8	6.4	6.4	7.6
Operations	21.0	24.7	22.2	24.0	24.0	25.4	26.4

c. Facilities as Force Multipliers

Experience has shown that excellent facilities improve productivity and fighting power. Most facilities are force multipliers in that mission capability is enhanced without increasing the force size. For example, having a properly equipped, well-constructed facility to conduct tank maintenance increases the number of tanks a technician can repair over the number he could repair out in the open exposed to the elements. This increased productivity means more tanks are in combat-ready status, which directly contributes to increased warfighting capability. Similar effects are realized with pier support facilities; hardened command, control, and communications facilities; training ranges; and supply distribution centers. With creative management and involved personnel, excellent facilities can help bring about dramatic results for local commands and for our overall defense posture. However, investing in facilities is only the beginning. We must also manage our resources more efficiently.

d. Managing for Excellence

President Reagan, in his second inaugural address, stated: "Freedom and incentives unleash the drive and entrepreneurial genius that are the core of human progress." The excellent installations approach to management stresses innovations through deregulation, and incentive through competition and recognition. Deregulation has begun at 37 model installations, with each local commander encouraged to try new ways to accomplish the mission. This experiment is developing better ways to operate bases, while eliminating counterproductive regulations and procedures. Most importantly, it is producing better working and living conditions for our people. That improves morale and productivity, thereby getting better value for each defense dollar while attracting and retaining high-quality men and women essential to today's high-technology military Service.

Competition generates the desire and initiative to try harder to be number one. With that in mind, we have instituted the Commander in Chief's Award for Installation Excellence to generate competition among installations. As President Reagan said: "Without competition, there can be no champions, no records broken, no excellence."

e. Overseas Facilities Support

We continue to support our Servicemembers overseas through appropriated and nonappropriated funded construction and multinational funding. A recent agreement with our NATO allies doubles the annual infrastructure funding. Likewise, the Japanese commitment to U.S. facility support rose to an all-time high. Our allies agreed to let us erect U.S.-manufactured houses, providing U.S. companies the opportunity to benefit from the agreement. Our efforts overseas resulted in construction bids being well within budget.

Nonappropriated funds have been used overseas to improve everything from gas stations to recreational complexes to youth centers and open messes. Nonappropriated fund construction projects experienced a dramatic 125 percent increase during the period FY 1982 to FY 1986. This is a clear indication that DoD and the Services are working hard to improve the quality-of-life for our people.

f. Community Enrichment

DoD continues its environmental stewardship through pollution abatement and cleanup of hazardous waste disposal sites. In FY 1986, we plan to spend $248 million for pollution abatement projects and $329 million for environmental restoration. In FY 1987, we have requested $280 million for pollution abatement projects and $340 million for environmental restoration. Increased emphasis on industrial process modifications and recycling waste products seeks to reduce the costs of pollution.

Of the 911 major military installations requiring preliminary assessment for potential cleanup of past disposal sites, 774 have been completed. Of these, 39 installations have been identified as having national priority list sites. Inspections have been completed at all sites. Cleanup has begun at some sites while at others, our engineers are studying the best way to cleanup the wastes.

We will continue our cooperation with the Environmental Protection Agency (EPA) on many endeavors including the Chesapeake Bay Restoration Plan. A study of all 64 DoD facilities that influence the Bay is under way in a massive effort to abate sources of pollution.

Our commitment to being good neighbors and providing excellent installations is reflected by our natural and historical resources management programs. One hundred sixty-three defense installations harbor endangered species that are managed in cooperation with the states and the U.S. Fish and Wildlife Service. Nearly 11 million acres of DoD property are accessible to the public for hunting, fishing, and other outdoor recreation. In FY 1985, DoD increased the state entitlement to 40 percent of the installations' timber sales profits and returned to host states $2.1 million from forest products sales. DoD also continues to exercise stewardship over hundreds of historic sites on the national register.

g. Conclusion

We continue to make giant strides toward our goal of excellent installations. However, there is still much work to be done. The people who work at our installations are constantly finding ways to get more out of each dollar while meeting the needs of our people. We must continue our commitment to excellent installations. By improving the quality-of-life for our people, we directly affect our warfighting capability and provide for a stronger defense.

7. Military Health Care

a. Introduction

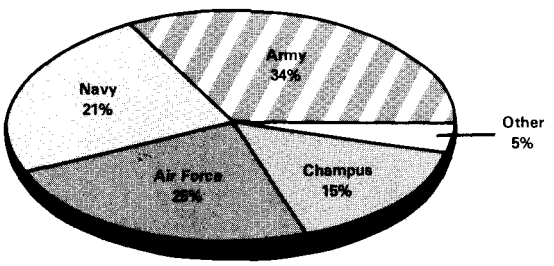
Too often, in any discussion of our nation's defense, we neglect to mention the essential role played by our military health care system. This system is dedicated to ensuring that in time of war, we are capable of providing life saving care to our fighting forces. In peacetime, we are responsible for providing cost-effective, quality medical care to nearly 10 million beneficiaries. These beneficiaries include active duty and retired members of the Armed Forces and their dependents.

Chart III.G.7.1

Location of Uniformed Services Hospitals in the United States

These are massive responsibilities, requiring the operation of over 500 medical facilities worldwide including 164 hospitals. Over 170,000 physicians, nurses, dentists, biomedical specialists, administrators, medical corpsmen, and other support personnel are required to staff these medical facilities. In addition to our own health care facilities, we also oversee the operation of the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). Through the CHAMPUS program, we ensure that authorized health care needed by our beneficiaries, but not available in a military treatment facility, is obtained from the civilian sector. The total annual budget for DoD medical activities is nearly $10 billion.

Chart III.G.7.2.
Allocation of FY 1987 Budget for Medical Activities



b. Medical Readiness

Although the vast majority of our day-to-day patient care responsibilities involve our peacetime mission, the primary obligation of our health care system is to be ready to meet any and all military contingencies. This requires that our military personnel be truly fit for combat and that our military resources -- in terms of both personnel and treatment capabilities -- meet all requirements for life-saving care, stabilization, evacuation, and follow-on treatment in the event of a conflict.

This medical readiness capability must be our highest priority. When this Administration took office, it was clear that this priority had been neglected. Our health care system was capable of treating only a small portion of the casualties anticipated if this country were involved in a major conventional conflict. The situation has improved. We have emphasized medical readiness and continue to insist that the entire military health care system be geared toward taking care of our wounded in time of war.

We have conducted extensive field reviews of our overall medical readiness capability both in Europe and the Pacific. A special review group thoroughly investigated the areas of medical evacuation, medical command and control, medical communications, and medical planning in the European and Pacific theaters.

These reviews constituted the most extensive analysis of medical readiness ever conducted. As a result, a great deal of attention is being focused on the need to improve cross-service medical readiness planning and increase the resources available to support medical readiness requirements. We are now in the process of making the improvements to our medical readiness capabilities identified in these reviews.

There are several tangible indications of the medical readiness improvements made by this Administration. When President Reagan took office we had no available hospital ship capacity. In response, two

San Clemente-class tankers are presently being converted into floating hospitals with 1,000 beds and 12 operating rooms each.

Another accomplishment stems from our increased efforts to obtain host nation support, not only land and facilities, but also arrangements for interim assistance in hands-on medical care.

The overriding importance of medical readiness was recognized by the Blue Ribbon Panel on Sizing DoD Medical Treatment Facilities. This panel of outside experts in medical facility planning was convened in response to a congressional directive to review the criteria used to size military medical facilities. The panel's final report, completed last summer, recommended that medical readiness be the primary criterion for determining the size and composition of the entire peacetime active duty medical force and of all facilities and work-work in our direct care system. We are implementing this and the other recommendations of the panel.

Recent attention focused on medical readiness needs has also resulted in an accelerated schedule for procuring much-needed deployable medical systems. Each of the Services is expected to have funded its full-complement of deployable medical systems by FY 1990 -- an investment of over $500 million.

c. Quality Assurance

We in DoD are acutely aware of the implications of recent media stories that military medical care is not quality care. This is of great concern to us. We are convinced the overall quality of care in military medicine is equal to, if not better than, medical care in the civilian sector. To ensure this remains true, we have undertaken a broad spectrum of quality assurance measures to improve the quality of health care in all our facilities. These include recent policy decisions to require licensing and credentialling of military health care personnel and restricting off-duty employment of military health care providers.

Also included here are innovative techniques that impact directly upon the quality of our medical system. One example is the recent unprecedented decision to adopt a program of external civilian peer review of military hospitals worldwide. This system of professional review organizations will supplement the existing DoD quality assurance program by providing for an independent review of the quality and appropriateness of care provided in our medical treatment facilities. The creation of this civilian/military partnership for military medical excellence is a giant step forward in restoring credibility and confidence in the quality of military health care.

d. Management Information Systems

A consolidation of the health related data management capabilities into the Defense Medical Systems Support Center (DMSSC) has facilitated managerial decisions and improved the economy and effectiveness of our health care system -- both the direct care and the CHAMPUS operations.

This relatively new organization fulfills information management needs and provides computer capabilities to the processes of eligibility checking, resolving claims, and managing patient information. A major information system effort in the health care arena is the installation of a centralized composite health care system at all major DoD health care facilities.

In addition to providing data management capabilities, these new information systems will facilitate our efforts to improve the quality of health care in the most cost-effective manner. Our expanded information systems capability will also enable us to report patients for aeromedical evacuation, both in peacetime and contingency situations worldwide.

e. Blue Ribbon Panel Report on Hospital Sizing

A recent report expected to have far-reaching implications for improved management of our medical system is the Blue Ribbon Panel on the Sizing of Defense Medical Treatment Facilities. In addition to recommending that medical readiness be the primary criterion for determining the size and composition of the peacetime active duty medical force and facilities, the panel recommendations included:

-- Current estimates of wartime requirements should be further refined and the management information systems now under development should be completed and implemented without delay;

-- The review and selection of military medical construction projects should be centrally consolidated in the Office of the Assistant Secretary of Defense for Health Affairs, with Service inputs;

-- The possibility of establishing long-term contracts with civilian institutions for Graduate Medical Education (GME) should be explored. Additional efficiencies may be achieved by coordinating and possibly consolidating Service GME programs; and

-- Guidelines should be developed to ensure that, where it is cost-effective to do so, the military medical system takes advantage of the medical care capacity of the civilian health care sector.

f. Cost Containment

In view of the ongoing emphasis on obtaining and providing the most cost-effective medical care to our beneficiaries, we continue to seek legislative reforms to permit us to use innovative arrangements to contain costs while providing quality care. For instance, one proposal would permit us to collect reimbursement from private insurance companies for care the military system provides to persons who also have that coverage. Another item on our legislative agenda is a proposal to require that a hospital participate in the CHAMPUS and CHAMPVA programs as a condition of participating in Medicare. This Medicare-CHAMPUS linkage would not only encourage hospitals to accept CHAMPUS and CHAMPVA patients, but is also expected to contain costs.

Another initiative with the potential for significant cost savings is a move to expand our enrollment/eligibility verification process to the Caribbean, European, and Pacific geographic areas. Already, it is estimated that our current eligibility verification process is responsible for avoidance of more than $30 million in unnecessary costs.

In addition to these ongoing cost-containment efforts, we are examining the possibility of establishing a more sensible pattern of health care delivery to provide better access and greater beneficiary

satisfaction in the types of services most relevant to wartime medical readiness. The arrangement we envision would also allow our beneficiaries, who use civilian providers, to receive quality care at a reduced cost to the federal government. Precious resources should not be dedicated to building a peacetime in-house system that duplicates and competes with an under-utilized civilian health care system. Rather, we must foster a partnership of excellence with civilian medicine to take advantage of today's highly competitive health care marketplace.

g. Conclusion

Significant improvements have been made in the military health services system during this Administration. Through extensive reviews, we have identified weaknesses in our overall wartime medical capabilities and are implementing policies to correct these deficiencies. Although medical readiness must remain our first priority, we are determined to provide to our ten million beneficiaries comprehensive quality health care, that is equal to, if not better than, medical care in the civilian sector.

Appendix A

Table 1
Department of Defense – BIA by Appropriation[a]
(Dollars in Millions)

	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986[b]	FY 1987
Current Dollars							
Military Personnel	36,909	42,875	45,688	64,866*	67,773*	67,957*	76,814*
Retired Pay	13,840	14,986	16,155				
Operation & Maintenance	55,548	62,466	66,540	70,950	77,803	78,697	86,440
Procurement	48,025	64,462	80,355	86,161	96,842	97,282	95,777
Research, Development, Test and Evaluation	16,609	20,060	22,798	26,867	31,327	35,467	41,969
Special Foreign Currency Program	3	3	4	3	9	2	4
Military Construction	3,398	4,916	4,512	4,510	5,517	5,553	6,752
Family Housing & Homeowners Assistance Program	2,004	2,203	2,712	2,669	2,890	2,945	3,398
Revolving & Management Funds	2,677	2,494	1,075	2,774	5,088	2,178	1,203
Trust Funds, Receipts, & Deductions	−649	−714	−365	−650	−447	−690	−756
Total — Direct Program (B/A)	**178,365**	**213,751**	**239,474**	**258,150**	**286,802**	**289,391**	**311,600**
Constant FY 1987 Dollars							
Military Personnel	49,844	51,496	52,752	72,762*	73,182*	70,627*	76,814*
Retired Pay	18,026	18,315	18,663				
Operation & Maintenance	64,908	69,315	72,657	76,552	81,231	80,863	86,440
Procurement	62,029	78,115	92,689	95,757	103,876	100,656	95,777
Research, Development, Test and Evaluation	20,974	23,973	26,272	29,887	33,662	36,831	41,969
Special Foreign Currency Program	3	4	4	3	9	2	4
Military Construction	4,240	5,866	5,182	5,004	5,904	5,742	6,752
Family Housing & Homeowners Assistance Program	2,491	2,583	3,093	2,951	3,092	3,052	3,398
Revolving & Management Funds	3,461	2,997	1,242	3,087	5,466	2,267	1,203
Trust Funds, Receipts, & Deductions	−839	−858	−422	−723	−480	−718	−756
Total — Direct Program (B/A)	**225,138**	**251,807**	**272,133**	**285,279**	**305,941**	**299,321**	**311,600**

[a]Numbers may not add to totals due to rounding.

[b]Lower Budget Authority in the Military Personnel Accounts in FY 1986 reflects the congressional direction to finance $4.5 billion for the military pay raise and retirement accrual costs by transfers from prior year unobligated balances.

*Includes Retired Pay Accrual.

Table 2

Department of Defense – BIA by Component[a] (Dollars in Millions)

	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986[b]	FY 1987
Current Dollars							
Department of the Army	43,252	52,254	57,529	68,664*	74,270*	74,862*	81,528*
Department of the Navy	58,011	69,569	81,854	87,365*	99,015*	98,481*	104,503*
Department of the Air Force	53,144	64,821	74,074	90,851*	99,420*	98,330*	105,192*
Defense Agencies/OSD/JCS	7,483	9,222	9,256	10,746	13,126	15,850	19,486
Defense-wide	16,475	17,885	16,761	524	970	1,867	891
Total — Direct Program (B/A)	**178,365**	**213,751**	**239,474**	**258,150**	**286,802**	**289,391**	**311,600**
Constant FY 1987 Dollars							
Department of the Army	55,630	62,119	65,871	76,270*	79,439*	77,540*	81,528*
Department of the Navy	72,749	83,416	92,848	96,456*	105,572*	101,831*	103,633*
Department of the Air Force	65,963	73,478	83,457	100,081*	105,910*	101,627*	103,311*
Defense Agencies/OSD/JCS	9,464	10,997	10,594	11,889	13,977	16,417	19,486
Defense-wide	21,332	21,795	19,363	583	1,043	1,906	891
Total — Direct Program (B/A)	**225,138**	**251,807**	**273,133**	**285,279**	**305,941**	**299,321**	**311,600**

[a]Numbers may not add to totals due to rounding.

[b]Lower Budget Authority in the Military Personnel Accounts in FY 1986 reflects the congressional direction to finance $4.5 billion for the military pay raise and retirement accrual costs by transfers from prior year unobligated balances.

*Includes Retired Pay Accrual.

Table 3
Federal Budget Trends

Fiscal Year	Federal Outlays as a % of GNP	DoD Outlays as a % of Federal Outlays	DoD Outlays as a % of GNP	Non-DoD Outlays as a % of Federal Outlays	Non-DoD Outlays as a % of GNP	DoD Outlays as a % of Net Public Spending[1]
1950	16.0	27.5	4.4	72.5	11.6	18.5
1955	17.6	51.5	9.1	48.5	8.6	35.6
1960	18.2	45.0	8.2	55.0	10.0	30.3
1965	17.5	38.8	6.8	61.2	10.7	25.2
1970	19.8	39.4	7.8	60.6	12.0	25.5
1971	19.9	35.4	7.0	64.6	12.8	22.4
1972	20.0	32.6	6.5	67.4	13.5	20.7
1973	19.1	29.8	5.7	70.2	13.4	19.0
1974	19.0	28.8	5.5	71.2	13.5	18.3
1975	21.8	25.5	5.6	74.5	16.2	16.5
1976	21.9	23.6	5.2	76.4	16.7	15.4
1977	21.1	23.4	4.9	76.6	16.2	15.5
1978	21.1	22.5	4.7	77.5	16.4	15.2
1979	20.5	22.8	4.7	77.2	15.8	15.4
1980	22.2	22.5	5.0	77.5	17.2	15.3
1981	22.7	23.0	5.2	77.0	17.5	15.8
1982	23.7	24.5	5.8	75.5	17.9	16.7
1983	24.3	25.4	6.2	74.6	18.2	17.4
1984	23.1	25.9	6.0	74.1	17.1	17.6
1985	24.0	25.9	6.2	74.1	17.8	17.6
1986	23.3	26.4	6.2	73.6	17.2	17.6
1987	21.8	27.5	6.0	72.5	15.8	17.9

[1]*Federal, state, and local net spending excluding government enterprises (such as the postal service and public utilties) except for any support these activities receive from tax funds.*

Table 4
Defense Shares of Economic Aggregates

	DoD as a Percentage of Public Employment		DoD as a Percentage of National Labor Force		National Income Accounts Percentage of Total Purchases		
Fiscal Year	Federal	Federal State & Local	Direct Hire (DoD)	Including Industry	National Defense[1]	Total Federal	State & Local
1965	71.3	29.3	5.0	7.8	7.3	9.8	9.8
1966	73.0	30.6	5.6	9.0	7.5	10.0	10.0
1967	74.1	31.5	6.0	10.0	8.7	11.0	10.4
1968	74.0	31.3	6.1	10.0	9.0	11.4	10.8
1969	73.2	30.1	5.9	9.4	8.5	10.8	11.0
1970	72.3	27.7	5.3	8.1	7.9	10.1	11.4
1971	68.3	24.4	4.6	7.0	7.1	9.3	12.0
1972	66.0	21.9	4.0	6.2	6.6	9.0	12.0
1973	65.0	20.7	3.7	5.8	6.0	8.2	11.8
1974	63.8	19.7	3.5	5.5	5.6	7.7	12.0
1975	62.9	18.7	3.4	5.3	5.7	8.1	12.8
1976	62.5	18.1	3.3	5.0	5.4	7.8	12.7
1977	62.5	17.6	3.2	4.9	5.1	7.6	11.9
1978	61.9	17.3	3.1	4.8	4.9	7.3	11.8
1979	61.1	16.8	2.9	4.8	4.8	7.1	11.5
1980	61.3	16.7	2.8	4.7	5.1	7.5	11.8
1981	62.4	17.0	2.8	4.8	5.4	7.8	11.4
1982	63.2	17.4	2.8	5.0	6.0	8.4	11.5
1983	63.5	17.8	2.9	5.3	6.4	8.7	11.6
1984	63.5	17.8	2.8	5.4	6.2	8.1	11.2
1985	63.7	17.8	2.8	5.5	6.5	8.7	11.5
1986	64.3	17.9	2.8	5.6	6.7	8.9	11.6

[1]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.

Appendix B

Table 1.
Department of Defense
General and Flag Officer Strengths

Actual	General & Flag Officer Strengths	General & Flag Officers Per 10,000 Total Military
1961	1,254	5.0
1962	1,303	4.6
1963	1,292	4.8
1964	1,294	4.8
1965	1,287	4.8
1966	1,320	4.3
1967	1,334	4.0
1968	1,352	3.8
1969	1,336	3.9
1970	1,339	4.4
1971	1,330	4.9
1972	1,324	5.7
1973	1,291	5.7
1974	1,249	5.8
1975	1,199	5.6
1976	1,184	5.7
19TQ	1,174	5.7
1977	1,159	5.6
1978	1,119	5.4
1979	1,119	5.5
1980	1,118	5.4
1981	1,073	5.2
1982	1,073	5.1
1983	1,073	5.1
1984	1,073	5.0
1985	1,073	5.0
Programmed		
1986	1,073	5.0
1987	1,073	4.9

Table 2
Department of Defense
Officer Strength — In Thousands

Actual	Officer Strengths[a]	Enlisted to Officer Ratio
1961	315	6.9
1962	343	7.2
1963	334	7.1
1964	337	7.0
1965	339	6.8
1966	349	7.9
1967	384	7.8
1968	416	7.5
1969	419	7.3
1970	402	6.3
1971	371	6.3
1972	336	5.9
1973	321	6.0
1974	302	6.2
1975	292	6.3
1976	281	6.4
19TQ	279	6.5
1977	275	6.5
1978	273	6.5
1979	273	6.4
1980	276	6.3
1981	283	6.3
1982	290	6.2
1983	299	6.1
1984	303	6.0
1985	309	5.9
Programmed		
1986	311	5.9
1987	313	5.9

[a] *Includes all active forces officers on extended active duty.*

Table 3

Military and Civilian Personnel Strength[a] (End Fiscal Years — In Thousands)

	Actuals								Programmed		
	FY 1968	FY 1972	FY 1976	FY 1980	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986	FY 1987
Active Component Military											
Army	1,570	811	779	777	781	780	780	780	781	781	781
Navy	765	588	524	517	529	542	558	565	571	581	593
Marine Corps	307	198	192	188	191	192	194	196	198	199	200
Air Force	905	726	585	558	570	583	592	597	602	606	607
Total	**3,547**	**2,322**	**2,081**	**2,040**	**2,071**	**2,097**	**2,123**	**2,138**	**2,151**	**2,167**	**2,181**
Reserve Component Military (Selected Reserve)											
ARNG	389	388	362	367	389	408	417	434	440	450	463
Army Reserve	244	235	195	213	232	257	266	275	292	311	328
Naval Reserve[b]	124	124	97	97	98	105	109	121	130	142	156
MC Reserve	47	41	30	36	37	40	43	41	42	43	44
ANG	75	89	91	96	98	101	102	105	109	111	115
Air Force Reserve	43	48	48	60	62	64	67	70	75	77	81
Total	**922**	**925**	**823**	**869**	**917**	**975**	**1,005**	**1,046**	**1,088**	**1,135**	**1,186**
Direct Hire Civilian											
Army[c]	433	367	329	312	318	321	332	344	359	352	349
Navy	416	342	311	298	310	308	328	332	342	330	330
Air Force[c]	315	280	248	231	233	235	238	240	250	249	250
Defense Agencies	75	60	71	75	79	80	81	85	91	93	98
Total	**1,239**	**1,049**	**959**	**916**	**940**	**945**	**980**	**1,000**	**1,043**	**1,024**	**1,027**

[a] Numbers may not add to totals due to rounding.
[b] Navy Training and Administration of Reserves (TARs) personnel are counted in the in the Selected Reserve from FY 1980 on. Prior to FY 1980, TAR personnel are are included in the Active Military.
[c] These totals include Army and Air National Guard technicians, who were converted from State to Federal employees in FY 1979. The FY 1968 total has been adjusted to include approximately 3,900 technicians.

Table 4

U.S. Military Personnel in Foreign Areas[a] (End-Year – In Thousands)

	FY 1968[b]	FY 1972[b]	FY 1976[b]	FY 1979	FY 1980	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985
Germany	214	215	213	239	244	248	256	254	254	247
Other Europe	67	63	61	61	65	64	67	70	73	75
Europe, Afloat	37	25	41	25	22	25	33	18	25	36
South Korea	62	42	39	39	39	38	39	39	41	42
Japan	41	21	45	46	46	46	51	49	46	47
Other Pacific	665	145	27	15	15	15	15	15	16	16
Pacific Afloat (Including Southeast Asia)	80	66	24	22	15	25	33	34	18	20
Miscellaneous Foreign	40	32	8	11	42	39	34	41	38	32
Total	**1,206**	**608**	**460**	**458**	**489**	**502**	**528**	**520**	**511**	**515**

[a] Numbers may not add to totals due to rounding.
[b] September 30 data used for consistency.

Appendix C

Table 1
Department of Defense Strategic Forces Highlights

	FY 1980	FY 1984	FY 1985	FY 1986	FY 1987
Strategic Offense					
Land-Based ICBMs[a]					
Titan	52	32	21	8	2
Minuteman	992	990	990	988	963
Peacekeeper	—	—	—	2	27
Strategic Bombers (PAA)[b]					
B-52D	75	—	—	—	—
B-52G/H	241	241	241	241	234
FB-111	59	56	56	56	52
B-1B	—	—	1	18	60
Fleet Ballistic Launchers (SLBMs)[a]					
Polaris	80	—	—	—	—
Poseidon (C-3 and C-4)	368	416	368	352	336
Trident	—	72	120	144	192
Strategic Defense					
Interceptors (PAA/Squadrons)[b]					
Active	127/7	90/5	90/5	76/4	54/3
Air National Guard	165/10	162/10	198/11	198/11	195/11

[a]Number on-line.
[b]Primary Aircraft Authorized.

Table 2

Department of Defense General Purpose Forces Highlights

	FY 1980	FY 1984	FY 1985	FY 1986	FY 1987
Land Forces					
Army Divisions:					
Active	16	16	17	18	18
Reserve	8	8	9	10	10
Marine Corps Divisions:					
Active	3	3	3	3	3
Reserve	1	1	1	1	1
Tactical Air Forces (PAA/Squadrons)[a]					
Air Force Attack/Fighter					
Active	1608/74	1734/77	1758/78	1762/78	1798/80
Reserve	758/36	852/43	864/43	876/43	894/44
Navy Attack/Fighter					
Active	696/60	616/63	734/63	758/65	782/68
Reserve	120/10	75/9	96/9	115/10	101/10
Marine Corps Attack/Fighter					
Active	339/25	256/24	324/25	333/25	334/25
Reserve	84/7	90/8	88/8	94/8	96/8
Naval Forces					
Strategic Forces Ships	48	41	43	44	45
Battle Forces Ships	384	425	435	438	446
Support Forces Ships	41	45	50	54	53
Reserve Forces Ships	6	12	14	18	23
Total Deployable Battle Forces	479	523	542	554	567
Other Reserve Forces Ships	44	24	20	22	21
Other Auxiliaries	8	10	10	10	10
Total Other Forces	52	34	30	32	31

[a] PAA—Primary Aircraft Authorized.

Table 3
Department of Defense Airlift and Sealift Forces Highlights

	FY 1980	FY 1984	FY 1985	FY 1986	FY 1987
Intertheater Airlift (PAA)[a]					
C-5A	70	70	70	70	70
C-5B	—	—	—	5	16
C-141	234	234	234	234	234
KC-10A	—	25	35	48	57
C-17	—	—	—	—	—
Intratheater Airlift (PAA)[a]					
Air Force Active					
C-130	218	218	216	216	216
C-123	64	—	—	—	—
C-7A	48	—	—	—	—
Active Navy and Marine Corps					
Tactical Support	44	44	44	44	44
Reserve Navy and Marine Corps					
Tactical Support	44	44	44	44	43
Sealift					
Ships, Active					
Tankers	21	21	26	26	24
Cargo	23	30	40	43	43
National Defense Reserve Fleet[b]	164	202	214	220	221

[a] PAA = Primary Aircraft Authorized

[b] Includes commercial dry cargo ships and the Ready Reserve force.

Appendix D

ACRONYMS

AAW:	Antiair Warfare
ABM:	Antiballistic Missile
ABS:	Air Base Survivability
AC:	Active Component
ACM:	Advanced Cruise Missile
ACMR:	Air Combat Maneuvering Range
ACS:	Artillery Computer System
ACIP:	Aviation Career Incentive Pay
ADCAP:	Advanced Capability (torpedo)
ADDS:	Army Data Distribution System
ADP:	Automatic Data Processing
ADPA:	American Defense Preparedness Association
AFAP:	Artillery-Fired Atomic Projectile
AFATDS:	Advanced Field Artillery Tactical Data System
AFQT:	Armed Forces Qualification Test
AFR:	Air Force Reserve
AFSATCOM:	Air Force Satellite Communications
AGR:	Active Guard and Reserve
AHIP:	Army Helicopter Improvement Program
AID:	Agency for International Development
AIM:	Air Intercept Missile
ALCM:	Air-Launched Cruise Missile
ALMV:	Air-Launched Miniature Vehicle
AMRAAM:	Advanced Medium-Range Air-to-Air Missile
ANG:	Air National Guard
ANZUS:	Australia-New Zealand-U.S. (treaty)
AOCP:	Aviation Officer Continuation Pay
AOE:	Multipurpose Stores Ship
APOMS	Automated Propeller Optical Measurement System
ASAT:	Antisatellite
ASPJ:	Airborne Self-Protection Jammer
ASROC:	Antisubmarine Rocket
ASW:	Antisubmarine Warfare
ASW/SOW:	ASW Standoff Weapon
ATA:	Advanced Tactical Aircraft
ATACMS:	Army Tactical Missile System
ATB:	Advanced Technology Bomber
ATF:	Advanced Tactical Fighter
ATM:	Antitactical Missile
AUTOVON:	Automatic Voice Network
AWACS:	Airborne Warning and Control System
BA:	Budget Authority
BCS:	Battery Computer System
BEA:	Bureau of Economic Analysis
BFV:	Bradley Fighting Vehicle
BICES:	Battlefield Information Collection and Exploitation System
BMEWS:	Ballistic Missile Early Warning System
C^3:	Command, Control, and Communications
C^3CM:	Command, Control, and Communications Countermeasures
C^3I:	Command, Control, Communications, and Intelligence

CDE:	Conference on Disarmament in Europe
CDIP:	Combined Defense Improvement Projects
CELV:	Complementary Expendable Launch Vehicle
CEM:	Combined-Effects Munitions
CH:	Cargo Helicopter
CHAMPUS:	Civilian Health and Medical Program of the Uniformed Services
CINC:	Commander in Chief
CIWS:	Close-In Weapon System
CNAD:	Conference of National Armaments Directors
COB:	Collocated Operating Base
COCOM:	Coordinating Committee for Multilateral Export Controls
CODES:	Computerized Deployment Execution System
COMSEC:	Communications Security
CONUS:	Continental United States
COR:	Command Operationally Ready
CORE:	Contingency Response Program
CRAF:	Civil Reserve Air Fleet
CS:	Civil Service
CSOC:	Consolidated Space Operations Center
CY:	Calendar Year or Current Year

DAIP:	Defense Acquisition Improvement Program
DARPA:	Defense Advanced Research Projects Agency
DCA:	Dual-Capable Aircraft, Defense Communications Agency
DCAA:	Defense Contract Audit Agency
DCS:	Defense Communications System
DDG:	Guided Missile Destroyer
DDN:	Defense Data Network
DDT&E:	Director, Defense Test and Evaluation
DEERS:	Defense Enrollment Eligibility System
DEIMS:	Defense Economic Impact Modeling System
DEW:	Directed Energy Weapons
DFH:	Deployable Field Headquarters
DIA:	Defense Intelligence Agency
DIPEC:	Defense Industrial Plant Equipment Center
DLA:	Defense Logistics Agency
DLC:	Direct Communications Link
DNA:	Defense Nuclear Agency
DoD:	Department of Defense
DoE:	Department of Energy
DOT&E:	Director, Operational Test and Evaluation
DPA:	Defense Production Act
DPACT:	Defense Policy Advisory Committee on Trade
DPC:	Defense Planning Committee
DRB:	Defense Resources Board
DSB:	Defense Science Board
DSCS:	Defense Satellite Communication System
DSF:	Defense Stock Funds
DSN:	Defense Switched Network
DTSA:	Defense Technology Security Administration

EC:	Electronic Combat
ECM:	Electronic Countermeasures
ECWG:	Emergency Communications Working Group
EJS:	Enhanced JTIDS System
ELF:	Extremely Low Frequency

EMP:	Electromagnetic Pulse
EMPB:	Emergency Mobilization Preparedness Board
EPA:	Environmental Protection Agency
ESF:	Economic Support Fund
EW:	Electronic Warfare
FAASV:	Field Artillery Ammunition Support Vehicle
FEMA:	Federal Emergency Management Agency
FFG:	Guided Missile Frigate
FHE:	Forward Headquarters Element
FLIR:	Forward-Looking Infrared Radar
FMC:	Fully Mission Capable
FMS:	Foreign Military Sales
FMSCR:	Foreign Military Sales Credit (Financing)
FSS:	Fast Sealift Ships
FTS:	Full-Time Support
FY:	Fiscal Year
GAO:	Government Accounting Office
GLCM:	Ground-Launched Cruise Missile
GLLD:	Ground Laser Locator Designator
GM:	General Manager
GME:	Graduate Medical Education
GMF:	Ground Mobile Forces
GNP:	Gross National Product
GPS:	Global Positioning System
GRF:	Guaranty Reserve Fund
GS:	General Schedule
GWEN:	Ground Wave Emergency Network
HARM:	High-Speed Antiradiation Missile
HEMTT:	Heavy Expanded Mobility Tactical Truck
HF:	High Frequency
HLG:	High-Level Group
HMMWV:	High Mobility Multipurpose Wheeled Vehicle
HMO:	Health Maintenance Organization
HNS:	Host Nation Support
HSDG:	High School Diploma Graduates
HTMD:	High Technology Motorized Division
I-S/A AMPE:	Inter-Service Agency Automated Message Processing Exchange
IAMP:	Imagery Acquisition and Management Plan
IAS:	Integrated AUTODIN System
IBP:	Industrial Base Program
ICBM:	Intercontinental Ballistic Missile
IEPG:	Independent European Program Group
IFF:	Identification Friend or Foe
IG:	Inspector General
IIR:	Imaging Infrared
IL:	International List
IMA:	Individual Mobilization Augmentees
IMET:	International Military Education and Training

IMIP:	Industrial Modernization Incentives Program
IMP:	Internal Management Control
INCA:	Intelligence Communications Architecture
INEWS:	Integrated Electronic Warfare System
INF:	Intermediate-Range Nuclear Forces
ING:	Inactive National Guard
IONDS:	Integrated Operational Nuclear Detonation System
IR:	Infrared
IR&D:	Independent Research and Development
IRR:	Individual Ready Reserve
IUS:	Inertial Upper Stage
JCS:	Joint Chiefs of Staff
JCSE:	Joint Communications Support Element
JLOTS II:	Joint Logistics Over-the-Shore II
JMC:	Joint Military Commission
JPMG:	Joint Political-Military Group
JSTARS:	Joint Surveillance and Target Attack Radar System
JRMB:	Joint Requirements and Management Board
JTC^3A:	Joint Tactical Command, Control, and Communications Agency
JTDE:	Joint Technology Demonstrator Engine
JT&E:	Joint Test and Evaluation
JTFP:	Joint Tactical Fusion Program
JTIDS:	Joint Tactical Information Distribution System
KEW:	Kinetic Energy Weapons
LAMPS:	Light Airborne Multipurpose System
LANTIRN:	Low-Altitude Navigation and Targeting Infrared System for Night
LAV:	Light Armored Vehicle
LCS:	Low-Cost Seeker
LCAC:	Landing Craft, Air Cushion
LF:	Low Frequency
LHX:	Light Helicopter Experimental
LOGMARS:	Logistic Applications of Automated Marking and Reading Symbols
LRINF	Longer Range Intermediate-Range Nuclear Forces
LVS:	Logistics Vehicle System
LVT:	Assault Amphibian Vehicle
MAB:	Marine Amphibious Brigade
MAF:	Marine Amphibious Force
MAP:	Military Assistance Program
MAW:	Marine Aircraft Wing
MBFR:	Mutual and Balanced Force Reductions
MC:	Mission Capable, Military Committee
MCC:	Military Coordinating Committee
MCE:	Modular Control Equipment
MCS:	Maneuver Control System
MCTL:	Military Critical Technology List

MFO: Multinational Forces and Observers
MiG: Mikoyan-Gurevich (aircraft)
MILCON: Military Construction
Milstar: Military Strategic and Tactical Relay System
MIP: Model Installation Program
MIRV: Multiple Independently-Targetable Reentry Vehicle
MLRS: Multiple-Launch Rocket System
MMMTF: Mobilization Materiel Management Task Force
MMP: Master Mobilization Plan
MMWG: Military Mobilization Working Group
MNC: Major NATO Commander
MOA: Memorandum of Agreement
MOB: Main Operating Base
MOU: Memorandum of Understanding
MP: Military Personnel
MPS: Maritime Prepositioning Ship
MR: Marginally Ready
MRT: Miniature Receiver Terminal
MSE: Mobile Subscriber Equipment
MSO: Military Service Obligation
MT: Military Technician
MTIAC: Manufacturing Technology Information Analysis Center
MTT: Mobile Training Team
MULE: Modular Universal Laser Equipment

NADC: NATO Air Defense Committee
NAF: Nonappropriated Fund
NAMSA: NATO Maintenance and Supply Agency
NATO: North Atlantic Treaty Organization
Navstar: Navigation Satellite Timing and Ranging
NCA: National Command Authorities
NCS: National Communications System
NCCS: Naval Command and Control System
NDS: Nuclear Detonation Detection System
NEACP: National Emergency Airborne Command Post
NEARTIP: Near-Term Improvement Program (for MK-46 torpedo)
NFIP: National Foreign Intelligence Program
NIS: NATO Identification System
NJCEC: NATO Joint Communications-Electronic Committee
NMCC: National Military Command Center
NORAD: North American Aerospace Defense Command
NPG: Nuclear Planning Group
NPS: Nonprior Service
NRF: Naval Reserve Fleet, Naval Reserve Force
NSA: National Security Agency
NSDD: National Security Decision Directive
NSEP: National Security and Emergency Preparedness
NTPF: Near-Term Prepositioning Forces
NTU: New Threat Upgrade

O&M: Operation and Maintenance
OJCS: Organization of the Joint Chiefs of Staff
OMB: Office of Management and Budget
OSD: Office of the Secretary of Defense
OSIS: Ocean Surveillance Information System
OTH: Over-the-Horizon
OTH-B: Over-the-Horizon Backscatter (radar)

P^3I:	Preplanned Product Improvement
PARCS:	Perimeter Acquisition Radar Attack Characterization System
PAVE PAWS:	Phased-Array Radars
PCS:	Permanent Change of Station
PECI:	Productivity Enhancing Capital Investment
PEP:	Productivity Engineering and Planning, Plant Equipment Package
PGM:	Precision Guided Munitions
PIF:	Productivity Investment Fund
PLRS:	Position, Location, and Reporting System
PLSS:	Precision Location Strike System
POL:	Petroleum, Oil, and Lubricants
POMCUS:	Prepositioning of Materiel Configured to Unit Sets
PRC:	People's Republic of China
QOL:	Quality of Life
R&D:	Research and Development
RAM:	Rolling Airframe Missile
RAMS:	Radar Target Scattering Advanced Measurement System
RC:	Reserve Component
RDSS:	Rapidly Deployable Surveillance System
RDT&E:	Research, Development, Test, and Evaluation
ROK:	Republic of Korea
RPV:	Remotely Piloted Vehicle
RRF:	Ready Reserve Force
RSI:	Rationalization, Standardization and Interoperability
RSP:	Red Switch Project
S&T:	Science and Technology
SA/BA:	Systems Analysis/Battle Management
SAC:	Strategic Air Command
SALT:	Strategic Arms Limitation Treaty
SAM:	Surface-to-Air Missile, Sea Air Mariner
SASC:	Senate Armed Services Committee
SATKA:	Surveillance, Acquisition, Tracking and Kill Assessment
SBIR:	Small Business Innovative Research
SCG:	Special Consultative Group
SCP:	Secure Conferencing Project
SDAF:	Special Defense Acquisition Fund
SDI:	Strategic Defense Initiative
SDIO:	Strategic Defense Initiative Organization
SEAL:	Sea-Air-Land
SE&I:	Systems Engineering and Integration
SF:	Special Forces
SHORAD C^2:	Short-Range Air Defense Command and Control
SINCGARS-V:	Single-Channel Ground and Airborne System, VHF
SLBM:	Submarine-Launched Ballistic Missile
SLC:	Submarine Laser Communications
SLCM:	Sea-Launched Cruise Missile
SLEP:	Service Life Extension Program
SKLT:	Survivability, Lethality, and Key Technologies
SLOC:	Sea Line of Communications
SM:	Standard Missile
SNF:	Short-Range Nuclear Forces

SOF:	Special Operations Forces
SR:	Substantially Ready
SRAM:	Short-Range Attack Missile
SSBN:	Ballistic Missile Submarine, Nuclear-powered
SSGN:	Cruise Missile Submarine, Nuclear-powered
SSN:	Submarine, Nuclear-powered
SSATS:	Surface Shp Advanced Sonar
STARS:	Software Technology for Adaptable Reliable Systems
START:	Strategic Arms Reduction Talks
Su:	Sukhoy (aircraft)
SUBACS:	Submarine Advanced Combat System
SUBROC:	Submarine Rocket
SURTASS:	Surveillance Towed-Array Sonar System
SVIP:	Secure Voice Improvement Program
SVS:	Secure Voice System
SWA:	Southwest Asia
SWS:	Special Warfare Systems

T&E:	Test and Evaluation
TACAMO:	Airborne Strategic Communications System
TACS:	Auxiliary Crane Ship
TACSI:	Tactical Air Control System Improvements
TACTAS:	Tactical Towed-Array Sonar
TAOC:	Tactical Air Operations Center
TARPS:	Tactical Air Reconnaissance Pod System
TCAC:	Technical Control and Analysis Center
TDAC:	Training Data and Analysis Center
TDRS:	Tracking and Data Relay Satellite
TFW:	Tactical Fighter Wing
TGSM:	Terminally Guided Submunition
TIAP:	Theater Intelligence Architecture Program
TIARA:	Tactical Intelligence and Related Activities
TOA:	Total Obligational Authority
TOW:	Tube-Launched Optically-Tracked Wire-Guided (antitank missile)
TRAM:	Target Recognition Attack Multisensor
TRI-TAC:	Joint Tactical Communications Program
TSPI:	Time Space Position Instrumentation
TWG:	Technical Working Group

UHF:	Ultrahigh Frequency
UNITREP:	Unit Status and Identify Report
USCENTCOM:	United States Central Command
USCINCCENT:	Commander in Chief, United States Central Command
USCINCEUR:	United States Commander in Chief, European Command
USCINCLANT:	Commander in Chief, United States Atlantic Command
USCINCPAC:	Commander in Chief, United States Pacific Command
USCINCSOUTH:	United States Commander in Chief, Southern Command
USSR:	Union of Soviet Socialist Republics

VA:	Veterans' Administration
VHA:	Variable Housing Allowance
VHF:	Very High Frequency
VHSIC:	Very High Speed Integrated Circuit
VLA:	Vertical Launch ASROC

VLF:	Very Low Frequency
VLS:	Vertical Launch System
VLSI:	Very Large Scale Integration
V/STOL:	Vertical/Short Take-off and Landing

WARMAPS:	Wartime Manpower Planning System
WHNS:	Wartime Host Nation Support
WIS:	WWMCCS Information Systems
WWMCCS:	Worldwide Military Command and Control System